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## Research Report

# The role of agriculture in Central and Eastern European rural development: engine of change or social buffer?

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Studies on the Agricultural and Food Sector  
in Central and Eastern Europe

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in Central and Eastern European Rural Development:  
Engine of Change or Social Buffer?**

Edited by  
Martin Petrick and Peter Weingarten



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This volume of proceedings, available both as hard copy and pdf <[http://www.iamo.de/dok/sr\\_vol25.pdf](http://www.iamo.de/dok/sr_vol25.pdf)>, is an edited compilation of selected contributions to the *IAMO Forum 2004*, which will be held in Halle (Saale), Germany, at the Institute of Agricultural Development in Central and Eastern Europe from 4 to 6 November 2004.

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Halle (Saale), October 2004

*Martin Petrick and Peter Weingarten*





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## THE ROLE OF AGRICULTURE IN CENTRAL AND EASTERN EUROPEAN RURAL DEVELOPMENT: AN OVERVIEW

MARTIN PETRICK, PETER WEINGARTEN\*

### ABSTRACT

Building on existing models for the role of agriculture in industrialised and developing countries, this chapter examines a number of critical aspects of agriculture's role in Central and Eastern European (CEE) rural development. By reviewing the contributions of this proceedings volume, we focus on the perspectives of small farms, rural factor markets, the impact of the common socialist past, rural poverty, cooperation and social capital, non-traditional development paths for agriculture, and consequences for policy design. Among the findings are that land rental and partly also labour markets in CEE are increasingly capable of fostering differentiation processes even in countries with initially very homogenous farm structures. Non-traditional functions of agriculture, such as farm tourism or energy crops, have usually not passed an experimental stage of implementation. There is a broad consensus that agricultural policy reforms should be pursued further in the direction of a more territorial rural development policy.

**Keywords:** structural change in agriculture, rural development policy, Central and Eastern Europe.

### 1 INTRODUCTION

“When comparing rural and urban areas, the former are often associated with high environmental values, but even more with a backwardness in terms of income and employment opportunities, the migration of young, skilled people and a low population density. ... Often stated reasons for this backwardness are the lack of agglomeration advantages, the low endowment with infrastructure and human capital, as well as the effects of structural changes in the economy towards a growing importance of services and globalisation... In addition to these problems, which are characteristic for rural areas in many regions of the world, those in Central and Eastern Europe have also had to cope with the transition from the socialist central planning systems towards a democratic society and a market economy.” (NETWORK OF INDEPENDENT AGRICULTURAL EXPERTS IN THE CEE CANDIDATE COUNTRIES 2004, p. 1).

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Since the beginning of transition income disparities between rural and urban areas have increased in CEE (see e.g. BAUM and WEINGARTEN 2004 for the new EU member states and PETRIKOV (in this volume) for Russia). However, despite some common features, rural areas cannot be considered homogeneous. They are much more heterogeneous than a generalised comparison with urban areas might indicate and have specific characteristics which can differ within a country and even more across countries.

Which role does or should agriculture play in Central and Eastern European rural development? Throughout the transition process<sup>1</sup>, researchers and advisors have implicitly or explicitly looked for a ‘model’ that serves as a guideline for policy actions concerning agricultural and rural development. In the new member states of the EU and the current candidate countries, thinking about structural development of agriculture has been strongly influenced by the ongoing policy discourse of the EU. This discourse is built around the notion of a ‘*European Model of Agriculture*’, endorsed by the European Council in 1997. The major components of this model are as follows (EUROPEAN COMMISSION 2004):

- “a modern and competitive farming sector, capable of occupying a leading position on the world market, while safeguarding domestic producers' living standards and income;
- a sustainable, efficient farming sector that uses hygienic, environmentally friendly production methods and gives consumers the quality products they desire;
- a farming sector that serves rural communities, reflecting their rich tradition and diversity, and whose role is not only to produce food but also to guarantee the survival of the countryside as a place to live and work, and as an environment in itself;
- a simplified agricultural policy, where the lines are clearly drawn between what is decided at Community level and what is the responsibility of the Member States.”

The European Model of Agriculture can thus be understood as an attempt to outline a benchmark or a target situation, which finds a balance between efficient and sufficiently profitable farming structures, the achievement of certain standards with regard to product and environmental quality, the embedding of farming in rural society, and a simple and transparently administered policy. It seems uncontroversial that these have been among the most intensively discussed issues of agricultural policy reform in the EU. With accession to the EU, it is

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<sup>1</sup> For an analysis of “Success and Failure of Reform: Insights from the Transition in Agriculture” in CEE as well as Asian transition countries see ROZELLE and SWINNEN (2004).

likely that they will become more and more central to the debate on agricultural development also in the EU new member states and candidate countries.

However, the European Model of Agriculture does not say anything about how to reach the target situation from the diverse starting points present in CEE. In particular, it is silent about a problem that has been of key relevance for many CEE countries since the implementation of post-socialist privatisation and restructuring policies<sup>2</sup>: the fact that a large share of the rural population lives on small farms which, even in national comparison, yield very low incomes and hardly provide a sustainable livelihood. These farms often display a low degree of market integration, and farm households frequently depend on public transfers as a major income source. In several countries, subsistence and semi-subsistence agriculture is the result of redistributive land reforms after the demise of socialism, for example in Albania or Georgia, in others it has the form of household plots subsidiary to the former collective farms, as in Russia or Ukraine, and in yet others a small-scaled farm structure already existed prior to transition, as in Poland or former Yugoslavia. Economic restructuring and labour shedding in the course of transition often made these subsistence and semi-subsistence farms functioning as a “social buffer” of labour force that had become obsolete in other parts of the economy. In various countries, former employees of state companies have migrated into rural areas to secure a minimum livelihood from a plot owned by themselves or their family members.

Under these circumstances, which *cum grano salis* are the more characteristic the more Eastern and South-eastern the countries are, agricultural development serves as a poverty alleviation strategy, and several researchers have considered the experience of (former) developing countries as being relevant for the design of appropriate policies in some CEECs. It seems therefore useful to contrast the European Model of Agriculture with a *development* strategy for agriculture, one that accounts for the need to improve the income levels of a large number of small cultivators in agriculturally dominated rural areas. Following TOMICH et al. (1995), this strategy has proven successful in countries such as Japan and Taiwan and is supported by a number of positive experiences in developing countries. In the terminology of TOMICH et al., the approach can be labelled a ‘*Broad-based, Unimodal Strategy*’. Given the observation that small farms in developing countries are often more productive in terms of output per hectare than large farms, this strategy suggests a development path that covers the broad majority of small farms without favouring particular types of large operators (hence, ‘unimodal’). It can be described by “the ‘Six I’s’ of agricultural strategy”, outlined as follows (TOMICH et al. 1995, pp. 166-177):

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<sup>2</sup> See LERMAN et al. (2004) for an overview on privatisation and restructuring policies in agriculture.

- *Innovations and inputs.* The authors argue that the key to productivity increases on small farms are appropriate national research programmes in agriculture, coupled with effective extension systems. A research bias towards certain types of farms should be avoided, instead emphasis should be put on divisible inputs which are useful for small farms. The authors stress that productivity increases for the broad majority of farms will also secure political support for this strategy.
- *Incentives.* This point can be summarised by the imperative to “get prices right”, i.e. a broadly market liberal position. Where markets fail, government intervention may be justified. However, intervention should be focused on improving markets rather than replacing them by government bureaucracies.
- *Infrastructure.* As long as infrastructure is a public good or cannot be financed by the private sector, this is one of the classical tasks of government. In particular, it has the potential to mitigate commodity and factor market imperfections. According to TOMICH et al., an important caveat in infrastructure development is whether maintenance expenses can be covered on a sustainable basis.
- *Institutions and initiative.* The authors emphasise that a balance between public intervention and private initiative is crucial for the design of local institutions. They tend to recommend that property rights should be secured, for example by land registration, and that institutional shortcomings of factor markets should be addressed. However, TOMICH et al. concede that institutional design is very much related to the local social and cultural environment, for example the role of local elites. In many countries, such as USA or Japan, an active civil society in rural regions has contributed significantly to the development of agriculture.

With regard to other sectors, TOMICH et al. argue that a Broad-based, Unimodal Strategy in agriculture also strengthens the rural non-farm economy, in particular by increasing the demand for domestically produced (consumer) goods. They state that “the size distribution of farms is the major determinant of the composition of intersectoral commodity flows” (p. 413). The authors therefore recommend a Broad-based, Unimodal Strategy also for the rural non-farm sector, where the ‘Six I’s’ are equally relevant.

The European model of agriculture propagated by the EU and the Broad-based, Unimodal Strategy of TOMICH et al. are both helpful when looking at agriculture and rural development in CEE. However, they are not directly comparable: the former tends to describe a target situation for agriculture in industrialised market economies and seems at least partly to serve as a justification for state support to the agricultural sector, whereas the latter is more a strategy how to improve productivity and market orientation of (small-scaled) agriculture and the socio-economic situation in rural areas of developing countries. Neither is it clear that



a Broad-based, Unimodal Strategy leads to an agricultural sector akin to the European Model of Agriculture, nor do both address an identical set of aspects. Whereas the Broad-based, Unimodal Strategy is very much process-oriented, it does not cover issues central to the European Model of Agriculture, such as environmental and product quality. The reason is that the latter are very much related to non-agricultural development of society, such as overall economic performance, income levels, consumer tastes, etc. But it seems undeniable (and can be documented by the subsequent contributions in this monograph) that both the European Model of Agriculture and the Broad-based, Unimodal Strategy have been stimulating concepts in the debate and have often been implicit or explicit guidelines for analysis. We therefore use these two approaches to set the stage for the discussion of the role of agriculture in CEE rural development as reflected in the following chapters of this volume. Our aim is not to present a fully balanced review of each of the chapters. We rather wish to concentrate on a number of aspects that we regard as critical for future development of the agricultural sector and its role for rural development in CEE and which mark different locations on the stage defined by the European Model of Agriculture and the Broad-based, Unimodal Strategy. By doing this we also aim to give an overview on this volume of proceedings.<sup>3</sup>

## **2 ROLE AND DEVELOPMENT PERSPECTIVES OF SMALL FARMS**

One of the most crucial and controversially debated questions of agricultural development in CEE concerns the role of small farms in this process. The contributions of BLAAS and of GALLERANI, KRYPA, RAGGI, SAMOGGIA, and VIAGGI focus on small-scaled subsistence farms in CEE countries as different as the new EU member state Slovakia and Albania, one of the poorest countries in Europe. As BLAAS' paper shows, self-supply of goods produced and consumed by the agricultural household are of minor importance in Slovakia compared with most of the other CEE countries. However, for some low-income rural households, food self-supply has significantly contributed to securing their livelihood. BLAAS also demonstrates that the degree of rurality is a more important determinant of subsistence than geographical patterns or the rate of unemployment in respective districts. Taking the ratio of unregistered individual farmers to the total number of households as a proxy, rural regions in Slovakia have a higher density of subsistence farms than semi-rural and urban districts.

This does not mean, of course, that subsistence farms are a homogenous group. GALLERANI et al. found two distinct patterns of farm development to be present in their Albanian case study, based on a survey of farms carried out in 1998 and 2003. On the one hand, a group of farms was primarily devoted to production

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<sup>3</sup> In the following, the authors of the chapters of this book are quoted without year.

for self consumption, while the household strategy was oriented outside the farm and reliant on remittances from household members working abroad or on non-agricultural incomes. On the other hand there were farms developing cash crops cultivation with clear strategic aims, in particular with regard to fruit and vegetable production. According to GALLERANI et al., these products appear more suitable for the creation of local market circuits and less dependent on industrial transformation. Other relevant cash products were eggs and milk on farms investing in livestock production

The findings from Albania highlight a fundamental problem with the Broad-based, Unimodal Strategy. Experience in many Western European countries has shown that farm development usually involves a strong differentiation into growing and modernising farms on the one side and shrinking, often part-time cultivated farms or running out farms on the other. However, a necessary precondition for the functioning of this mechanism is the existence of a (partial or complete) exit option for farmers. In growing economies, this is usually provided by an industrial or service sector which absorbs redundant labour force from agriculture (TIMMER 1988). However, given the difficult economic environment for unskilled labourers in most of the CEE countries, this option is frequently missing. As the Albanian example demonstrates, labour migration abroad might be the only alternative for rural households if they cannot secure an at least minimum livelihood from agriculture or local non-agricultural sources.

Even so, the potential for alleviating poverty on a broad basis is one of the major arguments in favour of the Broad-based, Unimodal Strategy. Therefore, several authors in this volume have argued to pursue such a strategy. As REVISHVILE and KINNUCAN set out, the development history of countries such as Mexico, Brazil and Columbia suggests that a bimodal structure consisting of a small number of large landowners and a large number of small peasant farms is not conducive to poverty reduction or sustainable economic growth. In contrast, Taiwan and Japan, countries with limited land resources, have succeeded in the elimination of rural poverty. Their development strategy resulted in small operational units and yet permitted both labour-using and land-saving productivity growth. REVISHVILE and KINNUCAN therefore recommend a similar strategy for Georgia, where over half of the population lives below the poverty line. According to the authors, privatisation after independence resulted in 772 thousand rural and 338 thousand urban households receiving only 690 thousand hectares of land. Hence, the evolving farming structure was extremely small-scaled: in 2003, the average peasant holding was 0.9 ha. REVISHVILE and KINNUCAN suggest that policies are needed which foster productivity growth in the small-scale peasant sector. Against the Georgian background, they propose the establishment of an effective system of localised extension services as the most important step in this direction.

Productivity growth as a strategy to foster broad-based development of Russian private household plots (PHP) is also recommended by RODIONOVA. She argues that the potential of PHPs to alleviate rural poverty has not yet been exhausted and that it is essential to improve their access to local and urban markets as well as to improve the supply of affordable small agricultural machinery. According to the author, many PHP-owners could increase their production volumes by increasing labour intensity were they provided better marketing opportunities. RODIONOVA sees an additional value for society in supporting PHPs: She is convinced that “the role of PHPs should not be limited to the volume of their production nor to being a survival strategy in times of economic crisis. Labour agility and sole proprietors’ skills obtained through PHP-related activities, as well as environmental friendliness, enable the national folk culture to be retained and allow valuable historical and cultural landscapes to be maintained. Therefore, PHPs should be supported even if their share of total agricultural production decreases.”

A quite different position is taken by ŹMIJA and TYRAN in their study of south-eastern Poland: they do not concede agriculture any positive development role at all. During socialism, many rural households in Poland were actually worker households with a small farm cultivated in their spare time, so-called ‘farmer-workers’. Based on the argument that small farms had never been a sole or even major income source for these rural households, ŹMIJA and TYRAN see the only solution to the problems of low rural incomes and hidden unemployment in the creation of non-agricultural jobs. As a guideline they recommend a multifunctional rural development based on the entrepreneurial spirit of local communities and individuals. Eventually, this might lead to the emergence of (few) profitable agricultural enterprises. Overall, their recommendations display some similarity to the European Model of Agriculture.

In summary, there seems to be no general answer to the question which role small farms should play in rural development. The specific socio-economic, cultural, and historical background suggests development paths that are specifically tailored to the region or country at hand.

### **3 FUNCTIONING OF AGRICULTURAL FACTOR MARKETS**

At the core of structural change are the markets for agricultural factors, in particular land, labour and capital. If these markets were functioning perfectly, there were no income disparity in agriculture versus other sectors of the economy and actual farm sizes were determined by technology differences only. On the other hand, factor market imperfections have been cited as reasons for varying farm-size productivity relationships, which in turn has implications for the desirable farm size in agriculture (BINSWANGER et al. 1995). The question there-

fore emerges to what extent real-world factor markets in CEE comply with the theoretical model.

SARRIS, SAVASTANO, and TRITTEN start with an investigation of the hypothesis that the farm-size productivity curve in CEE is inverse, as suggested by empirical work from various developing countries (BERRY and CLINE 1979). Based on survey data, they test for the inverse relationship between farm size and output per hectare for five CEE countries (Albania, Romania, Bulgaria, Slovak and Czech Republics). Their findings reject the inverse relationship in all tested countries. The authors further explore whether there are credit market imperfections, and whether they operate in a differential way between different sized farm households. The empirical results support the hypothesis that there are indeed financial constraints among farmers in CEE countries, and that these constraints seem to operate more tightly for smaller farmers. A further finding is that the shadow prices of capital and labour are related to farm size in a way that suggests some form of polarisation.

Single factor markets are investigated in more detail by several authors in this volume. DANIŁOWSKA presents an analysis of the Polish credit market, which has been characterised by massive government intervention since the beginning of transition. Whereas DANIŁOWSKA does not focus on credit access of different types of farms, she stresses the important role of cooperative banks for credit delivery in Poland. Banks can be regarded as an institutional solution to credit market imperfections, which are particularly acute in agriculture. This has been a reason for several governments to become active on rural credit markets. According to DANIŁOWSKA, Poland is an example where government intervention in the form of interest subsidies has almost completely eliminated the market mechanism. This meant substantial implicit transfers to farmers, which came at the cost of a high dependence of farmers on political influence. It should be added that, according to PETRICK (2004), it did not overcome credit rationing of small farms either, which is support of the finding by SARRIS et al. for the case of Poland.

The contribution by HORSKÁ, SPĚŠNÁ, DRLÍK, KOUTNÝ, and RATINGER on rural labour markets in the Czech Republic can be read as an implicit criticism of the equilibrium approach taken by SARRIS et al. According to HORSKÁ et al., there is only a seeming gap between wage rates in agriculture and the rest of the economy. The authors' empirical research among rural women in the Czech Republic indicates that agricultural income is supplemented by non-monetary benefits from staying in one's own house and cultivating a plot, having a job in one's living place and benefits from the local social environment, e.g., mutual help of neighbouring families, etc. Furthermore, wage differentials are supposed to reflect transaction costs which arise when agricultural workers find work in other sectors. HORSKÁ et al. expect that increased opportunity costs of agricultural la-

bour will induce an increase of agricultural wages and the overall improvement of income of farm households in the future (both employees and self-employed), which will also require a higher labour productivity in agriculture.

CIMPOIEȘ and BALTAG investigate land lease relationships in Moldova. The agricultural sector in this country is characterised by a large number of peasant farms which emerged during the 1990's as a result of hesitant restructuring of former state farms. Similar to Georgia, these peasant farms hardly allow to make a sufficient living from agriculture alone (PETRICK 2000). CIMPOIEȘ and BALTAG show the increasing and now major importance of land lease in Moldova. Demographic effects – many pensioners are no longer able to cultivate their plot – as well as the insufficient mechanisation of small farms led to an increasing willingness to lease out land and thus a re-emergence of large scale farms, now as corporate entities. Commercial farms larger than 100 ha are currently the major lessees. The dominating contractual form is short-term with in-kind payment.

Overall, the results suggest that the theoretical notion of factor markets equalising marginal productivities of labour, land and capital with assumedly constant factor prices is not consistent with empirical findings from CEE countries. Observed imbalances might be the result of market imperfections, government intervention, or measurement problems. However, CIMPOIEȘ and BALTAG show that even under adverse economic conditions, a privately operated land lease market can result in structural change in the agricultural sector and the deliberate exit from active farming.

#### **4 SOCIALIST HERITAGE: GOOD OR HARM?**

Although agricultural development models from the EU or developing countries can serve as important guidelines for CEE, it is clear that a specific characteristic of this region is the common past, reflected in a socialist doctrine that was –with slight differences – present in all countries. In the turmoil of the first years of transition, it seemed that most structures of the former system were ill-adapted to the challenges of a market economy and simply regarded as being obsolete. Today it is increasingly appreciated that a differentiated view is more appropriate. For example, in those countries which preserved the large-scale farming structures of the collectivist era, agriculture turned out to be more tailored to global competition than in countries where substantial restructuring into small (subsistence) farms took place. BEZLEPKINA, HUIRNE, OUDE LANSINK, and OSKAM and FOCK analyse these large farms with regard to Russia and Eastern Germany. Furthermore, as HANN illustrates, there is some evidence that socialism in Hungary even allowed specific regional development processes to evolve that were perhaps too hastily interrupted in the course of transition.

BEZLEPKINA et al. explore the determinants of varying economic performance of Russian dairy farms in the Moscow region. In particular, they assessed the rele-

vance of historical characteristics for today's economic outcomes. Their results reveal that the currently most successful enterprises were those which had already shown better economic performance in pre-reform years. These farms also displayed smaller resource losses, had no severe debt problems, and a better overall management. Due to the specific policy design, the best-performing farms were also those which received the largest share of subsidies.

The relationship between farming, which is dominated by large arable farms, and rural development in the East German State Mecklenburg-Western Pomerania is analysed by FOCK. According to the author, the role of agriculture and agribusiness in this area is rather untypical compared with other regions. As a result of massive technology inflow and government support after German reunification, the agri-food sector is highly productive and competitive. At the same time, due to the decline of non-farm rural industries, the economic and social environment is very weak. The links to other economic activity in the region are well-developed in trading, simple service activities and first processing stages, whereas other value-adding processes take place outside the area studied. Recent years showed the emergence of a somewhat strange situation: on the one hand, farms have difficulties in acquiring farm workers, whereas on the other hand unemployment rates are regionally at 20 percent and above. FOCK concludes that the lack of labour in a rural society with high unemployment is a situation that is not yet sufficiently understood.

Both the contributions by BEZLEPKINA et al. and FOCK demonstrate that structures which emerged during the socialist period have the potential for competitive development in a market environment. Opposed to that, HANN argues that transition in Hungary has wrecked positive rural development effects under socialism.

HANN presents an historical account of the significance of wine production in a region of south-central Hungary. He shows that this sector was a major beneficiary of 'market socialism', because locally produced wines could serve a certain lower quality market segment due to the efficiency of informal distribution networks and low levels of taxation and enforcement by the state. However, according to HANN, this particular success led to substantial adjustment problems in the course of market transition and EU accession. The author suggests that this case exemplifies a generally underappreciated dimension of collectivisation: its success in incorporating previously underdeveloped regions into a national system, which led to a significant rise of living standards of local residents. The demise of this system implied a renewed marginality for large numbers of people who might otherwise have left the countryside altogether. HANN argues that during Hungarian socialism, larger populations were left resident in the countryside than was usual in the industrialisation paths followed by most Western countries. He finally points out that many rural residents experienced modernisa-

tion and even ‘embourgeoisement’ without being uprooted from their homes in the countryside.

## **5 RURAL POVERTY**

During transition, poverty has become a severe problem for many in Central and Eastern Europe, particularly in rural areas. In particular former state farm workers were hit hard by labour shedding in the course of transition, making them one of the major groups of losers of market reforms. Northwestern Poland is a prime example (MILCZAREK 2002), but similar processes have taken place in other countries as well. Widespread poverty could only be avoided where massive governmental support of public social security systems could secure a certain income level, as has been the case in Eastern Germany.

As GREIF shows for the new CEE EU-member states plus Romania and Bulgaria, the degree of poverty differs among and within these countries. Based on the three parameters agricultural employment, unemployment rate, and rural income level, he assesses the regional likelihood of rural poverty. According to his findings, there is little evidence of rural poverty in most parts of the Czech Republic, western Slovakia, western Hungary and Slovenia, as these are more or less economically-consolidated territories. Rural poverty is much more likely in the Slovak Republic’s central and northeastern regions, southeast and northeast Hungary, and Estonia. High shares of rural poverty in Poland are regionally widespread, and also cover great parts of Lithuania and two-thirds of Latvia. Very high shares of rural poverty exist in eastern Latvia, eastern Poland and Bulgaria, with the exception of the country’s southwestern oblast (region of Sofia). A general tendency appears to be that poverty increases the further east a region is located.

Against this background, GALUSHKO and VON CRAMON-TAUBADEL address the important question how productivity increases on large-scale farms affect rural poverty. Their econometric estimates for Ukraine reveal several pathways how total factor productivity (TFP) growth contributes to mitigate poverty: on the one hand in the form of increased real earnings from agricultural activities, reduced prices for agricultural commodities, and thus increased entitlement of the poor to food and, on the other, in the form of increased employment of skilled workers. At the same time, the authors show that TFP growth and poverty alleviation involve trade-offs: TFP growth enhances the disparities between the richest and the poorest and reduces employment of unskilled labour. Due to these trade-offs, the poverty reduction resulting from TFP growth was only marginal, within two years a 1% rise in TFP decreases the incidence of rural poverty by 0.06%.

## 6 COOPERATION AND SOCIAL CAPITAL

Institutions and initiative, the last two 'I's' of the Broad-based, Unimodal Strategy, play a particular role for the formation of cooperation as a form of self-help in rural areas. On the one hand, the institution of cooperation was discredited in most CEE countries due to its misuse by the socialist regimes. On the other hand, sociological studies show that successful cooperation critically depends on the initiative of the affected individuals and their willingness to contribute to their development (MÜLLER 1994). Cooperations that were imposed by external forces, for example the government, rarely turned out to be sustainable.

BALINT investigates to what extent institutional arrangements that inhibit farm development in Romania could be improved by way of cooperation. Her first result is that high transaction costs emerging as a consequence of inadequate restructuring of input and output markets, reinforced by the small size of the individual farms, and an insufficient factor endowment hinder commercial orientation. Furthermore, the findings reveal that most of the surveyed households reject cooperation, which could be a modality of reducing transaction costs, due to a lack of cooperative tradition and spirit in certain regions and due to the negative experiences of formal cooperation from the time of socialism and transition.

In recent years, the concept of 'social capital' has attracted considerable attention by development researchers. There are varying definitions of social capital, but the protagonists of this concept generally aim at an increasing awareness of the positive effects social relations can have on economic development. Usually, social capital includes some form of trust and cooperation.

Obviously, there is no unequivocal measure for social capital. As an indicator for social capital, the number of public organisations is frequently employed. PELSE uses this to assess the social capital of Latvian rural residents. According to her, there is a tight positive correlation between GDP per capita and the number of public organisations in a country. In Latvia, the number of public organisations and their members is closely connected with political regimes. For example, a rapid increase in the number of public organisations was observed during Latvia's independence before World War II and after Latvia regained its independence. However, the author notes that Latvian farmers are not aware of social capital as an economic success factor. She supposes that their way of farming is oriented towards the activity as a process. Only owners of well-developed farms are considered to regard public activities as important for their businesses and therefore use these activities deliberately.

VALENTINOV, MATSIBORA, and MALIK use social capital theory for the explanation of economic organisation in agriculture and test this theory with Ukrainian farm-level data. Their central hypothesis is that different organisational forms exhibit a different and theoretically predictable social capital-dependence. The empirical investigation indeed revealed the existence of differential social capi-



tal-dependencies of organisational forms, as well as a significant correlation between enterprise-level social capital and a number of organisational parameters, such as employee satisfaction, effectiveness of governance process, and the extent of non-profit activities. As the authors point out, the results, however, are not fully consistent with the predictions of the proposed theory in two respects: first, the organisational forms with highest social capital-dependence turned out to be partnerships and joint stock companies rather than cooperatives and second, community-level social capital turned out to be only weakly correlated with the extent of community-oriented non-profit activities of enterprises located in the respective communities.

## **7 NON-TRADITIONAL DEVELOPMENT PATHS FOR AGRICULTURE**

Intensified structural change as a result of increased pressure on farm incomes has led to a notable drop in the number of full-time farms in the EU over recent decades. As the traditional production of 'food and fibre' alone often does no longer guarantee a sufficient income for operators, alternative sources have been sought. Two frequently mentioned options where agriculture could serve as an 'engine of change' are farm tourism and the cultivation of energy crops. However, new employment opportunities can also be created by raising the value added in rural areas, for example as the result of foreign direct investment (FDI) in upstream or downstream industries. Finally, it is increasingly discussed what the benefits of new information technologies for rural areas could be, for example with regard to new business opportunities or education. The relevance of these issues for CEE rural development are examined in the following.

BOJNEC investigates the potential for farm tourism for the case of Slovenia. The pro's of farm tourism are that, by using existing farm capacities, farm tourism is inexpensive to set up and provides alternative accommodation facilities for different tourist demands such as social, heritage, green and eco-tourism. Currently, however, farm tourism in CEE is of little importance as compared to countries such as Austria, where tourist farms play an important role in employment and in income generation of agricultural households. According to BOJNEC, the challenges of farm tourism development should not be understated: experiences in Austria have shown that appropriate organisation at the regional and local levels for conducting product development, joint promotional and marketing activities and investment support are crucial for a successful establishment of this sector. Education and training in rural areas for farmers, as well as broader citizens' networks to create an appropriate investment and business climate, and to improve tourist services are other important issues. The author stresses that target customer groups require a tailored marketing approach. The entrepreneurial spirit and initiative have to come from farmers and other people living in rural areas. Networking, organisation, a critical volume of business and

local factors in the tourist markets, as well as the innovativeness and quality of tourist services on the farm are crucial for farm holidays. In summary, farm tourism is thus a prime example for the relevance of innovation, infrastructure, institutions and initiative for rural development.

The possible benefits of biomass production in rural Poland for the purpose of energy generation is explored by SENCZYSZYN and BRELIK. The authors argue that biomass energy utilisation will help to reduce the dependence on coal and imported gas and will have positive ecological effects. Second, it will help farmers to productively use hitherto idle cropland and will boost rural economies by developing new local industries in the downstream sector, for example manufacturers of hard wood pellets or briquettes. According to SENCZYSZYN and BRELIK, a first power station in northwestern Poland which is fuelled by energy crops has started operation on an experimental basis. They expect that the project will possibly help foster the development of a biofuel or biomass industry and hence provide an alternative crop for farmers in the area.

The determinants of the regional distribution of FDI in CEE and their effects are analysed by JANSIK for the Visegrad countries. Foreign investors have acquired high shares in the food industries. However, from a rural development perspective, the determinants of regional choice are rather disappointing. The proximity to concentrated consumer markets (metropolis) seems to be more decisive than the proximity to the agricultural producers. Another important determinant is the location of the formerly existing food processing facilities. According to this author, it would be unrealistic to expect that the food industry in particular alone would provide a remedy for the problems of underdeveloped rural areas. JANSIK stresses that foreign investors in the food industry will not make miracles, however, he is convinced that once they are settled in a region, they definitely make important contributions to increase the region's economic wealth in the long run. As a consequence, JANSIK recommends a multiple strategy: underdeveloped rural areas will have to find alternative sources of income, alternative ways to develop and other industries and services that together are capable of dragging them out of their current status. He concludes that the agri-food sector is one of these options, but cannot provide an exclusive solution.

NEDYALKOV and BORISOVA explore how new information technologies have penetrated into rural areas of Bulgaria and Ukraine and what their potential effects could be. A major result concerns the geographical distribution of Internet users in these countries. The authors emphasise that a sizable gap exists between urban and rural inhabitants and some rural residents had never even used the Internet. It is concluded that the use of new information technologies in rural areas should be promoted. However, the authors concede that the potential of these technologies and the 'e-readiness' of the rural population requires further research.

In summary, non-traditional strategies to develop rural areas provide no blueprint for the successful transformation of these areas. However, raising awareness for these options is a first important step. The increasing demands concerning a multifunctionality of rural areas, as stressed by the European Model of Agriculture, will fuel this awareness with increasing living standards in the overall society.

## **8 BETTER POLICIES FOR RURAL DEVELOPMENT**

Given the diverse spectrum of issues discussed in the previous sections of this chapter, it is obvious that policy making for rural areas is a complex task. At the same time, policies are designed on different administrative levels, for example regional, national and European. The CAP itself is in the midst of a fundamental reform process, which overlies the changes due to the accession of new members and the general approximation of CEE countries to the EU. Several authors therefore focus on the effects and improvement of policies.

Against the background of the principles of rural development policy, AHRENS analyses policy effects on economic and environmental objectives in rural areas from a more general point of view. He is very critical with the traditional CAP. Not only is it supposed to preclude an efficient allocation of factors, it is regarded as being detrimental to innovative behaviour: according to the author, it encourages to preserve inefficient farm enterprises; interventions like guaranteed producer prices, quotas, or set-aside arrangements reduce the entrepreneurial and competitive spirit; and farmers are made increasingly dependent on public funds. Furthermore, the CAP is supposed to provide an incentive for what AHRENS calls “an exploitation of the landscape”. According to this author, policies for less-favoured areas are hardly suited to help in the development of structurally weak rural areas. The 2003 reform of the CAP is therefore welcomed by the author, because it tends to reduce many of the drawbacks. However, AHRENS criticizes that it does not contribute sufficiently to rural development. The author favours a territorial approach of rural development compared to the hitherto dominating sectorial one, which would, however, imply a change in the philosophy of the ‘second pillar’ of the CAP.

Quite in line with the discussion in the introductory section of this chapter, SEDIK investigates to what extent the CAP and its implementation in the new EU member states does actually provide a solution for the development problems of rural areas in CEE, notably low incomes from agriculture. His assessment is moderately positive. In particular, he also welcomes the increasing rural development focus of the CAP. Moreover, he believes that the fall of all tariff and quota barriers provide positive opportunities for CEE food exporters. In addition, he regards the CAP as being more transparent and probably more sensitive to efficiency concerns than many current agricultural support policies in the

CEE countries. According to SEDIK, if the CAP can now define the methods and levels of aid for CEE agriculture, the CEE countries might have more political leeway to make more robust reforms in land tenure policies and eliminate soft budget payments to corporate farms. Finally, although CEE countries will enjoy less support per farm for the foreseeable future, this might at least have the positive effect that CEE land markets will be less distorted by agricultural policy than in the EU.

Based on an input-output approach, MISHEV and GOLEMANOVA present an examination of the effects of two pre-accession programmes in the Northeast region of Bulgaria, the Special Accession Programme for Agriculture and Rural Development (SAPARD) and the Instrument for Structural Policies for pre-Accession (ISPA), as well as the effects of full EU accession. Their results show that ISPA was not very efficient and funds under SAPARD were too small to have substantial influence. More significant effects would be achieved by EU accession. However, MISHEV and GOLEMANOVA also criticize that funds are geared too much towards agriculture.

A very similar position is taken by PETRIKOV with regard to rural Russia, who cites an illustrative example for the perceived agricultural bias: In 2002, the federal and regional livestock raising support programmes budgeted RUR 430 per livestock unit, while in 2003 the federal programme “Social Development of Rural Areas” in combination with twelve other federal programmes implemented in rural areas and funded from the federal and regional budgets envisaged only RUR 415 per rural resident. According to PETRIKOV, the Russian government shows a persistently narrow approach to rural development, which focuses too much on agrarian production, instead of supporting the creation of employment alternatives besides agriculture. Furthermore, he criticises the lack of inter-departmental co-ordination concerning the governance of rural areas and the insufficient development of civil society institutions in rural areas.

A striking result is thus that all authors of this section uniformly call for a more territorial rural development policy in CEE and a reduction of traditional support measures of agricultural policy. The current reform focus of the CAP is therefore quite consistent with the views of the authors in this volume on CEE rural development. However, the precise policy programming remains a complex task on each administrative level. To support policy decision makers, KIRSCHKE, HÄGER, JECHLITSCHKA, and WEGENER have developed an interactive decision-making tool, which could prove useful for policy formulation in CEE. In the policy making process, decisions about priorities and objectives have to be made and different measures have to be assessed with respect to the objectives. Interactive programming approaches like the one presented by KIRSCHKE et al. are capable of fostering and structuring communication between scientists, policy-makers, and administrators, as shown for the case study “agri-environmental

program of Saxony-Anhalt (Germany)”. Thus, such approaches can be used to gain insight into the complex decision-making problem and to improve its outcome.

## 9 CONCLUSIONS

Agricultural production in CEE has a range of different functions, which to a considerable degree depend on the overall economic development stage of a country. The group of countries summarised as ‘Central and Eastern European countries’ is quite heterogeneous both in terms of national income levels and progress in the transition to a market economy. In a discussion of the role agriculture plays in rural development, it seems therefore useful to take into account concepts both from western industrialised countries as well as from developing countries. This chapter has explored a number of issues that arise on the stage set by these two points of reference.

In our opinion, the present volume particularly contributes the following insights concerning the role of agriculture in CEE rural development:

- Also in countries where redistributive land reforms have resulted in an apparently very homogenous group of small farms, differentiation processes have already gained momentum. It is therefore likely that only a subgroup of initial landowners will continue farming in the future and that further concentration will take place. This calls into question the appropriateness of a broad-based, unimodal strategy for CEE.
- There is evidence that rural factor markets are increasingly capable of channelling the re-allocation of resources in the process of structural change. However, improvement of their coordination mechanism is still necessary, in particular with regard to credit and labour markets. Credit constraints are supposed to be responsible for the observation that – contrary to experience from developing countries – large farms in several CEE countries display higher land productivities than small farms.
- Countries in Central Europe which did not destroy the large-scale structures predominant in agriculture before transition but adjusted their internal organisation, involving adaptation to market requirements without throwing overboard the experience of large-scale farming, tend to have the most competitive farming sectors today. However, this was often accompanied with labour shedding which, absent strong public social security systems and alternative income sources, increased rural poverty. Productivity increases on large farms appear to have only a very small effect on poverty alleviation.
- Non-traditional functions of agriculture beyond ‘food and fibre’ production have now begun to attract the attention of researchers in CEE countries, particularly in the new member states of the EU. Awareness of, for example, rural

tourism or the cultivation of energy crops as development options has clearly risen. However, these strategies require a very careful examination of their specific strengths and weaknesses, and practical experience with them exists only on a very small or even experimental scale in CEE so far.

- There is a broad consensus that the growing importance of the second pillar within the CAP of the EU and of decoupled direct payments is also of benefit for the new member states. In particular, traditional forms of market and price support are not regarded as conducive to reach rural development goals. Several authors in this monograph have therefore plead for a more territorial and less sectorial approach to rural development policy also in CEE. In Russia, too, there are voices that endorse this trajectory as a possible guideline for policy reform.

The chapters of this volume also identified a number of areas where further research is needed. This holds, for example, for the analysis of structural change. In particular, it is still not clear how viable exit options for farmers who wish to leave the sector could be created and how the diversification of rural economies can be achieved best. Poverty alleviation strategies for rural areas are still badly needed. The operation of rural factor markets, in particular for credit and labour, deserves further attention. Moreover, it is still not understood how the widespread reluctance of farmers in CEE to co-operate can be overcome. The concept of social capital needs further elaboration, and attempts to tackle the inherent measurement problems should be pursued further. How to mobilise local and regional actors as well as to develop rural civil society institutions should also be further investigated. According to FAO statistics, there live some 112 million people in rural areas of Central and Eastern Europe, including the European countries of the former Soviet Union (FAO 2004). To improve their well-being is in the interest of society at large. We do hope that the present monograph makes a contribution to this goal.

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**ROLE AND DEVELOPMENT PERSPECTIVES  
OF SMALL FARMS**

## SUBSISTENCE FARMING AND RURAL UNEMPLOYMENT – THE CASE OF SLOVAKIA

GEJZA BLAAS\*

### ABSTRACT

The papers' aim is to examine various assumptions referring to the increase of subsistence farming in Slovakia during the transformation period. Based on statistical data from small landholdings and individual, non-registered farms in various regions of the country (districts with high and low unemployment, eastern and northern versus western and southern districts, rural, semi-rural and urban districts), an attempt was made to display possible regional divides when subsistence farming was present. The outcome of this investigation has been that neither the traditionally-perceived east-west or north-south divide, nor the rate of unemployment in respective districts caused an observable difference in the relative occurrence of subsistence farms. Instead, rurality was disclosed as the factor most responsible for the density of subsistence farms. Rural regions have higher unemployment and a higher density of subsistence farms than semi-rural and urban districts. A further finding suggests that in-kind income grew during the past decade quicker than other sorts of income only in old-age pensioners' households, a trend which stopped in 2000. Visible growth of this kind of income could be observed in the social group "employees" only during the years 1993-1996. The paper concludes that the deterioration of the social economic situation in Slovakia during the transformation period has not resulted, despite the expectation often shared by the public, in an *en masse* exodus towards farming activities.

**Keywords:** subsistence farming, structural change, Slovak Republic.

### 1 INTRODUCTION

The economic reform of 1991 was the starting point for rapid changes in the Slovak economy.<sup>1</sup> The overall effect of the process was the radical decrease of employment in the material production (manufacturing and construction industries, agriculture) sectors of the economy. On the other hand, new labour oppor-

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<sup>1</sup> Until then, Slovakia was a constitutional part of the Czech-Slovak Federation, which was dissolved on January 1, 1993.

tunities emerged in the services sector. The economic transformation yielded high unemployment, the rate of which has varied between 16 and 18 percent during recent years (according to ILO methodology). The impact of the reform on the socio-economic fabric of agriculture and rural life has, in general terms, already been commented on and analysed in earlier publications (WOLZ et al., 1998, BLAAS 2000).

Briefly, the current state, as a result of fifteen years of transition toward a market economy and democratic society, can be characterised by the following features:

- Large-scale farming (in the judicial forms of transformed co-operatives and business companies) has sustained the largest share of the country's farmland.
- The number and land share of individual farms grew during the early 1990s and later stabilised. Only a moderate number of commercial individual farms showed sustainability, but the average scale of their operations has been growing continuously.
- At the beginning of the observed period, the number of subsistence and semi-subsistence farms grew, but this later stopped. Practically, a conversion of subsistence farms into full-time farms did not occur.
- Farm employment sank by two-thirds (from 340,000 in 1989 to 99,600 in 2003), but if we consider the fact that employment figures from 1989 comprised only corporate farms, the decrease has been much more dramatic: according to the latest statistics, corporate farms employed only 54,000 persons in 2003. Employment cuts started before the formal transformation of large-scale farms (i.e., in 1990, 1991 and 1992) by setting free marginal labour (the elderly, maladjusted persons, etc.) (BLAAS 1992, BLAAS and BUCHTA 1996). Labour reduction continued over the entire period and has not yet stopped.
- The rapid fall of employment in the early 1990s was also a statistical phenomenon caused by the dissolution of workplaces connected with non-agricultural activities in producer cooperatives.
- During the most recent period, labour cuts in agriculture (both in individual and corporate sectors) have followed the pattern of replacing permanent, paid workers with casual and seasonal labour (BUCHTA 2003, BUCHTA 2004).

## 2 OBJECTIVES AND METHODOLOGY

The aim of this paper is to examine to what extent the deteriorating economic and social situation of the urban and rural population has created the behavioural pattern, which may be labelled as "escape into farming".

Since there is neither direct statistical data, nor survey results on the subject at the moment, we try to check our hypotheses by indirect statistical information on changes in land holding, unemployment rates among those who were formerly engaged in agriculture and on farm census data on non-registered individual farms.<sup>2</sup>

Some hypotheses may serve as a good starting point.

First, there is no indication of the soundness of the hypotheses on the buffering role of commercial farming. The evolution of labour employment in agriculture and the clear direction of farming bodies toward reducing their labour costs seem to exclude any assumption about the additional labour absorption capacity of commercial farming. On the contrary, commercial farming continuously sheds labourers. Nevertheless, case studies and surveys revealed that some commercial, individual farmers had faced, before starting to farm, losing their former jobs. (BLAAS 2003). But knowing the Census figures (which report on 59,000 registered, individual holdings that in 2002 comprised 14,000 workers) we should not overvalue the possible number of such cases and their impact on unemployment statistics.

Second, the buffer role of subsistence farming is obviously a sound hypothesis. In terms of Slovakia, with its relatively high rural unemployment and presence of regional divides in terms of economic growth and decline, we try to determine whether the observed unemployment (which greatly varies by region) may have had an impact on the regional distribution of subsistence farms. In this area, several problems have to be coped with, one of which is the insufficient statistical coverage of „subsistence farms“. In the case of Slovakia, we try to use indicators such as „small farm (plots)“ (data provided by the land statistics) and „non-registered individual farms“ (provided by censuses).

Third, under Slovakian circumstances, the main job provider in rural areas was traditionally industry (the allocation of which had been designated, by the planned economy, to solve social problems in marginal regions), so motivation for entering subsistence farming grew along with industrial unemployment. Industrial unemployment is, in rural areas with less-favourable agricultural conditions, exceptionally high. The buffer role of individual farming within the group of industrial unemployed may be of high value, especially when taking into account that the tradition of farming factory workers (part-time farming) mainly in

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<sup>2</sup> The majority of which may be considered as subsistence and semi-subsistence farmers.

the northern and eastern parts of the country, has always been very strong (BUCHTA 2004). We suggest that the occurrence of “non-registered individual farms”, related to the total number of households is much higher in regions that experienced industrial decline than in other regions.

In our paper, we test the hypotheses by using data from the following statistics:

- employment statistics by sector and region (1991-2003)
- statistics of unemployment by sector and region of their last job (1991-2003)
- special surveys on casual and seasonal labour in agriculture (2002-2003)
- the Farm Structure Census of 2002
- household surveys (1989-2002).

### **3 FINDINGS AND DISCUSSION**

#### **3.1 Rural unemployment**

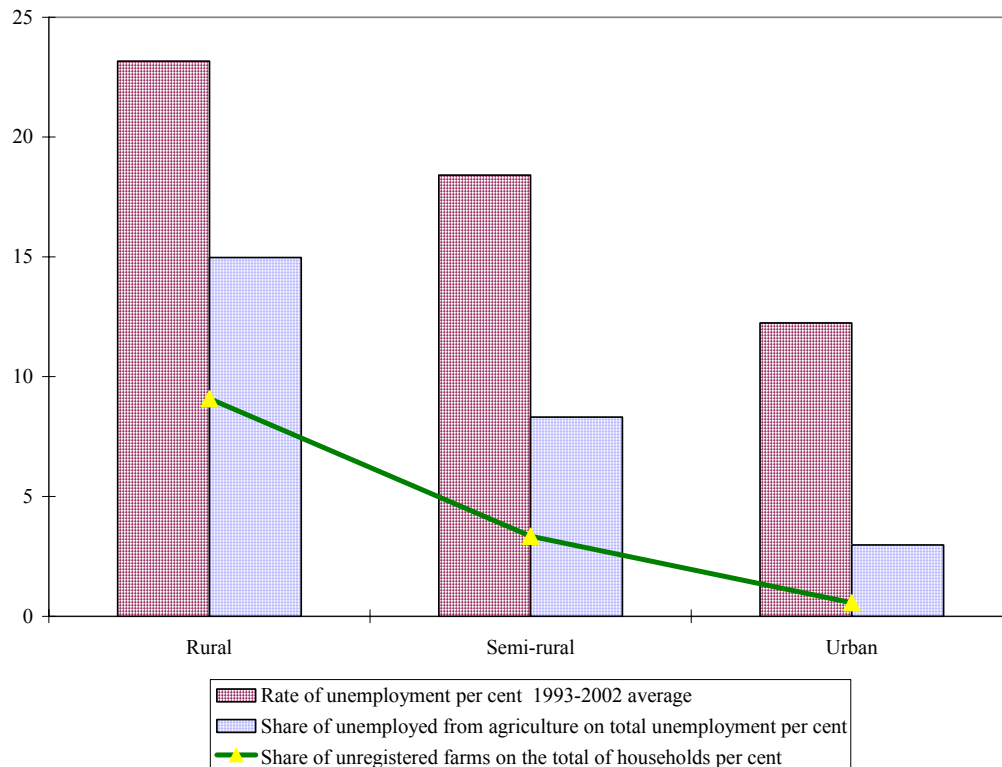
The generally high unemployment rates in Slovakia have declined slightly during the last two years, but still exhibit the typical and clear gap between urban and rural areas. Although general unemployment figures are shrinking, this gap remains a problem, which is obvious when looking at the following diagram. Figures calculated as a ten-year average show that the unemployment rate in rural areas is nearly as twice as high as in urban regions.

The great majority of unemployed are rural people, but it would be false to suggest that the majority of unemployed are people who have left agriculture. The agricultural employment rate was about 12 percent during the late 1980s, but is considerably less today. At end of 2003, the share of farm employment of total employment reached only 3.8 percent (of the active population) or 4.6 percent (of the working population)<sup>3</sup>. That means that the farm share of the inflow into unemployment may be only moderate, even though their number in rural areas is considerably high, creating about two-thirds of the total inflow. In semi-rural areas, the unemployed shed by agriculture represent only one-third of the total inflow. This rate is the lowest in urban areas (Figure 1).

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<sup>3</sup> Sample Survey on Labour as of 31 December 2003. Statistical office of SR.

**Figure 1: Unemployment and unregistered farms by regions' grade of rurality**



Source: Author's presentation.

Obviously, the farming population is mostly located in rural and semi-rural regions, but those unemployed from agriculture represent only a limited portion of all unemployed. This illustrates that for the rural unemployment, to a great extent, economic problems outside the agriculture sector are responsible. As Table 1 shows, agriculture's contribution to total unemployment is declining with time, which is partly a reflection of diminishing farm employment and partly due to the moderation of labour shedding.

It can only be assumed how many registered unemployed are members of households that pursue any type of agricultural activity. In the 2001 Structural Survey of Farms, more than 600,000 households were found to have been conducting some farming activity, but on a scale not meeting the survey criteria for being a farm. Obviously, kitchen gardens and small poultry flocks are common in rural neighbourhoods, but they cannot be considered a source of subsistence. These can provide for a certain volume of food supply to the household, but cannot be a sufficient source of income. Nevertheless, as we will show later, the importance of agricultural production for self-consumption is growing.

The rural unemployed may also be members of households (or their heads), which were categorised by the Census as non-registered individual farms. These farmed only 2.3 percent of the total acreage of agricultural land in Slovakia, but

their number accounted for 63,500 (in 2001) and the operated land per farm averaged 0.9 hectares. This is a very heterogeneous grouping, comprising holders of small household plots, but also owners of holdings sized tens of hectares. Because they are unregistered, labour offices most likely neglect income from farming when filing people reporting to be unemployed. In this way, a certain number of rural unemployed enjoy a smaller or larger income from agricultural activity in addition to unemployment or social benefits. This is the same pattern as with retired persons, who very often do some farming activity in order to attain an additional source of subsistence.

**Table 1: Unemployed who lost their job in agriculture from 1993 - 2003**

Year	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Registered unemployed:											
in national economy	368095	371481	333291	329749	347753	428209	535211	506497	533652	504077	452224
in agriculture & forestry	37799	34748	33055	34516	34966	40153	48848	44248	41140	38444	39483
Share in per-cent	20.1	17.2	15.0	15.1	15.3	13.8	13.5	13.2	11.1	11.0	12.2

Source: National Labour Office.

All this suggests that the rural unemployed pursue agricultural activity as a complementary source of livelihood, but in very rare cases they start farming as a main source of income. The number of unregistered farms correlates with the degree of rurality by regions and with their unemployment rate (Figure 1).

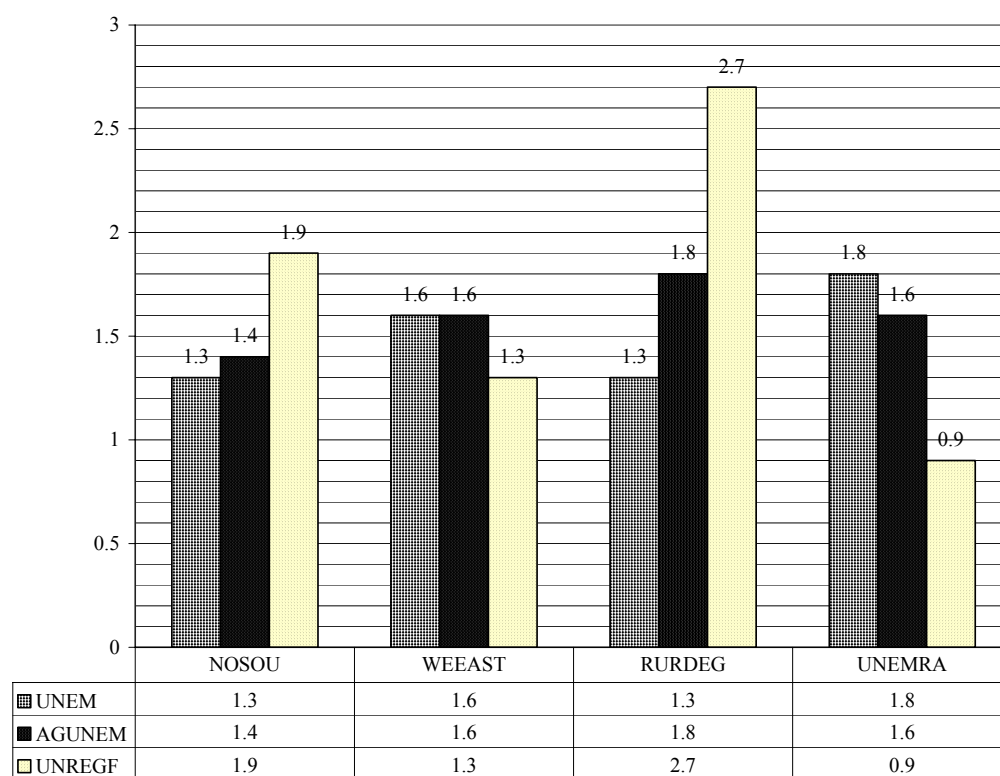
### 3.2 Opportunities to earn one's livelihood in agriculture

As has already been indicated, the time period after 1989 has been characterised by the rapid decline of agricultural employment. First of all, corporate farms have been diminishing in number and employment capacity. (Table 2). The number of co-operatives declined during the observed period by nearly 40 percent, but the number of other business entities - successor organisations of former co-ops and state farms - diminished as well. The total number of agricultural jobs also sank by 40 percent. One could assume that this has been a transformation phenomenon and the farm jobs "moved" towards individual farms. But the reality is different.

**Table 2: Number of employees in corporate farms from 1998 - 2003**

Year	Co-operatives	State owned	PLC	Subsidised state organizations	LLC	Total
1998	74,979	1,541	11,513	2,264	16,489	106,785
1999	64,714	468	10,397	1,741	14,893	92,212
2000	55,773	222	9,197	1,564	12,466	79,222
2001	51,167	124	8,832	1,378	11,983	73,784
2002	47,031	114	8,157	1,107	11,222	67,630
2003	41,203	163	7,683	786	9,983	59,818

Source: CD of MoA, RIAFE, statistical report "Práca 2-04".

**Figure 2: Scale of regional divide in unemployment, agricultural unemployment and density of unregistered individual farmers**

Source: Author's presentation.

Comprehensive and reliable data time series on individual farms (registered and unregistered) are lacking, but some information can be derived from the comparison of two censuses and from other sources.

Statistical registers proved to be a not very reliable source because of serious delays in updating databases. Particularly, the databases do not satisfactorily reflect exits from business, although they may show tendencies in structural



changes. We opted for four legal types of entities, which may be considered as farms. Figures from Table 3 show that prior to 1997 there had been an upward trend in the number of registered entities. Since 1998, a slight decline or stagnation can be observed. It is an interesting observation that a combination of agricultural and non-agricultural registered activities shows signs of forthcoming increase.

**Table 3: Number of physical persons pursuing agricultural activities represented by statistical registries**

Judicial form	1993*	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
103	5,317	14,957	18,485	21,640	22,681	15,585	14,797	13,791	13,249	13,099	13,162
104	57	171	213	191	186	138	132	124	121	119	99
107	460	1,386	1,787	2,231	2,429	2,192	2,324	2,420	2,483	2,635	2,790
108	20	52	56	69	69	63	68	65	67	65	67
Total	5,854	16,566	20,541	24,131	25,365	17,978	17,321	16,400	15,920	15,918	16,118

Notes: \* Only farmers who submitted tax declarations; 103 Individual farmer without business register entry; 104 Individual farmer with business register entry; 107 Entrepreneur - physical person without business register entry acting as individual farmer, as well; 108 Entrepreneur - physical person with business register entry acting as individual farmer as well.

Source: Statistical register of entrepreneurs.

From the above observations we may derive that registered legal farms in terms of commercial operations, either corporate or individual, do not show a growth of labour opportunities offered to the rural population. The decline in the number of farms and jobs offered by corporate farms is not equalled out by the expansion of individual farms. A comparison of registered individual farmers who were recorded by the 1994 farm census, 7,581 with an average size of 15 hectares, with the findings of the 2001 census on the same subject, 5,479 farms with an average of 39 hectares (family and non-family labour comprising a total of 14,000 persons) indicates that within this period there has been no employment increase, but rather a concentration process of farming.

### 3.3 Subsistence farming a perspective?

When dealing with this problem, the main issue is that no statistical data exists on the usage of farm products produced by individual farms. Some sample surveys have shown evidence about the share of marketed and self-consumed produce, which deviates by commodity. For example, more than 90 percent of produced wheat was usually marketed, but only one-third of animal products. The most common produce from individual farms was vegetables and potatoes, but 72 percent of the observed farms did not market potatoes at all. In the case of

vegetables, the share of farms with the same behaviour represented 55 percent. The most marketed produce was mutton and lamb (BLAAS 2002). The quoted findings refer to statistically registered farmers; in the case of non-registered farmers, the share of produce consumed on farm must be much higher.

As already mentioned, there are a high number of unregistered farms named as such by the 2002 Farm Census. Since we assume that unregistered farms are mostly subsistence farms, they may have an important role in earning the livelihoods of socially-deprived rural people. Actually, as Figure 1 shows, the relative occurrence of non-registered farms is much higher in regions having the highest unemployment rates than in other regions.

If we accept the assumption that small, individual farming is generated by the subsistence needs of the rural population, especially in regions in economic trouble (indicators for which the rate of unemployment is used), then the empirical proof for that would be the higher density of such farms in high unemployment regions than other regions. We have checked this hypothesis and the results are demonstrated in Figure 2. Besides the indicator showing the rate of differences in unemployment between those two types of regions (UNEMRA) we used also the same type of indicator for other dimensions of regional characteristics; this has been the traditional geographic division of the country into its western and eastern parts (WEEAST) and the similar division by north-south (NOSOU). The west-east dimension should demonstrate the divide between the more economically-developed western parts and the less-developed eastern part. The north-south division should express existing differences between more industrialised northern regions and the more agricultural southern area. The last regional division that has been used is the degree of rurality, where two types are used: rural and semi-rural areas (labelled as RURDEG).

For the above-mentioned geographic divides, we calculated the rate of differences of the following indicators: rate of unemployment (UNEM), share of jobless people shed from agriculture in the total number of unemployed (AGUNEM) and the share of unregistered individual farmers related to the total number of households in the respective region (UNREGF).

When analysing Figure 2 using the above-mentioned procedure, we may conclude, that:

1. The west-east regional divide creates much greater differences in general and agricultural unemployment than that of the north-south.
2. The degree of rurality creates greater differences in agricultural unemployment than the west-east divide and only a bit higher than the north-south divide. At the same time, the degree of rurality affects differences in general unemployment at the same rate as the north-south divide.

3. The north-west division shows a certain coincidence with the degree of rurality. This can also be seen in the rate of differences in the density of individual unregistered farmers, which is, between north and south, the second highest after the rate of differences created by the degree of rurality.
4. From the above-mentioned results, it follows that the degree of rurality and the occurrence of unregistered farmers depend on geographic factors (availability of farm land, natural production conditions) that differ more in a north-south than in a west-east direction.
5. Finally, what is most important from the point of view of our hypothesis is that the diagram shows that the level of unemployment (even the level of agricultural unemployment) differentiates the density of unregistered farmers less than other geographic indicators. The most discriminating factor in the density of unregistered farmers is the degree of rurality, which creates the same differences in general unemployment as the north-south division and less than the west-east division.
6. Nevertheless, the areas hit by the worst unemployment are exclusively rural areas. In those areas, the density of individual farms, when compared with the most successful districts (industrial, metropolitan with lowest unemployment rates), is extremely high.

### 3.4 Changes in the number and acreage of holdings

The evolution of the number of land holdings registered by the Land Statistics may yield some information about the development of subsistence or other types of farming during the observed time period. This statistic does not necessarily coincide with the date revealed by farm censuses, because it is based on *cadastre* entries. Users or owners of registered plots may not meet the census criteria for a farm, but on the other hand not all existing holdings are reflected by official registers due to informal leases, missing or delayed filings to the *cadastre*, and other reasons.

With little simplification we may suggest that smallholdings sized 0.5 hectares or less are subsistence farms which predominantly serve the purpose of supplying the holder's household with food. As the same time, farms sized 30 and more are most probably commercial ventures, providing their holders with significant returns, but also demand a good portion of investments.

Data on individual holdings taken from regular statistics published by the Board of Geodesy and Cadastre of SR served as the basis for Figures 3 and 4. As we can see in the first diagram, the number of individual holdings increased during the observed period, but this development was not dramatic. The pace of the increase of small farms sized 5 hectares or less was even more moderate than that

of holdings in total. What has been changing dramatically is the number of holdings labelled as commercial. The sudden “step down” between 1995 and 1996 can be explained only by changes in the methodology of data collection by the statistics’ provider. This “step down” is remarkably high in the case of “land area”, presented in Figure 4.

The land area of individual holdings also increased during the observed period. A stagnation of the farm area taken by the smallest “subsistence” farms can be observed, while the large commercial farms’ expansion in terms of land area significantly increases. In total, the growth of land operated by individual holders is modest, but observable.

From all these observations we may conclude that during the observed period, no massive “exodus towards land” by the rural population has taken place, as far as can be learned from statistical figures on land holding. Another question is how the use of those land holdings has changed; it might have become much more intensive and production-oriented.

In Slovakian rural areas, small household plots have been a tradition and were broadly exploited even before 1989. Further, they have traditionally provided in-kind consumption for rural families, something which has played an important role in securing the livelihood of the low-income rural population (old age pensioners, families with a large number of children, the disabled, etc). The increased unemployment and social deprivation of the rural population during the last fifteen years might have reinforced this phenomenon, but did not bring any substantial change to the rural lifestyle.

On the other hand, the steep increase of larger farms in number and acreage of land operated signals an ongoing process of professionalisation and commercialisation of farming activities provided by individual land holders.

### **3.5 Self-supply as a way out?**

The deterioration of the income situation in rural households due to the unemployment of their members during the past 15 years implies the growth of food self-supply among rural families. However, the items discussed earlier (the occurrence of household plots and small subsistence farms) did not provide unequivocal evidence regarding this.

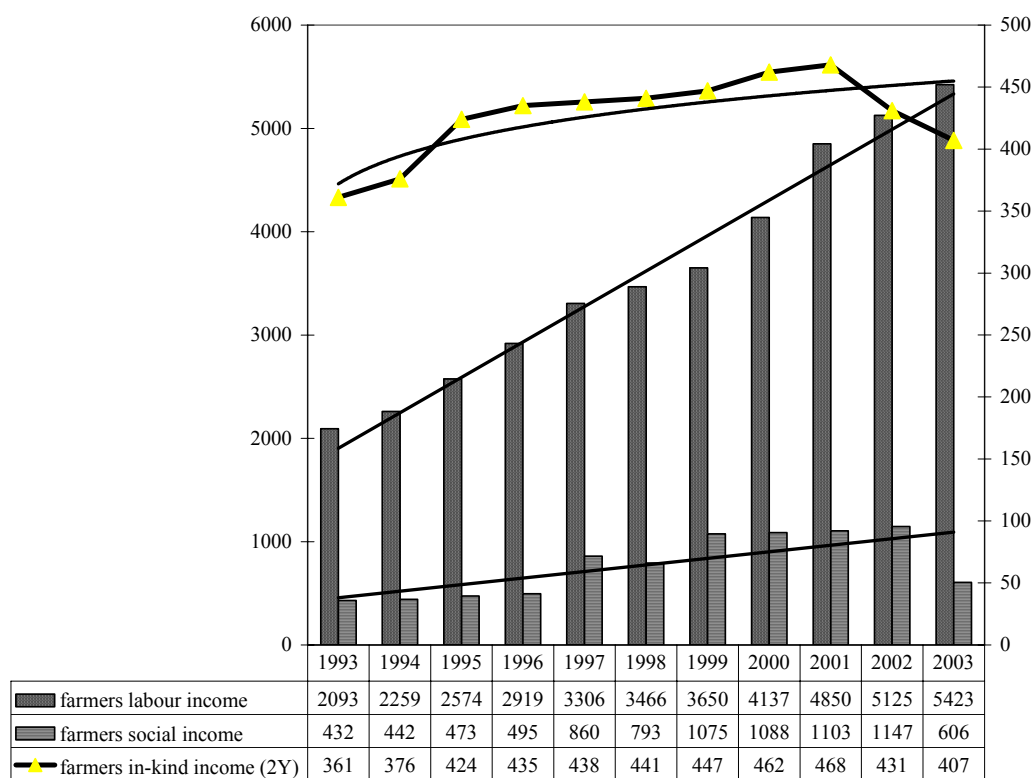
Food self-supply has always been common in rural areas and the customs of growing ones’ own potatoes and vegetables and rearing one’s animals in the backyard is deeply rooted in the rural population. That is why the change after 1990, which has indisputably occurred, has not proved to be very radical. At the same time, along with the deepening of social differentiation during transformation, families who managed to shift to more affluent patterns of consumption

have abandoned the traditional mode of self-supply and adjusted to urban patterns of livelihoods.

Official household surveys allow us to look at the income sources of households in greater detail. One of the household income sources surveyed by statistics is in-kind income. By definition, in-kind income, represents such goods, which have been produced and consumed within the household itself.

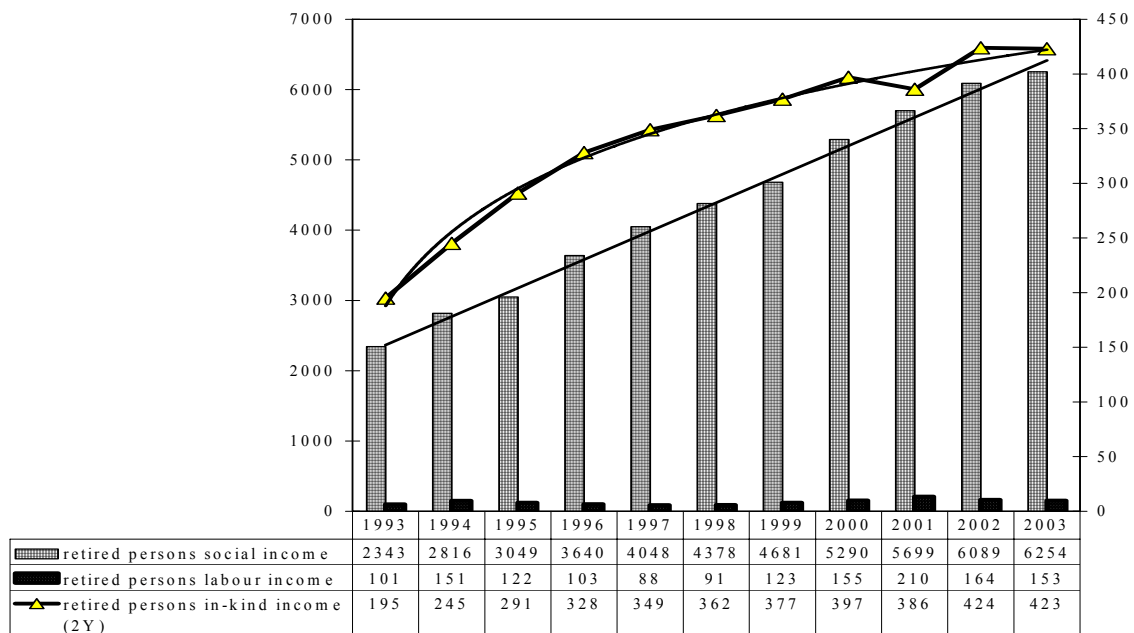
The figures below demonstrate the changes of in-kind income during the past eleven years by individual social groups from which the respective information is collected.

**Figure 3: Changes in farmers' income by source between 1993 and 2003 (SKK per household member)**



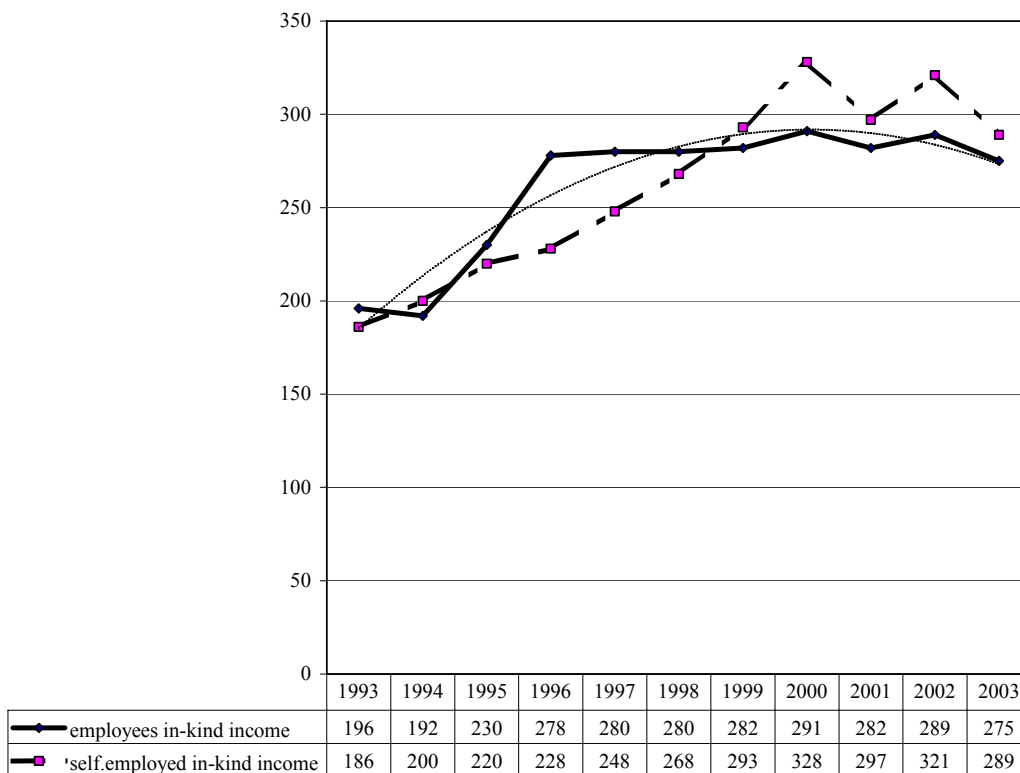
Source: Author's presentation.

**Figure 4: Changes in retired persons' income by source between 1993 and 2003 (SKK per household member)**



Source: Author's presentation.

**Figure 5: Changes of in-kind income of employees and self-employed between 1993 and 2003**



Source: Author's presentation.

From the diagrams, we may conclude that:

1. The increase of farmers' (this section of the households' sample investigated by the statistical office is made up of more paid labourers than genuine farmers) self-consumption has been very moderate. During the observed period, other sources of income (labour income and social income) have grown even faster. Within this group, self-supply has always been a constant element of peoples' livelihood.
2. The most rapid growth of self-supply may be observed among pensioners. This has been very significant, particularly in the early period of transformation (until 1996-1997). During the years which followed, the level of in-kind income has stabilised and stayed, more or less, at the same level. During the beginning, the pace of its growth visibly overran the pace of social income increments, but in later phases the evolution of in-kind income kept up with social income.
3. Employees also resorted, to a significantly increased extent, to self-supply at the beginning of the observed period. Later on, growth became less dramatic and stabilised.

All this allows us to state that self-supply increased its role in the livelihoods of households during the first period of transformation, especially in those of retired people and employees. Since we have to work with statistical averages, there is no doubt that in the later phase of transformation a significant number of rural households, which may have become the losers of the transformation process, now have to rely on self-supply to earn their livelihoods.

#### **4 CONCLUSION**

According to our findings, the mass exodus of rural people to farming has not become a reality in Slovakia, even in regions with high unemployment and worsening social and economic situations. The most common pattern, illustrated by empirical data on changes in household income, has been the extension of farming activities with a focus on families self-supplying food. The highest density of subsistence farms was found in rural regions, compared with semi-rural and urban ones. The traditionally-perceived east-west divide of the country, as well as the divide between districts with high and low unemployment, have not shown a strong impact on the density of subsistence or any type of individual farms.

It is quite obvious why marginalised households could not break into full-fledged farming; this would require the availability of land, financial sources for initial investments, and last but not least, adequate professional skills and involvement in social networks. Those who were lucky enough to meet those requirements actually entered the farm business and established commercial indi-

vidual farms. But they were too few to generate an en-mass process. For the majority of marginalised rural people, this way was impossible.

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## **RURAL DEVELOPMENT IN ALBANIA AND THE ROLE OF AGRICULTURE: A CASE STUDY IN THE PREFECTURE OF ELBASAN**

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DAVIDE VIAGGI \*

### **ABSTRACT**

The objective of the paper is to analyse the evolution and strategies of Albanian farms in order to understand the process of adapting to the market economy, to outline the role of agriculture in the country's socio-economic development and to identify future strategies of public policies in rural areas. The work is based on a survey carried out on a sample of farms in 1998, and subsequently in 2003. The study area is located in the Elbasan prefecture, in the Eastern part of Albania. The paper highlights the positive and negative relationships between emigration, farmers' attitudes and investments in cash crops.

**Keywords:** subsistence farming, structural change, farm strategy, rural development, Albania.

### **1 INTRODUCTION<sup>1</sup>**

Albania has undergone considerable changes during the transition process, some of which are due to the dramatic events connected to macroeconomic and financial instability (BEZEMER, 2001; HADERI et al., 1999). At present, the country seems to have found the way to stability and to have started a relatively satisfactory route to economic growth. Nevertheless, such enhancement does not seem to have had more than a marginal impact on the quality of life and economic livelihood in rural areas (UNDP, 2002a; 2002b; OECD, 2002).

Agriculture plays a major role in the Albanian economy, both in terms of GDP and employment; Albania has the highest share of agricultural GDP of all European countries, in spite of its sharp decrease in recent years.

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<sup>1</sup> The paper is the result of the joint effort of all the authors. VITTORIO GALLERANI coordinated the research. DAVIDE VIAGGI wrote sections 2 and 4; MERI RAGGI wrote sections 5.3 and 5.4; ANTONELLA SAMOGGIA wrote section 3; NADA KRYPA wrote section 5.1. and 5.2. Sections 1 and 6 were jointly written.

The objective of the paper is to analyse the evolution of Albanian farms in order to understand the process of adapting to the market economy, to outline the role of agriculture in the country socio-economic development and to identify future strategies for public policies in rural areas.

The work is based on a survey carried out on a sample of farms in the region of Elbasan, in the Eastern part of Albania.

## **2 AGRICULTURE AND RURAL DEVELOPMENT IN ALBANIA: BASIC FIGURES AND ISSUES**

Rural development is an important objective in Albania, from both the short- and long-term perspectives, respectively, of improving the quality of life and setting up efficient, locally-based, economic systems coupled with widespread territorial development. Rural development is particularly important given the large proportion of rural areas and the strong relationship between farming and other activities, particularly as a consequence of the land distribution, which occurred after 1991 (MINISTRY OF AGRICULTURE AND FOOD, 1998).

Even today, agriculture is the most important sector of the Albanian economy. According to official figures, it contributes 50-55% to Albania's overall GDP, and accounts for 40-45% of total employment. As a consequence, the development of the sector is viewed as a basic requirement for obtaining steady economic development and for improving living conditions in rural areas. However, during the 1990s the sector showed little progress, even in the periods of strong economic development (DILO and GALLERANI, 1999; SEGRÉ, 1999; DISTASO and VONGHIA, 2002; EBRD, 2002; ESI, 2002; EUROPEAN COMMISSION, 2002).

Different causes have limited the development of agriculture. On one side, many areas have clear limits on production (mountain areas, soil characteristics, limits to water availability). On the other side, institutional settings in the country are still in the process of adapting to the market economy and do not provide a suitable basis for higher competitiveness in rural areas. Public administration in particular often appears as a limiting factor for market exchange (SALTMARSHE, 2000; 2001; CARLETTI et al., 2003; VIAGGI, 2002; 2003), while social capital is generally perceived as inadequate for managing the new context in which the local economy is cast (HOLLAND, 1998). The present situation has strongly limited opportunities created by international co-operation (WORLD BANK, 2000) and rural credit schemes (NELA and MARSHALL, 1999).

As a result, agriculture is still struggling to escape the role of social buffer it played during transition. Farm structure and technical endowment still appear inadequate. Labour and land mobility are very low. An important but unclear role is played by emigration, which may, at the same time, be a source of remit-

tances and a subtraction of human capital from the rural areas of Albania (KOROVILAS, 1999; MOROZZO DELLA ROCCA, 2003).

### **3 THE STUDY AREA**

The Elbasan region is the third most populated and the third largest of Albania, comprising 227,581 hectares. In 2001, the population of around 366,000 inhabited 4 districts (Elbasan, Peqin, Librazhd, Gramsh), 7 cities, 43 communes and 397 villages.

From the late 1980s onwards, the region has suffered from emigration. Emigrants would mostly go from rural to urban areas, and in particular either to Tirana or abroad. However, the number of inhabitants has not substantially changed, as many emigrants from neighbouring regions migrated to the city of Elbasan (UNDP, 2003).

The majority of the population in the Elbasan region is rural, representing up to 65% of the total population. Comparing the size of the rural population of the four districts, significant differences emerge: 56% of the population of the district of Elbasan is rural, against 84% of the population of Librazhd.

Most of the labour force of the region, approximately 63%, is engaged in agricultural activities. The largest differences in the agricultural employment level are between the Elbasani district, which registers the lowest level at 56%, and the Librazhdi district, with 76%.

The unemployment rate, based on census data from 2001, is around 20% of the overall labour force (the total active population in rural and urban areas). Compared to the national figure, the unemployment rate of the Elbasan region is lower (around 22%). Especially significant is that the Elbasan region has the highest unemployment rate (22.6%). Female unemployment in the region is even higher, and reached 26% in 2001 (UNDP, 2003).

About 32% (around 73,000 hectares) of the Elbasan region is arable. The rest is covered with forests and pastures or is otherwise unusable. The surface dedicated to grazing is about 34,000 ha, for a total of 106,000 cattle and 248,000 sheep and goats reared in the region. Cereals, tobacco and vegetables are the main crops, together with olive trees, wine and fruit-trees.

As land ownership has been given to the villagers, land holdings per household has reached 1.34 hectares in rural areas. The land dimension per household is smaller in the Elbasan district and higher in the Gramsh district.

While the number of proper agricultural enterprises in the Elbasan prefecture is quite low (113, or only 2.6% of the total number of firms), farming plays a major role in the region. In fact, the Elbasan prefecture includes about 56,000 farmers (more than 1/5 of the population) (SULKUQI, 1998).

The main characteristics of farm production in the Elbasan region (UNDP, 2003) are:

- diversity of agricultural products;
- production for household, not market consumption;
- very low output;
- high production costs.

The main factors which contribute to this situation are:

- very small land size per household;
- quality of the land;
- limited access to the market.

The main agricultural industry in the area used to be tobacco, which processed more than 60,000 tons of tobacco per year (PREFECTURE OF ELBASAN, 1995, 1998).

As mentioned above, rural areas have suffered because of emigration. Around 25% of households in rural areas have, on average, 2 family members that have emigrated. Economic hardship is believed to be the main reason behind emigration (UNDP, 2003). General characteristics of the emigrants are: male, young, unemployed, coming from a poor family with very little availability of land, whose only opportunity to find a job is to emigrate so that he can send money back home to help the family. The flows of emigration increased significantly in 1995 and 1997.

Income per capita<sup>2</sup> in 2002 differed from one district to another. The highest daily incomes per capita were noticed in the rural areas of the Peqin and Elbasan districts, respectively, with 1.27 and 1.24 USD, and the lowest were in Gramsh and Librazhd, respectively, with 1.06 and 1.11 USD.

In such a context, rural poverty and the low quality of life is a clear issue. One relevant example is given by the lack of water. In the region's rural areas, only 10% of families have an *inner* water supply, and in this respect, the situation is quite similar to other districts. At the regional level, 17.5% of the families in rural areas have no access to drinking water. The situation worsens in the Peqin district, in which 31% of families have no access to water.

Altogether, while the majority of the farms are mainly subsistence and the economic structure of the sector looks to be of secondary importance when compared to other sectors such as trade, services and transportation, farming is nev-

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<sup>2</sup> "The average level of income per capita for each commune has been calculated by taking into account the revenues from the farms during 2002, approximate revenue from remittances and income from social assistance" (UNDP, 2003).

ertheless a key sector for intervention in order to guarantee rural development and the improved quality of life in the region.

#### **4 METHODOLOGY**

The methodology combines a descriptive analysis of the dynamics of farm structural data and a decision tree analysis aimed at identifying the correlation between farm strategies and background characteristics.

The 2003 sample consists of 43 small to medium farms located in 4 communes of the Elbasan region: Perparim (Peqin district), Stebleve (Librazhd district), and Bradashes and Shushice (Elbasan district). The comparison is carried out with a sample of 52 farms surveyed in 1998. Both surveys were carried out using the same questionnaire, which was originally set up for data collection for agricultural systems analysis (GOMEZ Y PALOMA and ZAPPACOSTA, 1998; DILO and GALLERANI, 1999).

The questionnaire includes the following parts:

- farm structure;
- cultivated crops;
- technical endowment;
- farm buildings and living conditions;
- household composition;
- technical and economic information about production processes;
- farmer opinions and perspectives.

The second part of the study is based on a decision tree analysis. The algorithm used is CHAID (Chi-squared Automatic Interaction Detector) (KASS, 1980). This analysis studies the relationship between a dependent variable and a group of predictor variables to find those that best predict the dependent measure. This technique depends on the interactions between the variables. The developed model takes the form of a "tree trunk", with progressive splits into smaller "branches." The initial tree trunk is comprised of all the study participants. A series of predictor variables are then analysed to determine if splitting the sample leads to a statistically significant effect on the dependent measure. It assumes that interactions are present and proceeds to find the ones that explain the greatest differences between groups of people.

## 5 RESULTS

### 5.1 Structural and productive change: 1998-2003

The farms surveyed in 2003 show an average area of 1.48 ha. Of this, only 1.1 ha, on average, is arable land, the rest being natural meadows and woodlands (0.16 ha/farm) and land occupied by farm buildings. The farm structure is basically unchanged with respect to 1998, a consequence of the substantial lack of land market.

The household composition, particularly in male family members, has decreased (Table 1).

**Table 1: Household composition in 1998 and 2003**

	Year	
	1998	2003
Male household members	3.3	2.5
Female household members	2.9	2.3
Total household members	6.1	4.8
Average age	33.2	31.2

Source: Authors' presentation.

This may be partially explained through the continuous migration to larger towns and abroad. However, many emigrants are still considered part of the household, with 46% of households having at least 1. As a consequence, the average number of household members at present has fallen to 4.8.

The number of working days per household has decreased in all working categories as a consequence of the reduced number of household members (Table 2).

**Table 2: Working days per household in 1998 and 2003**

	Year	
	1998	2003
Total working days on the farm	700.6	499.3
Total working days in other activities	177.4	90.5
Total working days	877.9	589.8

Source: Authors' presentation.

The flow of wealth due to emigration, income diversification and pluriactivity brought about an improvement of living conditions. It was detected, in this case, mainly by housing conditions (Table 3).

**Table 3: Characteristics of houses in 1998 and 2003**

		Year	
Characteristics		1998	2003
Average building size (square meters)		125.9	123.4
Number of floors		1.2	1.2
Number of rooms		4.3	4.1
People per room		1.4	1
Percentage of farms with :	Running water	20	100
	Electricity	80	100
	Central Heating	5	5
	Heated rooms in total	11	95
	Bathroom	82	100
	Toilet into the house	30	46
	Fridge	79	98
	Telephone	2	67
	Radio	86	98
	Television	96	98

Source: Authors' presentation.

The most significant changes concern running water and telephone connections. However, the overall quality of the buildings has been greatly improved.

Crop production shows some changes, though the basic structure of production is unchanged (Table 4).

The two main changes concern cereals for livestock production and tree crops. As to the former, maize has developed into a substitute for local fodder crops previously cultivated in the area, and is used both for animal and human consumption. Tobacco is losing its role as the main cash crop.

Some productions, e.g., fruit and vine, are beginning to show development as cash crops. More than one third of the farms interviewed have recently planted orchards or vineyards on a significant portion of their land. This may be read as a long-term investment in the farm.

**Table 4: Crops in 1998 and 2003 (percent of arable farm area)**

	Year	
	1998	2003
Wheat	41.1	33.9
Maize	4.7	30.1
Clover	5.7	8.2
Other fodder crops	31.1	1.5
Tobacco	5.9	0.5
Vegetables	6.7	5.7
Vineyards	2.4	9.0
Olive	0.8	0.7
Orchard	0.6	7.8
Other	1.0	2.6
Total	100	100

Source: Authors' presentation.

The average livestock structure did not substantially change, with the exception of the number of sheep and, to a lower extent, of small animals (Table 5).

**Table 5: Average number of animals per farms in 1998 and 2003**

	Year	
	1998	2003
Cattle	2.9	2.02
Horses	0.3	0.1
Asses & mules	0.5	0.4
Sheep and goats	19.2	2.7
Fowls and court animals	25.9	32.2

Source: Authors' presentation.

On the input side, the investment in agricultural production means is still moderate. However, an increasing number of farms are purchasing inputs (seeds, fertilisers, pesticides) from outside.

In a context in which the land market is characterised by very few transactions and the lease market is almost absent, the farms progressively increased the use of some services, particularly for the mechanisation of tillage and harvesting.



## 5.2 Self-consumption vs. cash crops

About 40% of the farms produce for self-consumption only. Annual crops account for about half of the value of production for self-consumption (wheat, maize and vegetables), followed by livestock (Table 6).

**Table 6: Composition of production 2003 (percent of value)**

	Year
	<b>2003</b>
<b>Self-consumption</b>	
Crops	49.9
Orchards	16.6
Livestock	33.5
Total	100
<b>Cash Products</b>	
Crops	47.6
Orchards	44.6
Livestock	7.8
Total	100

Source: Authors' presentation.

Cash production is mostly represented by annual crops (vegetables, wheat) and tree products (fruit, grape). Livestock production plays a minor role. However, a few examples of farms specialising in the production and marketing of livestock products (milk and eggs) exist.

Production sold on the market, particularly cereals, does not adequately supply the food processing enterprises or food consumption in the cities, both of which are mainly based on imported commodities. On the contrary, production mainly appears to feed local circuits.

## 5.3 Opinions and expectations of public intervention

From an institutional point of view, farms are characterised by a prevailing isolation with respect to formal policy and social networks. In spite of the swift privatisation process, institutions supporting market activities and rural development are still in an early stage of development.

Market connections and organisations also appear rather poor. It could be possible to exploit local agricultural activity for production through better organising the food chain.

Comments on both of these issues appear in the last part of the questionnaire.

Farmers mostly state that public policies connected to agriculture have been totally absent in recent years. Expectations are strong regarding public intervention in agriculture. However, general trust in public institutions is low.

Opportunities are envisaged in farming activities, particularly in fruit production, thus confirming data about investment in new orchards and vineyards.

#### **5.4 Alternative strategies and motivations**

The present strategies may be interpreted through a decision tree analysis. The explained variables used are the value of cash production per hectare and the percent value of cash crops of overall farm production.

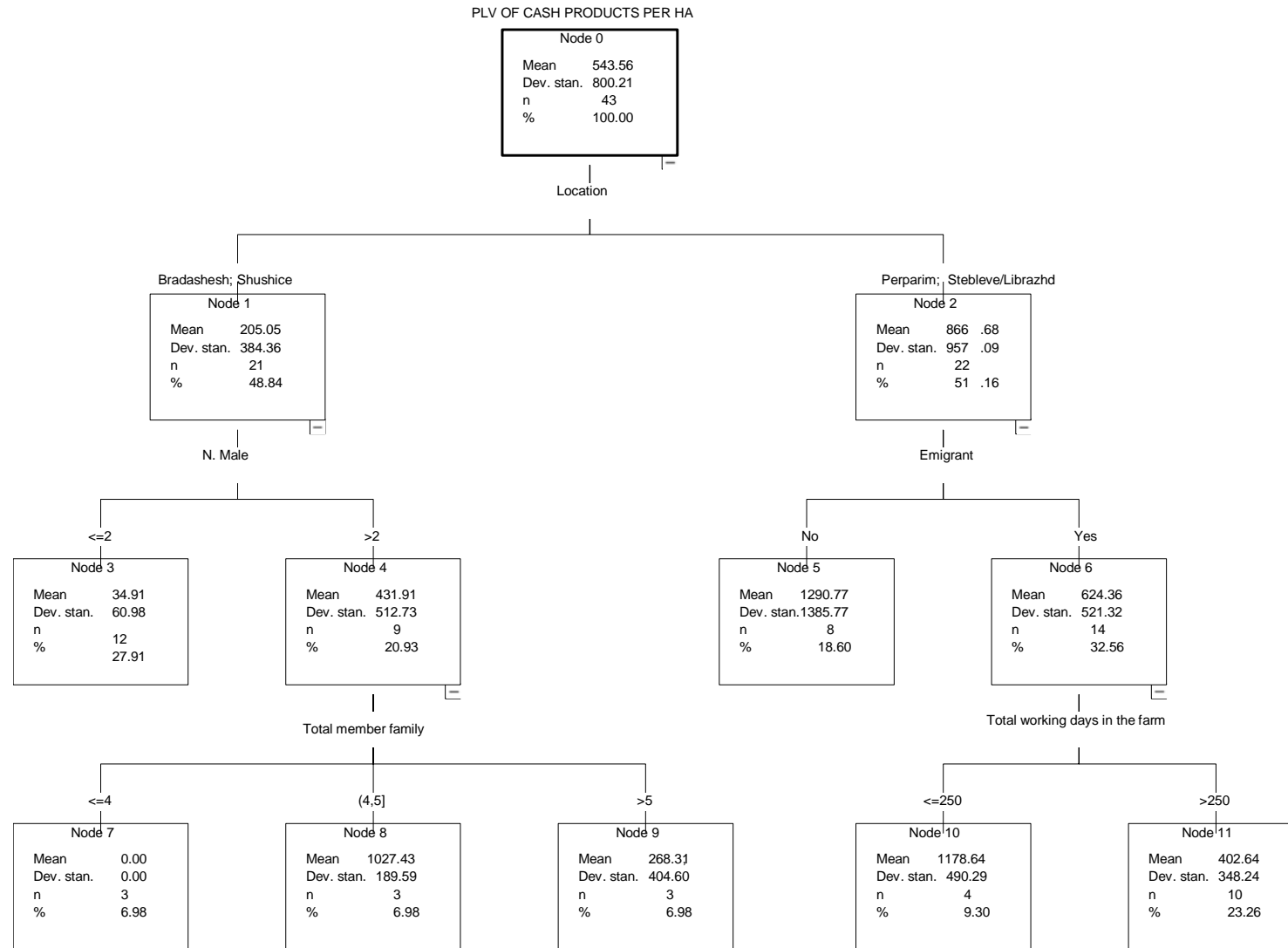
The total value of cash crop production per hectare may be mostly explained by location in the Bradashesh or Shushice communes, rather than Perparim or Stebleve (Figure 1). In the first two areas, only farms with more than two male members have a significant production of cash crops, and, among them, the highest cash crop production is concentrated in farms with 4 or 5 members.

In the Perparim and Stebleve communes, the value of cash crops is much higher in farms with no emigrants. Among farms with emigrants, the value of cash crops is higher for farms with a lower amount of working time available.

The relative importance of cash crops in the value of total farm production shows the importance of location as the main explanatory variable (Figure 2). The low number of female and the high number of male members of the family are associated with a higher share of production for the market. This supports the idea that, with the existing technology, labour availability may be a limiting factor, in spite of the huge amount per unit of land. At the same time, investment in fruit is associated with a re-organisation of labour within the farm, with possibly important gender implications.

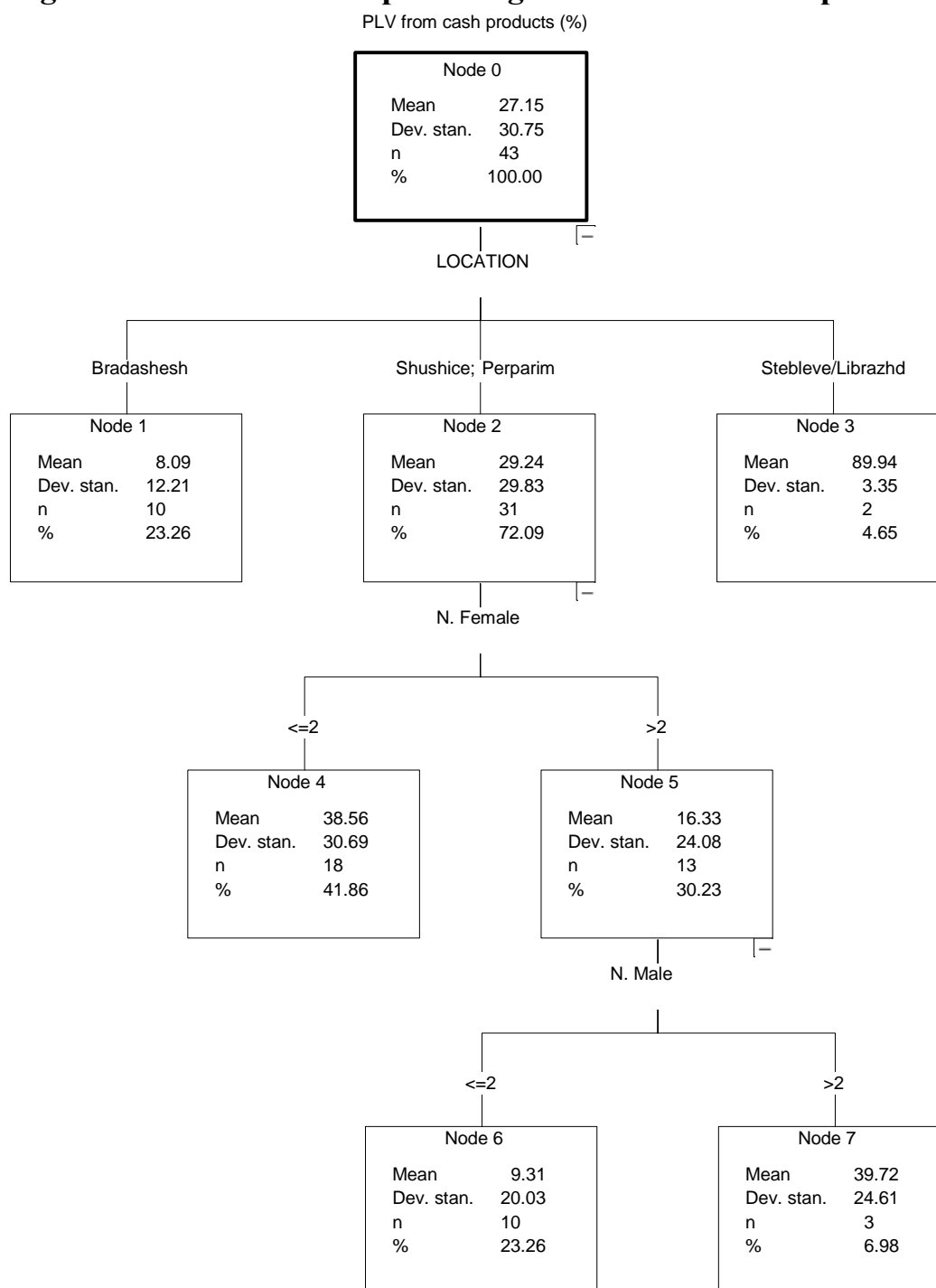
Altogether, the results reflect the negative relationship between emigration and investments in the farm.

**Figure 1: Tree for the total value of cash crop production per hectare**



Source:  
 Authors' presentation.

**Figure 2: Tree for the percentage of value from cash production**



Source: Authors' presentation.

## 6 DISCUSSION

The analysis highlights the changing role of farming within local economies in rural Albania. Generally speaking, all farms retained their basic role as food producers for self-consumption and as employers of the residual workforce.

However, a process of specialisation is under way, that, in the area considered, translates into a basic dichotomy.

On one side, some farms are mostly, or exclusively, devoted to production for self-consumption, while the household strategy is oriented outside the farm, both through emigration or non-agricultural activities.

On the other side, some farms are developing cash crops cultivation with clear strategic aims, in particular where fruit and vegetable production are concerned. Such crops are substituting tobacco as the main cash crops and appear more suitable for the creation of local market circuits and less dependent on industrial transformation. Other relevant cash products are eggs and milk, for farms investing in livestock capital.

The adopted strategy may be explained by the interplay of the location, the connected endowment of natural resources and household conditions. In particular, farms oriented towards production for the market are usually those more endowed in workforce and which cannot benefit from revenues from emigrants. However, there are cases where the low productivity of land makes it unsuitable for any realistic intensification of production.

From this perspective, the present policies are perceived as insufficient and inadequate to support the development of agriculture in rural areas. However, the strategic dynamics of farm choices offer the opportunity for innovative, low cost, institutionally-based policy tools. Three main issues need to be addressed.

First, the mobility of resources. It is clear from the minute change in farm structures that the land market is almost non-existent and rent contracts are almost absent. Labour is still over-employed in agriculture as a result of the generally high level of unemployment.

Second, the use of more advanced techniques for mechanical operations, fertilisation and irrigation can contribute to the improvement of yields, therefore increasing surpluses available for the markets.

Third, support for marketing and the commercialisation of local products, as well as the structuring of production chains is necessary.

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## AGRICULTURAL PROBLEMS IN GEORGIA AND STRATEGIC POLICY RESPONSES

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### ABSTRACT

Georgia is one of the poorest countries in the former Soviet block. Over half of its 4.7 million people live below the poverty line, second only to Romania among central and eastern European countries. The purpose of this paper is to describe the grassroots reality of the country's agricultural sector and to suggest a modest policy agenda to promote economic growth. A crucial element of the policy agenda is the establishment of localized extension services that would expose tradition-bound peasant communities to new production methods and market opportunities.

**Keywords:** agricultural development, peasant agriculture, Georgia.

### 1 INTRODUCTION

In his perceptive essay on economic development, HAYAMI (1998, p. 99) concludes by stating: "The search for an appropriate policy design should begin with serious investigations into the reality of the grassroots in each developing country." That is the basic theme of this paper. Specifically, the aim is to provide a detailed description of Georgia's agricultural sector since that country's independence from Soviet rule in 1991. This description is necessary to identify what might work in terms of new policies, but also to learn from past policy mistakes. The description of necessity makes heavy use of statistics. But we try to leaven the numbers with insights obtained from direct interaction with the peasant population over a period of years by one of the authors. Based on these insights, and our assessment of lessons learned, we conclude with a modest policy agenda. The policy agenda is aimed at promoting rapid agricultural growth, a precondition for general economic growth (TIMMER 1998).

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## 2 OVERVIEW

Georgia is the poorest country in east and central Europe as defined by SWINNEN (1998). At \$2,500 Georgia's per capita GNP is substantially below Albania's per capita GNP of \$4,500, the next poorest country in the region (Table 1). Over half of Georgia's 4.7 million population lives below the poverty line, a poverty rate second only to Romania. Agriculture accounts for 18% of the country's total economy and one-fifth of its total employment. Although other countries in the region are more reliant on agriculture for employment, no other economy with the exception of Albania is more dependent on agriculture. Hence, policies that affect the agricultural sector are crucial to GNP growth and poverty reduction.

**Table 1: Agriculture and economic indicators in Central and East European countries, 2002**

Country	Share of Agriculture in GNP (%)	Share of Agriculture in Employment (%)	Per capita GDP (US\$)	Population Below Poverty Line (%)
Albania	49.0	57.0	4,500	30.0
Bulgaria	12.5	26.0	7,600	13.4
Czech Republic	3.8	5.0	15,700	n.a.
Georgia	18.3	20.0	2,500	54.0
Hungary	4.3	8.0	13,900	8.6
Poland	3.1	27.5	11,000	18.4
Romania	15.0	41.4	6,900	44.4
Slovakia	4.5	8.9	13,300	n.a.
Slovenia	3.1	n.a.	18,300	n.a.

Notes: n.a. = not available. Country listing is SWINNEN'S (1998, p. 587) augmented to include Georgia. Some GDP and poverty figures are for 2001 or 2003. The GDP figures are on a Purchasing Power Parity (PPP) basis and thus are not comparable to official figures provided by the various governments. (Georgia's official per capita GDP for 2002 is \$745 (SDS, 2004b) compared to \$2,500 in the table based on PPP.)

Source: <<http://www.cia.gov/cia/publications/factbook/fields/2048.html>>.

### 2.1 Transition problems and challenges

Following Georgia's independence from Soviet rule in 1991<sup>1</sup> the country's economy collapsed due to the destruction of integration processes of the USSR

<sup>1</sup> Formal independence from the Soviet Union was declared on 9 April 1991. However, recognition by outside powers such as the United States and the European Union did not occur.

and the anarchic situation. Specifically, between 1990 and 1992 the country's GNP dropped 45% with further declines in 1993 and 1994. Since then the economy has regained its footing, but growth has been uneven, and per capita incomes have remained below pre-independence levels. According to state statistics, in 2003 per capita GDP was \$833, about half the 1991 level (SDS 1998b, 2004b).

The crisis influenced the agro-industrial sector as well. Between 1990 and 2000 total agricultural output decreased by 2.6 times, plant production decreased 3.8 times, and livestock production decreased 1.5 times (SDS 2001).

Processing activity in agro-industrial sector, mainly export-oriented plants, was sharply decreased. Between 1990 and 2000 vine production was decreased by 9 times, brandy by 30 times, tinned fruit and vegetable by 147 times, and tea leaf (natural) product by 40 times. Production of meat products decreased 30 times, and milk and milk products decreased 19 times (SDS 2001). The agriculture and foodstuffs industries suffered greatly.

Suffering was even greater in the industrial sector where the greater part of large enterprises came to stop, or were forced to operate at well below capacity. The collapse of the general economy fed the decline in the agricultural sector, and vice versa. The upshot is that the agro-industrial sector must assume a larger role in overcoming the macroeconomic crisis facing the country.

The economic collapse is the result of lost markets due to the USSR disintegration, destruction of the old artificially integrated system, and poor policy choices. A crucial policy error concerns land distribution.

## **2.2 Land distribution and market**

A rational land policy is complicated by Georgia's diverse climatic conditions, a mountainous terrain with its many alpine pastures, and historic settlement patterns of the rural population. Taking into account these factors, the basic policy adopted by the government in 1992 was to retain a portion of land in public hands to be leased to individuals for periods of up to 49 years, and to privatize the rest.

The privatization scheme resulted in 772 thousand rural and 338 thousand urban households receiving some 690 thousand hectares of land for an average distribution of 0.89 hectare per household. In terms of leased land, some 32 thousand private individuals leased 492 thousand hectares for an average of 15.6 hectares per person (SDLM, 2003). In addition, 3,573 juridical persons leased 404 thou-

sand hectares for an average of 113 hectares per juridical person. Importantly, these averages do not reflect large areas given to separate persons.

A significant portion of the leased land (287 thousand hectares) was for periods between 10 and 49 years. Hence, the leasing policy in effect has concentrated the control of land into the hands of a few, many of whom do not live or work on the territory. This displeases the local population, an issue that needs to be addressed.

**Table 2: Distribution of land in Georgia (in thousand hectares) as of April, 2003**

Item	Total land area	Agri-cultural lands	Agricultural land use				
			Arable	Perennial crops	Meadows	Pasture	Dwellings
1. In private ownership	944	763	436	181	42	84	20
2. In state ownership	6,684	2,260	362	84	101	1,713	-
Of which: agricultural organizations	2,887	2,175	358	76	94	1,646	-
Non-agricultural Organizations	3,858	86	4.5	7.2	7.1	67	-
Populated settlements	88	1.6	0.4	0.7	-	0.5	-
Protected areas	284	26	0.1	0.1	0.3	27	-
Forestry	2,473	45	2.8	6.1	5.9	31	-
Industrial	172	12.8	1.2	0.3	0.9	10.4	-
Religious	4.9	-	-	-	-	-	-
Water fund	835	-	-	-	-	-	-
Total(1+2)	7,628	3,024	799	265	143	1,797	19.8

Note: Totals may not sum exactly due to rounding.

Source: State Department of Statistics (2004, p. 1).

As mentioned, most of the private land is held in lots of 1 hectare or less. This land accounts for about 25% of all the agricultural lands and 55% of arable lands (Table 2). Most of the rest agricultural lands is controlled by a small group of private and juridical parties in the form of long term (10- 49 years) leases. In essence, the land redistribution scheme has created a bimodal structure consisting

of a large number of subsistence units on the one hand and a small number of large commercial operations on the other. Whether this system is sustainable and offers the best configuration for economic growth is an urgent policy question.

Georgian land markets are developing slowly, especially in the agricultural sector. As of the early 2004 there have been 17,900 transactions involving some 6 thousand hectares, less than 1% of the total private agricultural land. Although market transactions can theoretically lead to farm consolidation, in practice the opposite has happened, primarily because most peasants cannot afford to buy lands, or lack access to credit.

Owing to inefficiencies associated with small production units, the fragmentation of agricultural land has restricted the Georgia's export potential. It has also decreased the potential for productivity-based increases in agricultural output, as small farmers lack the means and information necessary to exploit new technologies and farming practices. A first step in surmounting these challenges is a clear understanding of the grassroots reality.

### **3 THE GRASSROOTS REALITY**

#### **3.1 Peasant farms**

Most of Georgia's farm output is produced by peasants, which number 772 thousand households. This figure represents 713 thousand former "kolkhoz" households that worked on state agricultural farms and 59 thousand that worked in other sectors (SDLM 2003). In 2000 the peasant share of gross agricultural product was 94%, a share that is representative of both plant and livestock production (SDS 2001, pp.8-9). The average peasant holding in 2003 was 0.86 hectares; the maximum holding in the rural areas was 1.25 hectares.

Such small size farms cannot fully employ all able-bodied members of the family. This is particularly true for farms specializing in crop production. Thus, the rural population, especially the young, suffers from significant concealed unemployment. In addition, a part of the rural unemployed has no chance to find work in cities because of high unemployment there.

Technical equipment of such farms is very poor; peasants mainly use hand tools or hire machinery (in grain production). They have no chance to obtain credit. They also have some difficulties to buy seeds, fertilizers, chemicals, and veterinary medicines.

Peasants have no possibility to make soil analysis; in most cases they have incorrect and imperfect knowledge of agro-technical and zoo-veterinary problems; they do not comprehend sanitary, license, tax, lease and other problems. They are not able to receive skillful advice independently.

Furthermore, access to high quality and reliable inputs is problematic. The spread of adulterated chemicals and mass damage of vineyards are the recent examples.

At present the greatest part of peasant farms is oriented toward self-sufficiency and is characterized by a low level of commodity production. Between 1999 and 2002 the share of household money income derived from selling farm products declined from 18% to 11% (SDS 2004, p. 10). Small commodity lots raises per-unit transport costs and reduces access to markets. The low income of rural households coupled with an underdeveloped food trade hampers the agricultural sector's ability to accumulate surplus. That is why it is necessary to promote local firms that assemble and manufacture finished goods using local raw materials.

### **3.2 Farm machinery**

Farm machinery has been dispersed and plundered. Between 1990 and 1998 the number of tractors in agriculture enterprises declined from 23,009 to 10,743, trucks from 18,900 to 8,777, and combines from 1,343 to 863 (SDS 1998, p. 26).

Farm equipment, including tractors and combines, are in poor condition and needs replacement. Most of the agricultural machinery, including dozens of tractors and combines delivered in the last ten years, have been depreciated or needs repair or renewal. However the renewal is an insuperable problem.

Some regions and villages suffer from acute shortage of tractors, trailers, combines. Year by year the cost of machinery services is increasing. Machinery is used inefficiently, there are fuel shortages, and the dispersal of plots means that there is not simultaneous execution of the works.

Ways must be found for the rational and efficient use of machinery, such as the "machinery rings" common in the Western Europe. Innovation in this area is of chief importance for Georgia.

### **3.3 Farm organization and output**

About 110 treasury enterprises are engaged in economic activity, which are represented mainly by pedigree cattle, seed-growing, sampling, and experimental scientific research. Altogether some 1,700 types of property operate in the rural area with the legal status of agricultural enterprises. These include 630 companies of limited liability, 100 companies of joint liability, 30 joint-stock companies, 240 cooperative farms, and 250 individual farms (SDS 1998, p. 27). These enterprises also function in agriculture, but their share in gross agricultural product is very small there.

Peasant households account for most of the country's crop production. As shown in Table 3, their share (as opposed to large-scale farm operations) in-

creased rapidly during the 1990-95 transition period, especially for the major grains, tobacco, annual hay, and tea. Today, with the exception of perennial hay and tea, virtually all crop production comes from peasant units.

**Table 3: Share of households (in percent) in crop production, Georgia, Selected years 1990-2002**

Item	Year				
	1990	1995	2000	2001	2002
Grains, total	26	79	94	93	94
Wheat	0	26	89	91	91
Barley	1	6	95	94	94
Oats	2	6	90	89	87
Corn	62	98	96	94	96
Beans	62	99	99	99	100
Sunflower	1	25	81	97	93
Soya bean	3	50	96	99	96
Tobacco	6	90	99	99	100
Potatoes	49	97	99	88	88
Vegetables	59	97	99	95	93
Melons	52	86	99	99	100
Hay (perennial)	5	11	58	71	67
Hay (annual)	8	61	94	91	80
Fruits	80	99	99	100	100
Grapes	83	94	99	88	100
Tea	7	47	34	93	74

Note: Figures rounded to nearest whole number.

Source: State Department for Statistics (2004, p. 33).

Between 1990 and 2001 the production of cereal crops, potatoes and vegetables increased while the production of fruit, grapes, berries and citrus decreased (Table 4). On a per-capita basis potato production increased the most (78%), followed by wheat (47%), grain crops (33%) and milk (33%). Declines in production were most dramatic for tea (twenty-fold decline) and fruits, grapes, berries and citrus (three-fold decline). But meat and eggs also showed declines of 255 or more.

**Table 4: Per capita production (in kilograms) of main agricultural crops, Georgia, Selected years, 1990-2001**

Item	Year				
	1990	1995	2000	2001	2001/1990
Grain crops	122	109	91	162	1.33
Wheat	47	16	19	69	1.47
Corn	49	81	64	65	1.33
Potatoes	54	74	66	96	1.78
Vegetables	88	93	94	109	1.29
Fruits, grapes, berries and citrus	287	195	109	93	0.32
Tea leaf	92	8	5	5	0.05
Meat	31	24	24	23	0.74
Milk	121	100	138	161	1.33
Eggs	141	57	80	90	0.64

Source: State Department for Statistics (2002, p. 14).

Declines in tea, fruits, berry, grape, and citrus production are largely the product of lost export markets following independence, an issue that needs to be addressed if the agricultural sector is to expand.

### 3.4 Yields

Increased output per man hour is crucial for agriculture to produce a surplus, enabling economic growth. As shown in Table 5, trends are not encouraging. Average yields for most major crops in Georgia today are no higher, and many cases are lower, than they were during the Soviet era. Moreover, the yields are below world averages, which places Georgia at an absolute disadvantage in terms of trade. For example, the worldwide yield for grains 3.0 tons per hectare, for wheat is 2.7 tones, for maize 4.3 tons, and for potatoes is 16.3 tons (SDS 2004, pp.15-17). Georgia yields in 2002 were: wheat 1.7 to 1.9 tons, maize 2.1 tons, and potatoes 11.4 tons. To compete internationally Georgia's agricultural and foodstuff industries will need significant investments and basic modernization of production.

**Table 5: Average yield (in tons per hectare) of annual crops, Georgia, Selected years, 1985-2002**

Crops/Year	Year						
	1985	1990	1995	1999	2000	2001	2002
Cereals	2.3	2.5	2.0	2.1	1.3	2.0	1.8
Winter wheat	2.2	2.8	1.2	2.0	1.0	2.7	1.7
Spring wheat	1.6	1.5	1.2	1.7	1.1	1.9	1.9
Winter barley	2.1	2.7	1.1	1.8	0.7	2.2	1.2
Spring barley	2.5	2.1	1.0	1.8	1.2	2.2	1.8
Oats	1.1	1.2	0.5	0.6	0.4	1.6	0.9
Maize	2.4	2.5	2.7	2.2	1.6	1.6	2.1
Beans	0.7	0.4	0.9	0.5	0.3	0.7	0.8
Sunflower	0.8	0.6	0.2	0.6	0.2	1.0	0.6
Potato	12.5	10.6	15.2	13.0	8.9	11.6	11.4
Hay (annual)	3.2	2.9	2.1	2.3	1.0	3.0	2.5

Source: State Department for Statistics (2004, p. 35).

#### 4 REFORM ELEMENTS

Government policy in agro-industrial sphere must be changed dramatically and immediate steps are required to raise the export potential of foodstuff industry and agriculture products. Potential enterprises should be given an opportunity to obtain low interest credits. The interest of foreign as well as local producers should be a stimulus for the creation of joint enterprises. This would help to produce high quality products and their export. To this end four areas need attention: farmer organizations, extension, credit, and intervening services.

##### 4.1 Farmer organizations

The agricultural system of Georgia was adequate to the former Soviet system. The features of the system were: state property dominance (there existed “kolkhoz”, like collective farms, but in reality they did not have signs of cooperative farms, in fact they were state enterprises) and planned price setting. Income distribution between members and leadership, who were appointed by Soviet Government, was very unequal.

Some peasants who are not knowledgeable about cooperatives’ principles think cooperatives are the same as kolkhoz. Peasants have no possibility to enter markets with small commodity lots; they have problems with purchase of inputs: seeds, fertilizers, pesticides and so on. It is very important at the beginning to



create informal cooperatives that provide training in principles, management, and income distribution effects of cooperatives.

Within the last years we have some examples where small family farms unite and cultivate plots of arable lands jointly. It is a positive development and serves as an opportunity for production of commodities to be more advanced.

Agrarian policy of government should promote the joining of small family farms through creation of cooperatives and associations, including improvement in their legislative and tax systems.

Implementation of The International Pilot Projects about Cooperatives in the rural regions of Georgia would help overcome the problem of low agricultural productivity discussed earlier, and provide a framework for export-led economic growth (see, e.g., MORAN et al., 1996).

## **4.2 Extension**

During the Soviet period there existed a system of institutes and scientific centers with experimental stations and plots in regions and districts, where tests, selection and adaptation of species to districts were carried out. This system deteriorated following the Soviet collapse. At present the existing scientific institutes and their regional experiment stations offer little opportunity to implement their activities due to low funding.

The decline of the research institutes damaged the serving system of agriculture. In the old system, state and kolkhoz farms were supported with services provided by professional agronomists and veterinarians. Today, small peasant farms have to rely on the personal experience of neighbors and countrymen who have little expert knowledge. This has resulted in repeated mistakes, including the breach of agro-technical cycles, incorrect pruning and crop rotation, and cutting of wind-sheltering lines.

Many regional farm services have had difficulty adapting to the free market system, cannot perform their duties, and are condemned to failure. Some have survived from old system, including stations for plant protection and selection, veterinary services, artificial insemination, and seed quality inspections. Some of these services manage to function, but on a limited scale. However, the services are poorly coordinated.

To solve the problem the government needs to support extension services provided by public institutions, but also the private sector through informational and advisory unions, cooperatives, and limited liability companies. It is necessary to create a leading non-government service of extension at the district and country levels. Such a service would bring together scientific achievements and regional services; create an information bank of innovations; provide contacts with experts on various levels; analyze domestic and external markets; and co-

ordinate regional services. These services need to be linked to a revitalized agricultural research system. As noted by TOMICH et al. (1995, p. 166): “Poor national agricultural research programs are among the most serious obstacles to widespread increases in productivity on small farms.”

### **4.3 Micro-finance and credit**

It is crucial to support ways and means to establish and develop a farm credit system in Georgia that will meet the needs of small producers with limited collateral. Regional centers of credit unions and related activities financed by *inter alia* the World Bank, TACIS, ACIDI/VOKA have had a positive impact. But their scale is limited and not sufficient. They do not involve peasants and small farmers.

It is necessary to promote the organization and development of real credit unions in villages. They should favor the improvement of living conditions as well as stable activity and functioning of peasant farms.

### **4.4 Intervening services**

A final policy recommendation is to develop an “intervening services” organization akin to France’s to support the development of new and improved crops, especially those that have export potential (wine, grapes, citrus, tea, and selected vegetable and livestock items). The organization should be established at the state level with the help of the Agriculture and Food Ministry of Georgia (A&FM).

The intervening services organization should define strategic considerations and policies, and propose necessary recommendations to A&FM. The A&FM implements its policy in given sub-sectors and plans the scientific researches to be carried out in its regional, district, or private territorial units. It is known that in the Western Europe the personnel of such services is appointed by Ministries and partially are chosen from businessmen working in a given sphere.

## **5 CONCLUDING COMMENTS**

Analyses of the development history of countries such as Mexico, Brazil and Columbia suggest that a bimodal structure consisting of a small number of large landowners and a large number of small peasant farms is not conducive to poverty reduction or sustainable economic growth. Taiwan and Japan, countries with limited land resources, have succeeded in the elimination of the rural poverty. Their development strategy was broad based, and tailored to the needs of small farms. The resulting structure accommodates small production units and yet permits both labor-using and land-saving productivity growth.

The governments of Taiwan and Japan were determined to maintain the vigor of their guiding, pushing and prodding activities. They assisted small farms and promoted the establishment of cooperatives and farmer associations. They also promoted export initiatives for agro-industries that stimulated the demand for domestic farm output and encouraged the use of advanced production techniques and quality control measures.

Implementation of land reforms; the necessity to redistribute lands for the achievement of optimal farm size; the creation and development of a system of agricultural credits for small farms; and the importance of rural development programs in general is well covered by HAYAMI and RUTTAN (1985, see especially pp. 33-39 and 367-441). The authors consider the policies needed to sustain productivity growth in the small-scale peasant sector. Crucial to this process is an extension service that links tradition-bound peasant communities to new methods and market opportunities. The establishment of an effective system of localized extension services is perhaps the single best strategy for getting Georgia's agricultural sector moving, a prerequisite for general economic growth.

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## THE ROLE OF PRIVATE HOUSEHOLD PLOTS IN RUSSIAN RURAL DEVELOPMENT

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### ABSTRACT

The article contemplates the current and future role of private household plots (PHPs) in Russia. The author explores the potential of PHP development as a possible leading trend in the future of sustainable rural development. Empirical data was obtained in two Russian rural districts during implementation of the Sustainable Rural Livelihoods Project 1. Analysing the outputs of this project has led to the conclusion that PHPs can be successfully employed in order to both increase the income of rural residents and alleviate poverty. With the country getting over a general economic crisis, the role of PHPs as producers of marketable goods has been diminishing. However, their role in rural development is not limited to being the most popular survival strategy during critical times.

**Keywords:** private households plots, survival, rural poverty, rural development.

### 1 INTRODUCTION

Development is broadly viewed as a process of widening substantive human freedoms or capabilities. In accordance with the concept laid out in the “Development as Freedom,” by SEN (1999), the widening of choice, i.e., the larger number of effective, available alternatives that lead to an ever-greater ability to live a more decent and free life is the primary target and measure of development. From this viewpoint, each individual is an active participant in shaping his or her own life, rather than a passive consumer of benefits distributed by a development program. The role of government and the public in development should be more of enablers of people’s activities, not distributors of welfare benefits.

SEN distinguishes the following basic freedoms:

1. political (freedom of speech and choice);
2. economic (in particular, freedom of contract and migration of labour forces);

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3. social opportunities (basic medical aid, health care system development, schooling, law enforcement, etc.);
4. transparency safeguards (in particular, openness and answerability in the distribution of budget allocations, which allows avoiding unjustified risks and investments);
5. social security.

Understanding development as the widening of human capabilities is different from the concept of “human capital”, which tends to focus only on activities contributing to production capacity building. Such differences illustrate different targets and means: human development through access to schooling, healthcare and legal sources of income are valuable in themselves, not only as facilities for future growth. Governmental and public support of rural development is expressed by providing various groups of the population access to the following resources:

- Informational (information and consulting networks);
- Financial (crediting and jobs in the legal sector of economics);
- Technical (state of the art technologies and equipment);
- Natural (land, water).

Agrarian reform in the 1990s was carried out in an unfavourable macroeconomic situation. The liberalisation of prices resulted in the drop of purchasing power and increasing prices for agricultural inputs as compared to purchase prices for agricultural produce. This, in turn, led to a setback in production, which was aggravated by an underdeveloped market infrastructure and liberalised foreign trade. Rural residents found themselves in a more disadvantaged position compared to urban dwellers: the share of the poor (i.e., income below subsistence level) is 1.5-1.3 times larger in rural than in urban areas. Poverty has become an acute problem of post-soviet rural Russia and its reduction is a modern priority of rural development.

The article contemplates the current and future role of private household plots (PHPs) in Russia. The author explores the potential of PHP development as a possible leading trend in the future of sustainable rural development.

## **2 THE ROLE OF PHPS IN INCREASING THE INCOME OF RURAL POPULATIONS**

According to RF Goskomstat, private households currently account for about 50% of total Russian agricultural production<sup>1</sup>. Over one third of Russian fami-

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<sup>1</sup> Russia Statistical Yearbook 2003, p. 400.

lies, i.e., as many as 15.2 million, own private household plots<sup>2</sup>. The post-soviet increase in the PHP share of agricultural production was due not so much to business initiative developments and improved access to land resources, but rather to the drop in production of large agricultural enterprises. At the same time, developing a PHP was the most popular way of generating income for rural families during the period of economic crisis, and in the so-called economically-disadvantaged districts it was the PHP-sector which ensured the survival of many rural families.

The results of the Sustainable Rural Livelihoods Pilot Project<sup>3</sup> show that the increased activity on private household farms was a major income source for families in disadvantaged agricultural districts (Table 1). During the project implementation period (1999-2002) two pilot districts experienced growth of PHP-based incomes even after adjusting for consumer price index growth. The increased activity of private household farms was the most popular model for improving incomes.

The contribution to overall income came from the following sources:

- in Novisil: PHP-generated incomes (34%), pensions (32%), wages (30%);
- in Lodeinoye Pole: wages (53 %), pensions (23%), PHP-generated incomes (18%), collection of non-wood forest products (5%).

Therefore, the project has demonstrated that PHP potential can be successfully employed for increasing income and alleviating poverty.

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<sup>2</sup> Russia Statistical Yearbook 2003, p. 407.

<sup>3</sup> The Sustainable Rural Livelihoods Pilot Project was implemented in Russia from September 1999 to August 2003 and was supported by DfID.

**Table 1: Rural Income in 1999-2002**

Income sources	RUR per person per month				Income structure, %			
	1999	2000	2001	2002	1999	2000	2001	2002
<b>Lodeinoye Pole District of Leningrad Region</b>								
Paid wages	343	425	555	825	52	45	46	52
Pensions	147	221	306	356	22	23	25	23
PHP-generated incomes	81	147	194	244	12	16	16	15
Collection and sale of non-wood forest products	83	145	152	124	12	15	12	8
Social allowances (for children, etc.)	9	14	10	20	1	1	1	1
Paid unemployment benefits	6	2	3	8	1	0	0	1
Rent	0	0	0	3	0	0	0	0
<b>TOTAL</b>	<b>669</b>	<b>954</b>	<b>1220</b>	<b>1580</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Ratio between income and subsistence level, %	69	90	98	114				
<b>Novosil District of Oryol Region</b>								
Paid wages	107	263	361	454	23	34	29	28
Pensions	136	241	479	517	29	31	38	31
PHP-generated incomes	178	209	345	580	38	27	28	35
Social allowances (for children, etc)	8	25	24	25	2	3	2	2
Paid unemployment benefits	4	0.4	0.6	12	1	0	0	1
Rent	34	36	38	52	7	5	3	3
<b>TOTAL</b>	<b>467</b>	<b>774</b>	<b>1248</b>	<b>1640</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Ratio between income and subsistence level, %	63	97	102	109				

Source: Author's presentation.



### 3 PHP SENSITIVITY TO THE GENERAL ECONOMIC SITUATION

In identifying PHP's role in rural development strategies, a fundamental issue arises – whether PHP development is a leading and long-term priority of sustainable rural development. The project demonstrated that it was impossible to estimate the role of private household farms in rural incomes and employment in the transition period since various behavioural patterns existed in this sector of the rural economy. During transition, the PHP output growth reflected a rural population survival strategy rather than a development and sustainable income growth strategy. This was a reaction to increased tension in the labour market, wage reduction and arrears in agriculture and in other sectors of the rural economy. Therefore, the majority of the rural population tended to run subsistence and small-scale household farms to support the minimum required level of income and consumption.

Modern survival strategy implies that a rural family seeks to ensure a certain minimum of resources, not just in-kind but primarily in cash. Since the main source of cash is salaries (pension for senior citizens), the further development or reduction of PHP-related activities depends on whether that cash minimum will be provided by salaries and pensions:

1. If the salaries are not paid or paid in arrears, PHP products are produced and sold to receive the cash minimum, and PHPs develop further. Goskomstat data indicates that the most significant PHP production growth was observed in the years when the share of population with incomes below subsistence level was growing (Table 2).

**Table 2: Poverty Level and Growth of Household Production Volume**

	1995	1996	1997	1998	1999	2000	2001	2002
Share (%) of residents with income below subsistence level	24.7	22.0	20.7	23.3	28.3	28.9	27.3	25.0
Index of physical volume of household production in % of preceding year	103.4	100.4	99.4	94.6	102.9	108.0	103.0	100.1

Source: Author's presentation.

2. However, if salaries and pensions provide the said cash minimum, a family decides upon the most beneficial way to use the products, i.e., to sell or save for their own consumption. For example, during 2001 in the Lodeinoye Pole district, meat prices went up by a factor of nearly 1.5 as compared to the year 2000, and consequently the volume of meat sold by PHP-owners increased by the same factor. The following year, salaries went up, meat prices went down, and the volume of meat sold by PHP-owners reduced by a factor of 5.

Such high flexibility of PHPs is explained by their small production volumes, e.g., when a family raises 1-2 calves and 3 pigs, any difficulty with distribution is easily balanced by increased personal consumption.

3. Furthermore, if salaries exceed the said cash minimum and continue to increase, then a reduction in PHPs sales is followed by lowered production. Rural residents, especially young people, prefer being hired over being “self-employed” while farming their PHPs. The trend of economic improvement, which started in 1999, has, among other things, resulted in the growth of salaries and pensions. In many cases, salaries surpassed subsistence level, which has caused rural residents to spend somewhat less time farming the PHPs. Subsequently, the volume of PHP production has decreased.

Since global prices for agricultural products increase more slowly than for other types of goods, profitability can be ensured only by means of anticipating growth in labour productivity. The vast majority of PHPs are incapable of such labour productivity growth because of primitive technologies, manual labour, the lack of a sole proprietor’s skills and no credit access. Those PHPs which choose to expand their operations (as a rule, by means of more man-hours and using more land), confront the problems of distribution, which they cannot resolve on their own. Therefore, when jobs are available in a rural area (i.e., jobs on large farms or in other spheres), the trend for reducing PHP production volumes can be considered stable. However, if the economic situation is unfavourable, this will result in fewer jobs in rural areas and salaries paid in arrears, so the population, in their attempts to survive, will expand PHP activities.

In most cases, PHPs tend to develop through close linkages with existing large-scale farm enterprises. This model is rational, since it enables the population to minimise input costs (animal feed, farm machinery, purchased livestock). However, a negative implication of such an alliance is the shadow redistribution of large-scale agricultural production products and services, which is perceived as a norm by the rural population and as an inevitable necessity by the majority of farm managers. The existing form of public agreement permits partly compensate the low wages of agriculture employees.

The assessment of PHP's future role should be separated based on the overall economic situation in Russia. Potentially, there exist three areas of further transformation:

- (1) growth of hired employment, accompanied by a reduction in PHP output;
- (2) growth of entrepreneurship (self-employment) based on PHP expansion;
- (3) a survival pattern mainly oriented towards the satisfaction of personal needs.

In the case of further economic growth, transformation (1) will be typical for regions with a primarily Russian population (in national republics, both (2) and

(1) are possible). Survival strategy (3) will predominate in the case of recession (small-scale household farms will support the minimum required level of consumption).

Today, hired employment growth can be regarded as a sustainable rural development strategy. But PHP is not the sustainable income source in this strategy (for Russian regions). Establishment of small-scale business via PHP expansion (a shift to commercial peasant or private farms) has not yet become, and cannot become, a widely spread practice. The reasons include substantial existing barriers such as increased tax burdens, additional reporting requirements, poor development of marketing co-operation, unstable market situations, lack of information, etc., as well as weak incentives such as poor access to credits and preferential terms. The formalisation of status and the transition of developed household farms to peasant or private farms actually deteriorates farm business management conditions and increases costs. The preservation of the PHP institutional form allows these barriers to be avoided and taxation to be minimised, but it does not provide mechanisms for the development of an entrepreneurial component.

#### **4 SHOULD PHPs BE SUPPORTED?**

Today, a specific feature of Russian rural poverty is that access to land can ensure sustainable survival while at the same time leaving a rural resident with a surplus of free time. But due to problems of distribution, there are no ways or incentives to use this time for income-generating labour. By estimates, a rural family does not need to invest much time towards generating income in the amount equivalent to the so-called “food basket” (the amount a family needs for survival), as it requires cultivating less than 0.1 hectare with potatoes. Many rural proprietors or PHP-owners could increase their production volumes by means of investing more man-hours were they provided the chance to sell the produce and make a profit. But with no such chance their labour is pointless, and developing their potential becomes more and more difficult. The economic investment of man-hours is justified only when the resulting increase of income surpasses the difference in consumption of a “working” and “not working” individual. This specificity allows marking two directions for the alleviation of rural poverty:

- (1) the development of a rural distribution infrastructure to improve the access of small- and medium-sized agricultural producers, including PHP-owners, to local and urban markets;
- (2) occupying free time, primarily of young people, by restoring the system of vocational education and having it tuned to market needs, instead of inertial replication of the existing structure.

PHP potential in terms of rural poverty alleviation has not yet been exhausted, but to develop further it is essential that PHPs are presented not only with a proper distribution infrastructure, but also with affordable small agricultural machinery.

We are convinced that the role of PHPs should not be limited to the volume of their production nor to being a survival strategy in times of economic crisis. Labour agility and sole proprietors' skills obtained through PHP-related activities, as well as environmental friendliness, enable the national folk culture to be retained and allow valuable historical and cultural landscapes to be maintained. Therefore, PHPs should be supported even if their share of total agricultural production decreases. Rural development projects must exercise support in information and consulting, micro-credits, and local governance and cooperation.

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## AGRICULTURE IN SOUTHEASTERN POLAND – MAIN PROBLEMS OF THE SYSTEMIC TRANSFORMATION PROCESS

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### ABSTRACT

The paper discusses the main problems of both agriculture and the rural areas of Southeastern Poland known as the Małopolska region. The process of systemic transformation in this region is hampered by the very specific characteristics and conditions of rural areas and of agricultural production. The analyses show the current situation by using research and statistical data from the General Census of the Population and Housing and the General Agricultural Census, both of which were conducted in 2002. Occurrences in the eight years between the previous General Agricultural Census (1996) and the last one allow some conclusions to be drawn about the pace and direction of changes in rural areas development and agricultural transformation. The next stage of those changes and transformation will be heavily influenced by the results of Poland joining the European Union and its Common Agricultural Policy. The result of that process can be, at this point, only speculated upon, with the hope that all resources available to Poland can be fully and wisely adapted, thus speeding up the social and economic development of rural areas and as a consequence, the development of the whole Polish economy.

**Keywords:** agriculture, Southeastern Poland, rural areas, structural change.

### 1 INTRODUCTION

For Poland, the last decade of the 20<sup>th</sup> century was a time of intensive social, political and economic change. Poland was confronted with the necessity of quick but deep changes in the economy, as well as in state administration and the functioning of newly-established self-government structures. As a result of actions taken, the Polish market began to exhibit negative, previously-unknown occurrences, such as firm bankruptcies, a much lower demand on the labour force, which, aggregated with the growing share of the population at working age, resulted in a novel occurrence in Poland; namely, unemployment. From the beginning of the transformation period, agriculture has absorbed the surplus of labour from the rest of the economy. Agriculture, heavily overpopulated in some

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regions of Poland even before the free market economy, became a sponge absorbing the ever more redundant labour force. Together with the fragmented farmland structure, this has caused an increase in hidden unemployment in rural areas.

In Poland, the agricultural sector is of greater social and economic importance than in Western European countries. There are still regions where Polish agriculture has a major influence on the economy, and as such, has a crucial impact on both the development of these regions and the standard of living of their inhabitants. In 2002, agriculture (including the hunting and forestry sectors) accounted for 2.7% of the Gross Domestic Product. This is a decrease from 12.9% in 1989, 8.3% in 1990 and 6.0% in 1995.

According to data from the Agricultural Census of 2002, among the total number (1,959,100) of individual holdings above 1 ha of agricultural land there are:

- 17% (2.4% in 1996) – holdings operating on a non-permanent or temporary basis;
- 10.6% (12.7% in 1996) – subsistence farms;
- 25.5% (37.4% in 1996) – semi-subsistence farms;
- 46.8% (47.4% in 1996) – commercial farms.

The average farm size in Poland exhibits considerable regional variations. The highest degree of fragmentation of individual farms occurs in the southern *voivodships*, where the average amount of farmland per farm is 2.10 ha in Małopolskie and 2.15 in Śląskie. In the Małopolska region, the average size of a farm above 1 ha of agricultural land is 3.25 ha.

The land plots of the majority of individual farms have a “chess-board” structure, illustrated by the fact that 20% of them consist of 6 or more dispersed plots of land.

High agricultural employment is related to fragmentation. The level of employment in the agricultural sector, measured as the number of employed persons per 100 ha, is highest in the south of Poland. In the Małopolska region there are 46.3 persons employed per 100 ha of farmland, whereas the lowest number of persons employed per 100 ha of agricultural land has been recorded in the Zachodniopomorskie (7.1) and Warmińsko-mazurskie (8.8) *voivodships*, respectively.

Primarily, it is the larger farms which are developing and becoming stronger. This is true, in particular, of farms with an area between 30 – 200 ha (farms over 30 ha comprise 2.63% of all private farms in Poland). In this group of farms there continues to be a clearly observable process of restructuring and modernisation based on the extended reproduction of fixed assets. This group is also characterised by rapid improvements in the age (lower) and education (higher) of farm managers.

The excessively high proportion of farms that make no investments at all, as well as the low level of investment outlays in general, can be described as a very negative phenomena. The principal factors that continue to hamper positive changes in farm structure are the excessively high and continually-growing potential labour resources in agriculture and the extremely low profitability of agricultural production, which together translate into minimal possibilities for accumulation.

From 1995 to 2000, real incomes in farming households fell by around 50%, while there were increases between 20-30% in other household categories. The average disposable monthly income in farmers' households in 2001 was around 73% of that in other employees' households. According to the 2002 General Agricultural Census data, only 18.6% of farmers' family members generated their income exclusively or mainly by working on farm. In comparison with 1996 figures, this number decreased by one third.

## **2 RURAL POPULATION CHARACTERISTICS**

In Poland, according to the terminology used by the Polish Central Statistical Office, a rural area is defined as a territory situated outside town administrative boundaries. According to this criterion, rural areas in Poland account for 291,400 square kilometres, or 93% of the country's area. 14.6 million (38.2% of the total population of 38.3 million) live in rural areas.

Traditionally, the structure of a rural family consists of several generations. Households with families of 5 or more family members constitute 29.7% of all rural households, whilst in towns this figure is only 12.2%.

A considerable improvement in level of education has been observed over the last ten years. In 2002, the percentage of persons with post-primary education rose to 56% (from 39% in 1988) and the share of university graduates exceeded 4%. The share of rural area inhabitants without any education has more than halved.

The transformation of the economy has resulted in high unemployment across the country, including rural areas. According to the Central Statistical Office, in June 2002 there were 1,368,700 unemployed persons registered in rural areas (42.7% of the total number of unemployed in Poland). In Poland, the owners and holders of farms with an area equal to or exceeding 2 hectares cannot be registered as unemployed. According to estimates, about 1 million individual farmers cannot find a job and are therefore referred to as "the hidden unemployment," while almost 70% of the population has only part-time employment.

The changed conditions of agricultural production (increasing prices of agricultural input and low prices for agricultural products) have resulted in farmers

changing their attitudes towards dealing with the new economic environment. Farmers now focus on:

- surviving the present situation and waiting for changes (declarations such as, “We survived communism, we can survive the free market”);
- developing farms and agricultural production based on opportunities created by the free market economy and the opening of the EU market;
- limiting production to that of subsistence farming, not engaging in agricultural activities, merely producing exclusively or mainly to meet their own needs, or totally giving up agricultural production and looking for other sources of income.

There are very significant differences in the economic and social development of particular regions of Poland. Each region has its specific environmental, social and economic conditions, which hamper or speed its development (ŻMIJA 2002).

There are at least three types of agriculture in Poland. The main division goes according to the historical borders of Poland's partition in the 18<sup>th</sup> and 19<sup>th</sup> centuries – the area which finished on November 11<sup>th</sup> 1918, with the restitution of Poland. The best and the strongest farms existed, and still exist, in the western part of Poland. The smallest, and economically the weakest, are in the South-eastern part of Poland – the Małopolska region.

### 3 THE MAŁOPOLSKA REGION

Our analysis concerns agriculture and rural areas in Southeastern Poland, specifically, Małopolskie, Podkarpacie and Świętokrzyskie *voivodships*, the region historically known as Małopolska.

The Małopolska region has an area of 47,000 square kilometres and a population of 7 million, which covers 15% of the area of Poland and 18% of its population. The Małopolska region has a lower-than-average level of urbanisation – 55.4% of the population lives in rural areas. Population density is 150 persons/1 square kilometre (GUS 2003a).

It is also a region of very specific agriculture production conditions and rural areas parameters. The 2002 population structure figures for rural areas in three *voivodships* of Małopolska show the highest share of rural population in Poland: Małopolskie – 49.7%, Świętokrzyskie 54.1%, and Podkarpackie – 59.5%. Only five cities in the region have more than 100,000 inhabitants.

Farms have always been small in this area, and the farmers' family income supported by non-agricultural sources, mostly from the non-skilled labour force – farmers working outside their farms. For a long time there was ample work for so-called farmer-workers, but after 1989 they were usually the first to lose that



extra income. The situation worsened when family members who lost their jobs returned to their family farms.

The level of employment in the agricultural sector measured as the number of employed persons per 100 ha is highest in the Małopolska region. In the Małopolskie *voivodship*, there are 53.1 persons employed in agriculture per 100 ha of farmland, in Podkarpackie this number is 46.8 persons per 100 ha, and in Świętokrzyskie, 38.9 per 100 ha. Though the reduction of employment in agriculture is one of the basic challenges to be confronted in the immediate future, the opportunities for labour to leave agriculture are, and may remain, few due to the general unemployment level and the low mobility of farmers and rural population on the labour market.

The search for off-farm jobs that require appropriate qualifications is hindered not only by a low standard of general education, but also by poor agricultural education. Due to its lower education, the rural population finds it difficult to compete with the urban population for attractive jobs, a fact that represents a serious obstacle to migration away from agriculture (TYRAN 2002a).

Farms, especially in this part of Poland, have become a kind of social buffer, a sponge absorbing unemployed into the already overcrowded and beleaguered sector. With growing costs of production and decreasing processing of agricultural products, there are more and more farms producing for their own needs and more farmers who have stopped all agricultural activities. According to the last Polish agricultural census (June 2002) 26.4% of previously cultivated land is now fallow. In Małopolska, this number is 28.4%. At the same time, small farms in Małopolska are still being divided among heirs. The average farm dropped to 2.61ha (2.10 of arable land) with 21,037 new units (between the two agricultural censuses, taken in 1996 and 2002, the total number of farms increased by 4.2%) of area below 1ha and 4,746 new units of area 1-2 ha. Only 15.2% of farms produce mostly for the market.

Stopping agricultural production or reducing it to a farm's own needs are not the only ways of coping with the present situation. Searching for non-farm, especially unearned income is another way – for 45.5% of the farming population in Małopolska, the main or only source of income are pensions (18.5%), disability benefits (18.5%) or other social benefits (8.5%) (TYRAN 2002b).

In such a situation, one can hardly discuss the adjustment of farms, at least in that region, to the EU economy. But the trends of the CAP, which have been towards sustainable agriculture and rural areas development, could create a niche for small farms, or at least that portion which still sells some of their products on the market. According to the 2002 Agricultural Census, 28% of Polish farms did not buy artificial fertilisers, nor lime or any pesticides. In the group of farms of 1-2 ha, this number was 45.8%. In the same group, 52% of farms had no connection with the market at all.

Concerning the economic and natural conditions of agricultural production, the Małopolska Region can be divided into three zones of rural development:

- Northern zone, with the highest agricultural production, larger farms and less densely populated. This zone comprises about 50% of the whole Małopolska Region.
- Middle zone, densely populated, strongly urbanised, with a high share of part-time farmers and extremely small farms;
- Southern zone, characterised by a high share of sub-mountain and mountain areas, with significant tourist values and a high share of non-agricultural income in farmers' total family income;

Thus, even the Małopolska Region is divided, and its different zones require various means of development (ŻMIJA 1999). The Northern zone has farms that are 30% larger than the average in Małopolska. This is the region where agriculture restructuring and modernisation can be expected. But this area also needs non-agricultural jobs to increase production efficiency. The economic power of farms can be improved by specialisation, concentration, cooperation, and the development of branches complementary to agriculture. The area has good soil for vegetables and industrial plant production.

The weaknesses of that area are its too high employment in agriculture, too low education level, low scale of production in small farms, lack of farmer cooperation, and the low level of technical infrastructure. Chances for this sub-region can be seen in the possibilities of establishing new fruit and vegetable processing firms, new services (especially along the main traffic routes) and infrastructure development.

Considering the improvement of economic efficiency in the sub-region, the following actions should be taken:

- creating conditions for land concentration and farm enlargement,
- creating possibilities for the ongoing education of rural inhabitants,
- creating conditions for the specialisation of agricultural production,
- rebuilding and development of rural co-operation, especially on vegetable and fruit production, dairy production, input and output of farms.

The second sub-region, the Middle zone, is characterised by a very high population density, twice as high as the Polish average. The biggest urban agglomerations are around Krakow, Rzeszów and Tarnów, with a high share of part-time farmers, employing 50 persons per 100 ha of agricultural land (twice the average of Poland) and very small subsistence farms. The average farm is 27% smaller than the average for the Małopolska Region. And although this region has well-developed infrastructure, the scale of small farms production, if they produce at

all, is very low. The farms are poorly-equipped and have no capital to change the situation. The rural and agricultural structure of this sub-region seems to be rather constant, with low chances for revolutionary changes.

The third sub-region, the Southern zone, is mostly sub-mountain and mountainous regions. The mountain areas in Poland comprise 8% of its territory (25,000 square kilometres). The mountain territory is not only meaningful for agricultural, but also for tourism, recreational and hydrological functions. There are two main mountain ranges: the Polish Carpathian, which cover 71.8% of *gminas* and the Sudety, which cover 28.2% of *gminas*. Inhabitants in that region make up 19.1% of the Małopolska Region's population. Agricultural employment there, at 68 persons per 100 ha of agricultural land, is three times higher than in the rest of Poland.

The costs of production in that region are higher, by 30-50% in plant production and 20-30% in animal production. The difficult and more costly conditions of production mean lower incomes for farmers - about 40-60% lower in comparison with the rest of the country. This conforms the opinion that agriculture in that region cannot be effective without external subsidies. In those mountainous areas there is a high share of grassland, thus, cattle and sheep production has been seen as the only alternative to agricultural production. With high production costs and low prices of agricultural products (milk, lambs) the farms have serious problems achieving income.

It should be stressed that agriculture in mountainous areas has a double and complementary role – production and non-production. The non-production role consists of maintaining the landscape, environmental values and biodiversity, all of which should find understanding, social recognition and financial support from the state.

For areas having a shortage of agricultural land in comparison to the number of inhabitants, multifunctional development seems to be the best solution. Thanks to the very high tourist attraction of the region – rural tourism and agro-tourism, as well as the production of ecological foodstuffs, should be the best solutions.

This is also an area with a relatively clean environment, historical and cultural heritage and strong local identity. With direct payments and sources from the Sectoral Operational Programme, the area should have a considerable amount of money to improve the financial situation of farmers.

From this brief description of the three Małopolska sub-regions, it can be seen that they need different ways and measures to cope with economic and organisational problems in both agriculture and in rural areas.

#### 4 DISCUSSION

On May 1<sup>st</sup> 2004, Poland and nine other countries joined the European Union. During the process of negotiations, the agriculture sector was the most difficult point for both sides, as joining the EU also means implementing the Common Agricultural Policy, structural funds and other Community policies. Negotiations also concerned establishing production quotas for commodities receiving the highest amount of EU support (sugar, milk) and direct support and its limits (mainly the base area, the reference yield, the number of animal premiums). Following accession to the EU, under various EU policies, Polish agriculture and rural areas will receive roughly €7.2 billion from the EU budget between 2004 and 2006, i.e., an average of €2.4 billion annually, which is around twice as much as the national budget expenditure on agriculture, agricultural markets and rural areas in 2002.

The received amounts will be spent on:

- direct payments amounting to 25%, 30% and 35% in 2004, 2005 and 2006, respectively, topped up to 55%, 60% and 65% from the CAP 2<sup>nd</sup> pillar and national budget resources,
- market intervention,
- Rural Development Plan,
- Sectoral Operational Programme: Restructuring and Modernisation of the Food Sector and Rural Development<sup>1</sup>.

Poland has defined the following objectives for rural development:

- enhancing the attractiveness of rural areas for inhabitants and entrepreneurs;
- strengthening economical sustainability of the farming sector while preserving the environment;
- increasing competitiveness of the food processing sector by improving food quality and adapting supply to market requirements.

Under several objectives and priorities, farmers are going to have the right to financial support. Direct payments can be combined with payments from three other programmes, such as: investments in agricultural holdings, setting up of young farmers, training, forestation, ecological production, maintaining extensive meadows, maintaining extensive pastures, and preserving local farm animal breeds. Also, 53% of Poland received the status of Less Favoured Areas – meaning additional payments to farmers.

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<sup>1</sup> Agriculture and Food Economy in Poland in the Context of Integration with the European Union (2002): Ministry of Agriculture, Warsaw, <[www.minrol.gov.pl](http://www.minrol.gov.pl)>.

From May 1<sup>st</sup>, 2004, Polish farmers have the right to receive direct payments according to a “simplified” manner of calculating, which means per hectare of land. This will amount to about €100 (450-500zł) per hectare. Farmers will also have access to structural funds and several programmes addressed to agriculture and rural areas.

It is easy to reckon that for most Małopolska farms, direct payments will be a kind of additional social support helping them survive difficult times as they seek employment outside of the farming sector.

## 5 CONCLUSIONS

Economic development in Małopolska rural areas cannot be based on the development of agriculture. Farms are too small, economically too weak and have always been treated more as a habitation and safe haven than a sole or even main source of income. According to data from the Agency of Restructuring and Modernisation of Agriculture in Krakow, on June 30<sup>th</sup> 2004, (the deadline for direct payments applications) of 216,800 farms in the Małopolskie *voivodship*, 170,000 were registered in the IACS system but only 128,204 applied for direct payments – just 59.1% of all farms. Over 40% of the farms did not want or care to make applications. Some of them had valid reasons, such as unsettled land ownership, plots too small to qualify for payments, and so on.

The Małopolska farmer and his family need, most of all, non-agricultural jobs. The chances of economic development in Małopolska are seen in multifunctional rural development as a result of the entrepreneurial attitude of local communities and individuals. That attitude, however, must be stimulated by adequate education and advisory services provided by local and regional authorities and organisations. We cannot expect changes in the socio-economic structure of the rural population and improvement of agriculture profitability without absorbing the redundant labour force.

The multifunctional rural development pointed out as the only way of improving the situation in rural areas has been a very slow process with many obstacles. But there is a chance that EU funds will help improve infrastructure, stimulate investments, and most importantly, provide new jobs, thus letting some of the “unnecessary” members of farm families find non-farm sources of income.

Turning these chances into accomplishments can be the engine driving Małopolska towards the “European” level of development.

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# **FUNCTIONING OF AGRICULTURAL FACTOR MARKETS**

## FACTOR MARKET IMPERFECTIONS AND POLARIZATION OF AGRARIAN STRUCTURES IN CENTRAL AND EASTERN EUROPE

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### ABSTRACT

The paper tests for the inverse relationship (IR) between farm size and output per hectare for Central and East European (CEE) countries, utilizing data from representative recent farm household surveys from five CEE countries (Albania, Romania, Bulgaria, Slovak and Czech republics). The findings reject the IR in all tested countries. The hypothesis explored to explain the results is whether there are financial constraints among farmers in CEE countries, and whether these constraints operate in a differential way between different sized farm households, so as to lead to some type of polarization. The empirical results are consistent with the hypothesis that there are indeed financial constraints among farmers in CEE countries, and that these constraints seem to operate more tightly for smaller farmers. It is also found, that the shadow prices of capital and labor are related to farm size in a way that is consistent with a pattern of polarization.

**Keywords:** Farm structures, inverse relationship, market imperfections, credit constraints, transition agriculture, Central and East Europe.

### 1 INTRODUCTION

During the past decade and a half considerable effort has been put into agricultural restructuring in the countries of Central and Eastern Europe (CEE) that are undergoing transition to a market economy. The last decade has also coincided with considerable increase in inequality in all transition economies. The fall in agricultural output in the the CEE during the 1990's, can be accounted for by declining factor use such as declining land and labor use, lower input use, and deteriorating machinery stock. However, the reasons for the decline of these productive factors are structural. They reflect the continuing rigidities in the land, product, and credit markets.

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It has been hypothesized (SARRIS et al., 1999) that because of the pre-reform high capital intensity of agriculture in transition economies, which was consistent with a low implicit relative price of capital, and the inability to adjust agricultural technology during the early phases of transition, the sharp increase in the relative price of capital during the transition has resulted in marked duality in some countries, and low levels of agricultural technology in others. Capital market imperfections seem to be constraining the expansion of output of smaller farms, as well as the technological adaptation of all farms.

The purpose of this paper is to suggest that imperfect factor markets, and particularly imperfect credit markets among the new private farmers in CEE countries tend to create polarized agrarian structures. In other words the current organization of factor markets leads to concentration in emerging production structures, and a dualistic pattern of production, especially among the new private farms. The nature of these unequalizing tendencies in the rural sectors of the CEE region will be explored and tested using recent surveys of farm households from five countries in CEE, namely Albania, Romania, Bulgaria, the Czech and Slovak republics.

The methodology of investigation concentrates on the relationship between farm size and output per unit of land, one of the well known and researched topics in development economics. One of the “stylized facts” of rural development is the inverse relationship (IR) between size and output per hectare, and it is a most common argument for land reforms that can presumably lead to both equity and efficiency. The relationship has been empirically observed to exist in many developing countries, but the factors behind it are not agreed upon (for a recent survey see HELTBERG, 1998). The existence of an IR would imply that farms in CEE would tend to be more profitable at small scale and hence would negate a tendency for polarization, namely duality, as is currently observed. Lack of IR, or a positive relationship between farm size and productivity, would imply that duality is there to stay and perhaps grow in the CEEs, and the more fundamental factors behind it must be dealt with, if the countries are to obtain a more equitable farm structure.

The story that emerges from our analysis is that there does not appear to be an IR in the five countries we analyze. In fact the opposite turns out to be true. In other words output per hectare seems in most cases to be increasing with land area operated in small sizes, but in some case an IR emerges at some larger land sizes. We try to explore some of the reasons for this pattern, although we believe that the finding provides motivation for further thinking on the structure of Eastern European agriculture.

Section 2 below presents some empirical evidence on the structure of private farms in five CEE countries, as well as the constraints they face. Section 3 analyzes a model of the productive behavior of a private farm household under market imperfections appropriate for the CEE country environment and explores empirically several hypotheses. Section 4 furthers the empirical work by presenting results on the analysis of the shadow prices of capital and labor. The final section summarizes the main conclusions and implications for policy.

## **2 THE NATURE OF AGRARIAN POLARIZATION IN CEE COUNTRIES, AND THE CONSTRAINTS FACING FARMERS**

In this section we provide evidence on constraints, the operation of land and credit markets, and farm structures for five CEE countries, Albania, Bulgaria, Romania, Czech Republic, and the Slovak republic. These countries differ considerably in terms of their level of development and path of farm adjustment and transition. Albania, Bulgaria and Romania are low income countries, with average GDP per capita in 2001/2 equal to \$ 1451, 1818 and 1917 respectively, while the corresponding figures for the Czech and Slovak republics are \$ 6180 and 4090 respectively. Agriculture in the first three countries accounts for large shares of GDP (25 percent in Albania, 13 percent in Bulgaria and 18 percent in Romania in 2002), while in the other two countries agriculture accounts for about 4 percent of GDP. The patterns of agricultural restructuring among these countries differed considerably, with Albania and Romania relying largely on equitable land distribution to former farm workers and farmers, while the other three countries relied on restitution to former land owners.

In Albania, agriculture is the dominant sector providing livelihood for about half the population. In Romania the 1991 land reform restituted 73 percent of arable land to private agents, and consequently peasant farms and small informal and formal associations of farmers replaced the traditional state and cooperative farms that existed during the communist era. Maintenance, however, of monopolistic input and output structures resulted in severe output declines. The land sales market was also severely constrained with bans on sales until 1998.

Agricultural production in Bulgaria is currently carried out by enterprises registered under the commercial law as well as private owners not registered under the commercial law. The latter are what may be termed household farms, albeit many of these are very large. Of the cultivated land, private household producers cultivated in 1996 about 56 percent, the rest being cultivated by registered enterprises (private such as co-operatives, and public). Of private unregistered farms, 71% are smaller than 0.5 ha. There are 3506 large private unregistered farms (over 10ha), or 0.2% of all farms, which, however cultivate 66% of the total cultivated private sector land. There is thus extreme duality in production.

The striking feature of post reform agriculture within the Czech and Slovak republics is that within the privately and individually operated farms, there seems to have emerged extreme duality. In the Czech republic in 1997, 27642 commercial farms cultivated 92.2 percent of the agricultural land, while about 300 000 individual small farms, averaging in size 1-1.5 Ha, cultivated only 7.8 percent of the agricultural land. The situation in Slovakia also appears to be quite dualistic. According to KABAT and HAGEDORN (1997) in 1994 there were only 8931 surveyed farm production units (not counting household plots). The individual private farmers accounted for only 4 percent of the agricultural land of all these entities, with co-operatives and state farms accounting for 52 percent and 40 percent respectively. Among the few individual farmers 76 percent were smaller than 10 ha, but they farmed less than 15 percent of the land. The pattern appears to be similar to that in the Czech Republic.

The farm-household surveys underlying our analysis were carried out during 1998-2000 and were sponsored by the EU Phare-ACE program. All of the surveys utilized random samples or rural farm households, but differed on the scale of their coverage, with Albania, Bulgaria, and Romania using national samples, while the ones in Czech and Slovakia using samples from two representative regions.

Table 1 illustrates general information of the surveyed farm households in the five countries under discussion. In all countries, average per capita cash expenditure of the households included in the surveys is considerably below the national GDP per capita figures discussed earlier, suggesting that the farm households in these countries spent less than half of the national average. The age of the head of an average farm household in Romania and Bulgaria is significantly larger than the age of heads in Albania, Slovak and Czech republics. It is also the case that the average education of heads is much lower in Romania and Bulgaria compared to Slovak and Czech republics, although not much lower than the education of heads in Albania.

We also note that while the share of households receiving non-farm incomes remains relatively low; the shares are much lower in Albania and Romania, than in the Czech and Slovak republics. This suggests that the non-farm rural sector in these countries is still fairly undeveloped and cannot provide for supplementary incomes to farm families. Farm households in Albania, Romania and Bulgaria have significantly lower amounts of land owned than those in the Czech and Slovak republics. The same holds for the average amount of land owned.

**Table 1: General characteristics of farm households in the five surveys**

	Albania	Romania	Bulgaria	Slovak Rep.	Czech Rep.
Per capita cash expenditure (US\$/year)	303.96	225.6	356.4	1260.9	1004.8
Age of head of household (years)	50.2	63.68	61.27	51.98	51.25
Education of head (years)	8.15	7.16	6.94	11.44	11.47
Percent of households with non-farm income	24.2	5.9		32.5	49.8
Average land owned (ha)	1.06	2.89	1.71	13.47	26.02
Average land cultivated (ha)	1.69	2.6	1.23	46.05	48.88
Percentage of farms with cultivated land in the following size classes*					
0-2 ha	87.17	47.91	81.93	28.40	29.87
2-3 ha	9.31	18.56	5.10	7.52	6.21
3-5 ha	2.94	21.42	5.74	4.85	10.74
5-10 ha	0.41	10.44	4.04	8.25	8.89
10-50 ha	0.08	1.67	2.48	29.85	26.85
>50 ha	0.08	0.00	0.71	21.12	17.45
No of observations	1232	1407	1672	403	598

Notes: \* Different types of land have been converted to arable equivalent by scaling by appropriate factors.

Source: Authors' calculations from ACE surveys.

The table also indicates the size distribution of farms in the five countries according to equivalent land. It can be seen that in Albania, Romania and Bulgaria most farms are very small, but there are few farms, especially in Albania and Bulgaria that are quite large. In Slovakia and the Czech republic on the other hand it can be seen that the distribution appears to be bimodal, with most farms at the extreme land size classes.

There appears to be an excess demand for land to lease in the Slovak and Czech republics (where there are few large scale private farmers) but elsewhere the land lease market appears to be in balance. There is a significant proportion of farm households in all countries and all sizes, that would like to obtain more off-farm work, and are unable to do so (because either there is no work to be found, or the wages are too low). This implies that many farmers have spare time, namely that the implicit or shadow cost of labor is small. Indeed it appears that many small and even some large farm households appear to have both excess labor, since they would be willing to work off-farm, as well as excess land, since they are leasing land out on average. Apparently something is preventing these

farm households from combining their endowments of land and labor to produce more agricultural output. This could be credit, albeit this does not seem to be so from the credit questions, or lack of know-how, or some other factor.

Table 2 indicates the percentage of farmers among those that wish to expand farm production that regard four types of constraints as significant. The availability of own or borrowed funds is the most binding constraint in all countries. Various market related problems (such as low prices of output, or high input prices, or difficulty with buyers, etc) appear to be a significant constraint only in Bulgaria and the Slovak republic. However, note that this constraint seems to be correlated with the size of cultivated land (not shown here). This suggests that marketing problems affect disproportionately negatively the larger farmers who presumably have more needs in terms of product outlets and inputs, and are more sensitive to prices. This implies that the markets for products and inputs still do not function efficiently in these countries. It could also be the case that since the larger farmers are more exposed to the markets, they are more vulnerable to market signals.

**Table 2: Among those desiring to expand agricultural activities, percentages of those who regard different constraints as most important**

	Albania	Romania	Bulgaria	Slovakia	Czech R.
Finance	49.3	48.3	19.8	30.8	41.4
Markets	12.2	18.9	57.1	41.2	23.2
Land	15.8	10.2	34.5	8.1	23.7
Labor	7.8	4.9	5.0	3.8	3.0

Source: Authors' calculations from ACE surveys.

Land appears to be a significant constraint only in Bulgaria, while it does not appear to be a major constraint in any of the other countries. Apparently the ability to rent or lease out land is something that alleviates the land constraint in most countries, but does not seem to do so in Bulgaria. Labor (both family or hired) does not seem to be a constraint anywhere, and this result is consistent with the observation that the transition has created situations of excess labor supply in the rural sectors of most affected economies.

The tentative conclusions on factor markets are that land rental markets are not a major constraint, albeit land sales markets are severely constrained, despite the fact that these countries are among those that are supposed to have completed the legal frameworks for proper land market functioning. Second, it appears that availability of own funds and credit are the main constraints to expanding farm investments and operations, but land availability seems to also be an important constraint. Third, there still appears to be a large excess supply of rural labor.

### **3 THE INVERSE RELATIONSHIP AND ITS PREVALENCE IN CEE AGRICULTURE**

It is well known that when markets are perfect, then all producers should face the same output and factor prices, and this, under constant returns to scale, should lead to them to adopt factor ratios that are invariant to size. This implies that there should be no IR between farm size and land productivity (the ratio of farm output to land operated). Hence the relationship that has been observed in many developing countries since the 1960s must either be questioned on the basis of unobserved variables not entering the empirical analyses, or must be explained in terms of some kind of imperfection.

There have been two major reasons proposed in the literature to argue against the existence of the IR. The first concerns unobserved variables such as land quality (BENJAMIN, 1995) while the second concerns the hypothesis that the Green revolution may have altered or reversed the IR (DEOLALIKAR, 1981). Empirical tests of these in some countries have produced inconclusive results. On the other hand, there are several reasons that could account for the IR, such as economies of scale, differences in efficiency between large and small farmers, asymmetrical market imperfections, or some combination of the above.

The presence of factor market imperfections and its invalidation of the IR has been examined by HELTBERG (1998), albeit not for CEE. He examines four types of imperfections, namely those in labour markets, land markets, credit markets, and risk. Labour market imperfections basically operate through the existence of supervision costs for hired labour. This implies that the supervision constraint on output is more binding on larger farms, and hence that the presence of the IR would be evidenced by an inverse relationship between labour input per hectare and farm size, at least above a certain size. Similarly a regression of output per unit of land on size should exhibit a negative coefficient.

The land market imperfection works via the transactions costs of both buying and selling land, as well as renting in and out. In countries of the CEE imperfections in land sale markets are well known. However, rental markets have developed to counteract these imperfections. DEININGER et al. (2004), using the same surveys as in this paper, have shown that rental markets for productive agricultural land, tend to make up for the imperfections in land sales markets, but that the major factors impeding the full functioning of the land rental markets are credit constraints.

Credit constraints have been known for a long time to affect production and size (FEDER, 1985, ESWARAN and KOTWAL, 1986). The basic assumption used in all studies is that assets, including land, affect positively the availability of credit, and through this the availability of inputs and hired labour, and hence they should affect positively land productivity.

Finally the effect of risk on productivity appears to be ambiguous, and may depend of household endowments.

We utilize a modified version of HELTBERG's (1998) model. His model is suitable for the simultaneous investigation of labour, land and credit constraints. The type of equation we estimate is the following

$$\frac{\text{Output}}{AO} = f(AO, AW, Assets, H, Z) \quad (1)$$

where output is a measure of farm production, AO is area operated, AW is area owned, Assets stands for other major household assets that could be considered as correlated with credit availability, H is the amount of household labour resources, and Z is a vector of household specific variables.

In the above model, a negative coefficient for AO implies the IR. A positive coefficient on AW and Assets implies the existence of credit constraints, while a negative coefficient indicates a supervision constraint. A negative coefficient of H also implies supervision constraints and hence IR.

We used two measures of farm output. The first is gross value of output, and the second is gross value added, computed as gross value of output minus all cash non-land costs of production (for inputs as well as hired labour). We estimate all regressions with district fixed effects. We use household specific variables such as education and age of head to account for individual fixed effects.

Table 3 exhibits the results using the gross value of output measure. Results using value added are similar and are not reported. We use a third order polynomial for the land variable in order to allow flexibility for the IR relationship. We also use the ratio of owned to operated land to avoid co linearity problems, just like HELTBERG did. The results indicate that in all cases the relationship between productivity and farm size is significantly nonlinear, but with a positive rather than negative slope. The ratio of owned to operated land is positive and significant in all cases, suggesting that credit constraints are important. The same is true about the number of animals, which in all countries are a significant farm asset. The dummy for whether the household uses hired labour and purchased inputs is always significant, suggesting that there is a credit constraint that affects the productivity<sup>1</sup>. The same is true about the ownership of large machinery. The coefficient of the size of the household is nonlinear with a positive coefficient in the linear part. This seems to be consistent with the existence of a supervision constraint but not with IR. It is interesting that the fit of all equations is quite good, with no R-squared falling below 0.32, and the highest (for Albania) being 0.76.

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<sup>1</sup> The equations were also estimated with the value of all hired labour and purchased inputs instead of the dummy, and they gave nearly identical results.

The nonlinear relations between (logs of) gross value of output per hectare and value added per hectare and operated land, as estimated from the results of tables 3, when plotted, suggest that for all countries there does not appear to be any IR for small land sizes, namely smaller than 2-3 hectares. In fact the productivity size relationship at these small sizes appears to be positive in all cases. The IR appears in all countries to be exhibited for land sizes above 3 Hectares, and for Albania and Bulgaria appears to persist for all land sizes above that. For Romania above 15 hectares, the relationship appears to turn positive again. For Slovakia and the Czech republic there appears to be a very mild IR for sizes above around 15 hectares, that persists for larger land sizes.

The results are all the more interesting given the distribution of farms according to operated land (re. Table 1). In Albania, the bulk of the farms is below 3 Ha. Hence the non-existence of IR in this size range involves the majority of farms, and suggests that there are other factors conditioning farm productivity. In Romania there appears to be IR among about half the farms that are in the 2-10 Ha size class, while a positive relationship appears for the smallest farms that constitute about half of the farms. In Bulgaria, the situation is similar to that of Albania, as the positive relationship is in the range that includes most of the farms.



**Table 3: OLS regression results of total gross value of output per Hectare**

	Albania	Romania	Bulgaria	Slovakia	Czech
Log Total Land Operated (Ha)	8.628*** (17.40)	3.516*** (11.60)	2.951*** (8.43)	2.053*** (4.54)	0.511*** (3.86)
Square Log Total Land Operated	-5.950*** (13.43)	-2.627*** (11.34)	-1.548*** (7.59)	-0.532*** (3.09)	-0.108*** (5.22)
Cube Log Total Land Operated (Ha)	0.987*** (10.52)	0.467*** (9.26)	0.167*** (6.15)	0.042** (2.33)	
Ratio Land Owned Land Operated	1.269*** (10.14)	1.177*** (18.07)	1.252*** (18.39)	1.167*** (7.63)	0.397*** (4.86)
Has used non labour & labour inputs	2.885*** (16.36)	1.179*** (12.66)	1.654*** (11.16)	2.661*** (9.25)	2.890*** (10.13)
Number of animals(1)	0.076*** (3.31)	0.163*** (11.72)	0.061* (1.80)	0.010* (1.94)	0.003*** (3.58)
Has tractor or truck or combine	0.224 (0.84)	0.016 (0.11)	0.323 (1.14)	0.329 (1.49)	0.414*** (2.61)
Log household's size	1.256* (1.77)	0.876** (2.00)	1.875** (2.21)	-0.023 (0.01)	0.457 (0.43)
Square log household's size	-0.382* (1.78)	-0.158 (1.03)	-0.518* (1.66)	0.079 (0.15)	-0.085 (0.24)
Log head's age	-0.220 (1.20)	-0.186** (2.38)	-0.224** (2.33)	-0.734* (1.77)	0.410* (1.66)
Log head's education	0.666* (1.88)	0.376** (2.25)	0.324 (1.35)	0.071 (0.11)	-0.237 (0.71)
Square log head's education	-0.214** (2.16)	-0.032 (0.59)	-0.117 (1.22)	-0.087 (0.35)	0.106 (0.83)
Constant	4.118** (2.30)	1.100** (2.31)	2.052** (2.20)	3.059 (1.44)	0.772 (0.58)
Number of districts (2)	37	8	9	4	11
Observations	1222	1676	1412	412	596
R-squared	0.76	0.41	0.35	0.45	0.32

Notes: (1) Number of animals = number of cows + 0.3\*number of pigs +0.2\*(number of sheep + number of goats). (2) Dummies for districts: Estimated but not reported. Absolute value of t statistics in parentheses \*Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: Authors' computations.

#### **4 EMPIRICAL RESULTS WITH THE MARGINAL PRODUCTS OF LABOUR AND CAPITAL**

Given the above results, which seem to deny the IR for a large part of the farm sector in the transition economies of the CEE, some analysis is in order concerning the degree of factor market imperfections, as a function of operated land. To do this we apply a method utilized by CARTER and WIEBE (1990). Their method consists of first fitting a standard Cobb-Douglas (CD) production function to the farm production data, then computing the marginal products of capital and labour for each farm on the basis of the estimated parameters of the CD production function, and finally regressing the computed marginal products on size.

Table 4 reports the results of our estimates of the CD production functions. As capital is a variable that is difficult to measure, we employ different variables to proxy for capital. The number of animals owned (in bovine equivalent units) seems to be a good proxy for capital in most CEE countries. Another variable that we utilize is the number of large machinery (such as tractors, combines, etc.), and the value of large machinery, which we have only for Romania and the Czech republic.

The results indicate that the land, animals, and intermediate input variables are significant everywhere. The labour variable is significant in Albania, Romania and Bulgaria, but not in Slovakia and the Czech republic. Concerning non-animal capital, the number of machinery is significant in Slovakia, while the value of large machinery is significant in the Czech republic. The sum of the coefficients seems to be larger than one in all countries, a finding that seems to be consistent with the non-existence of the IR for the smaller farms that constitute the bulk of our data.

The marginal product of labour was computed for each household for Albania, Romania and Bulgaria, for which the labour input coefficients in the CD regressions were significant. Table 5 exhibits regressions of these marginal products on land size. It can be seen that for Bulgaria, the size coefficients are not significant in both level and square level form. This suggests that in Bulgaria the shadow price of labour does not seem to depend on farm size, and this is consistent with a farm labour market that does not face major constraints or functioning problems. For Albania and Romania, the marginal product of farm labour seems to be significantly affected by operated land, and in fact it increases at small farm sizes, while decreasing for larger farm sizes. Figure 1 illustrates the results.

**Table 4: Estimates of Cobb-Douglas production functions for the CEE countries (Dependent variable Log total value of output)**

	Albania	Romania	Bulgaria	Slovakia	Czech R.
Log Total Land Oper- ated (Ha)	2.150*** (16.85)	0.560*** (10.35)	0.520*** (6.11)	0.937*** (9.26)	0.621*** (14.83)
Log total months of la- bour (family + hired) (1)	0.771*** (15.08)	0.202*** (4.99)	0.383*** (8.25)	0.022 (0.16)	0.121 (1.51)
Log number of large machinery (2)	-0.255 (0.97)		-0.095 (0.33)	0.306* (1.67)	
Log number of animals (3)	0.595*** (7.34)	1.094*** (21.33)	1.171*** (10.80)	0.361*** (3.09)	0.316*** (7.20)
Log value of intermedi- ate inputs (4)	0.238*** (12.72)	0.039*** (2.63)	0.200*** (7.14)	0.298*** (7.53)	0.225*** (9.29)
Log value of large Agri- cultural machinery		-0.018 (0.97)			0.030** (1.98)
Constant	4.184*** (3.27)	3.596*** (24.91)	2.824*** (5.25)	2.144*** (6.50)	4.859*** (16.61)
Number of districts (5)	37	8	9	4	11
Observations	1224	1676	1412	412	596
R-squared	0.79	0.43	0.36	0.55	0.73

Notes: (1) For the Czech republic we use data only for hired labour. (2) In Romania and the Czech republic we use the log of the value of large agriculture machinery. (3) Number of animals = number of cows + 0.3\*number of pigs +0.2\*(number of sheep + number of goats). (4) Total value of seeds, feed grain, hay or other fodder, fertiliser, chemicals, concentrated feed. (5) Dummies for districts: Estimated but not reported. Absolute value of t statistics in parentheses. \*Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: Authors' computations.

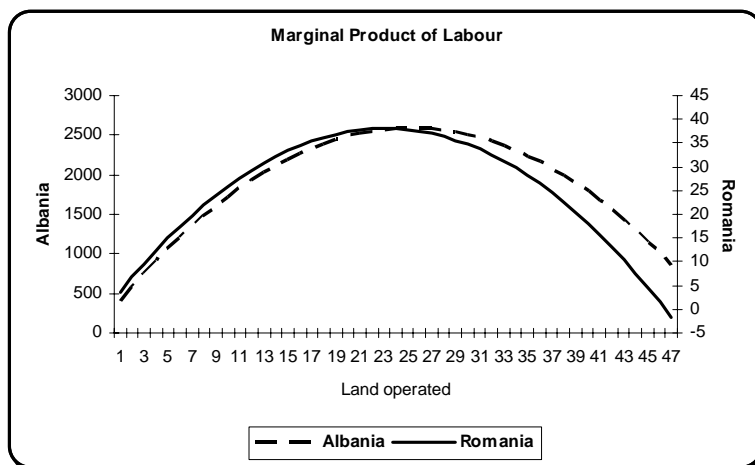
**Table 5: Relation of marginal product of labour to operated land**

	Albania	Romania	Bulgaria
Land operated (Ha)	180.084*** (9.42)	3.094*** (8.92)	0.216 (0.37)
Square land operated (Ha)	-3.743*** (8.64)	-0.070*** (5.70)	-0.000 (0.42)
Constant	397.817 (0.83)	3.709* (1.81)	14.146 (0.28)
District Dummies	37	8	9
Observations	1107	1652	1168
R-squared	0.21	0.07	0.02

Notes: Absolute value of t statistics in parentheses. \* Significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%.

Source: Authors' computations.

This is a pattern that seems consistent with credit constraints. Various models of farm production under credit constraints (ESWARAN and KOTWAL, 1986, KEVANE, 1996, CARTER and WIEBE, 1990, KEY et al., 2000) have shown theoretically that under credit constraints the marginal product of labour is equal to the market (or efficiency) wage multiplied by a factor that is equal to one plus the shadow price of the capital or credit constraint. Hence if the credit constraint is very binding, leading to a large shadow price, the marginal product of labour is large. The pattern observed for the marginal product of farm labour in Albania and Romania seems to suggest that the shadow price of capital is not too large at low farm sizes, increases as farm size increases and declines at large farm sizes.

**Figure 1: Relation between marginal product of labour and operated land in Albania and Romania**

Source: Authors' presentation.

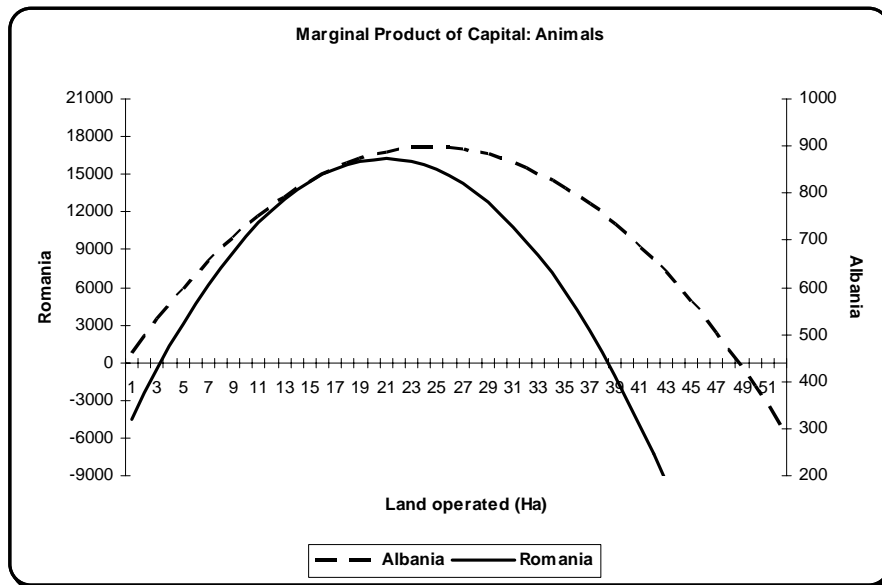
This seems to be corroborated by regression results in table 6, that are also reflected in the plots of the marginal products of capital (animals) for Albania and Romania in figure 2. (the plots for Bulgaria and Czech are similar except that the turning point is at a much larger land size). Table 6 exhibits the results of regressions of the marginal products of capital (as proxied by the number of animals) on operated land. The regressions were done only in countries and cases for which the coefficients in the production function relationships were significant. The table indicates that the marginal product of animals is significantly affected by operated land size in all countries, and with the same sign pattern on the level and squared level variables, except Slovakia.

**Table 6: Relation of marginal product of capital (animals) to operated land**

	<b>Albania</b>	<b>Romania</b>	<b>Bulgaria</b>	<b>Slovakia</b>	<b>Czech</b>
Land operated (Ha)	1,392.545*** (13.57)	55.633*** (4.98)	27.553*** (5.09)	4.163 (1.44)	25.233*** (4.51)
Square land operated (Ha)	-29.479*** (12.91)	-1.398*** (3.68)	-0.036*** (4.09)	-0.003 (1.26)	-0.016*** (4.15)
Constant	734.029 (0.31)	321.987*** (4.94)	813.058 (1.46)	1,159.853*** (5.48)	694.650 (0.66)
District Dummies	37	8	9	4	11
Observations	941	1456	1057	209	402
R-squared	0.43	0.07	0.07	0.07	0.07

Source: Authors' computations.

**Figure 2: Relation between marginal product of capital (animals) and operated land in Albania and Romania**



Source: Authors' presentation.

For Albania and Romania, figure 2 suggests a pattern of shadow price of animals that reflects exactly the plot of the marginal product of labour under the assumption of credit constraints that are size dependent. In other words, in these countries small farmers face a shadow price of capital that is increasing with size up to a certain farm size level and declines afterwards. The same seems to be the case for all the other countries (except Slovakia), except that the coefficients of the second order terms, albeit significant are much smaller, indicating that the turning point is at a much larger farm size. The results indicate that the shadow price of capital is not constant in the CEE countries for all farmers, but is increasing for small farmers, while it is decreasing for larger ones.

## 5 CONCLUSIONS AND POLICY IMPLICATIONS

The results of this paper suggest that while factor markets in CEE countries are important, it is only some of them that constrain farm, and consequently agricultural development. While land and labour markets do not seem to pose major problems ten years after the onset of transition, credit and financing issues appear to be the major ones constraining farm expansion and operation. This may seem somewhat counterintuitive, given the large emphasis given at the early transition phase, by most CEE country governments to agricultural land distribution and market issues. In fact, it is generally acknowledged that land sales markets are still quite heavily constrained in CEE countries. However, land rental markets have made up for most of the rigidities in the land sales markets, with the result that farmers now can expand the amount of cultivated land relatively easily, given that they have enough capital to do so.

The credit constraint, however, seems not only to be binding, but also to be more binding for smaller farms. In other words, it appears that small farms, which in some CEE countries, such as Albania, Romania and Bulgaria, constitute the bulk of all farms, are heavily constrained on the credit side, and hence face problems of expansion, capital restructuring, and even operations. This, does not seem to be the case for the largest farms. This has considerable implications for both agricultural development as well as income distribution, and calls for policies to redress the apparent imbalances and inequities in factor and especially credit markets.

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## AGRICULTURAL CREDIT MARKET IN POLAND – EXPERIENCES IN THE MARKET ECONOMY

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### ABSTRACT

The aim of the paper is to analyse the processes which took place on the agricultural credit market in Poland during the last 14 years. The study showed that in the 1990s, a solid and stable base in the credit market was established, with many agents operating in it. The cooperative banks have a leading position among credit intermediaries. Farmers' demand for investment loans was connected with prosperity in the economy, which influenced the farmers' expectations of agricultural production. State intervention in the agricultural credit market was immense. The state intervened in the form of preferential loans and supported banks, which mainly operated in the food sector.

**Key words:** credit market, cooperative bank, preferential credit

### 1 INTRODUCTION

In this paper, the processes of adapting to the market economy, which the agricultural credit market in Poland underwent during the 1990-2003 period, is examined. Under conditions of low agricultural income and the necessity of broad and deep restructuring in Polish agriculture, the credit market, as an external source of financing current production and investment, can play a very positive and important role for the development of agriculture and rural areas. The analysis focuses on the determinants of farmers' credit demand, changes in the supply side of the market and the role of the State.

The term "agricultural credit market" is used to describe loans given to farmers. To realise the aim of the paper, various sources of data were used – official statistical data of GUS, reports of the Central Bank of Poland and the Banking Supervision, the state agency responsible for the preferential loan system, and the results of various studies. The main method of analysis is qualitative analysis, supported by quantitative analysis as a background.

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## **2 THE AGRICULTURAL CREDIT MARKET IN THE SOCIALISTIC PERIOD**

In the communist economy, there was a large private sector in Polish agriculture. In 1989, this sector included about 2,100,000 farms of an average size of 6.3 ha<sup>1</sup>. Individual farmers owned about 76% of all agricultural land, and conducted operations on their own account, at their own risk. Farmers bought/sold their means of production and their products on the market. The characteristic feature of these markets in a centrally-planned economy was the presence of many individuals (farmers) on the demand/supply side and the centrally-managed state or cooperative firms on the other supply/demand side. Because of this, the market in communistic countries did not behave like the market in western (market) economies. BEKSIĄK called it the one-sided market (BEKSIĄK 2001), which refers to the agricultural credit market as well.

### **2.1 Agricultural credit performance in the centrally-planned economy**

At the end of the 1970s, nearly 40% (800,000) of farmers were in debt (BIERNACKA 1981). At the beginning of the 1980s, because of the economic crisis and a decrease in granting preferential loans, the level of debt fell (DANIŁOWSKA 1996). In 1987, 26% of farms were in debt (HYBEL 1990). During the last two years of that decade, a rapid decrease of farmers' debt was observed (DANIŁOWSKA 2001). This phenomenon was an effect of a very high inflation rate. The price indices of sold agricultural products in 1988 and 1989 were very high, 183.9 and 354.9, respectively, so farmers faced a rather rare opportunity to reduce their debts in an easy way. It is worth saying that until 1988, farmers were granted loans at fixed interest rates. Reimbursements were especially intensive in the fourth quarter of 1989 and in January 1990 because an overhaul of the whole economic system was expected, including credit market changes such as interest rates and other terms of loans. As a result, farmers entered the market economy with very low debt.

### **2.2 Agricultural credit supply in the centrally-planned economy**

During the centrally-planned economy, the law gave cooperative banks a monopoly position on the agricultural credit market in Poland. Under the communist system, the cooperative character of banks was rather formal. The central bank precisely defined the range and scope of their activities, including the terms of loans for farmers, and cooperative banks followed these guidelines. It is worth mentioning that the terms of loans were stable, and moreover, the changes referred to newly-granted loans. Until 1988, banks could use only fixed interest rates, but in this year the floating interest rate was introduced, restricted as it was

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<sup>1</sup> In the period of communist economy, the farms' structure, due to area, was changing rather slowly.

to newly-granted loans. The banks could charge a commission, but only on commercial loans, which they used rather rarely. The advantageous terms of loans for farmers were the effect of the principle that credit is a form of “credit help”. Because of the fact that cooperative banks only followed central plans, they were not very careful granting loans and did not pay very much attention to collateral, of which the personal insurer (co-signer) was the most popular (DANIŁOWSKA 1996).

Until 1983, other institutions such as sugar factories, dairy-houses and various trade cooperatives granted credit to farmers (STEFAŃSKI 1989).

In addition to the aforementioned possibilities, private loans of rather smaller size among families or neighbours existed.

### **3 FARMERS' DEMAND FOR CREDIT – SCOPE AND DETERMINANTS**

In the communist period, farmers were isolated from competition with farmers from other countries, and, having a permanent surplus of food demand, farmers did not even compete within their home market. The introduction of a market economy showed that quick and broad restructuring of agriculture was necessary. Firstly, both single farms and the agricultural sector as a whole had to adjust to the functioning of a market economy. Secondly, the hope-evoking membership of Poland in the European Union required the preparation of Polish agriculture for integration into the single market and the Common Agricultural Policy. Polish farms were small, poorly supplied with capital and used archaic techniques of production, so the improvement of their economics was necessary to compete successfully with large farms in the European Union, which are well-equipped and apply modern production methods. Thirdly, the process of integrating farms with food enterprises has begun. Deep restructuring requires capital, and in the case of limited internal sources of financing, the role of credit cannot be overvalued.

Farmers entered the market economy with much less debt compared to 1980, 4.5 times less, in fact (DANIŁOWSKA 2001). It was an advantageous factor, but others were not so favourable. The market economy brought many new rules for operating on the credit market for all its participants. Additionally, it started with a three-figure inflation rate. In these circumstances, the banks used a monthly credit rate, the height of which can be illustrated by the central bank credit interest rates (Table 1). In January 1990, the refinancing credit interest rate was at 36%, while in February it stood at 20%. Fortunately, it declined quickly and in June reached 4%. In July, the central bank introduced an annual interest rate that reached 34%, but in the fourth quarter of 1990 it started to rise and amounted 72% in February 1991. Commercial interest rates followed the central bank rate. The situation began to improve only in May of 1991. The base interest rates, as

well as those of the market, were gradually declining (Table 1) and at the end of 2003, the discount rate<sup>2</sup> reached its lowest level since the market economy was introduced. These interest rates were very important for agricultural credit because interest rates of preferential loans paid by farmers were established as a part of the refinancing rate, (at the beginning of the transition) or the discount rate.

**Table 1: Central bank interest rates, GDP price indices, interest rate of preferential loans to young farmers and for land purchase (December 31)**

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Refinancing rate	55	40	38	35	33	29	X							
	I-36													
	II-20													
	III-10													
	VI-4													
Discount rate	48	36	32	29	28	25	22	24.5	18.25	19	215	14	7.5	5.75
Price indices of GDP	580.1	155.3	138.5	130.5	128.4	127.9	118.8	114.0	111.8	106.1	107.1	104.2	101.3	101.7 <sup>1</sup>
Interest rate on preferential credit to young farmers						6.25	5.5	6.13	4.56	4.75	5.38	3.5	1.88	1.44

Note: <sup>1</sup> CPI.

Source: National Bank of Poland <www.nbp.pl>, Statistical Yearbooks 1992-2003, GUS.

The very high interest rate at the beginning of transition affected farmers' credit demand. Additionally, some other discouraging factors appeared. The decrease in demand for agricultural products as an effect of the liberalisation of imports was the most important; bankruptcies of food enterprises and their insolvency were painful too. Farmers' income was decreasing dramatically. In 1990, in real terms, it was only 48.6% of the income in 1989. During the next year, income decreased by another 26%, while in 1992 a very small increase in agricultural income was observed. In these circumstances, farmers borrowed less money from banks. According to the results of research on this problem, on June 30, 1991, 10.6% of the examined farms were in debt. A year later that number stood at 17.8% (DANIŁOWSKA 1996).

Information about the fluctuation and size of credit demand<sup>3</sup> in the following years can be derived from a number of farm investment projects evaluated by the Advisory Centre for Agriculture<sup>4</sup> (Table 2).

<sup>2</sup> Since 1993, the discount rate is the main interest rate of the Polish central bank.

<sup>3</sup> Loans for financing investment only.

**Table 2: Number of evaluated investment projects and positive opinions**

Specification	1994	1995	1996	1997	1998	1999	2000	2001	2002
Evaluated projects	21,547	43,810	73,492	62,229	23,463	22,783	19,870	20,287	26,863
Positive opinions	19,893	43,324	73,091	62,043	23,406	22,708	19,858	20,280	26,817

Source: Own calculations based on: data from Annual Reports on Activity of the Agency for Restructuring and Modernisation of Agriculture (ARMA)(1994-2002).

Farmers were the most interested in loans during the middle of the 1990s, which was a period of prosperity in the Polish economy. This can be illustrated by the indices of real GDP from 1995-1998, which were 107.0, 106.1, 106.8, and 104.8, respectively. The level of farmers' optimism and their future expectation were rather high. 12.6% of farmers who responded to The Main Office of Statistics thought that the financial situation of their farms would allow them to increase production. When the economic situation worsened, this indicator decreased to 2.5% in February 1999, then started to rise and in February 2001 reached 4.0%.

Interest rates are considered another important determinant of investment and credit demand. The strength of its influence depends on the farmers' expectations for the future. When farmers have positive expectations, a decrease in the interest rate results in the increase of credit demand and vice versa, but as data showed, a low interest rate, even below zero in real terms (Table 1) is not a sufficient stimulator for investing and taking loans when farmers' expectations are negative. The relative importance of the macroeconomic situation over the terms of loans (preferential) are indicated by the questionnaire study of farms in the Podkarpacki region (KATA 2004).

It is worth mentioning that farmers had no problems accessing cheap loans if their credit capacity was accepted by banks. Nearly every year, the budget subsidies on interest rates were not fully used. For example, in 2000, only 75.1% of planned subsidies for newly-granted loans were used.

#### 4 THE SOURCES OF AGRICULTURAL LOANS

Generally, farmers can borrow money from two types of lenders: formal financial intermediaries (mainly banks) and informal lenders. The informal lenders

<sup>4</sup> A positive opinion of an investment project by the Advisory Centre for Agriculture is the primary condition a potential borrower must meet to apply for a preferential loan.

are of two main types: commercial (loans from traders, employers, wholesalers, individuals) and non-commercial, like relatives, friends or neighbours. Each type of lender has their own motives for lending, and the terms of loans vary accordingly.

#### **4.1 Banks as a source of agricultural credit**

The reform of the financial sector was one of the most important in the package of market reforms that Poland, as well as other countries, underwent in transition. The sector had to work under new market circumstances and at the same time had to overcome many transition-related problems, such as the different role of credit, the lack of experience and skills of banking officials in operating in market economy, limited credit supply because of the decline of the economy during transition, the accumulation of bad debts left over from the planned economy, and lack of collaterals (SWINNEN 1998).

In Poland, as mentioned earlier, the 1,664 cooperative banks were the main source of loans in the years of the communist economy. In the course of the last 14 years of a market economy, the structure of the agricultural credit market was changing gradually with regard to the number of banks, as well as with their market share. Commercial banks began to operate on this market. At the beginning of the 1990s, there were only 21 commercial banks in the Polish economy (WYCZAŃSKI, GOŁAJEWSKA 1997)<sup>5</sup>. In 2003, there were 58 commercial banks operating in Poland, not including cooperative banks. At the beginning of the transition, commercial banks focused on opening new branches in towns. But gradually, and generally thanks to agricultural preferential loans, they started to provide credit to farmers. In 1994, about 20 commercial banks were involved in the system of preferential agricultural loans. Over the course of the following years, their number grew to 29 in 1999, and 25 in 2002<sup>6</sup>.

#### **4.2 The changes in the cooperative banking sector**

The economic transformation allowed cooperative banks to occupy the position of a universal bank. Since 1989, these banks have offered their services to various clients – farmers, households, enterprises, local governments, etc. For the first three years of the transition period, cooperative banks were not under state control<sup>7</sup>. Their sudden and unexpected independence, lack of experience to act

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<sup>5</sup> Most of them were set up in 1989 as an effect of banking sector reforms that started that year.

<sup>6</sup> The number of banks decreased because of the process of their consolidation.

<sup>7</sup> Before 1990, the cooperative banks were under the control of Bank Gospodarki Żywnościowej (BGŻ). In 1990, BGŻ stopped acting as a supervisor and another was not established. Only in September 1992 did the officers of the Polish Central Bank start to control cooperative banks (ŚLESZYŃSKA and CHAREWICZ, 1994).

in the market economy and many other external (a decrease in the income of rural areas' population) and internal factors (low assets, bad quality of loan portfolio, low qualifications of managers and employees) resulted in a successive increase in the numbers of bankruptcies (Table 3).

**Table 3: Change in number of cooperative banks in 1990-2003 (31 XII)**

Specification	1990	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Number of cooperative banks (end of year)	1664	1653	1612	1510	1394	1295	1189	781	680	642	605	600
Number of bankruptcies		10	23	57	30 <sup>1</sup>	6	4	0	0	1		1
Number of liquidation		0	5	9	12	15	6	2	2	2		2
Number of mergers		0	13	37	74	78	96	406	99	35	37	17
Numbers resuming activity		0	0	1	0	0	0	0	0			0
Number of decrease		10	41	102	116	99	106	408	101	38	37	5

Note: <sup>1</sup> Regarding two specific banks, bankruptcy was stopped, so in this year the real number of bankruptcies was lower.

Sources: Summary Evaluation of the Financial Situation of Polish Banks, General Inspectorate of Banking Supervision and (ŚLESZYŃSKA-CHAREWICZ 1999).

At the beginning of 1990, there were 1,664 cooperative banks in Poland, but by the end of 2003, 130 of them were bankrupt. Since 1996, this process has been slowed as an effect of the new law regulating the restructuring of cooperative banks and the BGŻ bank<sup>8</sup>. Over the analysed period, the number of cooperative banks decreased, not only due to bankruptcies, but because of mergers and acquisitions as well (Table 3) Data from December 31, 2003 showed that 600 cooperative banks were still conducting operations, just 36% of the total number which existed in 1990.

The essential impact on the process of mergers was given by the regulation of the Commission for Banking Supervision, dated 1998<sup>9</sup>. This specified that the minimum value of eligible capital of each cooperative bank had to be EUR 300,000 for cooperative banks brought into operation before 1999, and EUR

<sup>8</sup> The Act on the Restructuring of Cooperative Banks and Bank Gospodarki Żywnościowej and Amendments to Certain Legislation of June 24, 1994 (as published in Dziennik Ustaw no. 80/1994, item 369).

<sup>9</sup> Resolution no. 9/98 of the Commission for Banking Supervision on detailed procedures for cooperative banks assembling their initial capital, August 5, 1998 (as published in Dziennik Urzędowy NBP no. 19/1998, item 45).

1,000,000 for banks set up thereafter. Cooperative banks were obliged to reach this level by the end of 1999. At the end of that year, more than half of the banks (51.5%, i.e., 402 banks) did not meet this minimum. A new deadline was therefore established for December 31, 2001<sup>10</sup>. Prior to June 30, 2002, all cooperative banks fulfilled this requirement. Before December 31, 2005, the eligible capital of a cooperative bank should reach EUR 500,000 and by the end of 2010 this number should be EUR 1,000,000. On December 31, 2003, 80.7% of the total cooperative banks had equity higher than EUR 500,000. Those cooperative banks which did not meet the minimum value of eligible capital had to join an affiliating bank. The affiliating institutions were the Mazowiecki Bank Regionalny SA, the Gospodarczy Bank Wielkopolski SA, and the Bank Polskiej Spółdzielczości SA, which on December 31, 2003, affiliated 78, 157 and 363 banks, respectively. Two cooperative banks operate independently.

During the 14 years of market economy in Poland, the number of cooperative banks decreased by about 64%. What is remarkable is that the decrease in the number of banks did not result in a decrease in the number of branch and other linked offices. The total number of head, branch and other offices grew from 2,530 in 1996 to 3,151 at the end of 2003.

Other indicators show an improvement in the cooperative banking sector (Table 4).

**Table 4: Key performance indicators, cooperative banks**

Specification	1995	1997	1999	2001	2003
Net profitability (%)	5.6	11.2	9.1	8.7	10.0
ROA (%)	1.2	2.0	1.4	1.6	1.2
ROE	27.8	30.8	17.9	19.4	12.3

Sources: Summary Evaluation of the Financial Situation of Polish Banks 1999, 2003, General Inspectorate of Banking Supervision 2000, 2004.

The cooperative banking sector has strengthened its position. The share of cooperative banks in the overall banking sector has been gradually increasing for some years (Table 5).

<sup>10</sup> The act on the Operations of Cooperative Banks, Their Affiliation, and Affiliating Banks of December 7, 2000 (as Published in Dziennik Ustaw no. 119/2000, item 1252).



**Table 5: The proportion of the cooperative sector to the total banking sector (%)**

Specification	1993	1995	1998	2000	2002	2003
Total assets	6.6	4.8	4.27	4.19	5.01	5.25
Total capital funds	8.0	5.4	4.43	4.51	4.80	5.37
Loans to non-financial customers	7.1	5,5	4.96	5.44	6.48	7.10
Household deposits	7.6	5.5	5.26	5.38	7.35	8.12
Total losses			3.77	1.12	0.83	1.54
Net earnings			5.07	7.50	9.10	6.97

Sources: Summary Evaluation of the Financial Situation of Polish Banks 1998-2003, General Inspectorate of Banking Supervision, 1999-2004.

According to estimates from the General Inspectorate of Banking Supervision, cooperative banks provide service to approximately 1,000,000 individual farms. It follows that they offer money transfer services amounting to 50% of all direct payments from EU funds coming into the Polish agricultural sector. In practice, this could be much more because a portion of the farmers having rights to such payments did not have bank accounts before 2004, and the prospect of receiving payment encourages them to open one. Many of them choose cooperative banks.

### 4.3 The new structure of the agriculture credit market

In 1989, the monopoly of cooperative banks came to an end and in that year farmers started borrowing money from other banks. Since then, and throughout the 1990s, the role of commercial banks for farmers grew, but as the figures show at the beginning of 2000, a change could be observed (Table 6).

**Table 6: The structure of farmers' debt in the banking sector, by classification (December 1999 and 2002)**

Banks	Farmers' debt in total debt of non-financial sector, in the particular group of banks (%)		Share of particular group of banks in total farmers' banking debt (%)		Farmers' debt due to preferential loans in total farmers' debt in the particular group of banks (%)		Farmers' debt due to preferential loans in total debt of non-financial sector in the particular group of banks (%)	
	1999	2002	1999	2002	1999	2002	1999	2002
Total	4.0	4.2	100	100	79.9	79.7	3.2	3.4
Cooperative banks	40.6	44.7	50.3	64.9	81.0	77.4	32.9	34.6
Commercial banks (without regional and affiliating)	1.1	0.7	25.1	13.7	77.9	91.8	0.9	0.6
Regional and affiliating banks	16.3	17.7	24.6	21.4	79.7	78.8	13.0	14.0

Source: Own calculations, based on data from Bilansowe wyniki finansowe banków w 1999, 2002, GUS.

As of December 31, 1999, the share of cooperative banks in the agricultural credit market was about 50% (in compliance with the criterion of structuring farmers' debt in the banking sector). In comparison with the beginning of transition, it is rather a steep fall, especially taking into consideration tradition and the sheer number of their offices in rural areas. It was the effect of increased competition in this market. The main competitor of cooperative banks in this market was Bank Gospodarki Żywnościowej (BGŻ S.A.), the former supervisor of cooperative banks and regional banks, which was brought into operation in the mid-90s to help cooperative banks to overcome difficulties. By the end of December, 1999, the share of regional and affiliating banks in the agricultural credit market reached about 25%. The share of other commercial banks in this market also grew to about 25%. In the next years, the share of cooperative banks increased, whereas commercial banks' share declined noticeably. But it is disputable whether it was the effect of better offers from cooperative banks or of changes in the strategy of non-affiliating commercial banks. The analyses of the number of loans and the size of debt in different types of banks show, for example, that in 2001, commercial banks (without affiliation) granted 7% of the total number of banking loans to farmers, while their share in farmers' banking debt was 18%. Cooperative banks granted 90.6% of the number of loans and their share in the debt was 54.6%. These data and the analysis of reports<sup>11</sup> on preferential loans suggest that commercial banks granted loans of much greater value than cooperative banks, and were mainly investment loans. This indicates that they were interested in providing service to richer farmers.

<sup>11</sup> Annual Reports of Agency for Restructuring and Modernization of Agriculture.

#### **4.4 Private loans**

Private loans from family, friends, neighbours and private commercial lenders exist in every economy. The first three are a form of mutual aid and are granted mostly without an interest rate, but are often connected with other, different forms of gratification. In Poland, the varieties of these loans are well known. Loans from family or neighbors have always existed, and private commercial lenders operated until World War II (NOWAK 1932).

The author's research has shown that private loans are currently popular among farmers. 10.7% of the farms systematically examined by the Institute of Agricultural and Food Economics were in debt due to loans from individuals on December 31, 2001. All examined loans were from relatives, neighbors, etc. None was given by private commercial lenders. The loans were generally granted without an interest rate or collateral, and the contracts were mainly verbal agreements. It is a remarkable fact that these loans are often rather large, and most of them were taken for purposes connected with agricultural activity.

#### **4.5 Other sources of credit**

Banks or individuals are not the only sources of credit. The data show that only 15.4% of the aforementioned farms were in debt due to such loans on December 31, 2001. Rather, trade loans, or loans offered by enterprises that cooperate with farmers and loans granted by employers, were the most popular. Trade loans include loans taken for consumer goods such as furniture or other household equipment, cars, and various means of production. They were granted by retail and wholesale enterprises, and by enterprises that systematically cooperate with farmers. Among the latter, there were some cases of very tight integration between farmers as producers of special products and enterprises that bought these products and delivered means of production. This indicates that different forms of integration in the food sector have developed. In fact, the cooperating enterprises allowed not only trade loans, but cash loans as well. For example, dairy houses granted cash loans for the purchase of milk refrigerators, and farmers paid back installments by milk delivery.

Loans offered by employers are available to farmers who have a job in addition to farming, or to farmers' family members who have an outside job. The terms of such loans are much more attractive compared to bank loans and the procedure is simple. However, the size and frequency of granting are limited.

In the 1990s, many non-public foundations were established to help overcome rural areas' problems and accelerate the restructuring of agriculture. One of their activities is granting loans to farmers, but these funds rather focus on supporting the development of non-agricultural activity.

## 5 THE ROLE OF STATE IN THE AGRICULTURAL CREDIT MARKET

The transformation of a planned economy into a market economy is a very complex, long-term and unprecedented process. During this period, except for the current economic problems which even very well-developed economies face, (for example unemployment) many problems directly connected with the transformation are occurring. In the communist economy, the state plays the primary role in the economy. But in the contemporary market economy, the state also has a role to play.

There is a vast range of forms of intervention on the agricultural credit market<sup>12</sup>. Subsidised credit, state ownership of banks, state loan insurance, and the support of institutions which grant agricultural loans are popular examples of it.

### 5.1 The forms of intervention on the agriculture credit market in Poland

During the transition period, three forms of intervention on the agricultural credit market were used in Poland: (i) preferential loans (ii) state ownership of banks (iii) state support to institutions that grant loans to farmers.

#### *The system of preferential loans*

The package of market reforms which was introduced in January 1990 abolished the duties of all banks to grant preferential loans. This meant that preferential loans granted before 1990 became market loans. But already in April of that year, new agricultural preferential loans were set up as tool of intervention. They could be used for the purchase of land and current means of production. This kind of intervention was repeated for some next years. Gradually, the scope of preferential loans was extended. These loans were commonly called “spring loans”. Except for these, some opportunities for preferential loans for the modernisation of farms occurred in 1991, when PLN 298,000m (about USD 30m) were assigned for the restructuring of the agriculture and food industry in the state budget. In the following year, The Fund for Debts' Liquidation and Restructuring of Agriculture (FRiOR) was established. This dealt with the problem of debts in agriculture<sup>13</sup> and was responsible for investment credit. However,

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<sup>12</sup> The activity of the state on the market is derived from the theory of market imperfections (BESLEY 1998) or political theories which predict that interest groups seek regulations to serve their interest (STIGLER 1971).

<sup>13</sup> As mentioned before, farmers entered the market economy with rather low debt. In spite of this, in 1991, the problem with agricultural debt occurred. In fact, the percentage of farmers in debt was about 13% (OSTROWSKI 1993). Only 1% of farmers had problems with reimbursement (repayment), so the scale of this problem was rather small (KOŁODKO 1994). But because it was a new problem, unknown during the communist period, the farmers were extremely wary of the possibility of bankruptcy. The political pressure for solving this problem was very big.

after some months of conducting operations, it came under heavy criticism and ceased activity. In 1992, preferential loans were used as an immediate instrument of supporting farmers affected by drought.

At the end of 1993, the state decided to establish an agricultural credit support system and the Agency for Restructuring and Modernisation of Agriculture (ARMA) was brought into operation. In Poland, the creation of a state agency is a typical way of solving economic problems<sup>14</sup>. It is worth mentioning that in the other countries in transition similar state agencies work in this area<sup>15</sup>. ARMA replaced the aforementioned FRiOR, and is geared to support investment in agriculture, the agro-food industry and services for agriculture, development of the infrastructure in rural areas, improvement of the agrarian structure, creating new jobs for rural people and the creation of wholesale markets.

ARMA carries out its duties mainly by way of subsidies, lowering interest on loans granted by banks, credit guaranties and collateral security. Preferential loans are available in the framework of so-called lines of credits, which differ by purpose, borrower and level of subsidies. Subsidised loans are distributed by banks, which co-operate with the agency. Loans are granted from banks' own sources and at their own risk in accordance with the banking law.

In 1994, ARMA offered one line of basic investment loans and some lines of branch loans. In 1995, new lines of loans were introduced, i.e., loans for agricultural land purchase, loans to young farmers for establishing or developing farms, and regional loans. These offers provided opportunity to finance, on a preferential basis, various investments in farms. Additionally, since 1995, based on an agreement between the agency and the Ministry of Agriculture, ARMA has been responsible for preferential loans for the purchase of working assets for agricultural production.

Between 1994-2002, the banks distributed preferential investment loans under 4 main credit lines<sup>16</sup>, allowing 252,922 loans (Table 7). The loans were distributed as follows: basic investment loans – 30.8% of the total loan number, loan for land purchase – 25.7%, loans to young farmers, 36.3%, branch and regional loans – 7.2%.

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<sup>14</sup> Three state agencies have operated in the agricultural sector.

<sup>15</sup> See CHRASTINOVA (1999), SILAR and DOUCHA (1999), ULRICH (1999), (Slovakia, Czech Republic, Hungary).

<sup>16</sup> There were some other investment credit lines, but of very small importance.

**Table 7: Preferential agricultural loans due to lines granted by banks in 1994 -2002**

Year	Basic investment loans <sup>1</sup>	Loans for land purchase	Loans to young farmers	Branch and regional loans <sup>1</sup>	Loans for working capital <sup>2</sup>
	Volume	Volume	Volume	Volume	Volume
1994	15 850	-	-	81	739 860
1995	18 343	8 620	2 934	3 443	481 547
1996	15 494	14 246	23 376	4 311	674 484
1997	10 953	12 717	26 551	4 265	563 695
1998	3 317	4 902	7 595	1 133	471 795
1999	3 974	6 596	7 826	1 446	475 857
2000	2 755	5 642	5 707	1 528	482 739
2001	2 514	5 603	7 647	755	372 654
2002	4 728	6 718	10 226	1 126	376 818
Total	77 928	65 044	91 862	18 088	X

Notes: <sup>1</sup>Excluding loans for investments in food industry. <sup>2</sup> With loans for purchase of working capital in the case of natural disasters.

Source: Own calculations based on: data from Kredyty preferencyjne "wiosenne" 1994 r., Sekcja Analiz Ekonomicznych Polityki Rolnej, FAPA, Nr 5/94, Warszawa 20.10.1994, Annual Reports on Activity of the ARMA (1994-2002).

The credit structure by value of loans paints an adverse picture. The share of loans to young farmers is about 60% of the total value of loans for investment. This is due to a wider range of credit purposes in comparison with loans for land purchasing, as well as more favourable repayment conditions in comparison with the line of basic investment loans.

Every year about 25% of all farms, or 50% of farms that produce mainly for sale, took preferential loans for the purchase of working assets.

Preferential loans are gradually being replaced by commercial credit. On December 31, 1999, about 80% of farmers' banking debt was due to preferential loans (Table 6). Assuming that one farm was granted only one investment credit, the estimates show that a group of beneficiaries constituted ca 12.5% of all Polish farmers, and about 27% of farms that produce mainly for sale.

#### *State ownership of bank*

One of the forms of intervention in the rural/agricultural credit market is state ownership of banks. A state bank can directly realise agricultural policy. These

banks can grant loans to borrowers who are not in the interest of commercial banks or in areas which commercial banks do not operate in.

In Poland, the aforementioned Polish Food Bank (BGŻ S.A.) is the state bank<sup>17</sup> which specialises in loans for the food sector. Because of its size (too large to bankrupt), its area of activity, and state ownership, state support comes in different forms: restructuring bonds, loans from the central bank and the Bank Guarantee Fund, and the exemption from obligatory reserve. At the end of 1999, the total amount of this financial support was PLN 2,830,000,000<sup>18</sup> (ALIŃSKA 1999). This is more than the total sum of subsidies on preferential investment loans granted by banks.

#### *State support to institutions that give loans to farmers*

During the analysed period, the state supported not only BGŻ S.A., but cooperative banks as well. The forms of support were the same as in the case of BGŻ S.A., and additionally, cooperative banks were exempted from income tax. The total sum of support is therefore estimated at PLN 8,000,000 (ALIŃSKA 1999).

The indirect, specific form of support for cooperative banks (and the BGŻ S.A.) was their share in the granting of preferential agricultural loans. Of course this was mainly the result of tradition, specialisation and the network of their branch offices in rural areas, but the credit demand due to preferential loans was much larger than the credit demand without state support. The share of debt of individual farmers due to preferential loans in the total debt of non-financial sector in cooperative banks was about 34.6% on December 31, 2002 (Table 6).

## **5.2 Cost of intervention**

The financial cost of intervening in the agricultural credit market consists of the state budget expenses for the system of preferential credit and the support for banks which operate in this market. The estimation of the value of bank support was already given. The scale of the preferential loans is shown by data in Table 8.

The expenditure on preferential agricultural loans were a very important part of total expenditure for agriculture. In 1997, their relation to the state budget expenditure exceeded 50% of the expenditure on agriculture. This shows the leading role this tool played in agricultural policy. During the following years, the relation lowered as a result of a decrease in credit demand and an increase in other expenditures.

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<sup>17</sup> The share of Treasury in its equity is 65.9% (ALIŃSKA 1999).

<sup>18</sup> The exchange rate of US dollar at the end of December 1994, 1997, 1999 was 2.42 PLN/USD, 3.53 PLN/USD, 4.16 PLN/USD respectively.

**Table 8: Expenditures on preferential agricultural loans as proportion of state budget expenditures from 1995 -2002**

Specification	1995	1996	1997	1998	1999	2000	2001	2002
Relation of ARMA's expenditures to state budget expenditures (%)	0.23	0.54	0.73	0.87	0.73	0.67	0.96	0.71
Relation of ARMA's expenditures to state budget expenditures for agriculture (%)	14.5	29.5	41.7	37.8	28.6	28.5	41.8	34.8
Relation of expenditures due to subsidies on interest of preferential agricultural credit (for investment and current means of production) to state budget expenditures (%)	0.48	0.76	0.91	0.98	0.77	0.88	0.76	0.54
Relation of expenditures due to subsidies on interest of preferential agricultural credit (for investment and current means of production) to state budget expenditures for agriculture (%)	30.0	41.4	51.6	42.5	30.1	37.6	33.0	26.7

Source: Own calculations based on data from Annual Reports on Law on Public Finances and Annual Reports on Activity of the ARMA (1995-2002).

State intervention in the agricultural credit market has more than a financial dimension. Equally important is its effect on the effectiveness of financial instruments (KULAWIK 2001) or disturbances in allocating resources, of which the credit market is a very important part. Moreover, the political implications ought to be taken under consideration.

## 6 CONCLUSION

During nearly 15 years of transformation, a stable, well-functioning supply side in the agricultural credit market has been established. This is thanks to deep transformation in the banking sector, stable banking law, and the modern system of the independent central bank. The agricultural credit market is an integral part of the credit market. It is subject to the regulations and tendencies of the whole credit market, but it has its own specificity. Its main organisational charge are still cooperative banks, which successfully met the requirements of the market economy and compete with large, well-equipped and modern managed banks. They have even extended their range of services. At the beginning of transition, their network of offices gave farmers constant access to banking services. Even nowadays, because farmers and, generally, people in rural areas are the poorer part of the Polish society and therefore remain less attractive clients than urban inhabitants, this coverage is still important. Because cooperative banks have a well-developed network of offices, it seems that in the future they will focus on expanding their offers and improving the quality of their services. The participation in payment transfers for agriculture and rural areas connected with the access to the EU will strengthen their position.

The studies of farmers' credit demand show that farmers' expectations about the



future of agriculture play an essential role. These perspectives are the main boundaries of farmers' loan demands. This factor must be taken into consideration by politicians who are responsible for agricultural policy. But as data shows, the scale of credit intervention in Poland during transition was very high. Its influence on the micro-level (farm level) was positive, but at macro-level seemed rather disputable. Because of it, the whole sector was nearly cut off from the important market mechanism of allocating resources. Moreover, its scale indicates the high dependency of farmers on political parties which influence the current economic policy and in doing so can give preferences or take them away.

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## SOCIAL ASPECTS OF AGRICULTURAL EMPLOYMENT IN THE CZECH REPUBLIC

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### ABSTRACT

The paper presents an analysis and assessment of the social dimension of the agrarian labour market in the context of multifunctional agriculture and rural development. The social function of the agrarian sector, which results from the provision of a certain standard of labour conditions and social life of the agrarian population, has experienced significant changes along with the decline of agriculture's economic importance during the transition period. The paper puts together results of sociologic surveys and research from the period of 1995-2003. Developmental trends and their social aspects are presented in four dimensions: agricultural employment, socio-demographical characteristics of human capital within agriculture, agricultural and the rural labour market, and incomes of the agricultural population. Policy implications resulting from the research are discussed in the conclusions.

**Keywords:** agricultural labour market, structural changes, sociological investigation, Czech Republic

### 1 INTRODUCTION

Economic reforms launched in the early 1990s have significantly affected Czech agriculture for more than a decade. First was the reform of property rights to land, which was considered an underlying condition for the effective functioning of a market economy. The reform was built upon three principals: restitution of land ownership, transformation of collective farms (division of collective assets) and privatisation of state land and assets. Changes in property rights induced significant structural shifts: private individual farms and new forms of corporate farms emerged, while cooperatives declined in number and size and state farms disappeared completely.

Agricultural production mainly declined during the first years of transition, with Gross Agricultural Output (GAO) dropping about 25 percent between 1989 and

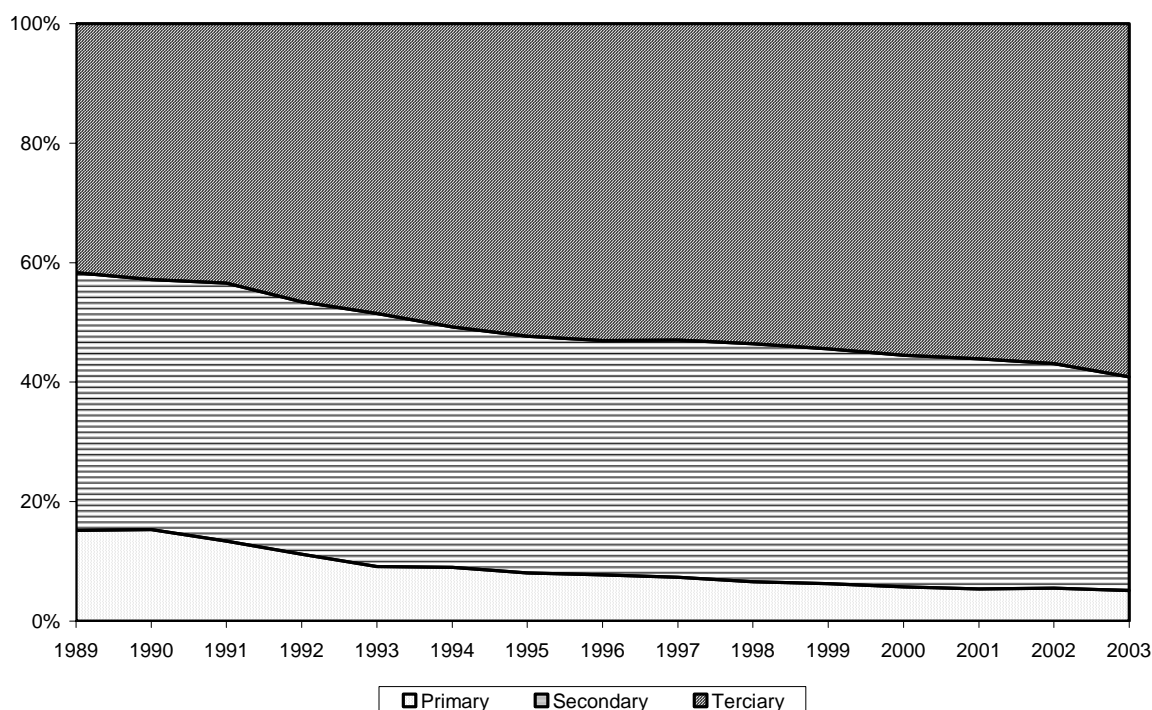
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1995, and by a total of 40 percent by 2003. However, the shedding of labour was even more dramatic, with a drop of 72 percent between 1989 and 2003. Thus, labour productivity (GAO in constant prices per a labour unit) more than doubled in the same period. The importance of the industry in the context of the national economy declined from 6% of GDP to 4% in 1995 and to 2.1% in 2002.

Shifts in the employment structure could be observed accordingly. The primary sectors<sup>1</sup> share of total employment fell by 10 percentage points, and the share of agriculture itself by 7.3 percentage points (to only 4% in 2003). On the other hand, the services experienced increases in the employment structure by 17.4 percentage points.

**Figure 1: Structure of employment in the national economy (in %)**



Sources: Statistical Yearbook of the Czech Republic, CZSO; Labour Statistics: Time Series of Basic Indicators (1948-2002), CZSO (2003); Registered Number of Workers and their Wages in Czech Republic, CZSO (2003 and 2004).

Changes in property rights and the economic development of agriculture on one hand, and labour shed on the other, affected the importance and the extent of the social functions of agriculture. Although agriculture has lost a great deal of its importance among rural economic activities, the social implications of economic reforms may influence the quality of life not only of the agricultural population, but the rural population as a whole.

<sup>1</sup> Agriculture, forestry, hunting and mining.

The challenge of assessing these social implications, and the extent of the social function of agriculture, motivated our research for quite a few years. The paper summarises results of a number of empirical sociological investigations conducted by our team between 1995 and 2003.

## **2 CONTEXT AND METHODOLOGY**

The decline of agriculture's economic importance induced changes in the social functions/roles of the sector. The social function is understood as a non-commodity output representing a certain standard of work conditions and of the social life of the agricultural population. It thus contributes to the stability of rural communities and the development of rural areas. Using rural space (land) to support multifunctional agriculture is declared in the policy agenda of the Czech government as socially desirable because it contributes to the socio-economic stability of rural areas.<sup>2</sup>

In the paper we concentrate on features of the social function of agriculture which concern the priority area of rural employment. There is ongoing debate whether or not rural employment can be included among aspects of multifunctionality (OECD 2001). Since it does impact society, for example by preventing depopulation of particular rural areas, and there is no evidence that the respective cost/benefit is reflected in market prices, we stick with the opinion that generating employment should be regarded as a positive externality of agricultural production (cf. OECD 2001, pp 15).

The paper discusses developmental trends in agriculture's social function in four dimensions: First, simple trend figures of agricultural employment at the national and regional levels in relation to the development of agricultural output are presented. Second, characteristics of human capital deployed in agriculture such as age, education, skill, social status, etc., are evaluated over time and across farm types (small vs. large, individual vs. corporate). Third, the agricultural labour market is described as a segment of the rural labour market. This includes the development of labour released from agriculture and its ability to find jobs elsewhere, conditions and success of re-training and the extent of supply of non-agricultural employment on diversified farms. Particular attention is paid to the gender issue – that is, rural women's opportunity to find jobs. The fourth dimension concerns agricultural income. This is a particular issue for a country where agricultural waged labour dominates.

The paper summarises results of a number of empirical sociological investigations conducted by our team between 1995 and 2003. These sample surveys were usually qualitative, intended to obtain respondents' perceptions of the prob-

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<sup>2</sup> Of course, one should consider the cost-efficiency of such a policy.

lem in question (social functions of agriculture, nature of unemployment, possibilities of finding jobs, etc.). The surveys were always designed as representative either for the whole farming population or for its subgroups. The approach of combining random and quota selections (BOOT and COX 1970) was usually adopted; the sample was subjected to various representation criteria (regional, gender, age, education, profession, business form, etc.) according to the objective of the investigation. The survey techniques included direct standardised (structured) interviews, a qualitative focus group technique and semi-structured interviews (e.g., DENZIN and LINCOLN 2003). Information gathered from sample surveys has been combined with national statistics. Univariate, bivariate and multivariate analyses were conducted using SPSS software.

### 3 AGRICULTURAL EMPLOYMENT

The nature and structure of employment opportunities in the agrarian sector are important for evaluating the utilisation of the basic production factor - available labour force within and outside of the sector - and are fundamental to monitoring the labour market.

The economic transformation of the agricultural sector resulted in the rapid reduction of job opportunities. Employment in agriculture (Table 1) decreased by 72% from 1989 to 2003. In 2003, there only 148,000 people working in agriculture compared to 533,000 in 1989. The most dramatic fall was in 1991 and 1992, when the employment rate plummeted by 24%. In recent years, the employment rate has not decreased so rapidly; year-by-year drops range from 2 to 5%. A further decline of employment in agriculture is expected in the coming years, according to a survey conducted among agricultural agencies<sup>3</sup>. Most officers from agricultural agencies expect that the efflux of labour from agriculture will again be more dynamic in the near future as a consequence of the unfavourable age structure and the limited direct payments in the "EU-transition" period leading up to 2007 (see HORSKA and SPESNA 1999).

**Table 1: Number of employees in Czech agriculture (in thousands)**

Characteristics	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total	533	514	411	312	271	247	222	217	214	204	183	165	160	156	148
Basic Index	100	96	77	59	51	46	42	41	40	38	34	31	30	29	28
Chain Index		96	80	76	87	91	90	98	98	96	90	90	97	98	95

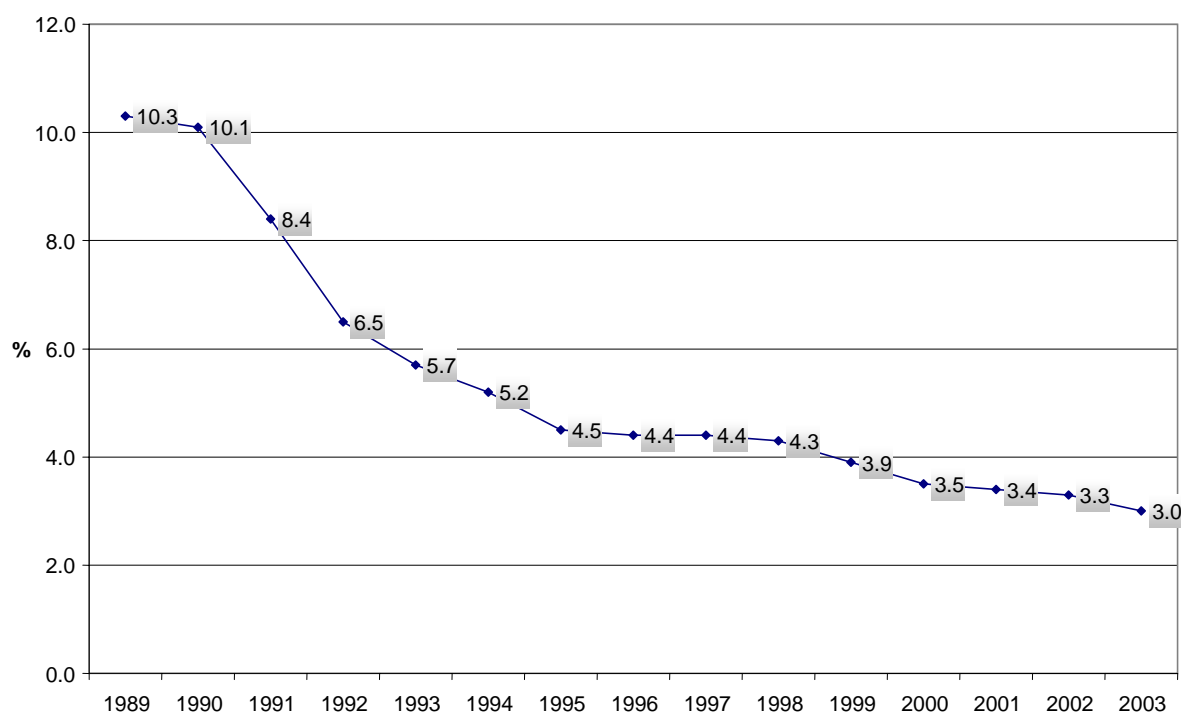
Notes: Excluding related services and hunting. Average registered number of full-time employees in agriculture (physical entities).

Source: The Report on the State of Agriculture of the Czech Republic, MA CR.

Agriculture's share of total employment decreased during the transition period (from 10.3% in 1989 to 3% in 2003; it decreased more dynamically up to 1995) (Figure 2).

<sup>3</sup> Regional offices of the Ministry of Agriculture.

**Figure 2: Percentage of agricultural employment of total CZ employment**



Note: Excluding related services and hunting.

Sources: The Report on the State of Agriculture of the Czech Republic, MA CR; Time series of basic labour statistics indicators 1998 - 2002, CZSO 2003.

The proportion of women among agricultural employees decreased during the transition (from 39.5% in 1989 to 32.3% in 2003; CZSO 2003). The difference between the employment rates of women in agriculture and the rest of the economy increased by approximately 11 percentage points.

Agricultural employment is characterised by marked regional differentiation. In the NUTS 2 breakdown, approximately 61% of the agricultural labour force is located in three (of eight) regions: the southeast (25.5% of total agricultural employment), southwest (18.8%) and northeast (17.1%). Rather than purely soil and climatic conditions, mainly socio-economic historical factors and conditions have made these regions traditionally very agricultural.

**Figure 3: Regional employment in agriculture (% of total employees in Czech agriculture)**

Note: NUTS 2 break down.

Sources: Agricultural Census 2000, CZSO 2001.

There are differences in the importance of agricultural employment in the rural economy. In predominantly rural communities (municipalities with less than 2,000 inhabitants) the share of agriculture of the total economically active population fluctuates around 9 percent. In very small communities (below 100 inhabitants) the share may reach 20 percent and rapidly declines as the size of the community declines (CZSO 2002).

**Table 2: Number of workers in agriculture by legal form of agricultural enterprises (in thousands)**

Legal Form	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Legal Persons</b>	531.1	510.4	402.9	299.6	253.0	215.3	186.6	184.2	181.7	171.7	151.0	134.2	129.7	126.5	117.9
in <b>State Enterprises</b>	127.9	123,3	95.0	54.2	25.2	5.1	1.1	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3
<b>Cooperatives</b>	403.2	387,1	307.9	215.7	185.0	147.1	118.0	105.7	89.5	76.0	65.1	54.0	50.3	46.4	41.8
<b>Business Companies</b>	x	x	x	29.7	42.9	63.1	67.5	77.8	91.8	95.3	85.6	79.9	79.1	79.8	75.8
<b>Natural Persons</b>	2.0	3.1	8.0	12.5	17.8	31,2	35.0	33.0	32.0	32.5	32.0	30.7	30.1	29.5	30.1
<b>Total</b>	<b>533.1</b>	<b>513.6</b>	<b>410.9</b>	<b>312.1</b>	<b>270.8</b>	<b>246.5</b>	<b>221.6</b>	<b>217.2</b>	<b>213.7</b>	<b>204.2</b>	<b>183.0</b>	<b>164.9</b>	<b>159.8</b>	<b>156.0</b>	<b>148.0</b>

Notes: Excluding related services and hunting. Average number of registered full-time workers in agriculture (physical entities).

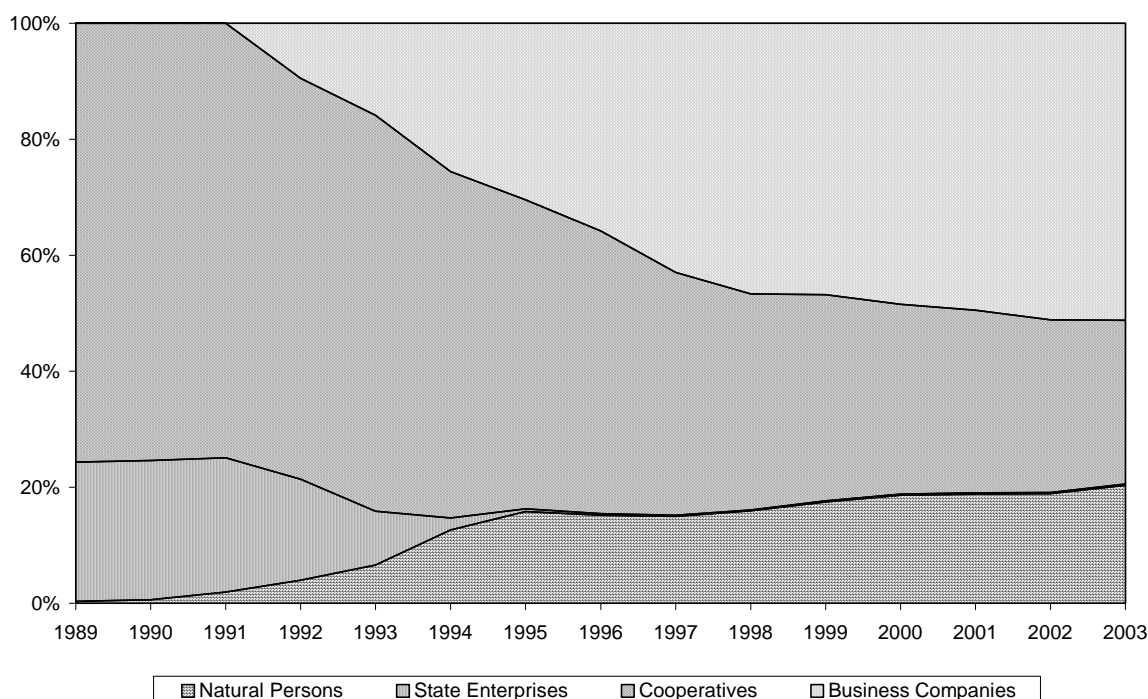
Source: The Report on the State of Agriculture of the Czech Republic, MoA CR.

The development of employment in the various legal forms of agricultural enterprises (Table 2) has exhibited the following trends: the number of employees has decreased, while employment (engagement) on individual farms before 1995 rose, and has since been decreasing as well.



As for the structure of employment in agriculture according to the legal forms of agricultural enterprises, the share of employees in agricultural companies has been decreasing during the transformation period, (more rapidly after 1995 as a consequence of the so-called second transformation of cooperative farms into joint stock companies) and they now make up more than half of all agricultural labour. Just around a fifth of all agricultural labour works on individual farms/family farms (Table 2, Figure 4).

**Figure 4: Agricultural employment structure by legal form (%)**



Notes: Excluding related services and hunting. The average number of registered full-time workers in agriculture (physical entities).

Source: The Report on the State of Czech Agriculture, MoA CR.

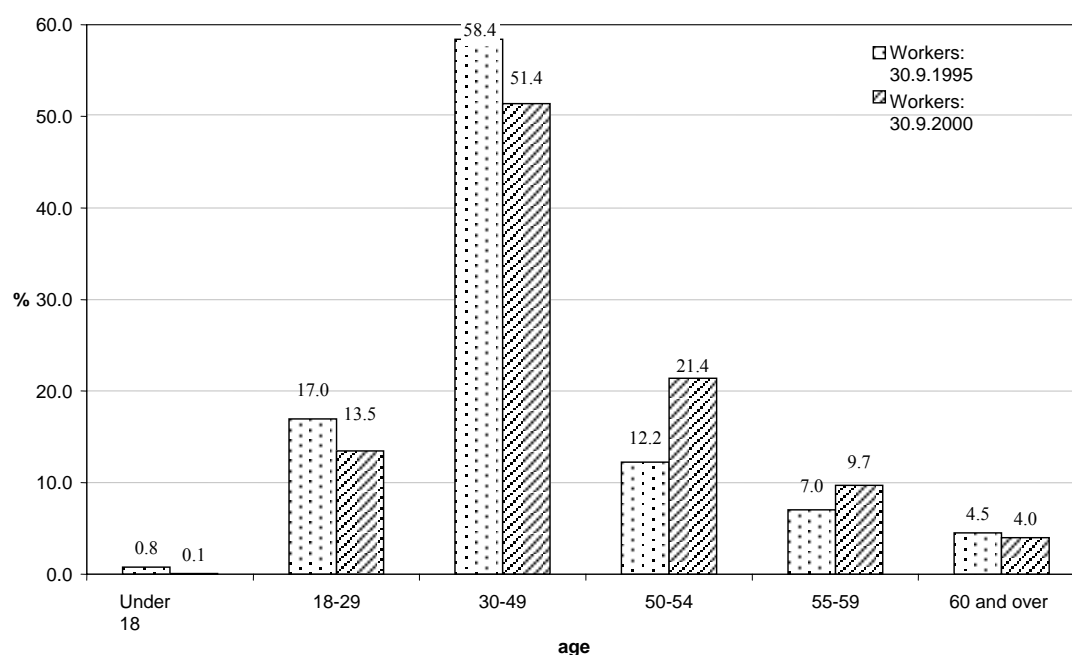
Restitution, privatisation and economic reforms triggered restructuring of the agrarian sector, which has resulted in specific proprietary-entrepreneurial and size structures of agricultural enterprises and shaped new social positions for the economically-active rural population. These new positions can be defined in terms of property rights in respect to labour, capital and land. From this perspective we can divide the farming population into five categories: i) pure employees without an ownership stake in the farming business, ii) working members/shareholders of corporate farms (employee-owners of agricultural land and/or capital), iii) entrepreneurs employing workers, iv) self-employed entrepreneurs and family members, and v) sole owners/share holders of land and agricultural assets. From this structural perspective, we can observe three trends: significant growth in the category of pure employees/wage earners (up to 68.4% in 2003), a downturn in working co-op members/shareholders (to 13.2%) and

the appearance and growth of the entrepreneurial categories (up to 15.9%). This development is weakening the social position of most of the farming population by lessening their control over economic decision making. Only a relatively small proportion of the farming population has improved its position – those who decided on an individual undertaking (iii, iv). The category of sole owners (v) can be regarded as merely latent, playing a small role in the rural social arena.

#### 4 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE AGRARIAN LABOUR FORCE

Czech agriculture is characterised by the permanent downgrade of workers' age structure. While in 1989, farmers (employees and the self-employed) under 30 made up more than a fifth (21.4%) of all agricultural labour force, in 2003 their share dropped by half, to 11.4%<sup>4</sup>. The ageing trend of the agricultural population (decreasing share of youth categories, increase of older age categories) is also well-discernible from the agricultural censuses of 1995 and 2000 (Figure 5). We can see that there was a lack of inflow of young people, but also that the number of people staying in agriculture past their retirement age has declined.

**Figure 5: Age structure development of agricultural workers (%)**

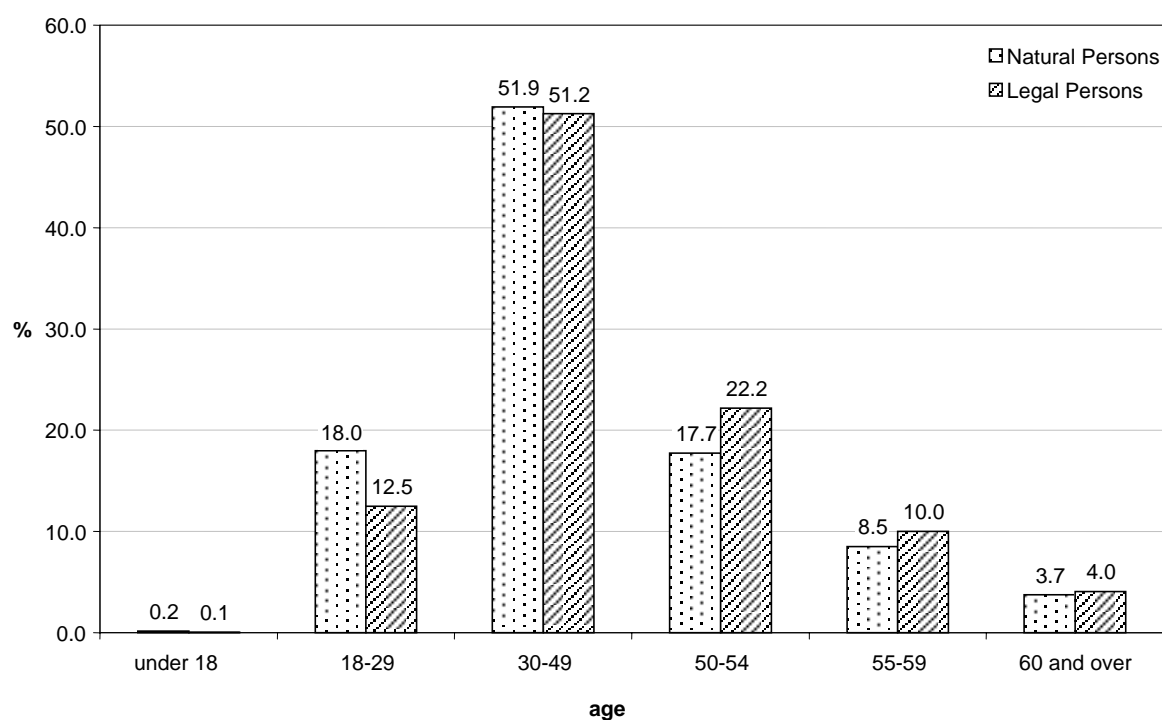


Sources: Agricultural Census 1995 (CZSO 1996) and Agricultural Census 2000 (CZSO 2001).

<sup>4</sup> Source: Full-time workers in agriculture registered as of 1 February, 1989; Federal Statistical Office 1990; Employment and unemployment in the CR according to the labour force sample survey; CZSO 2004.

Our empirical investigation among farmers (HORSKA et al., 2001) as well as both of the agricultural censuses (CZSO, 1996 and 2001) showed that the ageing trend is more severe and rapid in agricultural corporations than in individual farms (Figure 6).

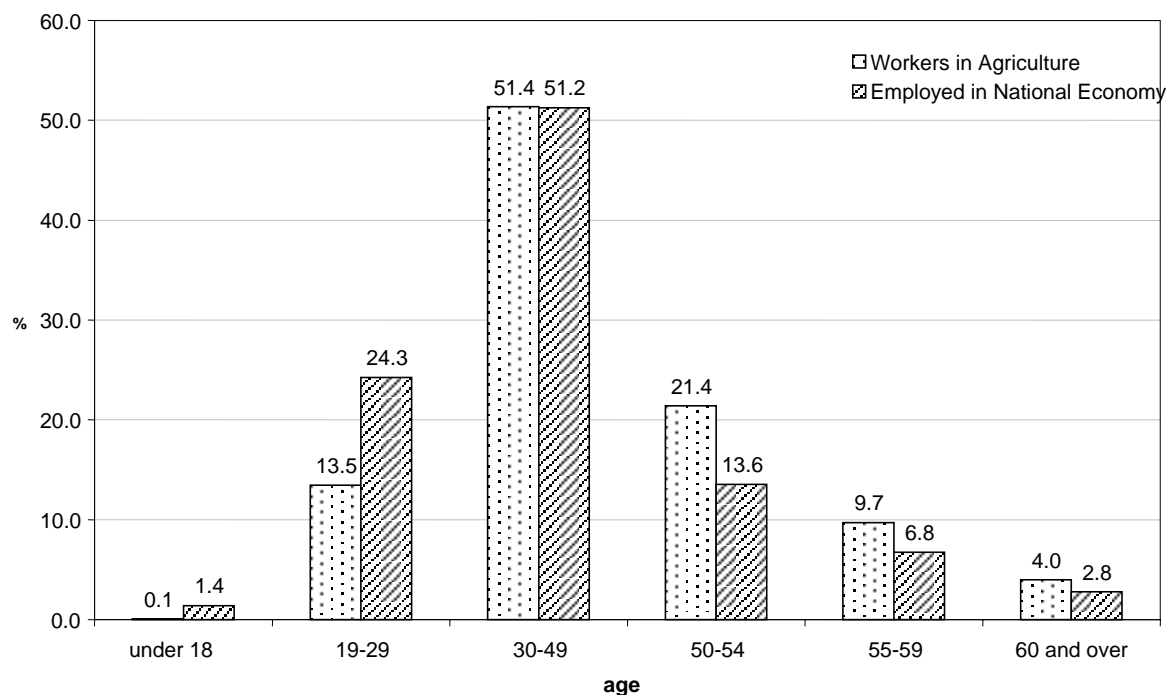
**Figure 6: Age structure of agricultural workers by legal form of enterprise (%)**



Source: Agricultural census 2000, (CZSO 2001).

In spite of the fact that the number of workers on individual farms who are under 30 decreased in all legal forms, the difference in the shares of “the young” on individual farms and corporations significantly increased in favour of individual farms. It can be also shown that the larger the enterprise size (measured in number of workers), the less favoured the age structure is. The worst situation is in enterprises with more than 100 workers; the best is in enterprises with under 10 workers.

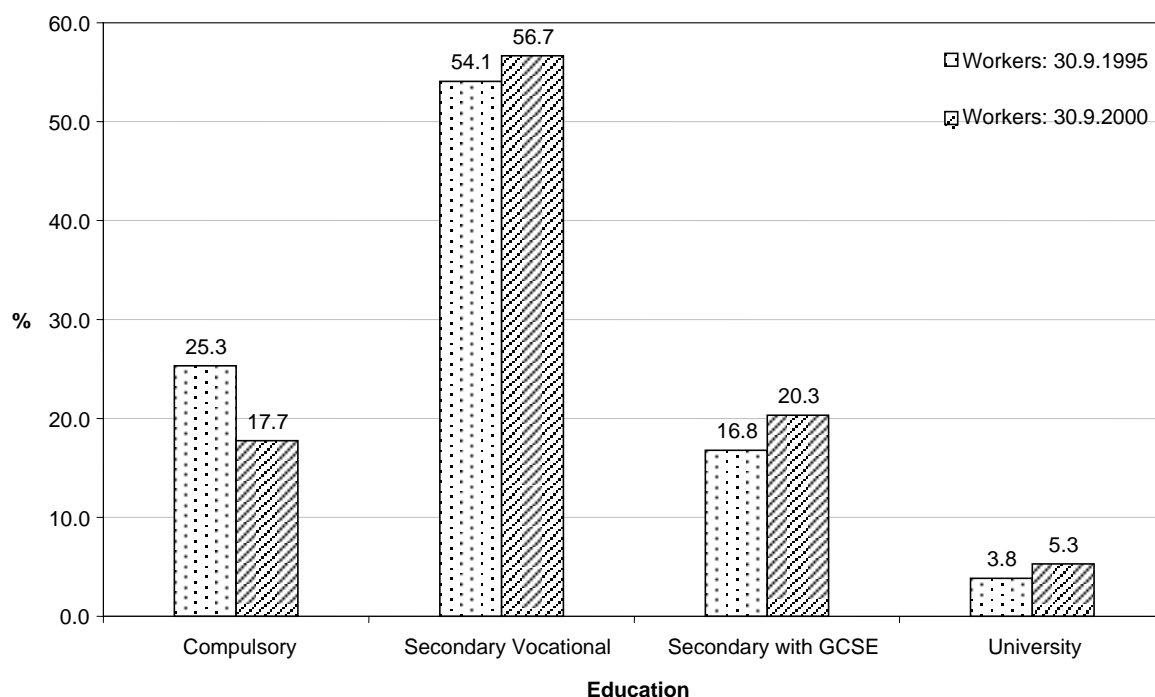
The agricultural population is significantly older than the economically-active population of the CZ (Figure 7).

**Figure 7: Age structure of workers in agriculture and the national economy (%)**

Sources: Agricultural census 2000, CZSO (2001); Employment and unemployment in the CZ according to the labour force sample survey, the third quarter 2000, CZSO (2000).

The trend of age structure development in agriculture, and in the whole national economy, shows that the agricultural population is rapidly becoming older, while the population in the whole national economy reflects only the general ageing trend of the population.

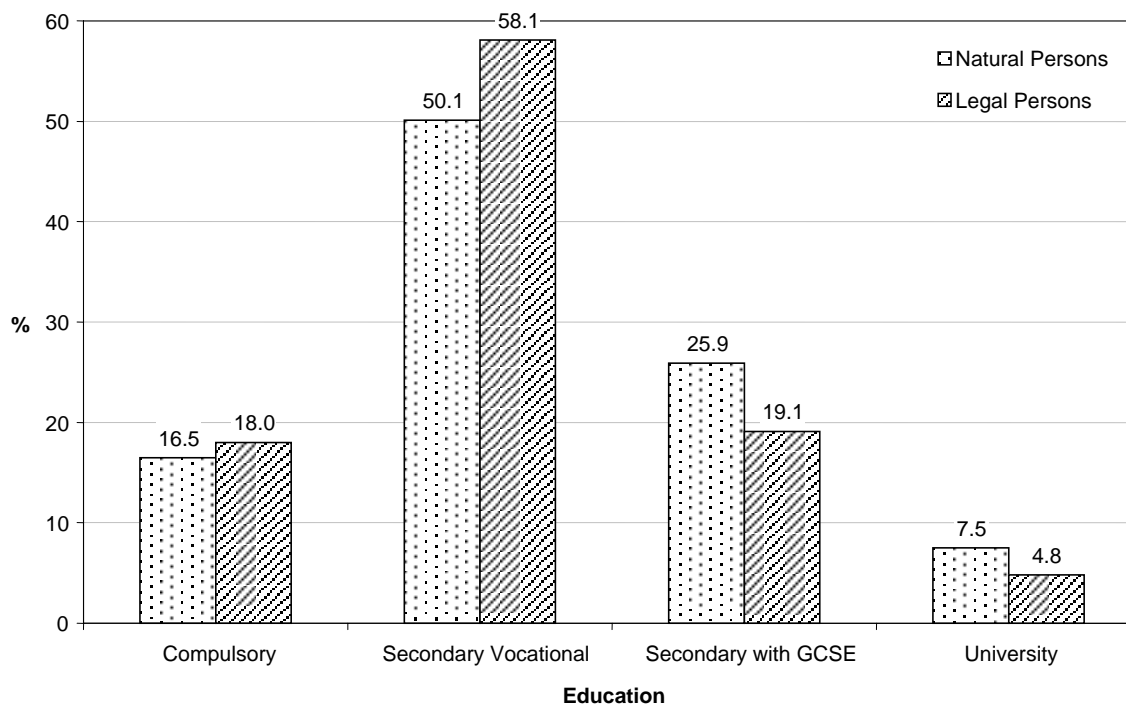
Over the whole transition period, the educational level of the agricultural population improved. The proportion of agrarians with at most a lower secondary education is giving way to a population of more highly-educated farmers (Figure 8).

**Figure 8: Educational level of agricultural workers (%)**

Sources: Agricultural Census 1995 (CZSO 1996) and Agricultural Census 2000 (CZSO 2001).

Farmers (self-employed, employees) having completed apprentice/vocational training (or other upper-secondary education without a GCE examination) represent the dominant proportion; farmers with higher education (upper secondary with GCE or tertiary) make up about a quarter of the total.

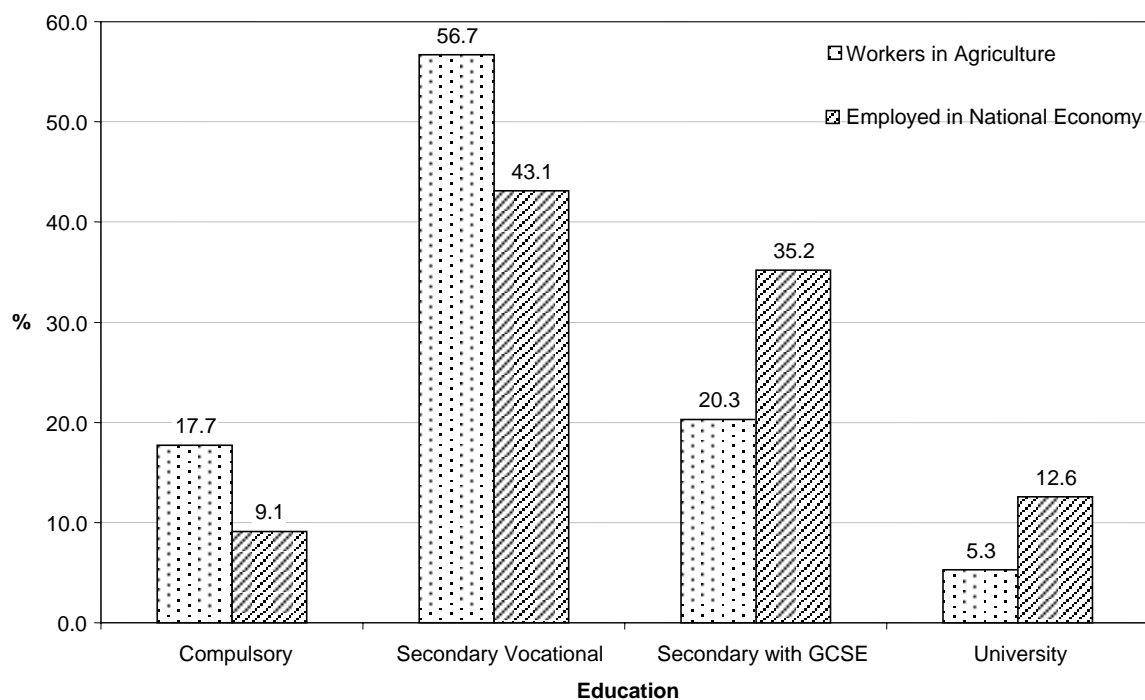
The survey we conducted in 1999, (HORSKA et al., 1999) as well as the Agricultural census, showed that labourers on individual farms were better educated than labourers on corporate farms (Figure 9). The level of qualification has improved in all legal forms (individual farms and corporations). However, the shares of labourers having completed tertiary or upper-secondary education with GCE has risen more on individual farms.

**Figure 9: Educational level of agricultural workers by legal forms of enterprises (%)**

Source: Agricultural census 2000, CZSO (2001).

Improvements in the educational and qualification structure can be attributed to the fact that unskilled, often low-disciplined workers have become redundant due to economic pressure (the need for higher labour productivity), market pressure (shifts in quality requirements), pressure on environmental discipline and gradual modernisation. Despite this positive development, the educational/skill level structure is still significantly worse than in the rest of the national economy (e.g., the percentage of people with upper secondary education with GCE or tertiary is lower in agriculture than in the rest of the economy, Figure 10).

**Figure 10: Educational level of people working in agriculture and the national economy, respectively (%)**



Sources: Agricultural census 2000, CZSO (2001); Employment and unemployment in the CZ according to the labour force sample survey, CZSO (2000).

In the gender breakdown, women working in agriculture are less qualified (most of them having completed upper secondary education without GCE or vocational training) than those in the rest of the economy (dominated by those who completed upper secondary education with GCE). The educational structure of men is also worse in agriculture than in the rest of the economy. However, both structures are dominated by the cluster of men with vocational training. A quarter of female labourers in agriculture are without any qualification, compared to 12 percent of males in this category.

## 5 AGRICULTURAL LABOUR MARKET

In the early 1990s there was little pressure in the labour market. Registered unemployment ranged around 3 percent until 1996. This low level of unemployment can be attributed to slow progress in economic restructuring, wage regulation and the generally declining economic activity of the Czech population (VECERNIK 1998). However, the labour market has gradually become a decisive mechanism for allocating human resources as economic and monetary reforms and privatisation have progressed (RATINGER and RABINOWICZ 1997). Since 1997, unemployment has increased (to 10.3% at the end of 2003, CZSO 2004). A declining overall demand for labour has affected the development of the agri-

cultural labour market. The agricultural unemployment rate<sup>5</sup> increased from 3.6% in 1997 to 8.5% in 1999, then it fell to 6.6% in 2003, which was still higher than the overall unemployment rate<sup>6</sup>. From the structural point of view, the share of job seekers released from agriculture has been twice as high in rural areas (5.3% in 2003, CZSO 2004) than elsewhere. The situation has worsened as there have been ever less job opportunities in the immediate local economy, particularly in remote rural areas. Three quarters of the working population in villages under 1,000 inhabitants commute. On average, the rate of commuting in communities with up to 10,000 inhabitants increased by 5 percentage points during the 1990s (CZSO 2002).

The results of empirical investigations of the agricultural labour market (HORSKA et al., 2000) show that the agricultural sector reduced the number of permanent, as well as seasonal jobs as an effect of: the economic interests of agricultural entrepreneurs (improving efficiency and profit by investing in new technologies), the exiting of economically weak individual and corporate farms, and, indirectly, changes in the business environment (e.g., the nature and extent of demand for agricultural output). HORSKA et al., (2000) found that there was no demand for additional labour in three quarters of the interviewed farms; two thirds of farms considered the current employment situation/structure as optimal and one third thought to cut further jobs; the importance of seasonal labour was relatively low – just about 10 percent of the total labour. Under these circumstances, there is little chance for younger people, particularly graduates of agricultural schools, to obtain a job in agriculture (this problem was recognised in three quarters of the job offices, HORSKA et al., 2000).

Obviously, the labour market is imbalanced when the supply of agricultural labour does not meet demand. There are structural reasons for this imbalance: an excess of unqualified labour seeking jobs in agriculture on the one hand, and the educated, skilled population's lack of interest in agriculture on the other. Less than 20 percent of the agricultural university graduates were determined to work in agriculture in 1997 (HORSKA et al., 1998). The main reason mentioned during the interviews was the low interest of working on farm – low reward (wages) and poor working conditions (time, working environment, seasonal character of the work), low social status and unclear prospects of the sector.

The imbalance between agricultural labour supply and demand is revealed in the fact that agricultural job seekers have been considered by job offices as one of the most problematic groups to place in the labour market (HORSKA 2000). This judgement mirrors specific barriers such as low or no qualification, low profes-

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<sup>5</sup> The rate of unemployed who worked in agriculture during the last 8 years to those currently employed in agriculture.

<sup>6</sup> These rates include only unemployed who worked during last 8 years.



sional flexibility, difficult re-qualification, lacking entrepreneurship, and, often, ties to a concrete living place (where job seekers own their house and plot). There are structural differences among agricultural job seekers; the older, younger (who seek their first job) and women may find their situation most difficult.

On-farm diversification to non-agricultural activities is often considered an option for improving tension on the agricultural labour market (CHAPLIN 2003). Empirical investigations (HORSKA et al., 2002 and HORSKA et al., 2003) show that non-agricultural diversification is common among Czech farms; slightly less than half of the farms interviewed actually diversified employment, placing an average of about 18% of their labour into these activities. The use of surplus investment capacities and improving a farm's gross income motivated farm managers to diversify rather than create or maintain existing jobs.

Changes in production structure, particularly the abandonment of dairy production on many farms, has caused gender inequality on the agricultural/rural labour market. The agricultural unemployment rate (see note 5) is more than twice as high for women (11.5%) than for men (5%). The share of unemployed agricultural females of the total unemployed female population is 3.7 % compared to the rate of employed agricultural females of the total employed female population (2.7%) (CZSO 2003). This indicates that the unemployment structure is gender specific. Female unemployed are likely to become long-term unemployed, and job offices find it hard to re-qualify them (HORSKA et al., 2000). HORSKA and SPESNA (2000) characterised the female (un)employed from agriculture as follows:

“The average representative of agricultural female labour is a middle aged woman (46) with a basic education or vocational training, an employee (and often an agricultural production cooperative member) – low skilled worker, attached to her own house and the local social environment (a village), inflexible-unwilling to move, lacking will and capacity to undertake on her own. In contrast to the other female groups she is willing to accept any job if it is in her locality”.

There is not only gender inequality on the rural labour market – the perception of job opportunities for males and females is also gender specific. Men see the chances of women getting jobs more propitiously than women themselves. However, women in agriculture perceive their situation less dramatically than the other rural women clusters. HORSKA and SPESNA (2000) specified the perceptual differences:

“Men perceive worse chances for rural women in only four areas: getting a top manager position, getting a leading position, being paid equally for the same work, improving their income. Rural women in general see inequalities in seven areas (i.e., in three additional areas: getting a job, utilising leisure time, being

promoted), while “agricultural” women perceive 9 areas (in addition to the above-mentioned categories – maintaining their jobs and receiving respect and authority in their work).”

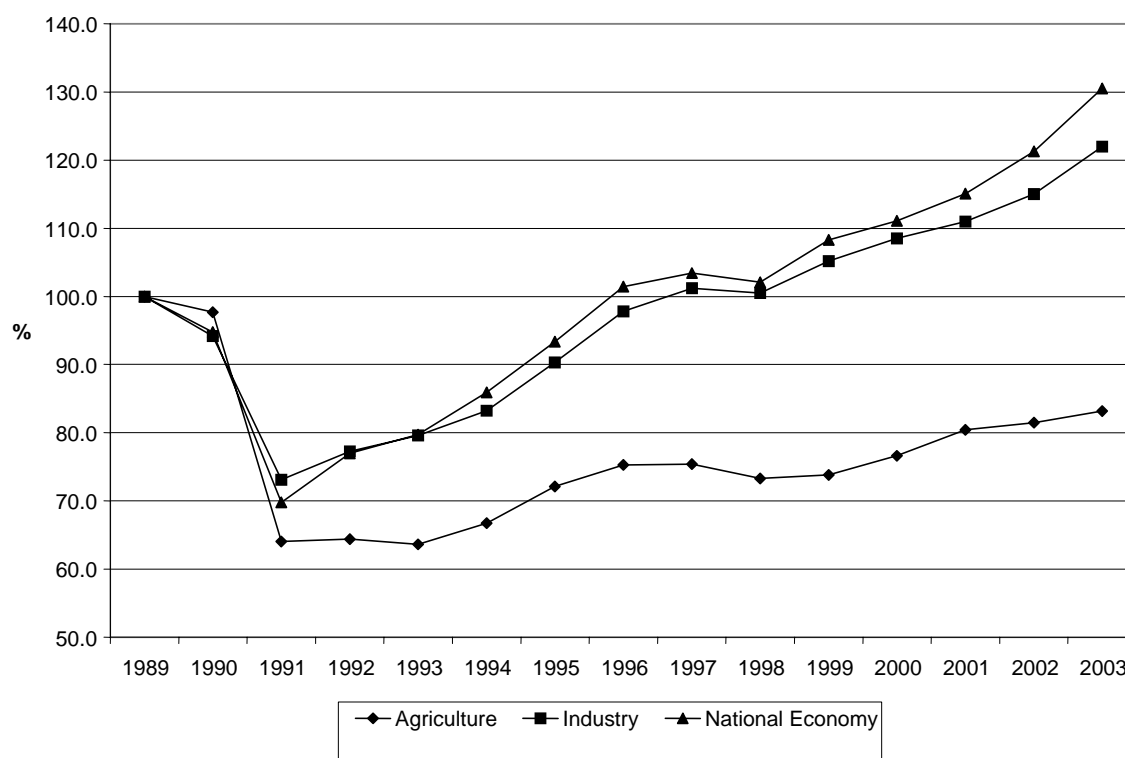
## **6 INCOME OF THE AGRICULTURAL POPULATION**

The level of income is a further important indicator of the social position of farmers and agricultural workers. Currently, more than 80% of those working in agriculture are waged labour.

Nominal wages have grown for 15 years, but at a different velocity in individual sectors and time periods. Agricultural wages significantly exceeded industrial wages and the national average at the beginning of transition in 1989 and 1990. However, the situation reversed in 1991 and 1992; wages in the other sectors accelerated while agricultural wages stayed behind (on average). The disparity has increased rapidly; agricultural wages fell to 70% of the national average in 2003. The average agricultural annual wage accounted for €4,400 while the average national wage was €6,400 (CZSO 2004). Wages also fell in comparison to other low skill professions. In 2002, the average agricultural wage fell to only 73.3 percent of the average wage in the construction sector. There are significant differences with respect to professions and qualification. Unskilled livestock operators earned only 72.6 percent of the wage of machine fitters in 2002.

In contrast to the rest of the economy, there is less income inequality with respect to gender in agriculture. Women received 80.4 percent of men's wages in agriculture in 2002, while nationally the average was 6 percentage points less.

The severity of the unfavourable development of agricultural wages is well visible in real terms. In 1991, real wages in the national economy dropped to only 70 percent of the 1989 level. Real wages in agriculture sank even lower, to 64 percent. However, other developments were even worse. While the national average wage and the average industrial wage caught up the pre-reform level in real terms in 1996 and 1997, respectively, and even exceeded this level by 30 and 22 percent, respectively, in 2003, the average agricultural real wage remained below the pre-reform level (by 17 percent) in 2003 (Figure 11).

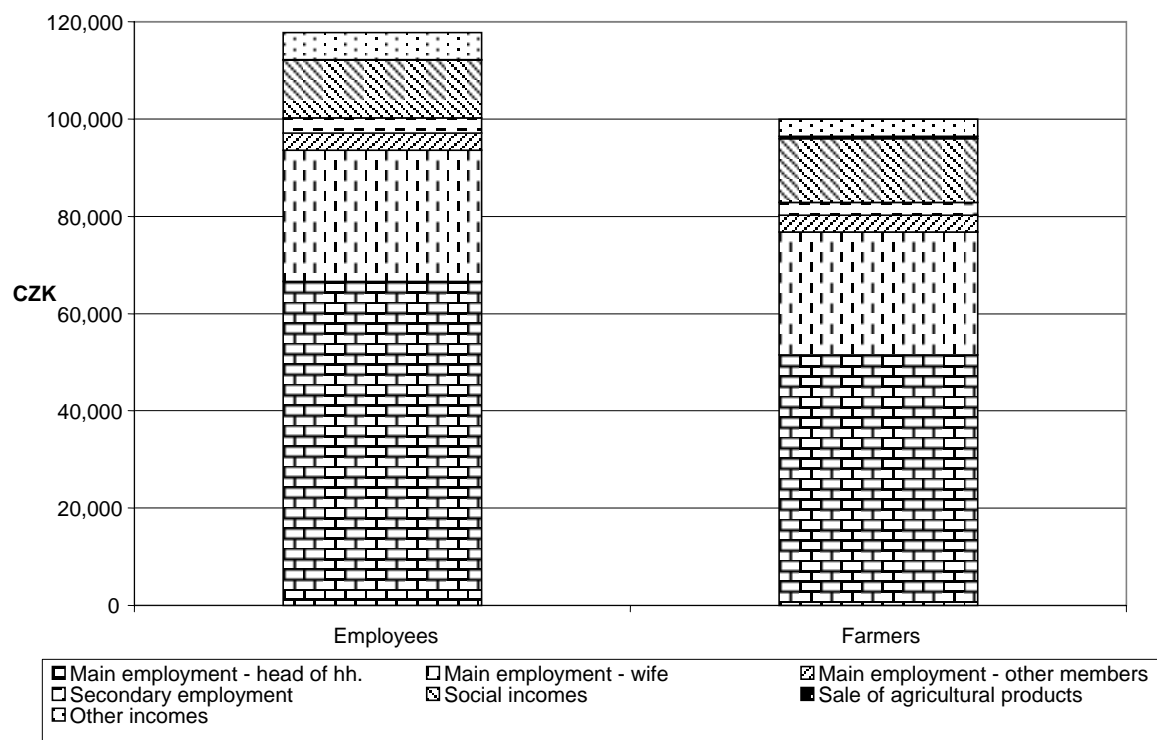
**Figure 11: Index of real wages in selected sectors (1989 = 100%)**

Note: Without Enterprises of Natural Persons.

Sources: Statistical Yearbook, Federal Statistical Office 1989; Index of Consumer Prices and Cost-of-living, CZSO 1997 - 2002.

The total annual income per person in agricultural households<sup>7</sup> was 15 percent below the income per member in households of non-agricultural employees in 2002. Income from work activities of the head of household exhibited a larger deviation (only 77% of the level in non-agricultural households). This disparity was often slightly moderated by non-agricultural income of the spouse and higher social benefits received (child benefits, pensions, etc., with a 13% share of the total income, compared with 10% in non-agricultural households). The relative importance of income from the head of household holding a second job is equal and negligible (2.6%) (Figure 12).

<sup>7</sup> Households of individual farmers and corporate farms' employees.

**Figure 12: Household incomes (annual per capita in CZK)**

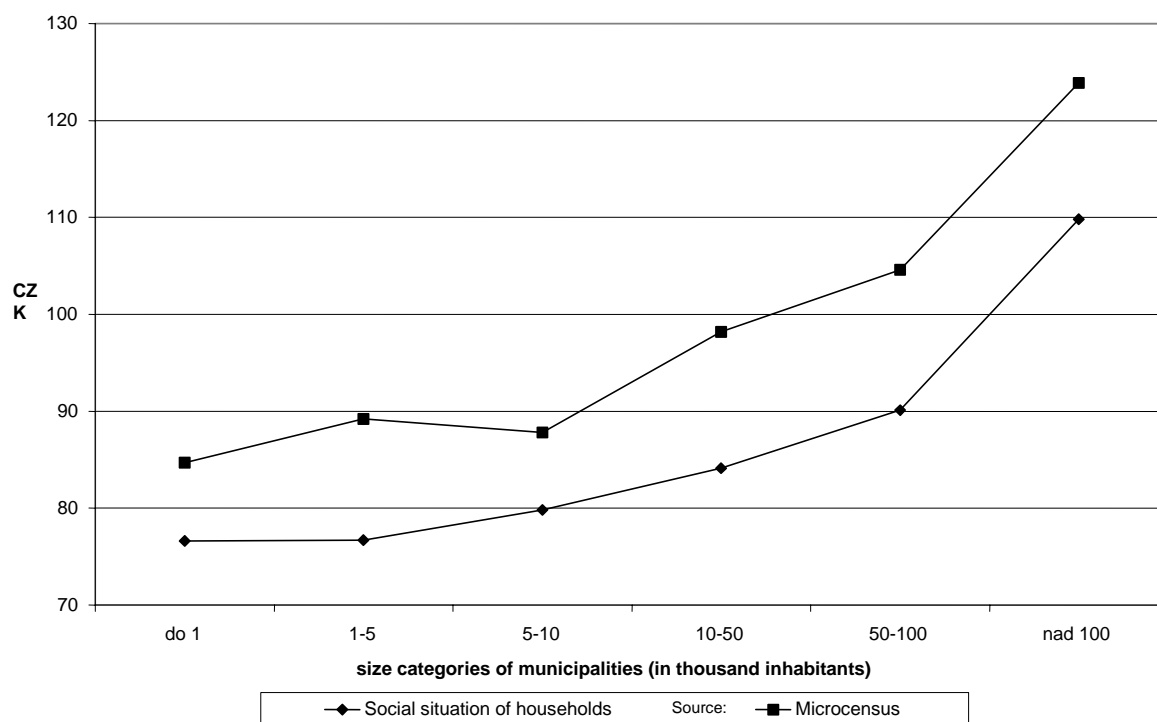
Source: Survey of Gross Incomes of Households in 2002 by social groups (Employees and Farmers), CZSO (2003a).

The net annual income per person in individual farmers' households is significantly lower than income in the other social clusters, aside from unemployed households. The most severe (however illustrative) income gap is the very comparable cluster of individual non-agricultural entrepreneurs (self-employed persons). The income level of farmers' households reached only 65% of the level of the non-agricultural self-employed in 2002 (CzSO 2003a).

Agricultural households contain the highest number of members (3.55 compared to 3.2, on average, in 2002) among the sector clusters; at the same time they exhibit the second largest proportion (7.8% in 2002) of households below the poverty level<sup>8</sup>, aside from the cluster of unemployed households (CzSO 2003a).

Income deviation can also be observed between rural and urban households. The average rural household income per person (in sites with less than 5,000 inhabitants) was around 30% below the income level of urban households (in metropolitan sites with more than 100,000 inhabitants) (Figure 13).

<sup>8</sup> Minimum standard of living.

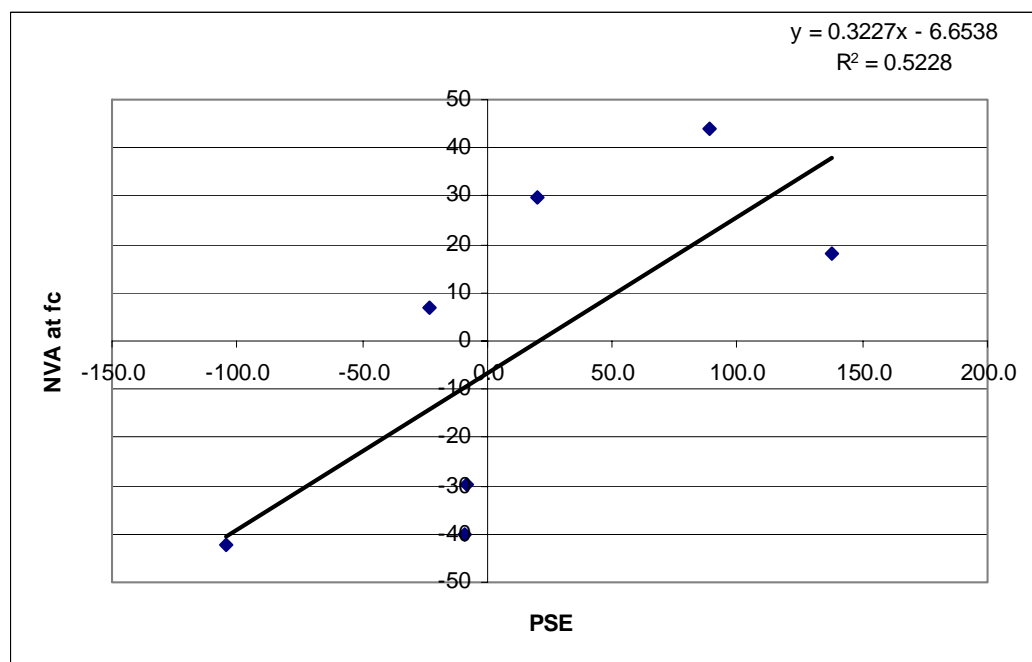
**Figure 13: Net incomes – annual per capita average (in thousand CZK)**

Source: Social Situation of Households in 2001, CZSO (2003b); Microcensus 2002 (Households' Income survey), CZSO (2004).

Empirical investigations among rural women (HORSKA et al., 2000) showed that women from agricultural households perceived the financial (income/expenditure) situation of their households slightly better (less dramatic) than other rural women. However, they more frequently estimated their standard of living as lower in comparison to other rural households. This discrepancy in judgement could be explained by more modest requirements and needs of “agricultural” women, a different structure of values and lifestyle (HORSKA et al., 2000).

Net value added (NVA) per annual work unit (AWU) can be regarded as a relevant and important indicator of farm income, particularly for family farms. This indicator incorporates both determinants of income/labour productivity and governmental transfers. The time series obtained from the Economic Accounts for Agriculture (EAA) indicate that there is a strong relationship between farm income and aggregated support represented by PSE<sup>9</sup> (Figure 14).

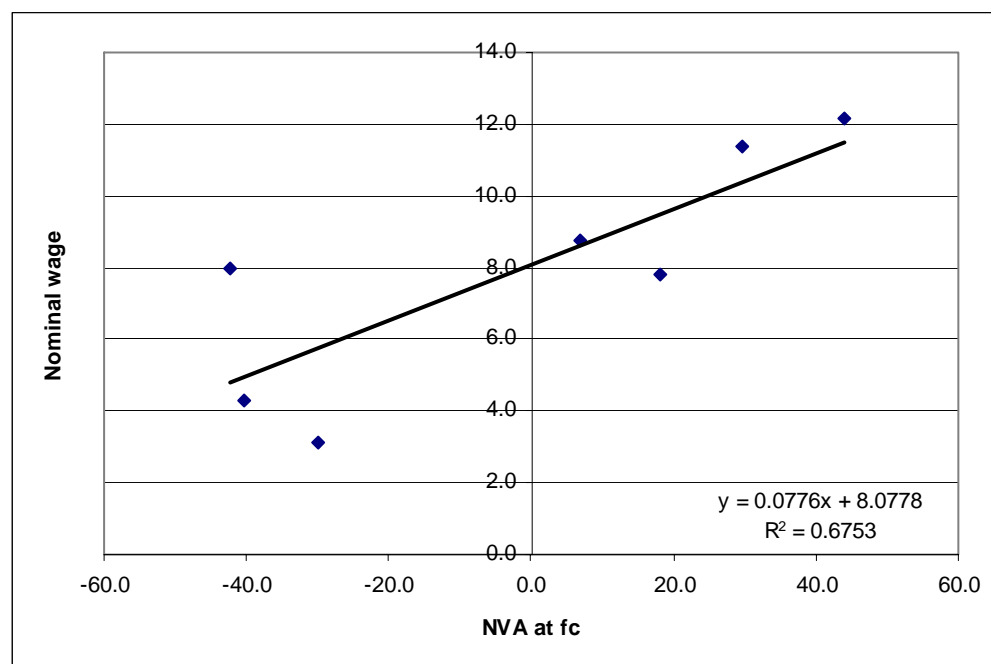
<sup>9</sup> Production support equivalent, OECD (2004).

**Figure 14: Changes in net value added in relation to PSE**

Source: Authors' calculation based on EAA (Report on the State of Czech Agriculture, 1996-2003).

A correlation can also be shown between annual changes in wages and changes in Net Value Added per AWU. Actually, 67% of wage changes can be explained by changes in return to a labour unit (Figure 15). However, the EEA lacks structural information. In order to obtain this, the FADN sample was examined. The sample exhibited a large variation in income performance: in some years (2003) individual (family) farms did better than corporate ones, and in other years (2001 and 2002) the opposite occurred. However, within the cluster of individual farms it was shown that NVA at fc grows with farm size and that this phenomenon has been quite stable. Farms cultivating more than 300 hectares achieved almost four times higher NVA per labour unit than small farms under 50 hectares in 2001. These small farms performed significantly below the national average, while farms already close to 100 hectares generated income/return to labour units above the national agricultural average, and farmers over 300 hectares exhibited double income/return to labour units.

**Figure 15: Annual changes in wages in relation to net value added at factor costs**



Source: Authors' calculation based on EAA (Report on the State of Czech Agriculture, 1996-2003).

## 7 SUMMARY AND CONCLUSIONS

In sections 3-6 we documented the rather unfavourable social implications of economic restructuring and the development of the agricultural sector. A review of these observations follows.

In spite of restitution and privatisation, most of the agricultural labourers have become employees.

Agricultural labour is, on average, less educated and qualified than labour in the rest of the economy. This particularly concerns employees, while the self-employed (individual farmers) possess favourable characteristics – they are qualified and entrepreneurially motivated. Nevertheless, the category of the self-employed has remained small.

With the pressure to perform economically efficiently, the least skilled labour sector has become redundant.

There are limited job opportunities in small communities, leading people to commute to more populated regions.

Agricultural labour, particularly female labour, is inflexible, bound to certain sites (house and household plot) and the very local social environment.

Older and less-qualified labourers are difficult to retrain and thus find it challenging to enhance their chances of obtaining jobs.

Labour productivity (measured by Gross Value Added at basic prices per labour unit) in agriculture is half of the national average and still 30 percent below labour productivity in the construction sector. Agricultural wages are 30 percent below the national average, as well as construction sector wages (Statistical Yearbook 2003).

The agricultural population, and particularly the female population, exhibits modest requirements with respect to standard of living (is less demanding than the rest of the society, even the rural society).

The listed phenomena lead us to question the mobilisation of the human capital of agricultural labourers. We understand human capital as any investment on the part of labourers – such as education, training, work experience, maintaining health, etc., which will increase the value of their labour (LIN 2001). It seems that such investments are extremely low among “agricultural” labourers and the challenge is in answering why. We offer two hypothesis to explain specific constraints on human capital mobilisation in agriculture.

The first hypothesis rests on the explanation that there is only a seeming gap between agricultural and the rest of the economy's wage rates. The empirical research among rural women indicated that agricultural income is supplemented by benefits/savings from staying in one's own house and cultivating a plot, having a job in one's living place and benefits from the local social environment, e.g., mutual help of neighbouring families, etc. To the contrary, the wage differential reflects those costs which arise when agricultural workers find work in other sectors. From the human capital perspective, agricultural labourers are able to supply their labour below the national wage rate and still be better off than looking for a better paid job elsewhere and having to invest in their education and/or re-training. However, this might concern only the older generation. Young people are finding agriculture (working conditions and wage rates) unattractive, and there is usually neither (parental) house nor plot available to them. They are also less dependent on the local social environment (they have not invested in social relationships so much). Thus, young people tend to migrate out of agriculture into other sectors and from poor rural areas to richer, job offering regions.

The second and probably complementary hypothesis concerns mobilising human capital toward self-employment. Unlike other countries, the Czech farming population has adopted the employee status of independent (self-employed) farmer. Obviously, this goes hand in hand with farm structure development. Some authors (DOUCHA and FOLTYN 2003) argue that the dominance of large corporate farms “producing” employment status is due to economies of scale in production and marketing. However, these economies of scale can also be achieved by means other than ownership integration (joining stocks). RATINGER and RABINOWICZ (1997) argued that it was economies of scale in acquiring as-



sets during the property rights reforms that boosted the survival and development of corporate farms. CURTISS et al., (2003) indicated that the advantageous social relationships of managers (resulting from the past) favour corporate farms on the market. Thus, it is unavailability of the other capital forms - resources (agricultural assets and land on one hand, and social capital on the other) which have de-motivated agricultural labourers to mobilise their human resources in order to start their own independent business. It should be added that acquiring shares in corporate farms has only seemingly maintained the ownership/decision-making position of agricultural labourers. CURTISS et al., (2003) showed that the role of manager-owners (or owners close to the management) has increased and overwhelmed the positions of the other, rather small owners.

These hypotheses should be subject to further research in order to confirm or modify them. Meanwhile, there are some policy lessons from the conducted research.

First of all, agriculture remains an important source of employment in smaller communities and for the older generation. However, this may change relatively soon (within a decade). The young generation seems to be less attached to the local social environment and its willingness to move out is high. If the infrastructure is well-developed, however, they may accept staying in rural areas and commuting to work.

Second, policies inhibiting physical capital exchange inhibit human capital development toward independent undertakings.

Third, policies supporting farm income do not narrow the wage rate gap. Instead, the policies should focus on mobilising human capital. Increased opportunity costs of agricultural labour will induce an increase of agricultural wages and the overall improvement of income of farm households (both employees and self-employed). At the same time, it will put pressure on farm efficiency and labour productivity.

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## LEASE AS A FORM OF LAND CONSOLIDATION IN MOLDAVIAN AGRICULTURE

DRAGOȘ CIMPOIEȘ, GRIGORE BALTAG \*

### ABSTRACT

Over 1 million people became landowners during the mass privatisation and re-organisation of collective farms in Moldova. More than 200,000 peasant farms, owing 1.8 ha of land each, became the most typical economic entities farming this land. However, such fragmentation has become one of the major problems of Moldavian agriculture. Thus, in order to improve the state of the agricultural sector, the necessity of land consolidation appears. The paper discusses the most appropriate manner of land consolidation in Moldova – land leasing. The goal of the study is to reveal specifics and show the level of land lease development in Moldova. The study is primarily based on two surveys. The first one – “Lease of agricultural lands”, was conducted by the Center for Strategic Studies and Reforms (CISR). The second one – “Survey of farm managers”, was conducted by the authors with the financial support of the Institute of Agricultural Development in Central and Eastern Europe (IAMO).

**Keywords:** land lease, consolidation, lessor, lessee, Moldova.

### 1 INTRODUCTION

Privatisation of the agricultural land and assets of collective farms, and also the re-structuring of the last in the post-soviet space were two primary goals of Moldova's transition to a market – oriented economy.

These challenges were especially sharp in Moldova, as agriculture is the most important branch of the national economy, providing fully one-fifth of GDP. Because 50% of the country's population is involved with the agro-industrial complex, the necessity of restructuring collective farms was of great import (DUMITRASHKO, 2000).

In 1992, the first attempt to reshape the agrarian sector was undertaken with the approval of the Land Code. As a result, over 1.2 million people received agricultural land ownership. Nevertheless, there were no significant changes till 1997, when the Moldovan government and USAID carried out the pilot project,

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“Land”, which stipulated the restructuring of 72 collective farms. As a consequence, these farms have been reorganised into other legal forms.

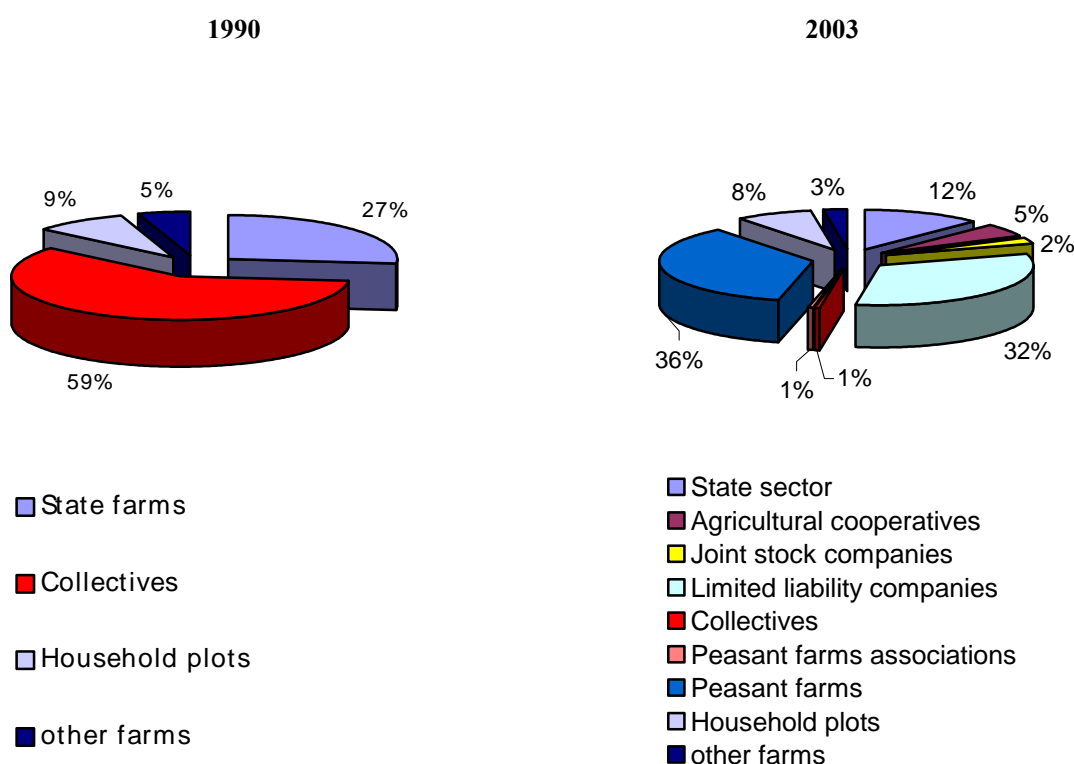
In March 1998, the National Land Program (NLP) was initiated as a transition from the pilot project to the privatisation of all existent collective farms. This was based on the agreement concluded between Moldova and USAID.

Attractive incentives led the restructuring program to become national, thanks to the involvement of a large number of farms. Incentives such as free land certificates, technical assistance, a moratorium on penalty calculation and the imposition of sanctions, debt regulation and the like, were all attractive for most of the newly created enterprises (DUMBRAVEANU et al., 2000).

At the beginning of this process, it seemed the positive features exceeded the negative aspects, something the majority tried to not notice. But as became apparent, the end of land reform did not mean the end of agrarian reform. Moreover, it did not mean the end of all problems, but only their beginning.

The realisation of agricultural reform led the structure of agricultural land to suffer significant changes. It has been especially transformed during the last few years (Figure 1).

In 1990, 27% of 2.35 million ha of agricultural land belonged to the state sector (state farms), 59% to corporate sector (collective farms) and only 9% to the individual sector (household plots). But by the end of 2003, the structure of the agricultural land varied greatly. At present, only about 247,000 hectares (12%) belong to the state, collective farms owning only 13,700 hectares (0.7 %). During this period, new corporate forms such as agricultural cooperatives and limited liability companies appeared, which at present take up over 800,000 hectares (40%). Approximately the same amount is occupied by peasant farms. Thus, we conclude that about 12% of land belongs to the state sector, 41% to the corporate sector and 44% to the individual sector.

**Figure 1: Land tenure in the Republic of Moldova**

Source: Cadaster Agency of the Republic of Moldova.

**Table 1: The number and the average size of economic agents that work in agrarian sector**

	1991		1997		2003	
	Number of units	Average size, ha	Number of units	Average size, ha	Number of units	Average size, ha
State farms	400	1,548	157	576	314	8,231
Collectives	534	2,692	262	2,497	4	3,414
Joint stock companies	0.0	0.0	210	1324	95	496
Production cooperatives	0.0	0.0	383	1,111	111	952
Limited liability companies	0.0	0.0	4	n.n	1,188	538
Peasant farms associations	0.0	0.0	246	273	44	239
Peasant farms	0.0	0.0	41,228	1.70	268,400	1.91
<b>Total</b>	<b>938</b>	<b>x</b>	<b>42,530</b>	<b>X</b>	<b>270,156</b>	<b>x</b>

Source: Own calculations based on data of the Department of Statistics and Sociology of the Republic of Moldova and Cadaster Agency of the Republic of Moldova.

Most of agricultural land (about 83%) is privatised and is owned by over 1.03 million citizens (CIMPOIES, SCHULZE, 2004).

The structure and the average size of economic agents that operate in the agricultural sector have undergone essential changes as well (Table 1).

Despite the doubtful results of land reform, farms of different legal status and different sizes coexist. Twelve years ago there were a little more than 1,000 enterprises, including about 500 collective farms. At the end of 2003, about 2,000 comparatively large scale farms were registered, as were about 268,000 small, basically peasant farms.

Changes have not only taken place in the agricultural state sector, but also in the private, corporate sector. Of particular interest for research are peasant farms. The creation of peasant farms was one of the primary goals of the National Land Program. The very small size of these farms raises the question of their viability. Thus, if the average size of corporate structures varies between 200 to over 3,000 hectares, peasant farms hardly reach the size of 2 hectares. Moreover, this fact should cause concern because even this small plot of land is strongly parcelled (CIMPOIES, SCHULZE, 2004).

This was the basic mistake of the land reform: the idea of allotting land to peasants was put forward without taking into account the necessity of the land's subsequent, effective exploitation. Thus, in order to improve the state of the agricultural sector, the consolidation of agricultural land must be undertaken.

As to land consolidation, there are different avenues to consider. Among them, the most appropriate seems to be "purchase-sell" of the agricultural land. In such a way the bulk of the agricultural land would be concentrated in the hands of those landowners who possess good managerial skills and are the most active part of the rural population. At the same time, because of some restrictions (imperfect legislation, financial restraints of the major part of rural population, etc.) this may not be possible in the near future. In such a case, the most appropriate way of land consolidation remains the lease of agricultural land.

## **2 LEASE RELATIONS IN AGRICULTURE**

Leasing holds an important place in the system of economic categories and in economic practice. In legal terms, a lease represents a contract through which one party (lessor) gives to another party (lessee) property in temporary use for a certain payment. Objects of leases are: living and non-living premises, industrial and trade enterprises, and concrete means of production, among which the major is land.

In the modern scientific conception of lease relations, despite their wide existence in agriculture ventures in various countries, as well as their revival in the



majority of former Soviet republics, there are indisputable methodological and practical aspects associated with them (BUZDALOV, 1998).

With the appearance of lease relations in the Republic of Moldova, many cases of infringement or even full ignorance of the interests of lessors and/or land owners has been registered. Furthermore, unbridled rent in an open market bears a powerful destructive charge, and not only in economic terms, but also in moral terms, creating additional social pressures.

Historically, leasing arose with the development of private property and defined its subjective necessity. In addition, if the right of private property is regulated by a civilised economic and civil legislation, lease relations will also adopt a civilised character. On the contrary, if property rights are realised spontaneously, destructive consequences of the lease become a regularity.

Objective preconditions of lease relations are incorporated in the nature of private property relations. Caused by economic personal interest, the aspiration to increase property holding leads to its concentration in the hands of owners till the large sizes create the need to rent a part of it to other owners on easy terms. In the Republic of Moldova, lease relations in agriculture most probably arose because of the small plots of agricultural land and of the incapacity of an important part of the rural population to process the land individually (MURAVSCHI, 2002).

Land lease relations, being based on general principles, have their own specificity, concerning, first of all, the features of the given kind of property, or the main means of production in agriculture. Whoever the land owner is, regardless of the means of production, the land is a national property.

Land lease is considered a form of land tenure, where the owner (lessor) transfers the land for a specified period to another person (lessee) for housekeeping in return for a certain payment. With the renting of land, a division of competencies of the owner takes place: the right of the land owner remains upon him, but he gives over to the lessee a significant part of competences related to the use of this property. Thus, competences on economic use of property are separated from other competences of the owner and personified in another subject of legal relationship (BUZDALOV, 1998).

In general, during the Soviet period, lease relations did not have a civilised nature, which are characteristic of the market economy and are in world-wide practice. In the existing system at that time, there was no motivation, either for landowners or for lessees, because everything was subordinated to abstract ideals caused by the state bureaucratic machine. The scale of lease was limited and land lease was completely forbidden, although in countries with a market economy it occupies an important place in the land relations system.

In the Republic of Moldova the lease of agricultural land appeared at the end of 1991 as a result of the confirmation of the Land Code by Parliament on 25.12.1991. That code stipulates that land owners have the right to lease their land plots (art. 27). This law, which has been modified some times during the last decade, also stipulates the object, terms and conditions of lease agreements, and the modalities of its cancellation (art. 41).

In spite of the fact that the basis of leasing was enacted more than ten years ago, lease relations are thus far incomplete, violating the rights of the subjects of these relations. Thus, land owners are, on the whole, not satisfied with the size and the form of the rent, nor the punctuality of the lessees with their charge and payment. Lessees are upset by the attempts of the land owners to get involved, without invitation, in economic activities, to revise the clauses of the contract or to rescind it at an inconvenient moment. Therefore, the adjustment of these differences is the main condition for the efficient realisation of the social-economic function of the lease (GUDIM et al., 2003).

An attempt to amend the Land Code was undertaken in 2003 by confirming, on May 15, the Law on Leasing in Agriculture. This law tries to find a compromise between entrepreneurs' interests and social guarantees of the landowner. An advantage of this law is that it clearly describes the formal part of the lease process. Important attention is paid to the detailed description of the lease agreement.

In general, the new law is mainly restrictive in character. In particular, term limits of the lease are stipulated. If the "bottom" limit is established at a level of one year, the "top" limit is on a rather modest mark of 30 years. That, however, adequately reflects existing practices. At the same time, the lease of perennial plantations suffered drastic changes: corresponding contracts henceforth will be concluded on a term not less than 25 years.

The new law also stipulates the priority right of the lessee at the renewal and prolongation of the lease agreement and acquisition of the leased property, in the case the owner might choose to neglect his agreement.

Something less than a market approach is applied in the law concerning the minimal size of the rent of agricultural land. Depending on productivity class, conformation and so forth, it should not be lower than two percent of the normative cost of the leased plot. In this case, it would be more correct to take into consideration the market price of the land. This would allow the desire to pay lease to be determined by the profitability of agribusiness to a greater extent than by fertility. However, in practical terms this or that principle are not of crucial importance. Today, the average rent for agricultural land is higher than the recommended percent from the nominal price and, especially, from the land's market price.

The main problem is that at present, the size of rent is mainly established as a certain percent from the crop, and in this respect the law changes nothing. However, as accounting in agriculture leaves much to be desired, it is needless to hope for a fair calculation for lessors. As a consequence, the question of rent as the concentrated expression of the decency of farm managers assumes a social character that finally leads to different social conflicts and the delay of the process of land consolidation.

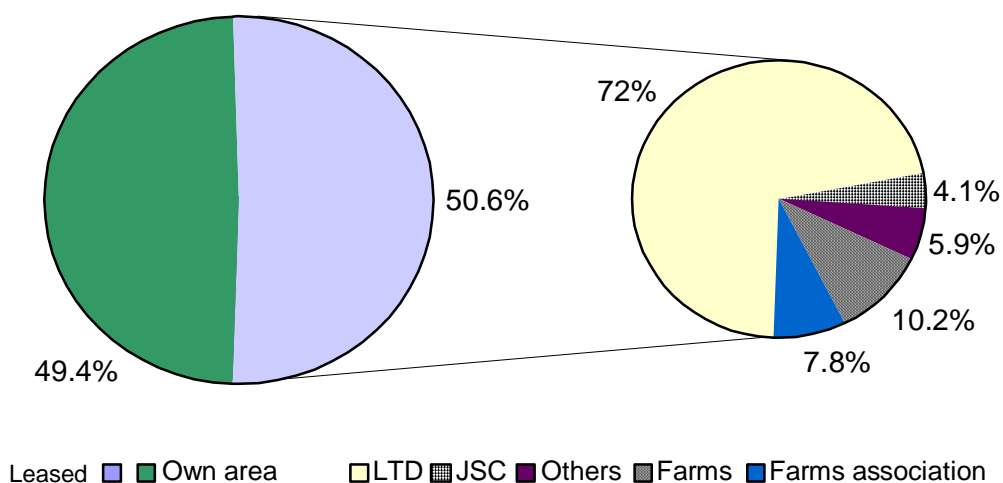
Elaborating on the mechanism of minimising internal contradictions in the system of lease relations brings about the necessity of including the following problems for scientific analysis: concept of lease, in general, specificity of lease relations in agriculture, the principle of legal consolidation of mutual relations between landowners and lessees in view of the real state of economy, the working economic mechanism and other factors and conditions of social development.

### 3 LAND LEASE IN THE REPUBLIC OF MOLDOVA

#### 3.1 Priorities and dynamics of lease relations

The technology of agricultural land processing, at present, requires large areas. At the moment, land plot consolidation is carried out through lease relations (Figure 2).

**Figure 2: Land lease depending on the organisational-legal form of the agricultural enterprises, %**



Source: Own calculations based on the CISR Survey 2003.

Based on information available after the investigation conducted by the Center for Strategic Studies and Reforms (CISR), 50.6% of total land owned by peas-

ants is leased out. Therefore, the problem of the consolidation of land shares received by peasants as a result of the land reform is partly solved through leasing.

The lessees enterprises involved in the system of lease relations are represented by four legal forms: joint stock companies, agricultural cooperatives, limited liability companies and peasant farms. The area leased by these enterprises constitutes over 94% of the total leased agricultural land. The major lessees are limited liability companies, as 72% of their land is leased.

A general tendency for the above-mentioned farms was a transition to larger area farming. Nevertheless, depending on the legal forms of enterprises, a specific character is outlined (Table 2).

**Table 2: Structure of agricultural land depending on the legal forms of enterprises, %**

	Joint stock companies	Agricultural cooperatives	Limited liability companies	Peasant farms
up to 50 ha	0.0	0.0	2.5	22.4
50 – 100 ha	0.0	7.2	2.0	8.2
100 – 500 ha	33.3	21.4	36.0	49.0
500 – 1000 ha	33.3	14.3	26.0	14.3
over 1000 ha	33.4	57.1	33.5	6.1
Total	100	100	100	100

Source: Own calculations based on the CISR Survey 2003.

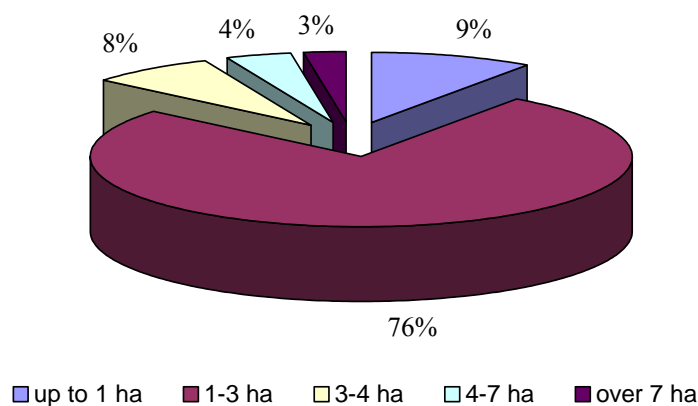
Thus, joint stock companies and agricultural cooperatives operate only on large areas over 100 ha. Limited liability companies and peasant farms, based on leases, cultivate both small and large areas. But even in this case, over 2/3 of the lessees prefer to cultivate plots larger than 100 ha. It is necessary to note that the data on the peasant farms, received as a result of the above-mentioned survey, do not correspond absolutely to the reality. In fact, over 70 % of peasant farms operate areas less than 50 ha.

Of particular interest for investigation is the distribution of leased areas according to their size. Lease of land plots depends, to a great extent, on their size. Thus, land plots smaller than 1 ha are farmed by their owners independently. Large plots require machinery for cultivation. Therefore, lack of machinery forces the owners of such plots to lease them out (Figure 3).

The data analysis shows us that the most frequently leased land parcels are those between 1-3 ha in size, which together make up 76.5%. Land plots smaller than 1 ha constitute only 10% of the total lease plots, while those that exceed 3 ha are 13.9%.

In the present state of Moldavian agriculture, as more land parcels are included in the lease relations system, their utilisation will increase. Further, the level of efficient use of the leased land depends on the legal forms of lessees' enterprises. The first position in the lease of land plots is occupied by limited liability companies. This legal form leases more than 70% of their land. A specific feature of limited liability companies is that they almost never possess their own agricultural land. Instead, the largest part of their land is leased. Limited liability companies are followed by peasant farms at 15%, agricultural cooperatives at 6% and joint stock companies at about 2%.

**Figure 3: Structure of leased-out areas based on their size**



Source: Own calculations based on the CISR Survey 2003.

The question then arises: What were the reasons which led the above-mentioned enterprises to lease land?

According to data obtained after the investigation of agricultural enterprises, the main reason is that it is more profitable to cultivate more land – almost 50% of the interviewed farm managers agree with this idea. The main reason for leasing land plots, for about 25% of respondents, was the fact that leased land is situated in the neighbourhood of their enterprises. This is further evidence that both farm managers and landowners realised that land consolidation allows them to use the land more rationally. This fact is favourable to both parts of lease relations: to the owner and the lessee. Other reasons that lead farm leaders to lease land plots are: high soil fertility, access to irrigation on the leased land plots, ample work force for processing bigger areas.

Nevertheless, the survey has underlined some pressures which managers who desire to lease land are facing with. Some respondents affirm that land transactions are too expensive. Many of those who want to lease land affirm that their enterprises do not have sufficient financial means for leasing. Also, there are

cases when landowners refuse to lease the land out because they consider the rent to be too low.

Pointing out the reasons why farm managers lease land and the problems they must deal with during the lease relations process are an interesting contrast to the reasons that lead land owners to lease their land out.

One of the main reasons forcing the landowners to lease out land is their lack of heavy machinery to cultivate large plots – over 60% of landowners cite this as a motivating factor. Age is also one of the important reasons for leasing out one's land – this was indicated by every fourth landowner.

It is necessary to note that about 25% of landowners are pensioners, but for 13% of the owners, the main reason for leasing their land out is the fact that they have other employment and they do not have the possibility to farm the land by themselves.

Also, it is necessary to mention that the reasons leading the owners to lease their land differs in function of their social status (Table 3).

**Table 3: Reasons for land lease based on type of activity, %**

	<b>Health situation</b>	<b>Lack of machinery</b>	<b>Lack of knowledge</b>	<b>Difficulty in selling</b>	<b>Others</b>
Pensioners	84.1	14.3	0.0	1.6	0.0
Unemployed persons	33.3	60.0	6.7	0.0	0.0
Individual activity	27.8	61.1	0.0	10.0	1.1
Agricultural workers	12.7	66.2	2.8	16.3	2.0
Workers of other enterprises	9.9	62.0	4.2	0.0	23.9

Source: Arenda terenurilor agricole, Chisinau, CISR, 2003.

Thus, over 80% of pensioners lease their plots due to their health. For the remainder, the main problem which convinces them to lease their land out remains the lack of needed agricultural machinery. About 60% of respondents from the corresponding categories affirmed this. Although all the growers have difficulties in selling, this problem has been mentioned only by some agricultural workers – about 16% of the respondents of the given social category.

### 3.2 Lease agreement

Many conflicts which arise in the process of land relations are in many respects caused by the lease agreement. The last one is the simple transmission of land plots by the owner to another person for farming, in legally registered transaction, namely in leasing. Besides the legal form of land relations, in rural areas of Moldova there is another form of transmitting the land in use, namely, the trans-

fer of land to a relative or a neighbour without signing an agreement. Although these relations, which are widely used in Moldavian villages, are not, legally speaking, included in the lease relations system, per se it is land *lease* (GUDIM et al., 2003).

Nevertheless, the results of the conducted surveys indicate that the bulk of transactions concerning land lease are based on a lease agreement.

A more detailed analysis specifies that in 2003, most of the lessees' enterprises increased their share of agreements signed with landowners (Table 4).

**Table 4: Presence of land lease agreements depending on legal forms of lessees' enterprises, %**

	Joint stock companies		Agricultural cooperatives		Limited liability companies		Peasant farms	
	2001	2003	2001	2003	2001	2003	2001	2003
Yes	100.0	100.0	91.7	85.7	97.9	99.5	86.5	87.5
No	0.0	0.0	8.3	14.3	2.1	0.5	13.5	12.5
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Arenda terenurilor agricole, Chisinau, CISR, 2003.

The biggest share of signed agreements with landowners are registered at joint stock companies. The only explanation of this phenomenon is that most of the existing joint stock companies dispose of significant areas of their own agricultural land and only a small part of the total prefer to lease land from outside. As to peasant farms, a small share of signed land lease agreements is conditioned by the above-mentioned facts: many peasant farms lease their relatives' or neighbours' land according to a verbal agreement, without signing a legal agreement.

Limited liability companies are the most numerous of the corporate forms which exist in Moldova. Since most limited liability companies do not possess their own agricultural plots, they are the most active in the lease relations system. As a consequence, most land is leased out to limited liability companies and, according to the conducted survey, these are the enterprises who prefer mostly to legalise lease relations by means of an agreement.

One of the problems of lease agreements is their term. Long-term lease relations increase the trust between the land owner and lessee, motivating the last to invest in more effective utilisation of the land.

The received results, from the interviewing of farm managers, specify that long-term leasing is not widespread in Moldova. Only 3% of the respondents concluded agreements between 10-30 years. As a rule, these enterprises also develop a processing activity. For example, wineries prefer to conclude lease agreements for a term of 30 years in order to plant new vineyards, thus investing

a significant amount of money. Therefore, they need stability in the system of lease relations.

Lease agreements, mostly agreed to for 1-5 years, prevail. About 80% of respondents concluded agreements on a 3 year-term. About 6% of the lessees concluded lease agreements on 1 year and 5 years, respectively.

As to the terms of lease agreement, the most dissatisfied are the lessees, because a five-year term is not enough for the efficient utilisation of the land based on leasing, and is not capable of ensuring stable, long-term income.

The survey, conducted by CISR, revealed detailed information according the terms of the leases, which is presented in Table 5.

**Table 5: Land lease terms depending on legal forms of lessees' enterprises, %**

Legal form	Land-lease term, years								Total
	1	2	3	4-5	6-10	11-15	25	30	
Limited Liability Companies	5.5	1.0	80.5	5.5	4.0	1.0	2.0	0.5	100
Agricultural Cooperatives	7.2	0.0	71.4	14.3	0.0	7.1	0.0	0.0	100
Joint Stock Companies	0.0	0.0	100	0.0	0.0	0.0	0.0	0.0	100
Peasant Farms	6.1	4.1	77.6	10.2	0.0	2.0	0.0	0.0	100

Source: Own calculations based on the CISR Survey 2003.

The findings indicate that the lessee enterprise's legal form is not a major factor in determining the land lease agreement term. The study discloses some distinctions regarding the distribution of long-term agreements depending on lessees' enterprises, though the tendencies, underlined in the first survey are kept. Hence, the overwhelming part of the lessees' enterprises conclude land lease agreements for 3 years.

Another problem concerning lease relations is related to the form and size of lease payment. In Moldova, lease payments exist in 3 forms: cash, in-kind and mixed. As the findings from the conducted survey indicate, the main form of payment is that in-kind, used by over 80% of the respondents. This is followed by mixed payment (about 10%). The reason for a poorly developed cash lease payment (4.6%) is, on the one hand, undeveloped pecuniary relations in the agrarian sector and, on the other hand, peasants' need of in-kind payment, which can be practically fully consumed by lessors' farms.

With the development of market relations in rural areas, lease payments should be cash only. This would equalise lessors and lessees in their contractual relations.

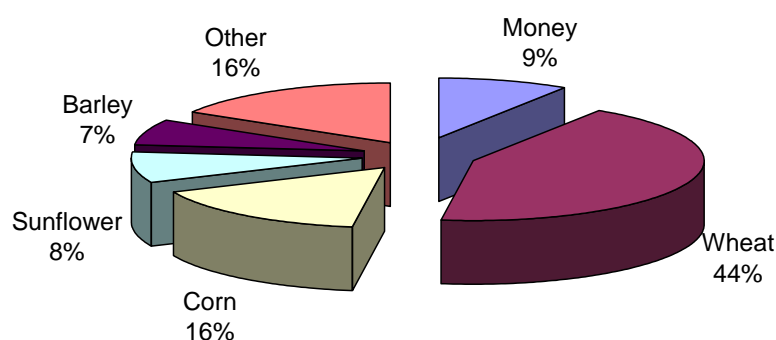


As already indicated, land lease payments exist in three forms. Of special interest for research is the mixed form of payment (Figure 4).

According to the survey's findings, cash payment makes up only 9% of the mixed payment structure. The rest belongs to payment in-kind – over 90%. A more detailed analysis reveals that the main form of payment in-kind, as a part of the mixed payment for land lease, is wheat (43.4%).

As for cash payment for land lease, it varies between 300 and 1,100 lei. Depending on the region, the average size of payment across the country comes to about 650 lei (45 Euro).

**Figure 4: Structure of mixed lease payment for one land share, %**



Source: Own calculations based on data of CISR, 2003.

Concerning payment in-kind, its value corresponds to that of cash payment. The most common crops for settling up with landowners are the same as in the mixed form of payment: wheat, corn, barley and sunflower.

The strength of lease relations depends, to a great extent, of the level of the owner's satisfaction with the lease provisions. A high level of satisfaction with lease provisions is an important precondition for the lease relations system development, and for the preservation of its stability in the future.

About 60% of respondents from among landowners are unsatisfied of the provisions of lease agreement, with about 65% of the respondents mentioning low lease payment as the major reason for dissatisfaction.

It is necessary to note that low lease payments do not depend on low qualities of lease relations as such. Generally, it results from the low market value of agricultural land in rural areas of the country.

#### 4 CONCLUSIONS AND RECOMMENDATIONS

1. About 50% of all privately owned land plots are leased. Of the total land area farmed by lessees, only 1% of land belongs to them. Hence, about 99% of the land processed by them is leased.
2. The number of lessee enterprises significantly increased during recent years. The major legal form of lessees' enterprises are limited liability companies, which prefer to operate within areas not less than 100 ha.
3. The main reasons that lead landowners to lease out their land plots are lack of agricultural machinery and advanced age, as 25% of them are pensioners.
4. The majority of landowners and lessees legally registered their lease relations. The lessee enterprise's legal form is not a major factor determining the land lease agreement term. For the overwhelming part of the lessee enterprises, the share of short-term land lease agreements prevails. Only 10% of the total are long-term agreements.
5. Land lease payment in Moldova consists of cash, in-kind and mixed forms. In-kind payment dominates, reaching around 84%. Using cash is not widespread and hardly exceeds 4% of the total.
6. In order to increase land lease terms, it is necessary to reduce the land tax for participants of land lease relations who will sign lease agreements for more than 10 years.
7. A special fund should be created for compensating landowners who do not have the possibility to farm the land by themselves, thus stimulating them to sell their land plots.

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## **SOCIALIST HERITAGE: GOOD OR HARM?**

## ANALYSING VARIATION IN RUSSIAN DAIRY FARMS, 1990-2001

IRINA BEZLEPKINA, RUUD HUIRNE, ALFONS OUDE LANSINK, ARIE OSKAM\*

### ABSTRACT

Russian dairy enterprises underwent dramatic changes during 1990-2001. Not much is known about the position of these enterprises under the new conditions. This study examined a sample group of dairy enterprises in the Moscow region to try to identify similarities and divergences in historical background, performance, managerial and structural characteristics. A unique farm-level data set from 1990-2001 was used. Assessment of historical characteristics revealed that the currently most successful enterprises were those which in pre-reform years had already shown better economic performance. These farms also had, for the period studied, smaller percentages of reduced resources, no severe debt problems, and better overall management.

**Keywords:** performance, management, cluster analysis, dairy enterprises, Russia.

### 1 INTRODUCTION

In the past decade, Russian agriculture has undergone transformations that have had important impacts on the current settings in agriculture. This study only analyses agricultural enterprises, which in Russia co-exist with other agricultural producers such as family farms and private households. Agricultural enterprises, i.e. the former collective and state enterprises, lost part of their share in gross agricultural production but nevertheless kept their contribution to national employment (12% in 2000) and still operate on about 80% of total agricultural land in Russia. Having experienced forced restructuring and reorganisation in 1992-1995, the enterprises did not give way to private farming. Currently there are still more than 24,500 agricultural enterprises (data of 2001). In line with national statistics (see GOSKOMSTAT, 2002) on average, the agricultural enterprises declined in size, had lower economic performance, especially in the period 1996-1998 and experienced declining productivity. Agricultural enterprises in Russia still dominate among the commercial agricultural producers and thus determine the development of the sector.

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A large body of literature focuses on the relation between the performance of Russian agricultural enterprise and characteristics such as their size, management, debts, restructuring and their relation with the state and urban service providers (EPSTEIN, 2001; PEDERSON et al., 1998; SCHULZE et al., 2001; ZEDDIES, 2000). The researchers stress the lack of effective management, which unarguably plays an important role in agricultural enterprises (KOESTER, 2003; SCHULZE et al., 2001; VISSER, 2003; ZEDDIES, 2000). Previously the impact of initial pre-reform conditions was investigated in multi-country studies and appeared to be important (MACOURS and SWINNEN, 2000). DAVIDOVA et al. (2003) stressed the need to identify long-lasting phenomena determining the current performance of farms in Central and Eastern European countries. There has been no substantial study of historical conditions and their impact on farm performance for Russia.

It is a well-established fact that economic performance can differ considerably between farms<sup>1</sup>, even under more or less similar production conditions. UZUN (2002) defined five groups of farms according to their solvency. The first group of financially sound farms (22% in 1999-2000) produces 51.5% of total marketable output. By comparison, the worst performing group includes 27% of farms, contributes 6.4% to total marketable output and has a level of outstanding debts that is four times larger than that of the first group. In general, this can be due to differences in management, which can be considered the fourth major factor in production, in addition to the traditional factors land, labour and capital (ROUGOOR et al., 1998). There has been no study of variation in enterprise performance in relation to historical conditions and management in Russia, because of (a) the difficulty of quantifying managerial abilities, and (b) the absence of reporting such managerial characteristics as age, education, experience, etc., which are usually studied. In this study unobservable management was assessed through various performance-related characteristics over time.

Our approach to this research problem was, in a sample of dairy enterprises for empirical investigation, first to determine *which farm characteristics exhibited the most dramatic changes in 1990-2001*. The second objective was to find out whether the current dairy sector in the region was *homogeneous, or whether producers differed substantially*. Linking the historical and present farm characteristics provided the third objective: *to determine the impact of initial conditions* on current performance, structure and management. Addressing these objectives contributes to (a) understanding the development of dairy enterprises in the last decade, with the aim of (b) projecting future developments in regional producers' structure and performance and (c) determining priorities in agricultural policies regarding different groups of producers.

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<sup>1</sup> The terms "agricultural enterprise" and "farm" are equivalent in this chapter.

To assess the variation among dairy enterprises, several characteristics were employed in cluster analysis for 2001 data (for example, EPSTEIN, 2001 use only financial indicators; UZUN, 2002). Historical characteristics for 1990 were assessed for each cluster. The pre-reform data gave insight into initial farm conditions; more recent data revealed the performance of Russian agricultural enterprises after the 1998 financial crisis.

The remainder of the paper is organised as follows: the next section is a literature review that helped build the research hypothesis on the relation between management, agricultural enterprise characteristics and performance; Section 3 describes the research method and data; Section 4 presents the results ordered by the three research objectives, while a discussion of conclusions in Section 5 finalises the paper.

## **2 CONCEPTUAL FRAMEWORK: FARM ENVIRONMENT, STRUCTURE, MANAGEMENT AND PERFORMANCE**

Various indicators of farm results are used in empirical analyses (see also ROUGOOR et al., 1998): economic indicators (profitability, income), plain financial parameters (debt ratios) or technical performance (milk production and quality, disease rates). In empirical studies the farm result is often related to management<sup>2</sup>. Farm managers perform their tasks in a dynamic environment, in which BOEHLJE and EIDMAN (1984) distinguished four major dimensions: 1) the physical, such as seasonal weather conditions and their variability; 2) the economic, determining the relative as well as the absolute level of input and output prices; 3) the social, prescribing labour conditions and social networks; and 4) the institutional, prescribing (a) rules for the use of debt capital, (b) rules for payment of taxes, (c) legal rights and obligations, (d) relations between the state, institutions and producers.

Figure 1 presents the static state of a farm, its management and the four-dimensional environment. The current farm performance, management and environment are influenced by its historical farm structure, management and performance and affect future parameters. Figure 1 can be extended by incorporating these dynamic elements. The historical impact can be substantial for the current state of Russian enterprises as they have undergone restructuring in 1991-1994 and functioned under rapidly changing economic conditions in 1991-2001. Following the literature review, several elements of each farm environment are defined and their hypothetical impact is formulated. Often one element is asso-

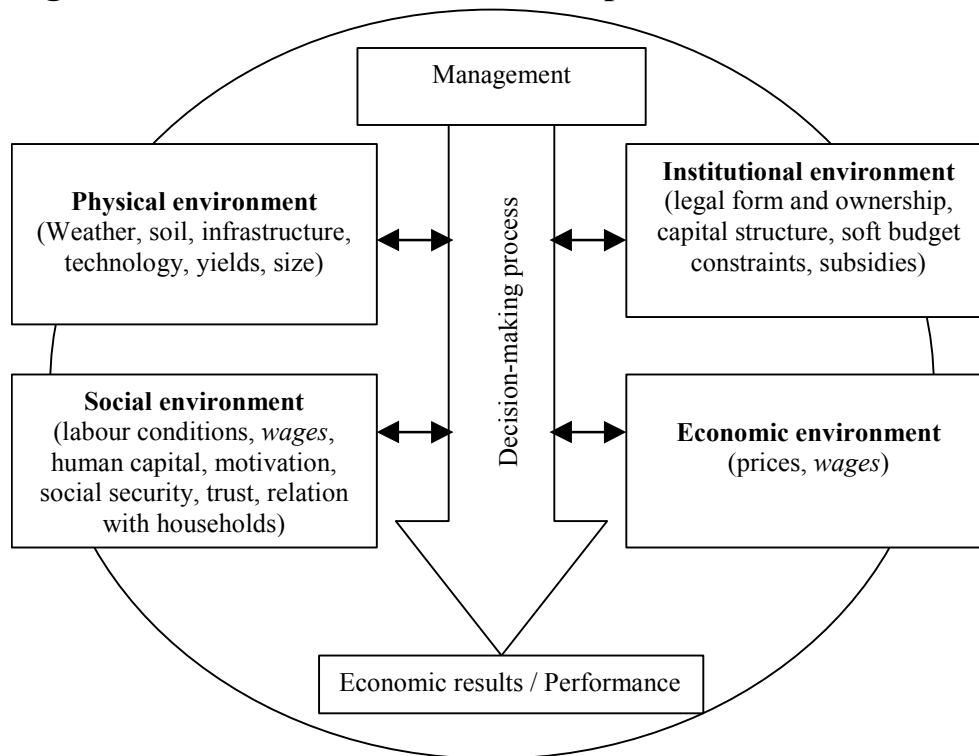
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<sup>2</sup> A one-sentence definition of management is difficult to formulate; in this study the concept of management is derived from (BOEHLJE and EIDMAN, 1984), who discusses the tasks and extent of farm management.



ciated with more than one environment, since there are many interlinkages among them.

**Figure 1: Relation between farm performance and environment**



Source: Authors' presentation.

*Physical environment* refers to the farm's structural characteristics, predetermined by natural and physical conditions (weather, soils, and infrastructure). The most intriguing and debatable farm characteristic in transition countries in the last decade has been farm size. VISSER (2003) elaborated on the Russian ideology of "big is beautiful" and concluded that larger agricultural enterprises in the Rostov region (famous for agriculture) had a higher profitability, which was consistent with Epstein's (2001) findings for enterprises in the St.-Petersburg region. SCHULZE et al. (2001) concluded the opposite, that the smaller agricultural enterprises of the Volgograd region had higher profitability. Large enterprise size may have a positive or negative effect on performance; a positive effect follows from economies of scale, whereas a negative effect is increased complexity of management. The definition of size, always relative, has to be expressed by those variables (hectares, workers, livestock head, sales, or assets) most relevant to the research question. The choice of size variables is discussed in Section 4.1.

The physical environment, through technology, also defines such parameters as yields, intensity and specialisation, which also impact on farm performance. For example, on dairy farms a higher productivity of cows means greater technical efficiency (ONDERSTIJN, 2002) and bigger gross margin per kg of milk

(ROUGOOR et al., 1997). Thus, farm structural characteristics (size, productivity, specialisation and intensity) reflect the physical dimension of its environment.

*The institutional environment* determines the capital structure and the way the financial obligations are dealt with. One frequently-studied institutional element of transition economies is "soft budget constraint" (SBC), *i.e.* routine loan forgiveness. According to SCHAFFER (1998), transition states often soften liquidity constraints by allowing enterprises to generate tax arrears. In contrast, SCHULZE et al. (2001) found no statistically significant relation between profitability and level of accounts payable. However, accounts payable are influenced by the discipline of customers, *i.e.* by the level of accounts receivable. High accounts receivable likely signal weak customer management or poor farm financial performance, preventing it from attracting reliable customers. In the earlier years 1993-1994 high debt had a negative impact on profitability and farm restructuring PEDERSON et al. (1998). Unprofitable farms often rely on state support in the form of subsidies. The relation between subsidies and performance on Russian farms can be twofold. On the one hand, the theory of SBC predicts that poorly performing farms will have a high percentage of revenue from subsidies (OSBORNE and TRUEBLOOD, 2002). On the other, better managers are likely to be more efficient in getting subsidies, which requires the completion of applications; they may also have better relations with regional authorities (more than 70% of subsidies came from regional<sup>3</sup> budgets). A positive relation between subsidy and farm size could be expected, since (a) subsidies are coupled to inputs and outputs; and (b) lower per-unit transaction costs of acquiring subsidies on larger farms.

The legal form and type of ownership also belong to the *institutional environment*. Surveys in the Ukraine and Russia showed that about half of farm employees reported no real changes had taken place on the "reorganised" farms (LERMAN, 2001; LIEFERT and SWINNEN, 2002). SCHULZE et al. (2001) studied the variability of farm characteristics between groups of farms with different legal forms and concluded that in the Volgograd region limited liability and joint-stock companies had most successfully adapted to economic conditions. The new legal form was chosen by the reforming *kolkhozes* and *sovkhoses* rather randomly, with the exception of the poorest performing farms, restructured by splitting up (SVETLOV, 2000; VISSER, 2003). Therefore, the relation between ownership type (private, municipal, state), legal form (co-operative, joint stock, limited liability company, state enterprise) and performance is not unambiguous.

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<sup>3</sup> VISSER (2003) found that an enterprise managed by the same person for 39 years was highly successful, which signals that experience and possibly strong relations with community and regional administrations played an important role.

*The social environment* comprises characteristics of human capital, labour conditions and social security, factors also closely related to the *economic* and *institutional environment*. KOESTER (2003), VISSER (2003) and ZEDDIES (2000) concluded that a lack of human capital and employee motivation was a result of low wages. BEZLEPKINA and OUDE LANSINK (2003) found wages, corrected for wage arrears, a motivating factor in the improvement of the technical efficiency of Russian dairy farms. SEDIK *et al.* (1999) concluded that the diversion of resources from corporate farms to private household production negatively affected crop output on the corporate farms. That households can officially or unofficially use resources of agricultural enterprises to lower private production expenses (OVCHINTCEVA, 2000; PALLOT and NEFEDOVA, 2003), relies on an institutional environment that allows such relations and an economic environment that motivates them<sup>4</sup>. It can be assumed that higher wages improve farm workers' economic incentives (see KOESTER, 2003). The level of wages is a managerial lever on the farm social (and economic) environment.

*Economic environment* refers to the level of input and output prices, interest rates and wages, and is closely related to the other dimensions. Declining terms of trade for agricultural producers is named as one major reason for the current unfavourable situation in Russian agriculture (STROKOV *et al.*, 2000; VARSHAVSKY, 2000). At the producer level, the deviation of enterprise-level price from the average price may signal superior quality of output, or special agreements with suppliers made possible by advanced management.

While the list of elements of the farm environment could be broadly extended depending on research interests, availability of enterprise-level data and the research questions in this paper have resulted in the following list of key farm environment characteristics: (a) size, farm location and dairy productivity (Physical); (b) legal form and ownership type, debts (Institutional); (c) milk price (Economic) and (d) wages (Social and Economic). Farm management could not be measured in this study directly. Good management can be observed in economic (high profitability) and financial (low debt ratios) performance, high dairy productivity, better quality of milk, higher prices, higher subsidies per unit of production, and a better social environment evidenced by higher wages and lower wage arrears. Farm history is related to time-variant farm characteristics such as performance, structure (size, specialisation, intensity) and management (productivity, wages).

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<sup>4</sup> "Unpaid workers were pilfering everything from milk to gasoline to tractor parts, and many of the ablest were migrating to the cities" (TAVERNISE, 2001). ZEDDIES (2000) assessed the level of theft on farms in the Moscow region at about 5-7% for grain, 15-20% of potatoes, 3-5% of milk.

### **3 MATERIALS AND METHODS**

#### **3.1 Analytical Procedure**

Two dimensions were involved in the analysis of Russian farms: current farm characteristics in 2001 and their history back in 1990. To address the first objective, the performance, structure and management of dairy farms were analysed separately for the years 1990 and 2001. This contributed to understanding the population of dairy farms at present and a decade ago. A higher coefficient of variation (standard-deviation-to-mean ratio) indicated a greater variability in certain farm parameters between the two years. The effect of the farm environment can be cleared of stochastic elements (weather, price fluctuations) by analysing farm characteristics averaged over the last three years 1999-2001.

To address the first objective, the performance, structure and management of dairy farms were analysed for the years 1990 and 2001, separately. This analysis contributed to the understanding of the population of dairy farms at the present time and a decade ago. A higher value of the coefficient of variation (standard-deviation-to-mean ratio) indicated a greater degree of variability of certain farm parameters in the two years.

Cluster analysis was used to address the second objective on the sources of variability between dairy farms under current conditions. Cluster analysis distinguishes groups of farms so that there is the greatest possible similarity within and difference between groups on the basis of selected farm characteristics that are derived from the four-dimensional farm environment in Section 2. The choice of the variables was motivated by a literature review and their number was kept to a minimum to ensure a sufficiently high number of degrees of freedom. Since more than ten size characteristics were available, the correlation coefficients have been analysed to determine the final size measures for cluster analysis (presented in Section 4). In this study, to ensure the stability of clusters, (a) both hierarchical and non-hierarchical methods were used (HAIR et al., 1998); (b) cluster membership was tested for sensitivity to omitting the variables and to replacing the variables (e.g. arable land versus agricultural land; total workers vs. agricultural workers) and to omitting observations and (c) clustering was performed with data for 2001 and averages of the period 1999-2001. The final number of clusters used for further analysis was determined by the analysis of the agglomeration coefficient, the levels of significance comparing the differences between group means of cluster variables, the possibility to interpret the clusters focusing on variables with significant differences and the possibility to profile the clusters by using variables not included in the cluster solution. Depending on the outcome of the test of homogeneity of variances between groups, the Sidak test for equal variances or the Games-Howell test for not equal vari-

ances (Post Hoc tests, see SPSS, 2002) were used to test the significance of differences between paired groups.

To address the third objective, the characteristics of farms in 1990 and their development over the period 1990-2001 were assessed for each cluster. Spearman's rank correlation coefficient was computed for farms observed both in 1990 and 2001 to test whether the ranking of farms on farm characteristics are the same. If farms kept their ranking over the years, the coefficient was close to 1 and it implies that farms experienced similar changes or the situation in 1990 determines the outcome in 2001.

### **3.2 Dairy farms in the regional agriculture and clustering variables**

Historically farms in the Moscow region specialised in livestock production, since the natural conditions of the region are especially unfavourable for crop farming. Crop production largely consists of forage crops (70% of arable land). The land area under marketable crops is rather limited: 20% under cereals, 3-4% under potatoes and about 2% under vegetables. The major products of agricultural enterprises are milk, meat and eggs. A few farms strictly specialised in pig and poultry production, whereas the majority of farms had a differentiated output of milk, cattle meat and forage crops.

Farm data from large-scale specialised dairy farms in the Moscow region were obtained from data on Russian farms collected by the State Statistical Committee. The sample of 154 specialised dairy farms included only farms for which marketable milk production amounted to more than 2/3 of total revenue in 2001. Seven farms did not have balance sheet data and were omitted from the analysis. Of the remaining 147 farms, on average 80% of agricultural revenue came from milk and 10% from beef production. The amounts of other livestock production and arable farming were minor. Out of 147 farms, 90 farms existed in 1990 and 57 farms were newly established<sup>5</sup> sometime during 1991-2000. Preliminary analysis of selected farm characteristics identified a unique profile for 2 farms considered outliers<sup>6</sup>.

Dairy producers in the region as well as in Russia have experienced a dramatic fall in profitability. Milk production was unprofitable in 1994-1998 and beef remained unprofitable up to 2001. Therefore, focusing on dairy producers in the region allowed investigating the weak and strong points of management in rather

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<sup>5</sup> The overall number of farms in the region did not increase by more than 5% during restructuring in 1991-1994, nor by more than 3-4% during 1995-2001 (KULESHOV, 2000), implying there was only a small percentage of truly new farms. About 12% of all farms in 1990 could not be identified; probably more than 90 of them were such farms.

<sup>6</sup> Analysis of residuals in linear regression of farm characteristics (size, productivity) on profitability indicated these outliers. The three-cluster solution (see Section 4.2) remained consistent in omitting the outliers.

similar and economically more advanced conditions due to the overall better development of the Moscow region as compared to Russia (see KULESHOV, 2000).

## 4 RESULTS AND DISCUSSION

### 4.1 Dairy farms in 1990 and in 2001

Table 1 presents selected environment characteristics of dairy farms in 2001 and 1990. The panel was reduced to 88 farms to enable a direct comparison between the two years. Farms in 1990 in general can be characterised as mixed farms. Only 8 of them had more than 2/3 of revenue from milk. The average values from 88 farms in existence till 2001 were not greatly different from those which would have emerged if the specialised dairy farms in 1990 had been selected<sup>7</sup>. This selection procedure enabled comparative analysis of the dairy farm populations.

As to the possible measures of farm characteristics named in Section 2, their choice was decided by a review of the literature, and their number kept low to ensure sufficient freedom of analysis. Net profit was selected as a measure of farm *performance* as it represents the final account of agricultural and non-agricultural activities as well as the level of received subsidies. This measure was not available in 1990, therefore Table 1 presents several alternatives.

The *physical environment* was given by agricultural land area, number of workers in agricultural activities, head of livestock, distance to Moscow and dairy cow productivity. Changes from 1990 to 2001 (see Table 1) and correlation coefficients between different size measures in 2001 (Table A.1 in Appendix) were assessed to select size measures. The above-mentioned number of *agricultural workers*, hectares of *agricultural land* and *livestock* were selected as measures of size because (a) land (<0.6) and labour (>0.9) had different correlation coefficients with other size measures and had substantially different percentage reductions in 1990-2001; (b) fixed assets were measured rather poorly (VOIGT and UVAROVSKY, 2001); (c) revenues are related to prices; (d) the number of cows and milk output are related to dairy productivity.

The price of milk was taken as indicator of farm marketing strategy and milk quality. Input prices (*e.g.* purchased feed, fertilisers, seeds, etc.) were not available from the farm data. Wages corrected for wage arrears were considered an indicator of both labour input costs and motivation, characteristics of the *economic* and *social environment*. The level of accounts payable, accounts

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<sup>7</sup> The averages of farms in 1990 with more than 50% (110 observations), and with more than 60% (28 observations) of revenues earned from milk were computed. The difference in means remained within +/-10%.

receivable and the percentage of outstanding accounts payable, standing for the *institutional environment*, are not reported in Table 1 due to no data for 1990. Instead the percentages of farm legal form and private ownership are presented.

**Table 1: Characteristics of dairy farms in 2001 and 1990 (n=88)**

Environment	Farm characteristic	1990				2001				2001 in % to 1990
		mean	min	max	coefficient of variation	mean	min	max	coefficient of variation	
Performance	Profit before tax	10378	723	30678	0.50	4254	-3996	35313	1.75	-59
	Gross margin milk per kg, 10 <sup>3</sup> RUB of 2001	0.14	0.02	0.44	0.52	0.12	-0.18	0.36	0.91	-14
	Profit before tax per hectare, 10 <sup>3</sup> RUB of 2001	2.37	0.24	7.12	0.52	1.15	-1.31	7.94	1.66	-52
	costs to sales ratio	0.78	0.61	0.99	0.09	0.95	0.57	1.87	0.25	21
Physical	Total farm workers	552	268	913	0.28	209	36	811	0.61	-62
	incl. workers in agriculture, man	431	134	705	0.28	190	35	753	0.59	-56
	Agricultural land, ha	4673	1256	10209	0.34	3674	682	10899	0.47	-21
	incl. sown land, ha	3514	612	7182	0.36	2965	576	9570	0.49	-16
	Livestock, heads	3077	655	7313	0.34	1615	189	7973	0.72	-48
	incl. cows, heads	1488	130	3500	0.42	745	102	3200	0.70	-50
	Milk output, 1000 kg	54465	5188	144777	0.46	29689	2957	178240	0.95	-45
Dairy productivity, 100 kg per head	39.7	25.8	77.5	0.20	40.1	18.4	77.7	0.30	1	
Institutional	Percentage of kolkhozes, %	100				8				
	Percentage of joint stock companies, %	0				53				
	Percentage of cooperatives, %	0				27				
	Percentage of limited liability companies	0				2				
	Percentage of state companies, %	0				10				
	Percentage <sup>1)</sup> of farms with private ownership, %	0				84				
Social and economic	Wage annual, 10 <sup>3</sup> RUB of 2001	33.7	6.4	57.8	0.19	31.8	8.3	67.1	0.41	-6
Economic	Milk price, RUB per kg	0.41	0.30	0.68	0.18	0.56	0.39	0.81	0.16	37

Notes: <sup>1)</sup> The remaining percentage of farms has municipal, federal or mixed ownership.

Source: Authors' presentation.



As seen from Table 1, dairy farms have changed a great deal during the last decade, becoming smaller in area, with fewer workers and livestock, and somewhat worse in economic performance. About 20% of them in 2001 had losses, whereas in 1990 all farms had positive net profits. The restructuring of 1991-1994 resulted in dairy farms in 5 different legal forms by 2001, the major part (50%) being joint-stock companies. Privatisation has resulted in the prevalence of private ownership (84%) over municipal, federal and mixed ownership types.

The coefficient of variation for all reported characteristics except milk price was smaller in 1990 than in 2001. This implies that earlier the farms were more homogeneous in size and performance, and less homogeneous in terms of specialisation. The criterion of 2/3 of milk revenues was checked for sensitivity by comparing the averages of 145 dairy farms in 2001 to the averages of 110 dairy farms (with >50% milk revenues) in 1990. The percentage change (last column of Table 1) remained within +/-5% for alternative calculation, confirming the conclusion of increasing variation in dairy farm size and performance.

Thus the dramatic changes in the environment of dairy farms in the region led to substantial changes in their structure and performance in 1990-2001.

#### **4.2 Variation between dairy farms in 2001: Current sources**

The more specialised dairy farms in 2001 demonstrated quite great variations in their structure and performance than in 1990, implying the existence of different groups of farms. The two- (17 and 128 farms), three- (88, 42 and 15 farms) and four-cluster solutions (68, 43, 9 and 25 farms) from the non-hierarchical K-means method were analysed. All three solutions formed a cluster with large and well-performing farms. The remaining clusters consisted of smaller farms with relatively similar size characteristics. Between the clusters of smaller farms for three- and four-cluster solutions, only the means of profitability and debt-structure were significantly different at the 5% level. For two-cluster solutions the difference between debts became less significant, while other cluster variables (except for wages) kept their significance at the 1% level. Going from three- to four-cluster solutions, the differences between clusters became less significant. This reasoning favours the three-cluster solution presented in Table 2. Table A.2 in Appendix 1 presents the analysis of agglomeration coefficients for hierarchical cluster analysis. The percentage increase in the coefficient of agglomeration for Ward's method occurs in the shift from three to two clusters, thereby also supporting the three-cluster solution.<sup>1</sup>

With the exception of wages, the means of all clustering variables were significantly different (at the 1% level) between the clusters with the lowest (42 farms)

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<sup>1</sup> Other methods such as linkage between and within groups inconclusively indicated the existence of two to four groups.

and highest (15 farms) performance indicators, *i.e.* between marginal groups. The producers were divided into farms with performance and structure smaller than or close to average, located farther away from Moscow (cluster 1 and 2), and farms of larger size, higher productivity and performance indicators, and located closer to Moscow (cluster 3). Given these differences, the marginal clusters were named "average farms with low profitability and debt problems" and "large well-performing farms". The remaining cluster with the majority of farms, also large in terms of percentages of revenue, land, workers and livestock (see Table 3), consisted of rather "average farms". To stress the differences, the comparison was further continued between the marginal clusters (cluster 2 and 3). The three-cluster solution based on averages of 1999-2001 was very similar and thus is not reported, since the implication is that stochastic elements such as weather or prices did not affect the clustering of groups.

**Table 2** Average characteristics of clustering variables (2001)

Environment/Variables		Average farms N=88	Farms with poor performance and debt problems N=42	Large well performing farms N=15	Average values N=145
Performance	net profit, 10 <sup>3</sup> RUB	2426	-289	18590	3311
	agricultural workers, man	154 <sup>A</sup>	163 <sup>A</sup>	375	179
	agricultural land, ha	3248 <sup>A</sup>	3456 <sup>A</sup>	4744	3463
	livestock, heads	1303 <sup>A</sup>	1215 <sup>A</sup>	3507	1505
Physical	distance to Moscow, km	88 <sup>A</sup>	73 <sup>A,B</sup>	53 <sup>B</sup>	80
	milk per cow, 100 kg	40 <sup>A</sup>	38 <sup>A</sup>	58	41
	debt payables, 10 <sup>3</sup> RUB	4293	13126 <sup>A</sup>	11519 <sup>A</sup>	7600
	debt receivables, 10 <sup>3</sup> RUB	886 <sup>A</sup>	1327 <sup>A</sup>	5719	1423
Institutional	percentage outstanding debt payables, %	27 <sup>A</sup>	37 <sup>A</sup>	7	27
Social (and Economic)	annual wage corrected for wage arrears, 10 <sup>3</sup> RUB	30 <sup>A</sup>	27 <sup>A</sup>	37 <sup>A</sup>	30
Economic	milk price, RUB per kg	5.3 <sup>A</sup>	5.6 <sup>A</sup>	6.6	5.5

Notes: <sup>A, B</sup>: All differences in means are significantly different between the groups at the 5% level, except for when they have identical upper scripts. For example, the first and the second, the second and the last groups have no significant difference in distance to Moscow, but the first and the last group have.

Source: Authors' presentation.

Testing the difference in means of net profit per hectare, profit before tax per hectare, gross margin per kg of milk, cost-to-sale ratio (not reported) confirmed the significant difference for all groups at the 5% level. Significant variation in debts between clusters of similar structure motivated the more detailed analysis of debt structure in Table 3. Significantly different between all groups, the ratio of total liabilities to total assets was less indicative than current-liabilities-to-

current-assets ratio of the debt problem in farms with poor performance. However, they had the highest (a) number of farms under SBCs, (b) percentage of debts to the state (taxes and payments to social funds), and (c) level of overdue debts<sup>2</sup> (Table 2). Although all farms accumulated high debts, the nature of the debt problem varied: well-performing farms were involved in credit programmes, and had large turnovers with suppliers, whereas farms with low performance often failed to pay taxes, social security and wages.

Table 3 also presents other characteristics relevant to the clusters. Insignificant between all groups were: (a) the availability of processing facilities and the portion of processed milk (on average 5% on each seventh farm); (b) percentage of farms with private ownership and percentage of farms with a specific legal form (joint-stock and limited liabilities companies, co-operatives, collective and state companies); (c) degree of specialisation in milk production; and (d) subsidies in agricultural revenue. Co-operatives prevailed over other forms in the cluster with the most successful farms. However, this finding was not supported statistically.

Substantial variation in the intensity of farming confirmed that large and better-performing farms had higher intensity of production.

The share of subsidies in revenues was twice as high on the large and best-performing farms (but not statistically significant between groups). This weakly supported the *a priori* expectation that stronger managements were probably more efficient at getting subsidies. A high variability of subsidies calculated per worker and per unit of livestock between clusters with large and average size was a result of the differentiated subsidy programmes<sup>3</sup> (depending in some regions, for example, on livestock numbers, see BORKHUNOV and NAZARENKO, 2000). Most subsidies were received by better-performing farms, indicating that the state, having reduced overall direct support, was not overspending budget money on loss-making farms.

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<sup>2</sup> The level of overdue debts for such categories as short-term loans and long-term debts was not available from balance sheets, but from their appendices (see MINSSELKHOZ, 2000).

<sup>3</sup> This however was not stated in legislative acts available to the authors (see for example ANONYMOUS, 1999, 2000).

Table 3: Other average characteristics of the clusters in 2001

		Average farms N=88	Farms with poor performance and debt problems N=42	Large well performing farms N=15	Average values N=145
Debts	Total debt to total asset ratio	0.14	0.25	0.14	0.17
	Current debt to current asset ratio	0.56	1.17	0.33	0.71
	Debts on borrowings, % to short-term debts	8 <sup>A</sup>	6 <sup>A</sup>	28	9
	Debt to the state, % to short-term debts	40 <sup>A</sup>	46 <sup>A</sup>	15	39
	Debt to workers per worker, RUB	1530 <sup>A</sup>	3070	1520 <sup>A</sup>	1980
	Debt payables to debt receivables ratio	10	39	4	18
SBC	Percentage of farms with debts exceeding profit before tax plus depreciation, %	23	64	0	32
Subsidy	Subsidy to agricultural revenue, %	2.4 <sup>B,C</sup>	1.6 <sup>A,B</sup>	2.8 <sup>A,C</sup>	2.2
	Subsidy per worker, RUB	2220 <sup>A</sup>	1450 <sup>A</sup>	4940	2270
	Subsidy per head of livestock, RUB	280 <sup>A</sup>	190 <sup>A</sup>	540	280
Intensity	Livestock per worker	8.4 <sup>A,B</sup>	7.6 <sup>A</sup>	9.3 <sup>B</sup>	8.3
	Workers per hectare, man per 10 ha	5 <sup>A</sup>	5 <sup>A</sup>	9	6
Relative importance of cluster	In total revenue	45	20	35	100
	In employment	51	26	22	100
	In agricultural land use	57	29	14	100
	In total debts	34	50	16	100
	In total subsidies	44	15	41	100

Notes: <sup>A, B, C</sup>: All differences between the means are significantly different between the groups at the 5% level, except for when they have identical upper scripts.

Source: Authors' presentation.

Since many producers in the region delivered their milk to Moscow dairies (KULESHOV, 2000), the weak performance of farms could be partly due to locations distant from Moscow causing higher transport costs. There being no significant relation between on-farm processing and performance, these producers would be better advised to invest in improvement of milk quality, which should result in higher milk prices.

To summarise, a great variation between dairy producers in 2001 resulted in distinguishing three clusters which served the second research objective. The clustering depended upon size, location and such characteristics as profitability,

level of wages, milk prices and subsidies, management of debts and dairy productivity. Availability of processing facilities, type of ownership and legal form, and the degree of dairy specialisation did not contribute to explaining the variation between dairy farms in the region. Assessment of the relative importance of each cluster in regional dairy farming confirmed the difficulties for cluster 2 farms, which contributed the most to debts, the least to revenue, and used more labour and land resources than the best farms.

### 4.3 Variation between dairy farms in 2001: Historical sources

This section analyses the impact of farm characteristics in 1990 on the structure and performance of the same farms in 2001. Adding to the discussion of the development of farms between 1990 and 2001 (see Section 4.1 and footnote 5), 67 out of 98 dairy farms (with more than 50% of revenue from milk) continued their activities up to 2001 and the majority (48 farms) remained dairy specialised. The percentage of farms that continued to exist over the 11 years is highest (75%) in the group of well-performing farms<sup>4</sup>. A possible explanation for this is that better farms experienced less restructuring and splitting up their assets (see VISSER, 2003) and thus maintained their size and identity.

Table 4 presents the characteristics of the earlier- defined clusters for 1990. Only profit before tax (per hectare) and livestock numbers were significantly different between the marginal clusters. Dairy cow productivity, milk price, wages, gross margin per kg of milk and livestock per worker (neither presented) did not vary at the 5% level of significance. Variance in prices and wages was rather not expected in pre-reform conditions of strict state regulation. Spearman's rank correlation coefficient indicated a large difference in farm structure (except for agricultural land) and performance in 1990 and 2001. Larger farms with higher performance in 2001 (cluster 3) were better in the pre-reform period at generating profits before tax per hectare and slightly better in cost-to-sales ratio (although not significant at 5%). Farms in the third cluster were historically larger in number of workers and head of livestock, and reduced such resources as land, workers and livestock by lower percentages (13%, 26% and 6%, resp.) than other dairy farms (25%, 62% and 55%, resp.).

Since in pre-reform times the size did not vary significantly between the marginal clusters (land and workers, see Table 4) and the size measures had a smaller variability (see Table 1), it can be concluded that more advanced economic performance, rather than initial farm structure, complement the explanation of the variation between dairy farms in 2001. This conclusion addresses the third research objective.

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4 However, this percentage could be underestimated due to unidentified farms.

**Table 4: Historical characteristics (year 1990) of the clusters**

Variables	Average farms N=51	Average farms with poor performance and debt problems N=26	Large well performing farms N=11	Spearman's rank correlation coefficient for 1990 and 2001 N=88
Profit before tax, 10 <sup>3</sup> RUB of 2001	9546 <sup>C</sup>	9405 <sup>C</sup>	16533 <sup>C,D</sup>	0.235*
Profit before tax per ha, 10 <sup>3</sup> RUB of 2001	2.28 <sup>D</sup>	2.14 <sup>C</sup>	3.35 <sup>C,D</sup>	0.237*
Cost to sales ratio	0.78	0.80	0.75	0.100
Agricultural workers, man	405 <sup>C</sup>	450	504 <sup>C</sup>	0.479*
Agricultural land, ha	4655	4554	5040	0.874*
Livestock, heads	2842 <sup>D</sup>	3148 <sup>C</sup>	3999 <sup>C,D</sup>	0.317*
Milk per cow, 100 kg	39.8	39.0	41.4	0.323*
Annual wage, 10 <sup>3</sup> RUB of 2001	33.3	34.1	34.8	0.124
Milk price, RUB of 2001 per kg	4.1	4.3	3.8	-0.123

Notes: <sup>C, D</sup>: All differences between the means are *not* significantly different between the groups at the 5% level, except for when they have identical upper scripts (interpretation is opposite in Tables 2 and 3). \* Correlation coefficient is significant at the 5% level.

Source: Authors' presentation.

## 5 CONCLUSIONS AND OUTLOOK

By following the three research questions regarding the variation between dairy farms and their historical structure and performance, the following conclusions are possible:

- By 2001, as compared to 1990, dairy farms had become more specialised in their activities as well as more diverse in their structure and performance. The significant differences in performance between farms in 2001 was mainly due to individual farm management, reflecting changes in farm environment in such farm-specific characteristics as dairy productivity (livestock management), wages (social management), debt structure (debt management), etc.
- A more advanced economic performance already in 1990 implying stronger management rather than initial farm structure, helped explain the variation between dairy farms.
- Well-performing farms (cluster 3) evidenced better managerial characteristics observable in their performance.

The future development of the dairy sector in the region should rely on individual management, a decisive factor for farm development. The regional govern-

ment should be aware that the largest share of subsidies (in 2001) was received by the best-performing farms. In contrast, average enterprises with low (negative) profits (cluster 1 and 2) should be a concern for policy-makers. The managers of these heavily indebted farms fear creditors, bankruptcy procedures and replacement of personnel consequences. The problem of farm debts has been recognised at the policy level: before bankruptcy procedure is applied, insolvent farms are given the opportunity to participate in a program of debt-restructuring supervised by federal and regional authorities. Starting in 2003 enterprises have been helped to review their financial performance on the basis of financial coefficients computed from balance sheets and income statements. Thus, there is a certain educational process taking place to inform farm managers about their financial performance. The state should continue training and education programmes for farm managers. The enactment of a new bankruptcy law has put the position of farm workers however in question. Since a group of farms with poor performance employs a quarter of all workers in the dairy sector, government assistance (social security support) should be guaranteed in case of farm liquidation.

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## APPENDIX

**Table A.1: Correlation coefficient among size measures in 2001**

	total revenue	agricul- tural revenue	total work- ers	agri- cul- tural work- ers	agri- cul- tural land	arable land	live- stock	cows	fixed assets	total costs in agri- culture	kg of milk output
total revenue	1	1.00	0.91	0.89	0.47	0.52	0.93	0.91	0.60	0.98	0.98
agricultural revenue		1	0.92	0.90	0.46	0.51	0.93	0.92	0.59	0.98	0.98
total workers agricultural workers			1	0.98	0.57	0.61	0.94	0.93	0.63	0.92	0.91
agricultural land arable land				1	0.58	0.62	0.94	0.93	0.62	0.91	0.90
livestock cows					1	0.96	0.60	0.60	0.41	0.51	0.48
fixed assets							1	0.63	0.44	0.55	0.53
total costs in agriculture								1	0.58	0.94	0.95
kg of milk produced									0.59	0.92	0.94
									1	0.63	0.57
										1	0.96

Source: Authors' calculations.

**Table A.2: Analysis of agglomeration coefficient (AC) for hierarchical cluster (n=145)**

Number of clusters	Ward's method		Between group linkage		Within group linkage		Median linkage	
	AC	% <sup>1)</sup>	AC	% <sup>1)</sup>	AC	% <sup>1)</sup>	AC	% <sup>1)</sup>
10	20.5	5.4	0.50	4.0	0.34	5.5	0.44	-17.2
9	21.6	7.5	0.52	8.3	0.36	1.7	0.36	42.6
8	23.2	8.4	0.56	25.0	0.36	7.2	0.52	5.6
7	25.2	8.6	0.71	2.5	0.39	2.7	0.54	44.8
6	27.4	9.7	0.72	21.5	0.40	11.5	0.79	1.9
5	30.0	10.8	0.88	15.3	0.44	10.5	0.80	13.4
4	33.3	13.8	1.01	34.4	0.49	12.3	0.91	-4.4
3	37.8	15.2	1.36	24.8	0.55	4.9	0.87	48.4
2	43.6	32.0	1.70	43.9	0.58	29.1	1.29	111.1
1	57.6	-	2.44		0.75		2.73	

Notes: <sup>1)</sup> The percentage change of agglomeration coefficient to the next level.

Source: Authors' calculations.

## THE ROLE OF AGRICULTURE FOR RURAL DEVELOPMENT IN A LESS FAVOURED RURAL AREA: THE EXPERIENCE OF MECKLENBURG-WESTERN POMERANIA (GERMANY)

THEODOR FOCK\*

### ABSTRACT

The paper discusses outcomes of the transformation process in an East German rural region. The role of agriculture and agribusiness in this area is rather untypical compared with other regions: it is highly productive and competitive in a weak economic and social environment. Development of the agricultural labour force has progressed through three stages: a sharp decline following integration into a market economy, stability (for several years) and an expected lack of skilled labour in the future. To determine economic links between agriculture and the regional economy, the normally-used input-output analysis causes data problems that are supplemented by data from on-farm interviews. The ties to regional economy are well-developed in trading, simple service activities and first processing stages, whereas other value-adding processes take place outside the area studied. Future regional development strategies should utilise the potential of agriculture and agribusiness more than at present.

**Keywords:** East Germany, Rural Areas, Transformation, Labour Markets in Agriculture.

### 1 INTRODUCTION

The paper deals with the process of rural development in the northern part of East Germany, the former German Democratic Republic (GDR), in the Federal State of Mecklenburg-Western Pomerania (MWP). The paper concentrates on results of the transformation process in the past fifteen years concerning the role of the agricultural sector, but also including some long-term development trends that appear to be partly independent of the economic and political system.

The development of the agricultural labour force - past and future trends - and the role and economic links between the agricultural sector and the regional economy will be concentrated on. Focussing on these two aspects enables analy-

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sis of the function of agriculture in regional economic development and allows discussion of the potentials for future economic progress.

The Mecklenburg and Pomerania regions have historically been characterised as typical rural areas, and today in the Federal State of MWP, agriculture has the highest economic importance of all German federal states. Most parts of the Federal state of MWP are classified as rural, with strong development problems (BBR 2000), indicated by high rates of unemployment, economic stagnation and migration out of the region. Although substantial financial support was granted by the German Federal Government and the European Union (especially by means of Objective 1 area programs) the transformation process has led to rather disappointing results in regional welfare. Therefore, political and scientific discussion continues to evaluate the applied instruments and search for new strategies.

## 2 MATERIALS AND METHODS

### 2.1 The Federal State of Mecklenburg-Western Pomerania

In MWP, the agricultural sector has kept above-average economic importance compared to the national average and the EU-15, but due to the socialist phase and transformation, significant differences to the EU-average appear in the main structural indicators (Table 1). In rural administrative districts, the GNP-ratio of agriculture increases by up to 10%. Whereas the general GNP-ratio per capita of employed as an indicator of economic weakness in MWP was, at 75.3% in 2003, below the national average, the sectoral productivity of agriculture was, at 140% per capita, significantly above the national average (STAT. LA, 2004).

**Table 1: Basic sector data of area studied 2000 - 2003**

	MWP	Germany	EU-15
Agricultural sector as % of GNP	3.8	1.1	1.6
Agricultural labour as % of total	5.6	2.5	4.3
No. of farms (in 1.000)	5.2	421	6.769
Average size (ha)	258	41	19

Sources: Author's calculations; STAT. LA (2004).

The data indicate the extraordinary position of the agricultural sector as a competitive sector in a weak economic surrounding.

During socialism, the area studied followed the typical economic development pattern of rural areas: a rather high importance of agriculture (including forestry and fishery) with 19% (in 1989) of total employment and the predominance of single industrial branches in many regions which were allocated by central plan-

ning processes, in many cases not according to regional comparative advantage (BAUM and WEINGARTEN 2004, p. 15). The food industry was one of the important industrial branches (in 1989): it comprised 21% of the employment and 44% of the turn-over in the industrial sector (STAT. LA 1996, pp. 78-131). As a result of the transformation process, industrial production has declined sharply or even disappeared completely in some regions. Agribusiness is one of the remaining industrial branches (in 2002) with 30% employment and 39% of the turn-over in the industrial sector (STAT. LA 2004).

**Table 2: Economic structure of area studied, 2002**

	MWP	Germany	EU-15
Economic sector: (in %)			
Agriculture	3.8	1.1	1.6
Industrial	20.2	28.6	22.4
Services	76.0	70.2	75.3
productivity <sup>1</sup> (in %)			
Agriculture	132.0	100	·
Industrial	67.6	100	·
Services	77.1	100	·

Notes: <sup>1</sup>GNP per labourer in sector of national German average.

Sources: STAT. LA (2004); author's calculations.

Table 2 underlines the extraordinary role of agriculture (and agribusiness) for economic development in MWP. The high ratio of the service sector, mainly household-oriented services and state organisations, is due to the relative weakness of the industrial sector.

## 2.2 Methods

### 2.2.1 Trends and prognosis of the agricultural labour force

During and following the actual transformation process, changes in the agricultural labour force may be observed that do not correspond to the usual pattern, which is characterised by a rather slow but continuous decline in the number of labourers due to labour-saving technical progress and a growing economy outside agriculture. To forecast future development, the most frequently-used methodological approach is trend extrapolation in combination with assumptions/scenarios of future development paths. The method is not adequate because of the structural break in transformation (DIW 1995, pp. 403-408; WEIBHUHN et al., 1994, pp. 12-18). Models that analyse the situation of farm succession in a family-based labour market are not applicable if contract labour predominates.

These models, in combination with age and class mobility, have a high forecasting ability over time-periods up to 20 years (FASTERDING 1997).

In the regarded case, written or oral interviews of farmers, managers and experts from administration, consultancies and industry serve as an empirical database for forecasting future labour force development. Dismissals, demand, age-based retirements and other changes take place in a labour market that is characterised by small enterprises, spatial differences, and incomplete information. Interview data enable the determination of variables in a simulation model that specifies the movements of the labour force on a disaggregated basis (FOCK and FECHNER 2002, pp. 73-75). The data deepen official statistics and include the intentions of decision-makers about future labour input. Meanwhile, for all East German regions such investigations exist, although the models and results differ corresponding to the data sample and forecasting methods (WIENER 2004, pp. 13-15).

### *2.2.2 Economic role and links of agriculture and agribusiness*

For future economic development, regional policies concentrate more on agriculture, agribusiness and related activities in the hope of exploiting endogenous growth potentials. As there are only limited growth potentials in traditional agricultural production itself, the economic links to agribusiness shall be investigated on a regional basis.

The normal method for analysing economic links between sectors is input-output-analysis. For the case of a rather disaggregated regional level, necessary statistical data are missing. As substitutes for quantifying regional input-output-tables, two methods exist. The derivative method, where input coefficients are multiplied with regional gross output data, is not adequate because regional production functions differ from national aggregate data. In a second methodological approach, the regional base of inputs is enquired by interviews (SCHÄKEL 1996, pp. 12-18). Therefore, in addition to official statistics, oral interviews were undertaken at the farm-level to investigate the regional base of input supply and product sale (FOCK et al., 2004). Accounting data are used to weight inputs and outputs. In total, the data of 34 interviewed farms could be used. As part-time farming was not considered, the average-size of the interviewed farms exceeds the statistical average.

## **3 RESULTS**

### **3.1 Trends in labour force development**

Table 3 shows the development of the labour force in agriculture since 1989 for selected regions of Germany. In East Germany, a sharp decline in the number of those employed in agriculture may be observed until 1995. At that time, the main steps in transformation had ended. Since then, not only the number and

size of farms, but also the number of employed has changed very little. This is in contrast to West Germany, where “normal” structural change in agriculture continued.

**Table 3: Development of labour force, 1989-2003, in 1,000**

Year	MWP	BB <sup>1)</sup>	EG <sup>1)</sup>	WG <sup>1)</sup>	Germany
1989	182	191	848	1.783	2.631
1991	79	126	362	1.397	1.879
1995	31	37	161	1.248	1.410
1999	27	40	169	1.268	1.437
2001	23	38	162	1.161	1.323
2003	23	39	167	1.138	1.305

Notes: <sup>1)</sup>BB = Federal State of Brandenburg, EG = East Germany, WG = West Germany.  
Source: AB (2004) and earlier years.

The dismissals in East Germany were concentrated on older and younger employees because of early retirement regulations, as well as low compensation for those who were employed for a short time. The amount of middle-aged employees remained above-average, and therefore no, or low, demand for new labour existed in shrinking or stagnating employee numbers. Mainly due to generational change, but also because of new skills embodied in young labourers for some years, a need for new farm labour has arisen. The future demand of agricultural labour was analysed regarding the unstable and changing situation, and regarding the demographic change in population due to a sharp decline in births during the transformation period of approximately 60% less.

**Table 4: Future demand of agricultural labour in East Germany, for 2010**

	MWP	BB <sup>1)</sup>	SN <sup>1)</sup>	EG <sup>1)</sup>
demand (persons per year)	400-500	620	435	1,800-2,000
actual number <sup>2)</sup>	330	318	477	1,680
in % of age-group actual <sup>3)</sup>	1.10	0.86	0.64	·
in % of age-group in future	4.90	5.00	1.90	·

Notes: <sup>1)</sup>BB = Federal state of Brandenburg, SN = Federal state of Saxony, EG = East Germany, <sup>2)</sup> Actual number in 2003: Number of trainees starting their apprenticeship, <sup>3)</sup> % of agricultural trainees of age group.

Source: FOCK (2004), pp. 54-56.



The figures in Table 4 show that neither the actual demand nor the forecasted demand, which is significantly higher due to the increasing importance of changes of generation, is or will be met. This is underlined especially by the coming demographic change of decreasing numbers of young people leaving high school. Therefore, a growing gap in the demand for skilled labour may be expected, although the agricultural sector is one of the very few sectors in rural areas that offers jobs. Farmer unions and administrations have started informational campaigns to persuade more young people to seek their future in the sector, but have met with little success.

### 3.2 Regional economic interconnections

The results of the empirical analysis are presented in Table 5, whereby the regional character is defined as the area itself and the neighbouring counties. For interpretation, it must be considered that for several input goods, only the trading partner is located in the region, but not production itself. For output goods, in several cases the first processing step, such as slaughtering or grain trading and elevation, is settled in the region but further processing steps in the food industry and in the food chain are outside of the region.

**Table 5: Regional base of selected inputs and outputs, in %**

	regional	national	% of input/output <sup>1)</sup>
<b>Input</b>			
Compound feed	96	4	19.3
Fertiliser	78	23	5.9
Consultancy	64	36	-
<b>Output</b>			
Milk	97	3	20.9
Cereals	91	9	17.1
Rape seed	78	22	3.0

Notes: <sup>1)</sup>for 2002, as % of intermediate input or gross output on national level.

Source: FOCK et al., (2004).

To increase the contribution of agriculture and agribusiness in regional economic development, it seems useful to establish more value-adding output or input processing in the region. Currently, purchasing inputs and selling raw agricultural materials has a regional character ratio of above 80 % in many cases.

#### 4 DISCUSSION AND CONCLUSIONS

The results of transformation in the area studied, as in other rural areas of East Germany, are not homogeneous concerning regional welfare. The process of reducing the number of those employed in agriculture and agribusiness ceased several years ago. In future, a gap between the demand for skilled labour in agriculture and its supply is forecasted. This is the result of a demographic trap where increasing demand (the first time after transformation) and decreasing age-groups coincide. This gap could influence future economic development negatively or be filled by immigrant labour. The lack of labour in a rural society with high unemployment is a situation that has not yet been sufficiently explained.

The economic position of agriculture and agribusiness in the rural economy differs from that in many other transformation countries, where the high importance of agriculture is interpreted as an indicator of economic and social deficiencies (BAUM and WEINGARTEN 2004, pp. 11-14). The classification of the area studied as a rural region in Germany with strong development problems is caused by the lack of sufficient industrial production and related service activities. The challenge of future regional development is therefore to create new job opportunities for already-unemployed people, rather than managing the process of reducing agricultural employment in a socially-acceptable way.

A regional development strategy that aims to exploit the potential of a competitive agricultural sector and related agribusiness appears promising. Material cycles in the region could be strengthened, thereby reducing the amount of transportation. And using local and regional knowledge as elements of an endogenous development strategy could increase value-adding activities in the region (SCHRAMM 2002, pp. 78-81). Instruments of such policy are, for example, promoting direct marketing and regional specialities, technology centres for agribusiness, and promoting human resources by qualification, research and development.

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## WINE, SAND AND SOCIALISM: SOME ENDURING EFFECTS OF HUNGARY'S 'FLEXIBLE' MODEL OF COLLECTIVIZATION

CHRIS HANN\*

### ABSTRACT

This paper presents an historical account of the significance of wine production in a region of south-central Hungary, with a particular focus on the transformations accomplished under socialism and the problems faced by this branch of the rural economy in the postsocialist years. Drawing on his own and other sociological data from two contrasting communities, the author shows that this sector was a major beneficiary of 'market socialism'; but this very success has led to formidable problems of adjustment, which EU accession is unlikely to ameliorate. The paper also raises more fundamental issues concerning continuity and change in rural social structure before, during and after socialism.

**Keywords:** viticulture, (post)socialism, embourgeoisement, Hungary.

### 1 INTRODUCTION

Viticulture is a distinctive branch of the rural economy that has long played an important role in the economic and socio-cultural life of the people of Central and Eastern Europe, in towns and countryside alike. In the case of Hungary, wines have also been exported for many centuries. Those that have obtained an international reputation in the West derive overwhelmingly from the gentle slopes of western Hungary (Transdanubia, notably the region around Lake Balaton) and the northern hills around Eger, Gyöngyös and of course Tokaj. However, in addition to the 'quality wine' of these regions, very large quantities of 'table wine' and 'regional wine' are produced on the western zones of the Great Plain, i.e. on the sandy soils of the area known to geographers as the *Homokhátság*, the flat 'table' between the Danube and Tisza rivers. Most of this wine is consumed on the home market or exported in bulk to the east. The Danube wine region, which was established by the merger in 2002 of the three previously separate regions of Hajós/Baja, Kiskunság and Csongrád, is by far the largest in the country. The wine producers of this region cannot compete in terms of quality with those of the Tokaj, Eger and Balaton regions, but their recent history is full of interest for agrarian economists and social scientists more

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generally. In this paper I argue that the story of wine production on the *Homokhátság* is emblematic of modern Hungarian history; it can also serve to draw attention to more general aspects of the rise and fall of socialist agricultural institutions.

## 2 HISTORICAL BACKGROUND

The region in question has a long history of marginality, It was the zone beyond the Danube, which the Romans failed to incorporate into the province of Pannonia (Transdanubia). Later it was the scarcely populated zone in which Hungarian Kings settled other nomadic groups, notably the Cumans (*Kunok* – hence the territorial designation Kiskunság, a term sometimes nowadays used loosely as a synonym for the entire *Homokhátság*). Together with the rest of the Great Plain this territory was largely abandoned during the Ottoman occupation, though we know that vines were cultivated in and around the surviving market towns. In the eighteenth and nineteenth centuries the depopulated *puszták* were gradually resettled, initially ‘from above’, as Habsburg rulers and feudal elites organized the arrival of Slovaks, *Sváb* Germans etc, and then by the end of the nineteenth century ‘from below’, as peasants of differing ethnic backgrounds purchased land cheaply in order to escape poverty in neighbouring regions, or just to try their luck in a region which in this period functioned as a kind of ‘internal frontier’ (HANN 1979; cf. JUHÁSZ 1997). Many of them settled not in nuclear villages but by constructing their farmstead (*tanya*) on the real estate which they purchased. Many brought with them detailed knowledge of how to cultivate vines and manufacture wine; for some this was always an important source of cash income, while for many others, possibly the majority in many settlements, the vines served primarily for one’s own consumption, including the provision of hospitality, for which wine (often diluted with soda water) was the prime ingredient in all strata of the population.

The late Habsburg period was also the era in which the population of Budapest expanded dramatically. The city became a second imperial capital and an industrial metropolis. This new urban population needed provisioning, and communications with the *Homokhátság* improved greatly with the opening of the railway link between Budapest and Belgrade in 1880. At about this time the *phylloxera* virus destroyed vine stocks in most districts of Hungary’s classical wine regions. Wine from the sand, where the vines were largely immune to the virus, began to make inroads into the national market. The ready availability of cheap and largely undifferentiated wine enabled the new working classes of the capital to

hold on to a key element of the culture of the peasantry, and wine consumption levels remained high.<sup>1</sup>

The end of the Dual Monarchy in 1918 was followed by a massive contraction in the territory of the Hungarian state. The inter-war decades were economically difficult: the population of the *Homokhátság* increased sharply, but Ferenc ERDEI in his well known sociographical study of 1937 *Futóhomok* (Shifting Sands) highlighted the poverty of many parts of the region, especially where most of the population resided on scattered farmsteads rather than in nuclear centres. ERDEI also documented the on-going disintegration of the traditional peasant economy, which was centred on animal raising and enabled a high degree of self-provisioning. It was replaced by new patterns of specialized production for the market (e.g. several settlements in the neighbourhood of Szeged developed specializations in tomato and peach production - cf. FODOR 2002). However, these processes of modernization, which ERDEI in principle welcomed, were obstructed by obsolete elements in the social structure, which still displayed semi-feudal features; despite increasing commodity production, many rural households of the *Homokhátság* were not well integrated either economically or socially and continued to prefer a mixed production profile, including a modest vineyard holding.

### 3 SOCIALISM

The scattered settlement pattern was rapidly modified in the socialist decades: the new powerholders, guided by modernists such as ERDEI, promoted collective and state farms from the late 1940s onwards. They directed resources into building up the infrastructure of village nuclei and ‘*tanya*-centres’. There was some industrial investment to exploit significant quantities of oil and gas, and further forestation helped to control the problem of the ‘shifting sands’. However the isolated farmstead did not disappear entirely; from the end of the 1960s it became possible to extend electricity to the *tanya* and in recent decades many have been attractively modernised. Nonetheless, compared to other regions of Hungary the tourist sector remains underdeveloped and seems likely to remain so.

The existence of *tanya* vineyards and orchards dotted across the landscape persuaded pragmatic politicians under János KÁDÁR that it would be a mistake to impose the conventional model of large-scale collectivized farming in this region. The cheap wine was needed and in any case large-scale arable farming would never be very productive on these sandy soils. Many farmers had contin-

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<sup>1</sup> Of course this continuity had its less attractive side as well. While wine is partly responsible for continuing high levels of alcoholism in Hungary, in both town and countryside, high spirit consumption is more significant in this respect; but that is a subject for another paper.

ued their private production and marketing even in the difficult years of the 1950s, using the state postal service to send their flagons (*demizson*) to Budapest. In order to conserve these assets, at the time of mass collectivization in 1960 the powerholders opted for a substantially diluted form of collectivization in this region. Most farmers came under pressure to join not a *termelőszövetkezet* (roughly modeled on the Soviet *kolkhoz*) but a so-called ‘production cooperative group’ which allowed its members in practice to continue working their own small farms as in the past, as a family unit. In 1968 these groups were relabeled ‘specialist cooperatives’ (*szakszövetkezetek*). Officially described as a ‘simple’ form of cooperative (GYENIS 1971) and expected in due course to evolve into a regular *termelő-szövetkezet*, in reality the specialist cooperative maintained its distinctive features until the end of the socialist period (and many a *termelőszövetkezet* evolved to resemble a *szakszövetkezet*). In addition to consolidating a sector of collective production, the cooperative offered those of its members who preferred to continue farming independently (the vast majority) assistance with inputs such as fodder and fertilizer; the socialist institution held virtually a monopoly position in marketing, deducting 10% of revenues for itself and passing the remainder on to the member.

1968 was also the year in which the reformers in the capital secured the general introduction of the New Economic Mechanism (HARE et al. 1981). Whether or not one views the resulting decentralized structures as a form of ‘market socialism’, there is no doubt that they gave economic actors more scope for autonomous decision-taking than was possible in the centrally planned economies of most other socialist states. This applied not only to the emerging professional agrarian elites of the collective- and state farm sectors but also to the millions who were encouraged to produce commodities for the market on their ‘household plots’ (*háztáji*). The full-time farmers of a region dominated by specialist cooperatives formed a distinctive category: the high degree of independence which they enjoyed rendered them particularly well placed to benefit from this economic liberalization. They made a significant contribution to the strong overall performance of Hungarian agriculture, which was arguably more successful than any other variant of collectivization in both economic and social terms (SWAIN 1985). Certainly the agricultural sector contributed very significantly to exports, while well-provisioned domestic markets, including the alcohol market, were an important element in the ‘social compromise’ through which the KÁDÁR régime was able to contain political opposition and even consolidate a substantial degree of legitimacy.

By the mid-1970s, when I began fieldwork, the positive results of these flexible arrangements were already conspicuous, e.g. in the building of new houses and purchase of new private cars. The *Homokhátság* epitomized both the efflorescence of the ‘second economy’ nationwide and also the synthesis that was achieved between socialist ideology, emphasizing collective ownership and

large-scale methods, and traditional smallholder ideology, emphasizing private ownership and the family labour-force (cf. SWAIN 1985). Even the vineyard sector experienced a technological revolution. Whereas previously virtually all tasks had to be carried out by hand on small plots of low-level vines which left just enough room for the cultivator to pass between the rows, the experts now recommended large-scale plots, with vines trained along wire at approximately shoulder height and the rows far enough apart to allow a tractor to pass between them, thus enabling the mechanization or partial mechanization of key tasks. Pioneered by state farms in the 1960s, from the mid-1970s onwards even specialist cooperatives were able to obtain state subsidies to plant such vineyards, which in their case were usually divided up and leased out to be managed by individual villagers (HANN 1993). In some areas of the *Homokhátság* farmers were able during the 1980s to build up substantial private holdings and thereby, especially if they were in a position to undertake all stages of production and marketing themselves, to establish highly profitable businesses.

The late socialist state was relatively lax in controlling the circulation of wine, and there is no doubt that significant quantities produced in this region found their way by informal channels to retail outlets in the capital and indeed all over the country. A simple technological innovation facilitated this process. By the end of the socialist period the glass *demizson* had been largely replaced by more economical and practical plastic bottles and containers (*kanna*). More elements of choice entered the market, e.g. even those buying in bulk from outlets in Budapest could express a preference for a Cabernet from Szekszárd or a Pinot Noir from Villány; but whether or not the grape was identified, wine from the *Homokhátság* generally remained cheaper than wine from other regions and it dominated the 'volume' segment of the market. The cost of wine not classified as 'quality' remained low, thanks not only to high levels of entrepreneurship from both individuals and collective institutions but also to the efficiency of informal distribution networks and low levels of taxation and enforcement by the state. Despite the technological innovations and the laxity of the authorities, it seems clear that consumption levels declined substantially in the last decades of socialism, particularly in relation to beer.<sup>2</sup>

Most producers in the *Homokhátság* continued to sell their produce in the form of grapes to large enterprises in the socialist sector. These enterprises exported some of their product to other, better known wine regions, where it was blended and re-labeled. However, the bulk of the final output of the sand zone was now

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<sup>2</sup> LIDDELL reports that wine consumption per capita fell from 40 litres per annum in the early 1960s to 24 litres by the late 1980s. In the same period average beer consumption rose from 14 to over 100 litres (2003, p. 17). I suggest that all official statistics for wine are unreliable, given the vast extent of the informal sector, but the trend of these decades is nonetheless clear.



exported to other Eastern bloc countries, notably the Soviet Union, in accordance with formal agreements at the level of COMECON. In his useful survey, Alex LIDDELL emphasizes the poor quality of this product: ‘What the Soviet market required was fortified, sweetened wine ... This type of wine was mainly produced on a quota system by state farms (and only by them); with seventeen percent alcohol and 120 grams of sugar per litre ..... it was not wine to be proud of, but it satisfied a market demand. When people talk about how bad the wine was that went to the east, this is generally the product they have in mind. It was quite different from wines supplied to other markets, including the domestic one.’ (2003, p. 18) It should be noted, however, that significant amounts of sugar were routinely added to much if not most of the wine of the *Homokhátság*. To boost volume and alcohol content in this way was standard practice in the traditional peasant economy but it seems to have experienced a quantum leap in the 1970s. This too went largely uncontrolled by the state or by the collective enterprises which bought up the wine produced by smallholders. Thus the expansion of wine production in this region brought prosperity to a previously poor and under-developed region but this expansion had its downside in the low quality of the final product, as well as in the loss of local traditions of wine-making and the disappearance of several traditional varieties.

#### 4 POSTSOCIALISM

The ‘socialist wine bubble’, which brought previously unknown wealth to much of the population of the *Homokhátság* in the 1970s and 1980s, burst very quickly in the early 1990s. The loss of Eastern markets and the rapid privatization of almost all socialist institutions led to dramatic dislocation: many producers could no longer dispose of their product. Many vineyards consequently went out of production, not only the smallholdings of individuals but also some of the relatively young large-scale vineyards of collective and state farms, many of which collapsed into bankruptcy either before or soon after they could metamorphose into some new private form. The formidable problems of organizational structure and of product quality are comprehensively discussed by LIDDELL (2003), who nonetheless remains optimistic that the country’s classical wine regions can recover from the damage done to them under socialism. He describes the dedication of many new entrepreneurs in the sector, well-targeted investments from abroad, and widespread interest in reviving tradition and in promoting quality through wine competitions. On the negative side, he notes the ‘baleful influence .... of the Hungarian palate. Wine tastes are generally not at all sophisticated, and much wine is simply a vehicle for the alcohol it contains, as the small, rather dumpy glass usually used for drinking and tasting (filled to the brim) rather suggests’ (2003, p. 48).

One major problem of the postsocialist years, noted by many commentators, is the production of 'fake wine'. As LIDDELL explains: 'Trained chemists assist in its production, and its deceptiveness is steadily improving. The wine is made by using the lees or pressings of real wine, adding water, citric and tartaric acids, colouring compounds, and flavouring agents. This is blended with real wine in the ratio of two parts to three, and is sold to pubs and restaurants in five- or ten-litre containers at HUF 120 a litre, thereby undercutting genuine wine and providing publicans with higher profits.' (2003, p. 30) The *Homokhátság* had long been seen as a producer of 'mass wine' (*tömegbor*) rather than quality, but at least no one had previously doubted that the liquid in the container was wine. Now, however, consumers were unsettled: they did not feel comfortable about purchasing 'wine that had never seen a grape', to quote a phrase I often heard in my fieldwork. LIDDELL quotes an estimate that some 40,000 wine-producing households of the *Kunság* region have had their livelihoods damaged by the circulation of fake wine in recent years. Some of those that I have talked to insist (as do the promoters of the wine industry) that the problem is quite new and it is a matter of punishing the few criminals responsible for these abuses. Others acknowledge some continuity with practices which began in the socialist period, when many producers adulterated their wine with more than the allowed amounts of sugar in order to increase their returns. With incomes to producers declining in real terms in the 1990s, it is hardly surprising that wine quality should continue to decline as adulteration with sugar and chemicals is pushed to new extremes. Consumption on the home market has continued the decline which began under socialism.

Faced with such problems, most observers have recognized the necessity for more effective state controls over both the production and circulation of wine. This was eventually accomplished with a law passed in 1999 and stringent regulations, affecting even those producing minuscule quantities of wine, were implemented in 2000, ironically by a right-wing government with a major section of its voters in the countryside. In effect the aim was to penetrate further than any previous régime into the internal economy of the rural household, as the only way to reduce the scale of activity in the informal sector. However, many farmers declared that they would abandon production rather than implement regulations requiring them to account for every litre of their output. While the depressed market conditions are doubtless the prime factor, the requirements of the new law probably hastened the decision of many small-scale producers to give up winemaking or even abandon their vineyards altogether.

On top of all these difficulties, it is expected that admission to the EU in 2004 will increase the competitive threat posed by cheap producers elsewhere. Accession has already led to a ban on new planting in Hungary, but it is too early to assess the probable long-run impact. Some of the new entrepreneurs in the sector take the view that grouping together to produce a more standardized product is

the only way to survive in the new international arena. But many older producers still have such negative recollections of the collective institutions imposed upon them under socialism (even in the *Homokhátság*, where the looser variant of the specialist cooperative was dominant) that they do not want to have anything to do with any new form of cooperative.

The Hungarian wine industry is trying to respond to the new challenges by promoting its famous brand names from the past and issuing blunter condemnations of everything that was done during four decades of socialism. Producers are now once again organized in local-level associations (known by the traditional name of *hegyközség*, literally ‘hill community’, which is of course incongruous on the plain). Even the small-scale producers of the *Homokhátság* are actively encouraged to develop a range of more refined products, in order to be able to market wine to a more discriminating middle class public (BENYÁK and DÉKÁNY 2003). In fact relatively few villagers of this region today depend primarily on viticulture; even among those who do, few are in a position to adopt innovative entrepreneurial strategies. For the majority, the money received from selling grapes (seldom wine) remains only a supplement, albeit an important one, to other, more stable sources of income.

Turning to the consumption side, skeptics may question the presumed existence of a new middle class public in Hungary. Even if such a class exists and continues to grow, it is unlikely to be interested in the wines of a region which, most experts agree, can never realistically expect to compete in terms of quality with the traditional wine regions.<sup>3</sup> The probable outcome is a continuation of the dualist structure which took shape under socialism. A few successful entrepreneurs will come to substitute for the old state monopoly in low-quality, bulk-produced wine for both domestic and foreign markets. They will organize all aspects of their own production on a large scale, utilizing machines whenever possible but inevitably depending also on large amounts of casual labour, much of which has been provided in recent years by illegal temporary immigrants. These monopolists will also acquire grapes and wine from small-scale producers, who will continue to rely on more labour-intensive methods; much of this labour will continue to be recruited through the family and through mutual aid, as in the traditional peasant economy. At the same time, many thousands of small-scale producers for whom this source of income was a key element in their *embourgeoisement* under socialism will gradually abandon their vineyards;

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<sup>3</sup> The experts also argue that the wines of the *Homokhátság* can be improved significantly through improved processing technologies. However, these technologies are extremely expensive. Even if the result is wine ‘objectively’ of equivalent or better quality than much of what is produced in the hill regions, wine markets are nowhere shaped by objective factors alone. It is hard to see how the image of *Homokhátság* wines can be repaired after the damage done by the recent scandals.

some villagers, but also urbanites, are returning to the peasant tradition of producing wine in very small quantities, primarily for their own consumption.

## 5 TÁZLÁR AND SOLTVA DKERT COMPARED

Having sketched an outline of developments in the wine sector for Hungary as a whole and the *Homokhátság* within it, in this section I examine two specific communities, located next to each other in the geographical centre of the sandy zone. I have known both settlements since beginning fieldwork in Tázlár in 1976 (HANN 1980). This settlement experienced continuous population decline throughout the socialist period. In 1970 it had 2,466 inhabitants. Soltvadkert, a 'large community' 10 kms to the west, had also experienced population decline in the first decades of socialism but during the 1970s the figure stabilized at around 7,500. By the turn of the century the population of Tázlár had fallen further to below 2000, while that of Soltvadkert, officially classified as a town since 1993, had risen to almost 8000 inhabitants. There are no precise figures for grape and wine production at community level, but there can be little doubt that vineyard acreage and output have declined in both communities in recent years.<sup>4</sup> However, in Soltvadkert wine continues to dominate the agricultural economy; it provides the main source of income for numerous family businesses, while the prosperity built up in earlier decades through specialization in this branch has enabled others to diversify successfully (SCHWARCZ 2002, 2003).

Let me begin with the smaller settlement. Tázlár's history illustrates the pattern of late nineteenth century *tanya* settlement, in which animal raising formed the main basis of the peasant economy (JUHÁSZ 1997, SZABADI 1997). The production of grapes and wine was consolidated in the socialist period as an important auxiliary source of family income, but with few exceptions it did not become dominant. By the 1970s most households had at least one member in full-time employment. Among those which did not, most were dependent upon the sales of agricultural produce through the specialist cooperative; but vineyards were no more significant than the revenues obtained through selling milk or through fattening pigs. In Tázlár the loose structures of the specialist cooperative and the relative abundance of land allowed more continuity with traditional patterns of mixed farming than was usual in other parts of the region. Small-scale farmers had little incentive to invest in order to improve the quality and quantity of their production. The establishment of new private vineyards was explicitly prohib-

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<sup>4</sup> In Soltvadkert in 2000 vineyards constituted 2598 hectares of a total agricultural surface of 5886 hectares (SCHWARCZ 2003, p. 125, n. 16). The corresponding figures for Tázlár in 2001 were 351 and 3740. Liddell gives a higher figure of 3164 hectares for Soltvadkert and notes that its wine community and that of its larger neighbour Kiskőrös are the two largest in the country. Soltvadkert alone produces more than 20% of the country's entire wine output, yet only 8 Soltvadkert producers bottle their own wine (2003, pp. 173-4).

ited, though many households took advantage of the opportunity to become vine owners through the large-scale plantings sponsored by the specialist cooperative, with state aid, in the 1980s. People spent their surpluses on consumption (e.g. housing and cars). No one invested in cellars and bottling technologies, in order to specialise in wine in an entrepreneurial way. Small-scale vineyards could be bought and sold as well as inherited, since they constituted private property that did not pass to the cooperative; but the death of an owner very often signified the end of a vineyard's production, especially when the heirs did not reside locally. Producers continued to use simple, old processing facilities if any were available; and if they were not, then they sold their produce in the form of grapes. Sales were overwhelmingly through the cooperative. The producers dealt with the distinctive labour demands of the vineyards in traditional ways, i.e. through mutual aid based upon networks of kinship, neighbourhood and friendship.

In the postsocialist years there have been grave problems in disposing of the harvest and prices have fallen to derisory levels. The complicated accounting regulations introduced in 2000 were for some individuals the final straw, leading them to sell or (more commonly) to abandon their vineyards. However, given the basic unsuitability of the sandy soils for arable farming, a few individuals have expanded their vineyard holdings and invested in manufacturing equipment. The sole figure to emerge as a genuine entrepreneur specialised in this sector is not a native of Tázlár at all, but of the larger neighbouring settlement. He bought a *tanya* close to the village and built a modern cellar, complete with bottling facilities. Within a few years, through purchasing former state farm vineyards and significant new planting, he established a productive holding of 13 hectares. The quality of his wines has been recognised through numerous prizes in regional competitions. This has not, however, helped him very much in disposing of his output; he too, like most of the part-time producers in this village, is bitterly critical of the lack of government support and apprehensive concerning the consequences of EU accession; unlike others, this entrepreneur favours the establishment of new, voluntary cooperatives in this sector, in order to maintain quality and thereby attract buyers.<sup>5</sup>

The case of neighbouring Soltvadkert is radically different. Whereas I remain (to the best of my knowledge) the only social scientist doing research in Tázlár, the path followed by Soltvadkert in recent decades has been so striking that it has

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<sup>5</sup> It was commonly pointed out in the village that the large vineyards established in the socialist period generated very obvious problems of collective action when 'parcelled out' to individual owners. Thus failure to spray one's vines at the right moment can easily increase the infection threat to one's neighbour's crop: yet following the cooperative's withdrawal in the early 1990s from all productive activities in the agricultural sector, there was no means to ensure an efficient coordination of vineyard work in Tázlár.

attracted the attention of numerous Hungarian scholars (MÓDRA and SIMÓ 1988; FERTŐ et al. 1990; SCHWARCZ 2002, 2003). I remember that the contrast with Tázlár was becoming visible and the subject of local comment when I began my fieldwork. In 1976 Tázlár could boast just one two-storeyed house, while in Soltvadkert a whole street of such private homes was under construction - villas that would have counted as luxurious almost anywhere in the world. When a private house of three storeys was erected on the main street, some locals speculated that this was surely too much of a provocation to the socialist authorities, who would insist on modifications to the design. But they did not.

The prime source of Soltvadkert's wealth lay in its vineyards. Since the climate, the soils and basic product quality were hardly any different from neighbouring communities, the explanation has to be sought elsewhere. One common theory 'on the ground' is that Soltvadkert owes its success to the Swabian (*sváb*) values of the dominant population groups. Soltvadkert was resettled a century earlier than Tázlár and the *Svábok* formed the core of a community that was more coherent than the more mixed and scattered populations of most neighbouring settlements. The *Svábok* are reckoned traditionally to have had a strong Protestant ethic emphasizing frugality and saving (*spórolás*), though many both inside and outside the community point out that this has faded in recent decades. Numerous academic commentators have outlined similar views (for discussion see SCHWARCZ 2003, p. 120). But such explanations, whether they appeal to specific group values or rest merely on a relatively high degree of ethnic homogeneity, are insufficient and potentially misleading. If the *sváb* heritage of Soltvadkert played a role (and I think it did), this needs to be understood not in terms of the 'essentialist' traits of a unique culture but in the context of flexible institution-building within the Kádárist model of socialism. As in Tázlár, the key institution was the specialist cooperative. Unlike Tázlár, however, the cooperatives of Soltvadkert moved promptly to establish collective vineyards (early 1960s) and to establish their own bottling plant (1978). At the same time, many members of the Soltvadkert cooperatives were encouraged to improve their private vineyards and to invest in improved processing facilities. They took ever more expansive initiatives in the last years of socialism, when they began to find new ways to plant or acquire vineyards and to dispose of their product outside the officially sanctioned channels. As FERTŐ et al. (1990) have stressed, the 'secret' of this private accumulation lay in the flexible character of the specialist cooperative, which left substantially more space for individual economic management than was possible in settlements dominated by more conventional collective farms (though of course the *termelőszövetkezet*, the dominant form in Hungary, was itself a great deal more flexible than its Soviet prototype, the *kolkhoz*).

The result for Soltvadkert was dynamic expansion for the settlement as a whole, but also a degree of polarisation that was increasingly hard to reconcile with socialist principles. The large private holdings could not be maintained by family

labour and assistance on a voluntary basis from within the neighbourhood. I found in the mid-1970s that poorer sections of the population in Tázlár were obtaining much of their income through working as day labourers in Soltvadkert; this pattern of informal (or 'black') labour market activity has continued down to the present day, much of the supply in recent years stemming from abroad.<sup>6</sup>

Even Soltvadkert did not emerge unscathed when the wine bubble burst in the early 1990s. One of the specialist cooperatives was rapidly privatised, while the other has survived only in an attenuated, stagnant form. Various activities which individuals had previously carried out in semi-clandestine ways could now be openly conducted. The leading entrepreneurs were able to consolidate their distribution networks and thereby compensate to some extent for depressed prices. However, the image of Soltvadkert wine was badly dented by the numerous 'fake wine' scandals, and many producers, both large and small, have become disillusioned as their counterparts in Tázlár. According to the recent investigation carried out by SCHWARCZ (2003), a new elite group has emerged. It consists of entrepreneurs who engage in small-scale manufacturing activities, notably the production of plastic bags. Wine production has faded into the background for these families, though it has by no means disappeared as a subsidiary economic activity.

In summary, a consideration of these two communities together enables us to appreciate the full extent of the social consequences of the flexible variant of collectivisation for the wine-producing communities of the *Homokhátság*. In the older, *sváb* community of Soltvadkert, in the enabling environment provided by specialist cooperatives, which themselves quickly became dynamic economic actors, specialisation was encouraged and high levels of private investment and accumulation ensued. This settlement exemplifies the arguments put forward by SZELÉNYI (1988) and many other analysts, according to which the Hungarian scheme of collectivised farming allowed ample room for entrepreneurialism at the household as well as the institutional level. The outcome was paradoxical: the fulfilment of an 'embourgeoisement' (*polgárosodás*) trajectory, which in the pre-socialist generation populist-modernist critics such as Ferenc ERDEI had found to be stymied by repressive, semi-feudal institutions, was finally made possible by socialist policies which, at least according to the ideology, had quite different objectives.

Of course not all benefited, and certainly not to the same extent, from this embourgeoisement. For example, the *Roma* groups in Soltvadkert did not construct

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<sup>6</sup> Casual labour in recent years has been abundantly available thanks to porous borders with neighbouring Serbia and Romania. In particular, migrant labourers from Transylvania, Romanian as well as *magyar* by ethnicity, have become a crucial element in the labour force; the range of jobs they undertake is by no means restricted to the vineyards, or even to agriculture.

luxury villas. In Tázlár, too, there is some internal differentiation, but the overall pattern is significantly different from that of the neighbouring town. The specialist cooperatives were much less successful in Tázlár; there was little reinvestment in production and little specialisation, either by the cooperatives or by small-scale producers. No agricultural producers in Tázlár have yet developed the vertical integration or the range of distribution networks to provide the foundation for a viable enterprise in postsocialist conditions. Compared to Soltvadkert the socialist wine bubble in Tázlár was an important contributory factor to a more modest and more egalitarian variant of embourgeoisement.

The bursting of this bubble has already led some in both settlements to abandon this sector. Many others, however, cannot afford to, though they might like to quit; the additional income earned in the vineyard, coming as it usually does in a single payment, is often a crucial element in household financial strategies, e.g. in providing funds for major consumer purchases, or for a wedding. Yet the risks are greater than ever: in addition to the constant natural hazards of frosts and hail, the prices of inputs continuously rise, while the price paid for wine in this region is nowadays (2004) approximately the same as that paid for the same quantity of mineral water. And throughout the production process one has the constant worry (almost unknown under socialism) that one may not be able to dispose of one's product at all. These uncertainties are experienced more intensely in Tázlár than in Soltvadkert because of the absence of alternative income sources in the smaller settlement.

## 6 CONCLUSION

To conclude I want to return to the broader picture. As is usual in anthropological studies, the case-studies in this paper have revealed considerable local variation. It is easy to fall into the trap of paying excessive attention to Soltvadkert, because the conspicuous embourgeoisement of this settlement presents such a stark contrast to the stereotypical images of socialist agriculture. Yet in reality even Soltvadkert had its less successful groups. In Tázlár we have seen that the less successful elements are proportionately more numerous, few genuine entrepreneurs emerged, and continuities with the traditional peasant economy have remained stronger.

The patterns of polarization identified above for Soltvadkert may seem typical of developments reported from many other postsocialist villages (cf. HANN and SÁRKÁNY 2003), but it is important in this case to understand how they emerged thanks to opportunities grasped in the 1960s and 1970s. Many details of this story are of course unique to this region and to Hungary, but I suggest that the recent history of the *Homokhátság* exemplifies an underappreciated dimension of collectivization more generally: its success in incorporating previously marginalized regions into a national system, in the process dramatically raising the



standards of living of local residents. The consequences of the demise of this system include the likelihood of renewed marginality for large numbers of people who might otherwise have left the countryside altogether.

Let me extend this counterfactual argument a little further. If the ‘stereotypical’ model of collectivization had been imposed in Hungary and decisions in 1960 taken solely according to the criteria of where it was rational to invest in large-scale arable farming, then much of the *Homokhátság* would probably have been placed in the hands of Forest Farms and the oil and gas exploration companies; the ensuing population decline in places such as Tázlár and Soltvadkert would then probably have been much greater. But this did not happen. Building on the foundations of smallholder vineyards from the presocialist years, it was decided not only to maintain this production but to increase the supply of cheap wine by planting new, large-scale vineyards. A great deal of scope was left to households to resume their own embourgeoisement paths, or to embark on such paths for the first time. This flexible model of collectivization enabled Soltvadkert to reverse its population decline and become the wealthiest small town in the country. In Tázlár, too, the rate of population decrease declined in the later socialist period; here, too, one can see, e.g. in the number of houses built since collectivization, the extent to which this historic moment, far from heralding the end of the peasantry, a transfer of resources to the industrial sector and an accelerated exodus to the cities, in fact concealed crucial continuities and policies which worked to the benefit of the rural population, at least in the short term. Without wishing to play down the distinctive features of the Hungarian model, with its exceptional flexibility and decentralization, I am convinced that this remains an underappreciated aspect of collectivization in other countries as well (cf. HANN et al. 2003). The establishment of the socialist institutions left larger populations resident in the countryside than was usual in the industrialization paths followed by most ‘western’ countries; many socialist villagers experienced modernization and even embourgeoisement without being uprooted from their homes in the countryside. Needless to say these accomplishments have been rendered fragile in postsocialist conditions, and nowhere more so than in regions whose prosperity had been built up on the basis of a product with poor prospects under the new neo-liberal market conditions.

There is an irony in the fact that the ‘socialist embourgeoisement’ which benefited many wine producers of the settlements discussed here was not achieved through producing quality wines for an increasingly refined bourgeois public – quite the opposite, their success depended on unrefined socialist publics, both at home and abroad. Alex LIDDELL’s upbeat assessment of Hungary’s wine market is based on a scenario whereby the new private owners of vineyards will build upon the traditions of the country’s classical wine regions in order to produce highly variegated wines of quality, for discriminating consumers both at home and abroad. Unfortunately, as he frankly acknowledges, ‘sophisticated’ wines

cannot be produced on the sandy soils of the *Homokhátság*. Some producers will be able to sell their product as a base wine for the brands of other regions, and significant amounts are once again being exported in bulk to the east, but for the majority of small-scale producers in both Tázlár and Soltvadkert, the prospects are bleak. These, then, are people who might, if a different collectivization model had been imposed, have swollen the ranks of the proletariat in Budapest in the 1960s and 1970s, but who instead remained in their villages and contributed to the production of the ‘mass wine’ which was so important in lubricating KÁDÁR’s social compromise. But now it turns out that the benefits which accrued thanks to this flexible model can no longer be sustained. The former beneficiaries have become losers, victims, and they see themselves as such. As LIDDELL notes prosaically (2003, p. 172), in the *Homokhátság* as a whole ‘5000 to 6000 people ... make between ten and twenty hectolitres for selling. The sad truth is that there is no future for most of these growers, and a painful rationalisation is in store for them.’

LIDDELL’s analysis is widely echoed by elites and those inside Hungary concerned with wine promotion. The authors of a recent coffee table publication from Corvina in Budapest bemoan how socialists ‘equalized’ the conditions for wine production throughout the country, thereby destroying traditions and promoting ‘the soulless production of cheap mass wines’ (BENYÁK and DÉKÁNY 2003, p. 50). They allege further that the destruction of the traditional local producers’ associations and the attempt to replace them with central controls had the effect of stimulating the manufacture of fake wine. They imply that the re-establishment of the local ‘hill communities’ and the impact of a new ‘wine revolution’, based on quality rather than quantity, will solve the problem; but they present no evidence to support this expectation and fail to explain why the problems appear if anything to have increased in recent years.

Such prognoses overlook the possibility that embourgeoisement may not be as advanced as supposed, at least not when it comes to ‘baleful’ Hungarian palates. If you look around in Budapest today you will find that the range of bottled ‘quality wines’ available at retail outlets has increased compared to socialist times, but it is unremarkable. One reason is that so many consumers in the capital have informal links to producers, however distant and indirect (is this any different from the urban populations of France or of Italy?). For those who do not, there remain plenty of wine-bars, which of course are not wine-bars at all in the contemporary western sense, but rather ‘drinking dens of a rather basic kind’ (LIDDELL 2003, p. 48). The plastic *kanna*, which enables you to purchase 5 or 10 litres at a time for home consumption, remains ubiquitous. Indeed there must be plenty of people who have responded to the general economic pressures of post-socialism by buying more wine in this form than they used to – in other words, this product fits well with many people’s survival strategies, and so the short-term trend, for many, is the opposite of discriminating embourgeoisement.

Perhaps the authorities need to adopt a more realistic view of their wine market and recognise the factors which have shaped it historically. They would then have to acknowledge the continuing demand for the most basic, 'volume' product, and try to resist EU pressures to eliminate this production through quality controls and taxation measures. Many producers are convinced that, with just a little more state support, their low labour costs should make them competitive at all levels of international wine markets. In any case, at least within Hungary the postsocialist authorities are still far from being able to suppress one of the country's traditional products - the cheap mass wine (*tömegbor*) which originated in the traditional peasant economy, and which was so successfully developed on the *Homokhátság* thanks to flexible collectivization.

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- Note: Some illustrations of vineyard work and production technologies in Tázlár can be found at the website of the Max Planck Institute for Social Anthropology <<http://www.eth.mpg.de/people/hann/project.html>>.

# **RURAL POVERTY**

## OFF-FARM ACTIVITIES AND SUBSISTENCE FARMING IN CEE COUNTRIES – A STATISTICAL APPROACH

FRANZ GREIF\*

### ABSTRACT

Off-farm activities and subsistence farming form a considerable part of the rural economy in CEE. Without these sources, millions of rural people could not survive. True statistics suffer from insufficient data, calculative inexactness concerning income data, unclear definitions and other restraints. Informal facts, and hidden or illicit activities are typical concomitant appearances of economies in crisis and transformation. There is an important systematic difference between activities of large scale enterprises and their additional activities what has been the “standard” before 1990, and what concerns private family farms today. This only partially can be compared with economic behaviour of „Western“ part-time farmers as being on the same systematic level. A third related item concerns small-scale producers which run supplementary or “subsistent” farms but do not really “produce”. Their products form the basis for the survival of many individuals. Dimension and social weight of this topic call for more detailed investigation.

**Keywords:** Off-farm activities, subsistence farming, rural poverty, CEE.

### 1 OFF-FARM ACTIVITIES AND INCOMES IN THE CONTEXT OF CEE AGRO-SECTORS

Non-agricultural activities and additional incomes form a considerable part of the rural economy in CEECs and NIS. Without these complementary income possibilities a large part of the rural society could not survive in the true sense of the word. But because of the immense influence of informal, hidden activities, some of which are even relatively close to criminal, sufficient data is hardly

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This paper is a revised, abridged version of the study „Off-farm activities in CEEC and NIS“ which was elaborated shortly before 2000 and dealt with several transition countries. The study was compiled in co-operation with colleagues from six partner institutes of the Federal Institute of Agricultural Economics in Vienna by order of the FAO in Rome. Source: Franz Greif, Off-farm activities in CEEC and NIS. Elaborated in co-operation with Marta Stauder (Budapest), Zdenek St’astny (Bratislava), Dana Kleinertova (Praha), Raita Karnite (Riga), Vasile Surd (Cluj-Napoca), Maria Ochal (Lublin).

available; the same concerns accurate calculations or estimations. This is a typical concomitant phenomenon of economic crises and transformations.

Because of the dual farm structure in more or less the whole CEE region, there is an important difference between activities of large-scale enterprises and their additional (particularly downstream) activities and private or family farm businesses; the smaller units of the latter two are the very objects to focus on as “part-time” farms. A considerable part of these are comparable to “Western” part-time farms where it concerns their economic behaviour, as well as sources and use of their additional incomes.

The third group, which in CEECs counts for millions of small-holders, does not exist in the reality of “Western” agricultural economics, e.g., in Austria or Germany, at least not in such dimensions. However, a large amount of units, which form an agricultural remainder category, are not unknown there<sup>1</sup>. Nevertheless, the social importance of these “mini-farms” in transition countries has rarely occurred elsewhere<sup>2</sup>.

Furthermore, an additional aspect is derived from the accessibility (or non-accessibility) of non-agricultural income sources for workers in legal entities. In such cases, the additional employment consists of different kinds of service, or additional production, for the farms' needs or for other purposes. In addition, private farmers and/or members of their families often take part in work for large scale enterprises, or for the agricultural and communal neighbourhood. But because of the severe systematic inconsistency which mixing up all three types of off-farm engagement would imply, this report – as far as possible – deals with part-time farming related to family farms and with subsistence farming as characterised in CEECs.

Finally, direct sales are also a very attractive possibility for increasing farm income. This has proven rather successful in the “peri-urban” countryside, but in rural areas with little purchasing power, has remained very limited.

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<sup>1</sup> The Austrian agricultural statistics prior to 1990 systematically excluded all farm units with less than 0.5 ha (25,000 to 30,000 plots), and since 1990 have excluded those with less than 1.0 ha (around 20,000 more units estimated), unless they have a minimum stock of animals or grow special products.

<sup>2</sup> Except dramatic situations e.g., during periods of famine after World War I and around the World economic crisis of 1929.

**Table 1: Rural population and farm structures in CEECs (c. 2000)**

<i>Country</i>	<i>Rural population</i>	<i>Agricultural population</i>	<i>Land owners (estimated)</i>	<i>Registered holdings</i>	<i>Small holdings</i>	<i>Unemployed estimated</i>
Czech Republic	3,610,000	560,000	147,000	56,500	117,000	72,000
Slovak Republic	2,255,000	480,000	289,000	2,100	115,000	135,000
Hungary	3,690,000	1,900,000	1,850,000	966,000	728,000	207,000
Slovenia	736,000	350,000	156,000	86,000	70,000	23,000
Poland	14,700,000	8,800,000	3,066,000	2,004,000	1,320,000	1,530,000
Romania	9,490,000	9,000,000	4,900,000	4,717,000	4,170,000	1,350,000
Bulgaria	2,805,000	2,227,000	1,300,000	760,000	719,000	350,000

Sources: EUROSTAT, Land Statistical Information System (Landsis), 2000-2002; IAMO: The future of rural areas in the CEE new member states, 2004; author's estimations.

In Table 1, the rural and agricultural population in CEECs are put together due to national definitions. No less than 40 million inhabitants populate the rural areas of the new CEE member states, plus Romania & Bulgaria, with those inhabitants engaging in agriculture amounting to about 25 million. The number of owners of agricultural land is surely over 12 million, while about 9 million agricultural holdings are registered.

In order to estimate the socio-economic basis for off-farm & additional activities, the number of small-holders and users of small plots of agricultural land has also been compiled; the latter figures partly surpass the figures for registered holdings because in several countries this type of scattered farm is neither counted nor registered. Altogether, we can estimate about 7.5 million small holdings, equal to about 80 or 85% of all registered farms.

A second relevant figure is the number of rural unemployed, which we can estimate at 4.7 to 5 million people in the CEE-10. Due to rather low standards of social support for unemployed in most CEEC, about 50 to 65% of the share of unemployment can be taken as share of the population in poverty.

## 2 DIMENSIONS OF OFF-FARM ACTIVITIES

The percentage of farms which participate in non-agricultural activities varies largely: In general, the share is higher (65% and up) in those countries (or regions) where farm structures are traditionally scattered (Poland, Slovenia) or became re-dispersed (see Romania). In regions with large agricultural enterprises, additional activities are well-organised, while in areas with scattered rural structures, the demand for additional possibilities, just to satisfy elementary needs or to provide primitive employment, is extremely high. This is the basis for the formation of a broad "informal" sector of off-farm activities (Romania,



Bulgaria, Poland). The necessity of creating additional (non-agricultural) jobs is obviously a task of factual policy when the regional share of rural unemployed is considered.

**Table 2: Agricultural, non-agricultural and subsistence activities (est.)**

<i>Country</i>	<i>Agricultural population</i>	<i>Total labour force</i>	<i>Family labour force</i>	<i>Potentially active in "additional" business</i>	
				<i>Persons</i>	<i>% of total labour force</i>
Czech Republic	560,000	224,400	82,500	35,000	15
Slovak Republic	480,000	155,000	120,000	31,000	20
Hungary	1,900,000	1,988,000	1,983,000	1,100,000	55
Slovenia	350,000	259,000	255,000	165,000	65
Poland	8,800,000	5,870,000	5,670,000	3,200,000	55
Romania	9,000,000	4,800,000	4,600,000	2,160,000	45
Bulgaria	2,227,000	1,420,000	1,150,000	640,000	45

Sources: EUROSTAT, Land Statistical Information System (Landsis), 2000-2002; IAMO: The future of rural areas in the CEE new member states, 2004; author's estimations.

The shares of persons or farms participating in off-farm & additional activities vary widely at the country level. The share of collective enterprises with supplementary activities was extremely high in pre-transformation times (e.g., 75% in Hungary), but actually, parts of former "sideline activities" of co-operatives (*kolchoses*) were segregated from the restructured enterprises, and this additional employment disappeared. But the share of unemployed labour force is higher in regions with scattered rural structures, sometimes extremely so (up to 60% in East Polish *gminas* = communes), as is the demand for additional income. According to several country reports, we can estimate between 15% (Czech Republic) and 65% (Slovenia) of the total labour force being (potentially) active in off-farm & additional activities or business.

### 3 NON-AGRICULTURAL INCOME SOURCES

Data about incomes realised from off-farm and additional sources are (or might be) available in several countries although they may not be consistent in terms of statistical definitions. Statistics for Hungary and Slovenia show a higher average amount earned off-farm than in other so-called "advanced" CEECs, but different structures and types of activities were evidently not considered. In countries with retarded development, the proportion of additional incomes is comparably higher because of the lower economic level and much lower purchasing power.

The importance of extra-agricultural activities and incomes is obviously of great importance for the rural households, but agricultural enterprises also greatly

profit from these sources. Parameters for part-time and additional activities of different categories are compiled in the following table.

**Table 3: Sources of non-agricultural incomes**

	<i>Commuters in % of residing work- force</i>	<i>Self em- ploy- ment*</i>	<i>Unpaid work on farms**</i>	<i>Share of social in- come</i>	<i>“Rural poor”***</i>
Czech Republic	44				
Slovak Republic	50				
Hungary	34	20-30	15-20	18	1.1 million
Slovenia	35	35			
Poland	35-45	9	21	34(?)	3.6 million
Romania	(7)	39	34		3.1 million
Bulgaria	(8)		30-40		1 million
Estonia	40	8	16	17	
Austria	35	35	5-10	22	

Notes: \*Rural tourism, marketing, handicraft, services. \*\*Potentially valuable by their remunerations in kind. \*\*\*A great part of which are persons endangered in health or physical existence.

Sources EUROSTAT, Land Statistical Information System (Landsis), 2000-2002; IAMO: The future of rural areas in the CEE new member states, 2004; author's estimations.

Table 3 shows a rudimentary set of data sources for non-agricultural incomes. The share of commuters of the resident workforce would be relatively simple to increase, as in most countries it now lies between 35 and 50%. The share of “Self employment”, which means activities comparable to activities on (Western) part-time farms varies rather widely. Furthermore, unpaid work on farms clearly depends on the poverty of agricultural communities and groups. The added estimation for “rural poor” in CEECs, about 9 million individuals at minimum, cannot be compared with what in Austria or Germany is called “conditions of poverty”.

An economic approach to the complex system of off-farm and adjacent activities is given by the accessibility (or non-accessibility) of off-farm income sources from the viewpoint of the workforce. During the 1990s, employees in large-scale agricultural enterprises were additionally engaged, often in connection with their enterprise<sup>3</sup>. This surely changed over the course of economic transformation. The former additional employment in different types of service, or supplemen-

<sup>3</sup> A very famous and notable example were the Yugoslav collectives called “*zadruga*”, which comprised a co-operative enterprise together with a periphery of numerous private farms, among which activities became shared due to respective suitability (productivity, techniques, work, skills ...).

tary production, in many cases gave way to self-employment. But private farmers and/or members of peasant families are also often engaged in work or service activities for large enterprises, or for their neighbours. A rather attractive possibility for increasing farm incomes would be to increase sales through direct marketing, which are still small but will be increasing steadily.

#### 4 THE USE OF OFF-FARM INCOMES AND REVENUES

How farmers and their families utilise off-farm and additional income normally depends on the perspectives given for different facilities. The examples of Hungary and Slovenia show that in family farms, off-farm sources are used for expanding farm business either due to strong interests in increasing agricultural output or due to comparatively high prices. In most countries, limited agricultural opportunities are a compelling reason for diverting money either to downstream activities or to non-agricultural business. But the largest part of off-farm and additional incomes is used for consumption and to alleviate deplorably low rural living standards.

**Table 4: Use of non-agricultural and additional income in % of farm units participating**

<i>Country</i>	<i>Farms &amp; plots with... income sources</i>	<i>Extension of the farm</i>	<i>Investment in non-agricultural activities</i>	<i>Personal needs, others</i>
Hungary*	900,000	20	25	55
Slovenia	100,000	15	55	30
Poland	1,160,000	15	20	(65)
Romania	800,000	?	?	(85)
Bulgaria	300,000	?	?	(85)

Notes: \*Approximately 1,100,000 „*kistermelés*“ produced for self-supply during the 1990s, but to a large extent it was a secondary activity of the non-agricultural population. Similar facts could be observed everywhere in most CEECs and NIS, however, nowhere was clearly registered.

Sources: EUROSTAT, Land Statistical Information System (Landsis), 2000-2002; IAMO: The future of rural areas in the CEE new member states, 2004; author's estimations.

As can be seen, the (re-)investment of additional income in agricultural enterprises seems to be an exception. Rather more common is the use of additional revenues for the needs of daily life, especially food and health care. Also, investments in non-agri-business seem even more interesting than agriculture.

#### 5 HOW IMPORTANT IS SUBSISTENCE IN CEE?

A set of subsistence and poverty elements in rural areas of the CEEC also consists of technical and infrastructure challenges:

- access to non-agricultural working places is often impossible;
- very low wages in rural areas and especially in agriculture: 200 EUR per month in Slovakia, 150 in Poland, around or below 50 in Romania and Bulgaria;
- severe hindrances for delivering farm products to markets because there are no lorries, miserable roads and markets are too far away (Romania, Bulgaria, but partly also in Poland and Hungary);
- typically low market quotas for milk as an important good for self-support (15% in Romania, 25% in Bulgaria, 63% in Poland, and 80 to 93% in Hungary, Czech Republic and Slovakia).

When we focus on three important parameters for characterising the social situation in the CEE countryside, the following graphic estimation of a “regional likelihood of poverty” can be undertaken (see Figure 1).

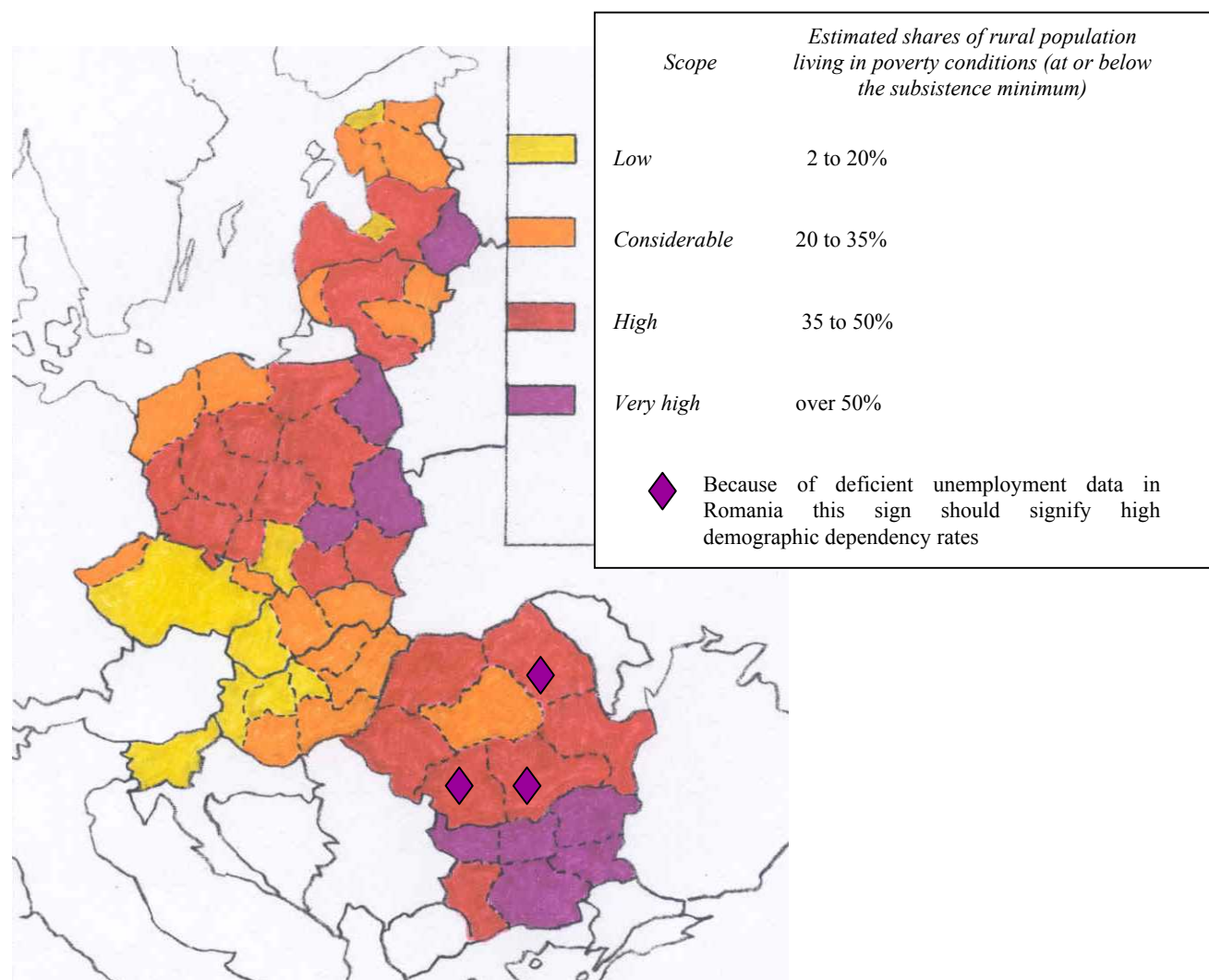
The result of that estimation, to a certain extent, can be expected although investigating the share of the rural population living from informal activities and subsistence production is not so simple. The respective regional concerns are the following:

- There is little regional likelihood of rural poverty in most parts of the Czech Republic, western Slovakia, western Hungary and Slovenia, as these are more or less economically-consolidated territories.
- Rural poverty is a considerable likelihood in the Slovak Republic’s central and northeastern regions, southeast and northeast Hungary, and Estonia.
- High shares of rural poverty in Poland are regionally widespread, and also cover great parts of Lithuania and two-thirds of Latvia; the case of Romania appears to be special, because the usable parameters seem to be insufficient for this country, and nearly everywhere is touched by poverty and the subsistence economy.
- Very high share of rural poverty exists in eastern Latvia, eastern Poland and Bulgaria, with the statistical exception of the country’s southwestern oblast (region of Sofia).

An estimation by NUTS 2 regions (partly modified) according to 3 parameters (agricultural employment, unemployment rate, rural income level<sup>4</sup>) shows the following regional differentiation.

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<sup>4</sup> The used “indicator method” is well-suited for providing a spectrum of indicator points summed up by regions; in this case 1,2,3 and 4, respectively, have been assigned to the following thresholds: Agro-employment: 10, 20, 40, 40 and over; unemployment: 10, 20, 30, 30 and over; income: EUR >250, >150, >75, under 75. Thresholds in the figure symbolize point sums of 3-4, 5-6, 7-8, 9-10 for the four classes of poverty likelihood.

**Figure 1: Regional likelihood of rural poverty in CEE countries**

Source: Author's presentation.

## 6 WHAT POLICY FOR OFF-FARM AND ADDITIONAL ACTIVITIES?

In all CEECs and NIS, an important aim for rural development policy could be the public support of different kinds of income combinations – the magic word for that in Rural Development Policy is “diversification”. Such kinds of diversified and multifunctional enterprises of all types and sizes could also be planned by an engaged authority. Of course this would not be comparable with the period of economic recovery after World War II. But it is necessary to overcome overpopulation in CEE rural areas, and this will only be done successfully by creating millions of new jobs in rural areas outside of the primary sector. In many regions of CEE, the suitability of rural areas, together with genuine agricultural structures being used for non-agricultural activities is present, and thus ready to create additional incomes. The most promising chances for this are the following:

- Small and medium enterprises (SME) in the form of agricultural and other co-operations;
- direct sales and marketing of products (preferably in the vicinity of cities and agglomerations), for which the right organisational frame must be provided;
- service work for local authorities (cleaning, repairing, adjustment, snow plowing, etc.);
- commuting and working in industrial centres;
- well-organised rural tourism on well adapted farms.

Support for small and medium enterprises will surely be successful and well-suited for the creation of numerous new jobs in rural areas. This could also be a result of the business activities of farmers who are willing to co-operate with each other and who therefore create new job opportunities in the countryside. It is a fact that European structural funds show preference in supporting projects that explicitly target non-agricultural development in rural areas.

Experience from Rural Development Programmes such as SAPARD and LEADER show that ongoing support of small and medium enterprises can create new job opportunities in rural areas. This could even be the result of the entrepreneurial activities of farmers willing to co-operate and absorb available rural workers. It is significant that the SAPARD activities “processing and marketing”, “diversification of activities” and “protection of the rural heritage” consume between 27 and 64 percent of the national co-financing rates of the EU.

Off-farm activities can also be considered in connection with the needs and tasks of public administration and services. The importance and role of autonomous and fully-functioning communities as managing centres for rural life in a comprehensive meaning cannot be overstated. All over the world, they are the most important providers of public investments, and entrepreneurs that can be the engines of rural development very often are. But simply spoken, local authorities also organise a great deal of public labour for unemployed persons who are willing to work. In that context, a wide range of official support to off-farm activities is imaginable, best by the improvement of rural infrastructures, which is also a central task of local authorities.

We can expect a certain level of stability and growth in rural areas of the new member states after the current phase of transition, but only when it will be possible to balance the rural economic spectrum by sound combinations of agricultural and non-agricultural activities. However, in order to achieve this, the sufficient consolidation of rural structures is inevitable, and there will be no success without serious land reform measures and/or the introduction of liberal free market rules. Without these indispensable conditions, stability in the agricultural system will remain unattainable, because the basic needs (the assignment of

economic activities generally), as well as determined requirements and goals (investments, adjustments, co-operation) depend on it.

But it is also necessary not to expose private agro-structures to the world of globalisation during this stage of development because they are extremely vulnerable. It should be underlined that during the next five or ten years, rural areas of the new EU member countries will require adequate social and economic protection in order to master rural poverty successfully. During a certain period of transition, the state must take care of rural areas and must fight vigorously against the oppressive and depressive blight of rural poverty. This is especially important if the maintenance of a full scope of rural areas in Central and Eastern Europe remain the credible task of regional and social policy.

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## AGRICULTURAL PRODUCTIVITY GROWTH: A VEHICLE FOR RURAL POVERTY REDUCTION IN UKRAINE?

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### ABSTRACT

This paper discusses the trickle-down effects of productivity growth in agriculture and trade-offs between agricultural aggregate productivity growth and rural poverty alleviation. Empirically, we attempt to establish the link between agricultural productivity growth and the distribution of incomes in rural areas, the price for grains – a major agricultural commodity, employment of skilled and unskilled workers and real agricultural wages in Ukrainian agriculture. The effects of these factors on the incidence of rural poverty in Ukraine are studied. The analysis shows that due to inequality enhancing and unskilled employment reducing effects of total factor productivity growth, rural poverty declines only marginally with agricultural growth in the current Ukrainian context – by 0.06% per year.

**Keywords:** Total Factor Productivity growth, rural poverty, income inequality.

### 1 INTRODUCTION

The link between economic growth and poverty has long been of great interest to economists. In the 50s and 60s it was believed that economic growth would trickle down to the poor through increased employment opportunities and earnings. By the early 70s, the accumulated evidence suggested that besides ‘trickle-down effects’ there were also ‘trade-offs’ due to which the poverty alleviation effects of growth were questioned. Many studies show that economic growth, and, in particular agricultural growth in societies where agriculture plays a predominant role, can serve as an instrument for urban and rural poverty reduction, with agriculture-biased growth reinforcing the trickle-down effects of growth and benefiting the poor. However, economic growth can also be a hurdle to poverty reduction if it is associated with increased income inequality. Thus, so far there is no consensus regarding the relative effectiveness of economic and agricultural growth in reducing poverty.

There exists a voluminous literature on the links between agricultural growth and poverty. However, few attempts have been made to quantify the impact of

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agricultural total factor productivity (TFP) growth on rural poverty. We analyse the relationship between TFP growth and rural poverty in Ukraine from 1999 to 2002, which is a period of early recovery in Ukrainian agriculture.

This analysis is important for several reasons. First, highlighting the linkages between TFP and rural poverty may help policy makers identify effective strategies for fighting poverty. Furthermore, since the link between TFP in *Ukrainian* agriculture and rural poverty has not been studied yet, this paper has the potential to make a contribution to the existing literature.

The paper is organized as follows. Section 2 starts with a selective review of literature on agricultural growth and rural poverty. Section 3 then contains a description of the trends in agricultural output, employment, wages and rural poverty in Ukraine. In section 3 we develop an empirical framework for exploring the links between agricultural TFP growth and rural poverty in Ukraine. Empirical results are discussed in section 4, and section 5 summarizes the findings and discusses policy instruments for alleviating rural poverty.

## 2 AGRICULTURAL GROWTH AND RURAL POVERTY

In order to develop a rural poverty reduction strategy, the central issue is the relative effectiveness of agricultural growth in general and aggregate productivity growth in particular. This section focuses on the link between agricultural productivity growth and rural poverty.

The availability of large data sets for developing countries at the beginning of the 1950s placed the issue of poverty and economic growth at the focus of public discussions. In discussing poverty alleviation strategies it was suggested that “*absolute poverty can be alleviated if at least two conditions are met. First, economic growth occurs – or the mean income rises – on a sustained basis. Second, economic growth is either neutral to income distribution or reduces income inequality*” (KHAN 2000). In the 1950s and 60s it was believed that economic growth would yield benefits to the poor. Furthermore, it was believed and supported by some evidence later that what mattered for poverty reduction in agrarian societies was agricultural growth, while “*the rapid growth of urban areas in the absence of sustained rural growth tends to reinforce the rural-urban disparities and does not benefit the poor*” (RAVALLION and DATT 1999). The main arguments for agricultural growth having poverty alleviation effects were that it would have positive spill-over effects on the poor through increased employment opportunities in both the farm sector and off-farm agriculture-related sectors.

The empirical evidence accumulated by the early 1970s, however, suggested that the relationship between agricultural growth and rural poverty was not that unambiguous. The impact of agricultural growth on the rural poor depends on ini-

tial conditions as well as the structure of incentives and the level of institutional development. There are a number of reasons to believe that agricultural aggregate productivity growth can have adverse effects on rural poor, in particular in the short-run. Because of the peculiarities of transition economies – such as large-scale and rapid labour-shedding in agriculture – the transformation from state to private ownership accompanied by aggregate productivity growth can result in lay-offs of surplus labour rather than increased employment as predicted by the theory, thus leading to the loss of wage earnings for the rural poor (who are mostly unskilled workers and who get laid-off first). Even though it is believed that agricultural growth stimulates the development of rural small-scale businesses such as processing and trade, which would create better off-farm employment opportunities, because of the underdevelopment of institutions in transition economies it may take years before the new industries related to agriculture are established and absorb unskilled rural labour.

To understand the process of poverty creation in rural areas and to assess the impact of agricultural productivity growth on the poor in Ukraine it is important first to understand the two main conduits through which agricultural growth can effect the rural poor: markets, both products and factors, and infrastructure. Agricultural productivity growth yields benefits to the poor in the form of lower prices for staple food and increased availability of food. It also affects factor markets, and, in particular the labour market: theoretically higher marginal productivity of labour results in higher wage rates and increased employment. However, the process of transferring benefits from agricultural productivity growth to the poor is often very complex because poverty alleviation and growth also involve trade-offs.

The assets that the poor own or can potentially own and their access to these assets have an important influence on poverty. Assets can be classified into physical, human and infrastructural. Physical assets include land plots, machinery, property rights, access to credit and others. Access to physical assets is of a vital importance to keep rural households out of poverty and any discrimination against the poor (e.g. constrained or no access to credits) prevents them from undertaking potentially profitable activities, which would enable them to get out of poverty. The most important elements of human assets are gender, skills and health. Human assets primarily determine the position of a person on the labour market and, consequently, his/her ability to find employment for wages. Infrastructural assets include access to schools, health care, communication and others. An accumulation of human assets is closely linked to access to infrastructural assets. In Ukraine most rural households are greatly handicapped by inadequate assets, their low quality and returns.

The extent to which TFP growth rate reduces poverty depends on a number of factors, the most important of which are inequalities in income, access to and

quality of physical, human and infrastructural assets and access to opportunities that allow the poor to participate and share in TFP growth. And it is due to indirect effects of TFP growth in the form of the change in the distribution of income, increased returns to human assets and reduced food prices that the poverty is alleviated or aggravated.

The linkages between income *inequality* and poverty are complex. Increases in income inequality will not necessarily aggravate poverty as income inequality may rise because the labour force shifts from agriculture to more productive activities where wages are much higher than in agriculture. As a result, incomes of those at the bottom end of the distribution may fall far below incomes of those who shifted away from agricultural activity and are at higher levels of the income distributions. In this case, increased inequality is likely to be associated with poverty reduction.

One should also keep in mind that inequality can hamper agricultural growth. “*Growth would be enhanced if wealth were re-distributed from the rich to the poor, because the marginal productivity of capital is higher for the poor*” (CHENERY et al. 1974). Thus, reductions in inequality can reduce poverty in two ways: through its growth-enhancing effect and through an increase in the share of income earned by the poorest.

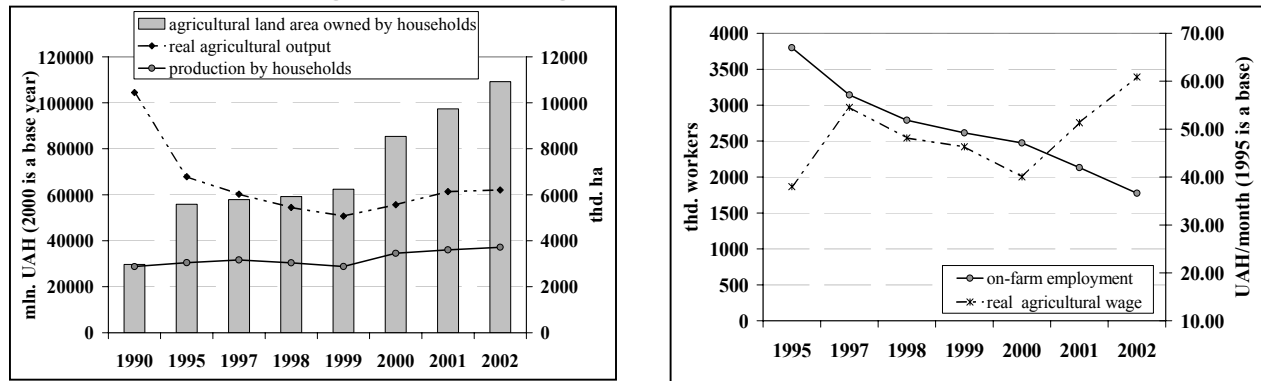
### **3 EXPLORING THE LINKS BETWEEN AGRICULTURAL GROWTH AND RURAL POVERTY IN UKRAINE**

#### **3.1 Ukraine’s transition experience**

Recent reform experience in Ukraine shows that transition to a market-oriented economy was associated with significant initial social and economic costs. The first nine years of transition in Ukrainian agriculture were marked by a persistent decline in output. In 1999 agricultural production accounted for only 49% of the 1990 level (see Figure 1). Nevertheless, first benefits from transition and the land reform launched in the year 2000 have since materialised. Since 2000 agricultural production has begun to recover and in 2002 it exceeded its 1996 level.

The rapid decline in agricultural output adversely affected food availability and affordability, which induced a large portion of rural households to produce their own food supply. Throughout transition the agricultural land area owned by rural households has been steadily increasing (see Figure 1) and the importance of home production for sustaining standards of living has grown. Small private farming has become an important activity in rural areas, enabling households both to meet their own consumption needs and to generate additional income. Nevertheless, incomes from farming and subsistence production are often inadequate to support households without falling into poverty and the incidence of rural poverty has remained as high as 45%.

**Figure 1: Trends in agricultural production, on-farm employment and real agricultural wages**



Source: Derzhkomstat.

The shocks in agricultural production could not leave the incidence of rural poverty unaffected, because, despite rural households producing food for own consumption, a high proportion of rural poor remains dependent on employment<sup>1</sup> for wages in agriculture and related small-scale industries and services.

Due to the unavailability of data we cannot trace the development of poverty during the early stages of transition when agricultural output was declining. However, the evidence is that during the early recovery rural poverty (headcount ratio) declined from 50.8% in 2000 to 39% in 2002, which can be considered a considerable achievement. This decline is likely to have been caused by an increase in real agricultural wages of 52% over this period (see Figure 1) and increased access to food by the poor due to lower prices for major agricultural commodities.

The transformation from state and collective to private ownership yielded benefits in the form of increased productivity, and consequently, output. At the same time agricultural growth seems to have had employment destruction effects with the rate of lay-offs of farm workers accelerating since 2000: in 1999 and 2000 agricultural employment declined by 6 and 5% compared to the previous year, respectively, while in 2001 and 2002 the decline reached 14 and 17%, respectively. Thus, in terms of increased employment opportunities in agriculture, early recovery performed a very poor job, at least in the short-run. It should be mentioned, however, that agricultural growth might have had different effects on employment of skilled and unskilled workers: the employment of skilled farm workers may have increased as the growth was driven by technological advances that require a high level of knowledge, while the employment of unskilled workers declined. Furthermore, the observed tendencies show that employment in rural areas (both on-farm and off-farm) slightly increased from 93.2% in 2000 to

<sup>1</sup> "Poverty in Ukraine", Institute for Economic research and Policy Consulting, T25, January 2004, p.6.

93.4% in 2002, which indicates that agricultural growth may have been associated with the development of non-farm activities related to agriculture (e.g. processing, trade, services etc.).

### 3.2 A framework for empirical analysis

In the following we derive a set of reduced form equations that relate TFP growth, poverty and inequality and a series of other variables in Ukraine.

Even though in Ukraine almost every household has an access to a plot of land, subsistence production alone is often not sufficient to sustain a decent standard of living. In this respect employment of adults in the household may be vital for reducing the probability of falling into poverty. Thus, it is supposed that increases in employment rates (or, alternatively, unemployment reduction) should lead to poverty alleviation. However, this statement should be taken with caution. There exists a potential trade-off between unemployment reduction and poverty alleviation: to the extent that higher growth rates of output and job creation that are needed to absorb the increase in the supply of labour and reduce unemployment require a significant drop in real wages, the deterioration in living standards may lead to higher poverty (AGENOR 2003). Unskilled workers, for example, face two choices: to find employment in agriculture or migrate to the low wage, informal urban sector to lift the household out of poverty. Thus, if employment rises due to the expansion of low-paid jobs for unskilled workers and shrinkage of high-paid jobs for skilled workers, there would probably be an increase in the working poor and overall poverty rates may increase despite the fall in unemployment. Thus, it is possible that an increase in the number of employed rural unskilled workers, *ceteris paribus*, will increase the incidence of rural poverty, while an increase in the number of skilled workers employed will likely contribute to poverty alleviation.

Rural poverty is closely linked to the price of agricultural commodities. If households are net sellers of agricultural commodities, price increases will generate additional income from selling and, thus, reduce poverty. If, however, rural households are net buyers of agricultural commodities, price increases will reduce their purchasing power and, consequently, their entitlement to food. In Ukraine rural households are net sellers of animal products, however, very often and, in particular, in remote areas, their abilities to market produce are constrained by a lack of proper infrastructure. Thus, they can hardly gain from price increases for animal products. At the same time, rural households are net buyers of grains and food staples (bread, pasta, etc.). Grain price increases are therefore likely to deepen consumption poverty. This also occurs because grains are an important input in animal production.

Following the above discussion of agricultural growth and poverty both in general and in Ukraine, we postulate that the main determinants of rural poverty are:

- Income inequality measured by the Gini coefficient (*Gini*);
- Employment of skilled workers measured as a share of workers with tertiary education in the economically active population (*Skilled*);
- Employment of unskilled workers measured as a share of workers with secondary education in economically active population (*Unskilled*);
- Terms-of-trade measured as the ratio of grain prices to non-food GDP deflator (*TT*);
- Real agricultural wages paid by agricultural enterprises (*Rwage*);
- Government spending on agriculture (*Agrospen*); and
- The agricultural bias of economic growth (*Growth*).

Government spending on agriculture includes various forms of market intervention and support for enterprises such as input subsidies, as well as spending on the so-called ‘social sphere’ (e.g. village schools, local infrastructure), all of which can have a direct impact on rural poverty. The variable *Growth*, measured as the ratio of value added in agriculture to value added in the non-farm sectors, is included to measure the impact of ‘agriculture biased’ growth. As discussed above, some findings suggest that agriculture biased growth reduces rural poverty. The resulting poverty equation is therefore:

$$\log(Poverty)_t = \alpha_0 + \alpha_1 \log(Gini)_t + \alpha_2 \log(Skilled)_t + \alpha_3 \log(Unskilled)_t + \alpha_4 \log(TT)_t + \alpha_5 \log(Rwage) + \alpha_6 \log(Agrospen)_t + \alpha_7 \log(Growth) + \varepsilon_t \quad (1)$$

### ***TFP growth and income inequality***

The link between agricultural productivity growth and income inequality is controversial. DE JANVRY and SADOULET (1995) show that “*inequality can indeed increase with growth, and for growth to reduce inequality requires very high growth*”. The inequality enhancing or inequality reducing effects of TFP growth will depend to what extent the rural poor participate and share in growth. A peculiarity of rural financial markets in Ukraine is that they discriminate against the poor. Government policy is biased towards profitable and large farms. For example, the government subsidizes 70% of interest on credits to agricultural producers only if the interest rate does not exceed 18% per annum. Banks provide loans at such low interest rates only to larger, profitable farms, while weak and small farms are charged higher rates to compensate for higher risks of default. As a result, profitable farms have access to (subsidized) credits and become even more profitable over time, while the development of small farms is constrained by the lack of credit resources. Moreover, profitable farms are less likely to keep retain and low-productive labour with a view to avoiding the social consequences of rural unemployment. Instead, they are more likely to introduce capital-intensive (labour-replacing) technologies. Thus, the gains from ag-

gricultural productivity growth on strong farms are distributed among a smaller circle of individuals, and a large portion of rural poor are excluded from the benefits of development.

Evidently, TFP growth is not the sole determinant of income inequality in rural areas. Other important determinants are the real minimum wage (*RMWage*), the development of the non-farm sector (real value added in the non-farm sector one year lagged –  $VA_{t-1}$ ), the share of the economically active population (*Econactive*), government agricultural spending and demographic characteristics. Binding minimum wages tend to reduce the disparities between unskilled workers, who are usually paid minimum wages, and skilled workers. Thus, the minimum wage shifts those at the lower end of income distribution up, or, in other words, *lessens* income inequalities. Rapid growth in the industrial sector can help absorb rural unemployed (both skilled and unskilled), thus leading to increased earnings by the poorest. At the same time, rapid growth in the industrial sector can result in a shift of the labour force from agriculture to more productive activities where earnings are higher, which might increase inequalities. Thus, the effect of industrial growth on income inequality in rural areas is ambiguous. The share of the population that is economically active measures the proportion of population that is likely to share in the benefits of economic growth: the higher the share the lower the inequality. The impact of government agricultural spending on income inequality is largely dependent on the direction of the expenditures. If most of the expenditures are devoted to the development of infrastructure, research, extension services and different social programs for the poor, then state agricultural spending is likely to reduce income inequalities. However, if government programs support profitable farms (e.g. through subsidised credits as outlined above) then government spending is likely to increase inequalities. The result is the following specification:

$$\log(Gini)_t = \delta_0 + \delta_1 \log(TFP)_t + \delta_2 \log(VA)_{t-1} + \delta_4 \log(Econactive)_t + \delta_5 \log(RMWage) + \delta_6 \log(Agrospen)_t + \xi_t \quad (2)$$

### ***TFP growth and employment***

The direction of the effect of TFP growth on employment depends on the relative contribution of the components (efficiency change and technological change) of TFP growth. If TFP rises due to the introduction of new technologies such as high-yielding varieties, the demand for skilled labour will also rise.<sup>2</sup> Yield improvements, in turn, are likely to manifest themselves in output expansion, and, consequently, increases in farmers' profits. In the long run (at least a year) a rise in profits will stimulate expansion of the area under crops, thus lead-

<sup>2</sup> It is assumed that they are high-skilled workers who are familiar with the technologies of production (timing of field works, crop rotation, etc.) that should be adhered to in order to achieve the expected benefits from improved seed.

ing to increased demand for unskilled labour. In the long run TFP growth stimulates the development of agriculture-related, off-farm industries because it reduces the cost of food and raw materials and increases the size of the market for industrial goods. These industries absorb the labour (both unskilled and skilled) that cannot find employment in agriculture. As shown by BECCARIA et al. (1992) there is a weak employment creation effect of growth; employment is created in the informal sector with low productivity and low wages for the unskilled. However, high TFP growth may also be the result of fundamental restructuring that involves investments in capital-intensive technologies. Capital-intensive technologies reduce labour demand per hectare, which leads to a decline in rural employment. Thus, there is no clear answer regarding the link between TFP growth and rural employment.

The most important determinants of employment beside TFP growth are the real minimum wage (*RMWage*) and the availability of capital per hectare (*Capitalha*). Minimum wages primarily affect the wages of workers whose earnings were below the current minimum wage. The impact of an increase in the minimum wage is different for skilled and unskilled labour. As the minimum wage rises, unskilled labour becomes relatively costly, which leads to a substitution of capital (either physical or human) for unskilled labour. Thus, theoretically one would expect that a rise in the minimum wage *increases* employment of skilled workers and *reduces* employment of unskilled workers. The availability of capital per ha is likely to *decrease* labour demand for both skilled and unskilled workers.

Thus, the equation for skilled and unskilled employment is specified as follows:

$$\log(\textit{Skilled})_t = \gamma_0 + \gamma_1 \log(\textit{TFP})_t + \gamma_2 \log(\textit{TFP})_{t-1} + \gamma_3 \log(\textit{TFP})_{t-2} + \gamma_4 \log(\textit{RMWage})_t + \gamma_5 \log(\textit{Capitalha})_t + \mathcal{E}_t \quad (3)$$

$$\log(\textit{Unskilled})_t = \varphi_0 + \varphi_1 \log(\textit{TFP})_t + \varphi_2 \log(\textit{TFP})_{t-1} + \varphi_3 \log(\textit{TFP})_{t-2} + \varphi_4 \log(\textit{RMWage})_t + \varphi_5 \log(\textit{Capitalha})_t + \mathcal{E}_t \quad (4)$$

### ***TFP growth and the real agricultural wage***

There is reason to believe that TFP growth in this period will only be translated into *higher* agricultural wages in the next period. This is the result of the peculiarities of the production process in agriculture: productivity growth becomes evident only after harvesting that starts late summer and ends mid-autumn.<sup>3</sup> However, after harvesting (in September) farmers have to meet their tax obligations, and before the end of November they have to repay credits. Thus, it is

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<sup>3</sup> In Ukraine livestock is held mostly in households. In comparison with crop production, animal production generates income throughout the year. Only few agricultural enterprises in Ukraine are engaged primarily in animal production; the majority of agricultural enterprises produces crops.



only at the end of the current year or at the beginning of the next year that a farmer is aware of gains in net profits as a result of TFP growth. Thus, workers are remunerated for higher productivity only the next period. This lag is in addition to the usual delays associated with the renegotiation of wages and other conditions of employment in the economy in general.

Again, TFP growth is not the sole determinant of agricultural wages. Agricultural wages are also influenced by the minimum wage (*RMWage*), the development of the non-farm sector (value added in the non-farm sector – *VA*) and the supply of labour (*LabourS*). As was mentioned above a rise in the minimum wage reduces the employment of unskilled workers (who receive low wages) and increases the employment of skilled workers. If hiring in high-paid jobs by agricultural enterprises is greater than low-paid job destruction, then the average agricultural wage *increases*. Furthermore, since agriculture is unskilled labour intensive, a fall in the demand for unskilled labour as a result of an increase in the minimum wage puts downward pressure on the wages of unskilled workers, thus lowering the average agricultural wage. Thus, the effect of a minimum wage increase on agricultural wages cannot be determined *a priori*. MORETTI and PERLOFF (2000), for example, find that “*an increase in the federal minimum wage lowers the average wage of piece-rate agricultural workers but raises the average wage of hourly workers, controlling for individuals’ characteristics*”. Rapid urban sector growth stimulates migration from rural areas, which reduces the supply of labour and, consequently, puts upward pressure on agricultural wages. Thus, it is expected that the development of non-farm industries *increases* agricultural wages.

Hence, we specify the real wage equation as follows:

$$\log(Rwage)_t = \beta_0 + \beta_1 \log(TFP)_{t-1} + \beta_2 \log(LabourS)_t + \beta_3 \log(VA)_{t-1} + \beta_4 \log(RMWage)_t + \beta_5 \log(dummy\_West) + \eta_t, \quad (5)$$

where *dummy\_West* – is a dummy variable for the Western oblasts of Ukraine that is incorporated to account for the fact that many in Western Ukraine migrate or work seasonally in neighbouring countries such as Poland.

### ***TFP growth and terms of trade***

One can argue that TFP growth reduces prices for agricultural commodities. Under perfect competition and with open international trade, arbitrage would ensure that in a net export situation the domestic price is equal to the world price less transaction costs. Thus, theoretically the domestic price depends on the world price and transaction costs, while productivity improvements and as a result output expansion are irrelevant. However, in a world of imperfect competition and imperfect information there is always a lag before arbitrage works. In Ukraine, for example, in the post-harvest period grains prices fall below the export parity price for two main reasons: (i) surplus grain cannot be moved out of

the country immediately and there is an excess supply of grain on the market, and (ii) farmers do not have storage facilities and usually grains are sold straight away after harvesting. For these reasons it is natural to expect that in case of TFP growth the domestic price for grains will fall.<sup>4</sup>

Besides TFP growth, prices for agricultural commodities and grains in particular are influenced by the world price ( $Wprice$ ), incomes ( $Income$ ), population growth ( $Pgrowth$ ) and real exchange rate developments ( $REER$ ). The domestic price can be expected to move parallel to the world price: an increase in the world price for grains *increases* the domestic price for grains. A rise in incomes will probably not have much impact on the numerator of  $TT$  (grain prices), since these, as just argued, are mainly determined by world market prices. However, rising incomes will have an impact on the prices of non-tradable goods such as housing and services such as transportation, etc., thus increasing the denominator of  $TT$ . Hence, the impact of  $Income$  on  $TT$  is expected to be negative. The demand for food increases with population growth. So, population growth *increases* the price of grains. Since grain is a tradable commodity, its domestic price depends on the real exchange rate: following a depreciation of the real exchange rate domestically-produced tradable goods become less expensive for foreign countries, leading to increased export demand and prices.

Following the discussion above, the terms-of-trade equation is specified as follows:

$$\log(TT)_t = \mu_0 + \mu_1 \log(TFP)_t + \mu_2 \log(REER)_t + \mu_3 \log(Wprice)_t + \mu_4 \log(Income)_t + \mu_5 \log(PGrowth)_t + \nu_t \quad (6)$$

### 3.3 Data description

The analysis employs regional data for 25 Ukrainian Oblasts over 4 years (1999-2002) for a panel of 100 observations. To estimate the headcount ratio as a measure of rural poverty and income inequality, household surveys provided by Derzhkomstat (the Ukrainian State Committee for Statistics) are used. We take the poverty threshold defined by the World Bank, which is 1\$ a day per capita. 1\$ in 1999 was transformed into the local currency using the official exchange rate in 1999. For 2000-2002 this poverty threshold is inflated using the consumer price index.

Skilled workers are defined as those who have tertiary education, while unskilled workers are those with basic and secondary education. Even though edu-

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<sup>4</sup> Since grains account for the lion's share of production by agricultural enterprises in Ukraine, the development of TFP on Ukrainian farms is closely linked to TFP developments in grain production. Even if arbitrage ensures that the domestic price equals the world price minus transaction costs a few months after the harvest, the average price throughout the year is reduced due to low prices in the immediate post-harvest weeks.

cational attainment is not the best criteria to divide workers into skilled and unskilled, it is the best possible proxy given the available data. Data on the share of workers with basic, secondary, incomplete and complete higher education are provided by Derzhkomstat.

The source of the data on wages paid by agricultural enterprises, the GDP deflator (CPI), value added in the farm and non-farm sectors and economically active population in rural areas is also Derzhkomstat. Government spending on agriculture is taken from the reports of the Ministry of Finance on local budgets. FAO statistics are used to derive the world price for grains over 1999-2002.

TFP in Ukrainian agriculture is calculated using the Malmquist productivity index. The method of calculating TFP is beyond the scope of this paper; for a detailed description and a review of the obtained results consult GALUSHKO et al. (2003). For the regression analysis we employ TFP on a cumulative basis.

#### 4 EMPIRICAL ANALYSIS AND RESULTS

We estimate the system of six equations specified in section 3 above (Table 1). Clearly, the causality linking some of the variables of interest is indeterminate. For example, while productivity affects poverty, poverty can constrain productivity growth because the poor do not have access to education, public facilities and credits, which deteriorates their human capital and limits future TFP growth. However, the available data do not allow us to extend the analysis to include the causal link between initial inequality and poverty and TFP growth.<sup>5</sup> Thus, we are obliged to assume that over the relatively brief period considered, TFP is predetermined and causality runs exclusively from TFP to poverty via the variables included on the right hand side of the poverty equation (1). To confirm this, endogeneity tests are run. In equations (2), (3), (4), (5) and (6) the dependent variables are regressed on all exogenous variables, i.e. variables that do not appear on the left-hand side of the equations, and the residuals from these equations are added into the poverty equation (1). Significance of the coefficient on any of these residuals would imply endogeneity of the corresponding variable on the right hand side of this equation. The results of these tests revealed no endogeneity between poverty and any of the five variables.<sup>6</sup> Thus, estimating each equation separately using ordinary least squares yields consistent estimates.

Each of the equations was tested for the presence of random and fixed effects. The results of the Hausman test are also reported in Table 1. The null hypothesis

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<sup>5</sup> In 1999 the methodology of collecting information on households' living standards was changed. Hence, data on headcount ratios and inequality before and after 1999 cannot be compared.

<sup>6</sup> The p-values of the tests on zero coefficients are: 0.65, 0.93, 0.72, 0.89 and 0.36 for equations (2), (3), (4), (5) and (6) respectively.

of random effects is rejected at the 1% significance level only in the case of the terms-of-trade equation (6). For the other equations random effects estimation was employed.

Since our primary interest lies in analysing the effect of TFP growth on rural poverty, only this effect is discussed in the following. In equation (1), the effect of income inequality and grain prices on poverty is found to be significant and positive, while an increase in agricultural wages, in both skilled and unskilled employment and agriculture-biased economic growth appear to reduce rural poverty.

As expected, TFP growth deepens income inequality (equation 2): a 1% increase in TFP raises the Gini coefficient by 0.19%. An increase in TFP in the current year contributes to a rise in rural skilled employment (equation 3), which is counteracted by a decline in rural unskilled employment (equation 4). However, the effects of lagged TFP growth are not significant in these equations. The effect of TFP growth in the current year on agricultural terms of trade is significant and negative as expected (equation 5): a 1% increase in TFP results in a reduction of relative grain prices by 0.16%. Finally, as also expected, TFP growth in the previous period trickles down to the poor through higher wages in the current period (equation 6): a 1% growth in TFP one period earlier results in an increase in the real agricultural wage of 0.28%.

**Table 1: Indirect effects of TFP growth on poverty**

Explanatory variable	Coefficient	Standard error	Explanatory variable	Coefficient	Standard error
<b>Poverty (equation 1)</b>			<b>Inequality (equation 2)</b>		
Gini <sub>t</sub>	0.41*	0.121	TFP <sub>t</sub>	0.19*	0.062
Skilled <sub>t</sub>	-0.92*	0.294	VA <sub>t-1</sub>	-0.01**	0.095
Unskilled <sub>t</sub>	-0.68**	0.302	Econactive <sub>t</sub>	-0.27**	0.028
TT <sub>t</sub>	0.35*	0.067	RMWage <sub>t</sub>	-0.22**	0.128
Rwage <sub>t</sub>	-0.15***	0.081	Agrospen <sub>t</sub>	0.005**	0.002
Agrospen <sub>t</sub>	-0.003	0.003	Constant	0.55	0.630
Growth <sub>t-1</sub>	-0.05	0.037			
Constant	9.12	2.259			
R <sup>2</sup> within	= 0.48		R <sup>2</sup> within	= 0.17	
between	= 0.20		between	= 0.41	
overall	= 0.34		overall	= 0.24	
Hausman test p-value	= 0.97		Hausman test p-value	= 0.92	
<b>Skilled employment (equation 3)</b>			<b>Unskilled employment (equation 4)</b>		
TFP <sub>t</sub>	0.23*	0.074	TFP <sub>t</sub>	-0.25*	0.067
TFP <sub>t-1</sub>	-0.11	0.097	TFP <sub>t-1</sub>	0.04	0.082
TFP <sub>t-2</sub>	-0.14	0.109	TFP <sub>t-2</sub>	0.10	0.100
RMWage <sub>t</sub>	0.21***	0.114	RMWage <sub>t</sub>	-0.13	0.103
Capitalha <sub>t</sub>	-0.13***	0.077	Constant	4.58	0.002
Constant	2.98	0.446			
R <sup>2</sup> within	= 0.30		R <sup>2</sup> within	= 0.35	
between	= 0.06		between	= 0.15	
overall	= 0.14		overall	= 0.24	
Hausman test p-value	= 0.36		Hausman test p-value	= 0.82	
<b>Real rural wage (equation 5)</b>			<b>Terms-of-trade (equation 6)</b>		
TFP <sub>t-1</sub>	0.28*	0.075	TFP <sub>t</sub>	-0.16*	0.054
LabourS <sub>t</sub>	-0.46*	0.161	REER <sub>t</sub>	1.88*	0.201
VA <sub>t-1</sub>	0.23*	0.049	Wprice <sub>t</sub>	3.77*	0.089
RMWage <sub>t</sub>	0.41*	0.092	Income <sub>t</sub>	-0.34*	0.026
Dummy_West	-0.22*	0.069	PGrowth <sub>t</sub>	5.19*	0.885
Constant	2.55	0.745	Constant	-17.64	0.567
R <sup>2</sup> within	= 0.76		R <sup>2</sup> within	= 0.98	
between	= 0.72		between	= 0.68	
overall	= 0.73		overall	= 0.93	
Hausman test p-value	= 0.44		Hausman test p-value	= 0.00	

Notes: \* - significant at 1%, \*\* - at 5% and \*\*\* - at 10%.

Source: Authors' calculations.

Altogether, the results point to significant trickle-down effects of TFP growth as well as trade-offs. The aggregate impact of TFP change in the current period on the incidence of rural poverty can be calculated as follows:

$$\frac{dPoverty}{dTFP_t} = \frac{\partial Poverty}{\partial Gini} \cdot \frac{\partial Gini}{\partial TFP_t} + \frac{\partial Poverty}{\partial Skilled} \cdot \frac{\partial Skilled}{\partial TFP_t} + \frac{\partial Poverty}{\partial Unskilled} \cdot \frac{\partial Unskilled}{\partial TFP_t} + \frac{\partial Poverty}{\partial TT} \cdot \frac{\partial TT}{\partial TFP_t}$$

The partial derivatives are the coefficients of the model. Multiplying the corresponding coefficients and adding up indicates that a 1% growth in TFP this year results in a net *reduction* in the incidence of rural poverty of 0.02%. Put differently, if the rural headcount index accounted for 39% or about 5.8 million rural inhabitants in 2002, 1% TFP growth would have reduced this number by 1160 persons. This is evidence that due to the trade-offs discussed above, TFP growth in agriculture yields only marginal benefits to the rural poor.

The aggregate impact of lagged TFP growth on rural poverty today can be found as:<sup>7</sup>

$$\frac{dPoverty}{dTFP_{t-1}} = \frac{\partial Poverty}{\partial RWage} \frac{\partial RWage}{\partial TFP_{t-1}}$$

Substituting the corresponding coefficients from equations (1) and (5) produces the following result: lagged TFP growth of 1% triggers a 0.04% reduction in the incidence of rural poverty. This is twice as high as the contemporaneous effect. Combining the effect of TFP change in the current period and the preceding period indicates that within two years 1% growth in TFP can produce a net reduction in the number of the rural poor by 3480 people (0.06%).

Summarizing, the findings show that in the early recovery stage, TFP growth has a net pro-poor impact. However, inequality enhancing and unskilled employment reducing effects of TFP growth in agriculture dilute this net effect so that poverty declines only marginally.<sup>8</sup>

## 5 CONCLUSIONS AND POLICY OPTIONS

In this paper we have explored the theoretical and empirical relationships between agricultural TFP growth and rural poverty in Ukraine. The results reveal that TFP growth has positive spill-over effects in the form of increased real earnings from agricultural activities, reduced prices for agricultural commodities, and consequently, increased entitlement of the poor to food and in the form of increased employment of skilled workers. At the same time, TFP growth and poverty alleviation involve trade-offs: TFP growth enhances the disparities between the richest and the poorest and reduces employment of unskilled labour. Due to these trade-offs, the poverty reduction resulting from agricultural TFP growth in Ukraine is marginal: within two years a 1% increase in agricultural TFP decreases the incidence of rural poverty by only 0.06%.

These findings could justify government action to reinforce the poverty alleviation impacts of TFP growth in Ukrainian agriculture. First, the government

<sup>7</sup> We ignore the effects that are insignificantly different from zero.

<sup>8</sup> In Latin American countries, for example, the incidence of rural poverty declined with growth by 0.9% per year (DE JANVRY and SADOULET 1995).

could undertake measures to make TFP growth either inequality-reducing or distribution neutral. This could be achieved by redistributing wealth from the rich to the poor through, for example, progressive taxation, and by facilitating access by weak and small farms to financial resources. Second, since a large proportion of the rural poor is increasingly dependent on off-farm employment for wages, the government should launch rural public works programs that would absorb unskilled labour laid-off as a result of agricultural TFP growth. Employment programs would create both transfer and stabilization benefits for the poor. The transfer benefit consists in the poor receiving a net income from employment, while the stabilization benefit reduces the risk of consumption falling below the poverty threshold.

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# **COOPERATION AND SOCIAL CAPITAL**

## INSTITUTIONAL FACTORS INFLUENCING AGRICULTURAL SALES OF THE INDIVIDUAL FARMERS IN ROMANIA

BORBALA BALINT\*

### ABSTRACT

The paper analyses the impact of institutional factors on the agricultural sales of the individual farmers in Romania. The analysis relies on the Agricultural Household Survey conducted in 15 villages in 2003 in Romania and on interviews with the agricultural engineers at the village level. The study uses the social analysis framework of WILLIAMSON to structure and analyse the impact of institutional factors on sales. Furthermore a logit regression is employed in order to empirically verify the relation between institutional and other factors and sales. The study finds that high transaction costs on the input and output markets, reinforced by the small size of the individual farms, by their lack of endowment with factors of production and by their rejection of cooperation hinder sales. The transaction costs involved in the establishment and enforcement of property rights negatively impact the decision of sales as well. The results suggest that until these factors are not addressed the Romanian agriculture will continue to serve as a social buffer and not as a commercial sector.

**Keywords:** subsistence farming, sales, institutional factors, Romania.

### 1 INTRODUCTION

Romania is one of the Central and Eastern European countries where the transition process from communism to a market economy has taken place, bringing about several changes in the economy in general and in agriculture in particular. The structural reforms in agriculture concentrated on the privatization of the land and downsizing of large agricultural production units having as a result the emergence of numerous small farms. The new farmers, so called individual farmers, currently possess the largest part of agricultural land as compared to other production entities. However they are constrained in their development by the lack of necessary assets and undeveloped factor and output markets. As a result of the constraints the farmers have increased self-consumption at the ex-

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pense of marketed output sometimes to the extent that they do not sell output at all. The paper addresses the question how the institutional factors resulting from the structural change in agriculture enforce respectively offset the constraints the individual farmers face and contribute to the selling of agricultural products. The understanding of the institutional factors influencing the sales suggests what constraints should be addressed to transform the Romanian agriculture from its role as social buffer into a commercial agriculture.

The methodology consists of qualitative and quantitative analysis. First the institutional factors, which are assumed to influence sales, are structured on the four levels of social analysis (WILLIAMSON 2000). Furthermore, the transaction costs on factor and output markets, cooperation among producers and transaction costs involved in the establishment and protection of property rights are analysed in detail. A logit model is employed to analyze the impact of the variables approximating the institutional factors and of other variables like the endowment of the household with factors of production on the decision of sales. For the analysis, the study relies on an agricultural household survey<sup>1</sup> (AHS) from 2003 and on the interviews conducted with the agricultural engineers<sup>2</sup>.

## 2 VARIATION IN THE CHARACTERISTICS OF THE SURVEYED REGIONS AND IN SALES

The individual farms emerging in Romania in the transition played mainly a social role, providing basic subsistence to rural and in part to the urban population. Indeed, it is estimated that individual farms contributed 85% to total agricultural production while only 20% of the families sold some of their output. According to estimates around half of the total production of the individual farms has been marketed by the sellers (OECD 2000). Other surveys from other years have different figures for sales, however they all suggest a strong subsistence character. For example according to a survey conducted in 1999, the share of agricultural households that have sold some products on the market was 36% for Romania (MATHIJS and NOEV 2002). The AHS 2003 reflects that the percentage of sellers from the surveyed farmers was on average 57%, higher than the 20% respectively 36% reported above<sup>3</sup>.

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<sup>1</sup> The AHS 2003 was conducted in 304 households in 15 villages all over Romania. The sites were chosen with the help of multistage stratified representative random sampling. The questions have referred to year 2002 and concerned among others variable and fixed transaction costs related to the purchase/sale of inputs/outputs.

<sup>2</sup> The interviews with the agricultural engineers at the village level focused on the overall characteristics related to the village while some questions referred to the institutional factors influential on the decision of sales of the agricultural producers.

<sup>3</sup> The difference in the percentage of sellers may be due to the different years the data originate from, as well the different measurement of sales. For example in the AHS 2003 barter

**Table 1: Characteristics of the study sites**

Regions	Study sites	Landscape	Best road	Distance to the county main city (km)
Transylvania	<i>Harghita</i>	Mountain	Communal	41
Moldova	<i>Iasi</i>	Hill	European	15
Moldova	<i>Vaslui</i>	Hill	Communal	50
Moldova	<i>Vrancea</i>	Hill	Communal	15
SR	<i>Braila</i>	Plain	County	7
SR	<i>Constanta</i>	Plain	Communal	60
SR	<i>Ialomita</i>	Plain	National	25
SR	<i>Oltenia</i>	Plain	Communal	25
SR	<i>Valcea</i>	Hill	Communal	85
SR	<i>Mehedinti</i>	Mountain	National	33
Transylvania	<i>Arad</i>	Plain	National	50
Transylvania	<i>Bihor</i>	Hill	Communal	49
Transylvania	<i>Cluj</i>	Hill	County	25
Transylvania	<i>Alba</i>	Mountain	Communal	33
Transylvania	<i>Mures</i>	Hill	International	13

Source: AHS 2003.

In the AHS 2003 there was a significant variation in sales across the regions. The variation in sales together with the diversity of the study sites resulting from the sampling strategy is a starting point for understanding the determining factors of sales in the regional context. The survey was conducted in seven regions, defined by respecting the borders of the three main historical regions of Romania (Transylvania, Moldova, South Romania), by taking into consideration landscape as well proximity to important markets like the capital city or bordering countries. The regions were the following: Transylvania, subdivided into Transylvania inner and Transylvania outer regions, Moldova, subdivided into Sub-Carpathian Moldova and other Moldova and South Romania (SR), subdivided into Sub-Carpathian SR, SR far from Bucharest and SR close to Bucharest. The regions were further divided in case there was a high variation within the region with respect to landscape and infrastructure.

was included in the category of sales, and 17 crops as well as 16 animals and animal product types were considered, while there is no information on the benchmark used for defining a farmer as a seller in the other surveys.

Based on the size of the agricultural territory the number of surveyed localities in each region was defined, further separating the type of localities into communes<sup>4</sup> and villages. In concordance with the diversity of locations several parameters vary across the regions, like for example landscape, best road leading to the village and distance to the main city of the given county<sup>5</sup> (Table 1).

**Table 2: Variation in the number of sellers in the villages**

Counties	Observations (no)	Sellers (%)	Sellers' sales from total production (%)
Harghita	20	55	20
Iasi	18	50	18
Vaslui	17	53	12
Vrancea	20	60	50
Braila	20	65	31
Constanta	20	55	13
Ialomita	17	24	26
Oltenia	20	35	19
Valcea	21	52	19
Mehedinti	20	40	23
Arad	20	90	31
Bihor	20	55	25
Cluj	20	55	16
Alba	22	64	16
Mures	21	95	23
<b>Total</b>	<b>296<sup>6</sup></b>		

Source: Own calculations from AHS 2003.

Parallel with the diversity of the regions there is a difference in the percentage of sellers from the interviewed households as well as degree of commercial orientation, measured by the value of sold output over total output across the villages (Table 2). This fact emphasizes the importance of location, with regional characteristics like the specificity of factor and output markets and different institutional arrangements for decreasing transaction costs and encouraging sales.

<sup>4</sup> Communes are administrative centres for the surrounding villages, and have one mayor and one agricultural engineer responsible for the localities belonging to the commune.

<sup>5</sup> Counties are administrative territorial units in Romania with a main city as headquarter.

<sup>6</sup> 8 questionnaires are left out of the analysis after cleaning.

### 3 INSTITUTIONAL FACTORS

#### 3.1 Analytical framework

The diversity of the study sites is linked to the variation in the institutional factors. The four levels of social analysis (WILLIAMSON 2000) serve as a starting point for the structuring of the institutional factors determining agricultural sales and for mapping the interaction between the factors. Figure 1 presents the four levels of analysis and the corresponding institutional factors present in the Romanian context.

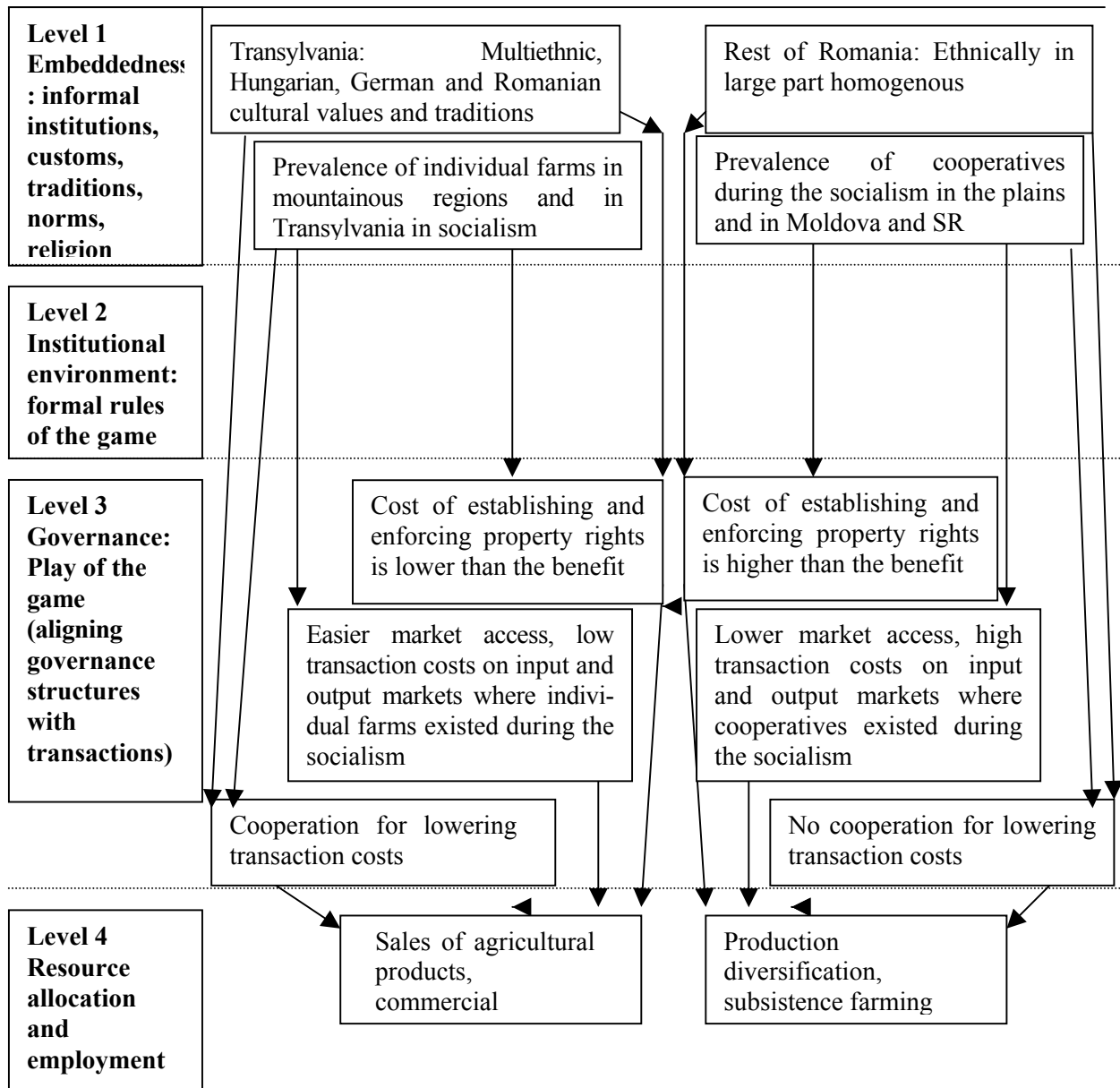
Next to each level of analysis there are two columns of boxes; in the right one the institutional factors having a positive impact on sales and in the left one those having a negative impact are listed. For example on the first level, that of social embeddedness the cultural diversity, the impact of the multiethnic region of Transylvania is listed as beneficial for development of cooperation among agricultural producers as well as for low property right establishment and enforcement costs. Cooperation and low property right enforcement costs in turn promote sales and commercial orientation, through lower transaction costs.

Figure 1 is highly stylized: the fact that the ethnically homogeneous parts of Romania are likely to cause higher property rights enforcement costs does not mean that there are no villages in this region where the opposite is true. The only suggestion of Figure 1 is that low property rights enforcement costs are more likely in Transylvania as compared to other parts of Romania.

There is no information listed for level 2, the level of the institutional environment –the formal rules of the game. The reason for no information is that in the formal rules there is no variation across the country, therefore they cannot account for the difference in sales across the regions.

The arrows show how different factors situated on different levels influence each other. The arrows are all going in one direction, from the higher to the lower levels. However this does not mean that there is no interaction in the other direction as well, like in the original figure of WILLIAMSON. The reason for the illustration of one-direction interactions is to simplify the scheme and because the focus is on the institutional factors which contribute to the decision of sales.

**Figure 1: Institutional factors influencing sales structured according to the framework of social analysis of WILLIAMSON**



Source: Author's presentation.

The most important level of analysis is the third level, the level of governance, since it directly influences sales and this level is also influenced by the first two levels. In what follows the factors on the third level –transaction costs and cooperation– are going to be described in detail. At the same time the interactions with the other levels will also be looked at.

### 3.2 Transaction costs

Subsistence farming partly emerged because the new agricultural producers have faced high input purchase and sales transaction costs during the transition proc-

ess. The reason for high transaction costs was related to the fact that prior to economic transition, collective and state farms occupied 90% of the agricultural territory with the input and output side of production organized by state companies (KENNETH 2003, OECD 2000). The reforms did not target the restructuring of down and upstream sectors in line with the needs of the individual farmers, therefore the input and output markets were not suitable for them (TESLIUC 2000).

The situation was better in terms of transaction costs in the regions where individual farming existed before the transition. Individual farms were present in the socialism mainly in Transylvania as well as mainly in the mountainous regions, where it was not possible to join large territories into cooperatives of agricultural production. The individual farmers have always been supplying the local vegetable markets and using the local input markets; therefore they had an easier local market access than those peasants who have become individual farmers only in the transition (KENNETH 2003, OECD 2000). The AHS 2003 illustrates what input as well as output related transaction costs are the peasants in Romania presently confronted with.

### **3.3 Endowment with factors of production and transaction costs on the input markets**

The endowment of the households with factors of production, like capital, workforce and land, have an indirect impact on the decision of sales together with the characteristics of the input markets. Indeed those with low endowment of factors of production are more vulnerable to the transaction costs on the input markets since they encounter the transaction costs if they want to increase their production and be able to sell. In the conditions of badly functioning input markets mainly those endowed with factors of production will manage to produce the necessary quantity of output for sales. If they possess some means of transportation or have other type of market access, they will also be more likely to sell the surplus products after satisfying self-consumption.

The descriptive statistics from the AHS 2003 shows that most of the peasants have low endowment with factors of production. A first problem at the household level is the aging of the rural population, with an average age of 60 years for the head of the household and 54 years for the adult household members<sup>7</sup>, which implies a low endowment with labor. Secondly, the agricultural production process shows a low degree of mechanization due to a severe lack of and access to machinery. For example, only 13% of the surveyed agricultural households own a tractor. The households also lack financial capital: 74% of the households had less than 800 Euro per capita yearly income in 2002.

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<sup>7</sup> Adult household member is defined as older than 14 years.



Due to the inappropriate land restitution, the land plots are small and dispersed, with an average of 5 plots per household and an average distance of 2 kilometres between plots. The average size of total cultivated land from that owned by the household is 2.8 hectares (AHS 2003). The dispersed plots imply increased costs of production as well as sales, and the small land size has as a consequence loss of economies of scale in input purchase, output supply and production itself.

Despite the low endowment with factors of production the degree of reliance on input markets is rather low. Only 1% of the households hired permanent agricultural workers, 38% hired seasonal workers, 10% purchased land, 42-51% purchased pesticides, fertilizers and/or seeds, 77% made payments for agricultural services, 5% applied for credit and 1% insured for their agricultural production (AHS 2003).

The low level of purchase of inputs is probably mainly due to the lack of financial resources of the households, however input related transaction costs may be also influential. Examples of input related transaction costs are the need to transport the seasonal workers to the land of the employer in 5% of the cases. In case of transportation the average transportation costs were equal to one day's wage. Finalization of land purchase took on average 53 hours, with the first most important difficulty of no money and the second difficulty the high notary fees. 66% of those purchasing fertilizers had to travel to get them, the travel taking on average 3 hours. There is a transaction cost implied by the monitoring of the input quality. More than 50% of those expressing an opinion complained about bad input quality like seeds, fertilizers, machinery pieces and agricultural services (AHS 2003).

### **3.4 Transaction costs on the output markets**

Besides the transaction costs encountered on the input markets the transaction costs involved in accessing the output markets also negatively influence sales. However, the observation of the transaction cost of selling cannot provide information on the decision of sales, since the household has to first decide to sell in order to have transaction costs related to it. This is in line with the argument that when transaction costs are so high as to prohibit sales to occur, they may be different from those occurring when the transaction takes indeed place; therefore they are unobservable (STAAL et al. 1997).

The transaction costs observed for those selling agricultural products can serve as an orientation to illustrate the transaction costs implied by the output markets. Table 3 illustrates the transaction costs of accessing the market, underlining the importance of the location and of the distance to the sales point. Different products, depending on where the output market or the processor company for the particular good is located, have different transaction costs. For example, the farmers had to transport wheat on average for 6 kms and on average they trav-

elled 24 kms in a year to sell their entire wheat production. The unit cost of transportation had the highest percentage from the price in the case of sunflower –25 %–, because sunflower is mostly sold to processing companies, which are usually further away than the market for other agricultural crops. The total average distance of annual transportation of sunflowers per individual farmer was 66 kms.

**Table 3: Sales and transaction costs of selected agricultural products**

Summary statistics/ Product	Wheat	Maize	Potato	Sun- flower	Pig	Milk
Production cases out of 296 (no)	131	274	87	55	262	167
Sales cases (no)	18	21	10	25	71	57
Average quantity of product sold per household in a year (kilogram or no or liter)	22356	6760	905	7878	6	2361
Average distance of transportation (km)	6	6	4	15	8	4
Maximum distance of transportation (km)	30	25	40	150	70	28
Average total distance of transportation (km)	24	22	8	66	14	474
Average percentage, the unit cost of transportation in the price of product represents	5	3	0	25	3	7

Source: Author's calculations from AHS (2003).

Anecdotic evidence illustrates other problems faced by the agricultural producers when willing to sell. A factor hindering sales is the disappearance of some markets in certain regions. For example very few households from those surveyed have been producing and selling sugar beets—sugar beet sales occurring mainly in the village from Mures county. In two villages (in Harghita and Constanta) the agricultural engineers named the closure of sugar processing factories as the main reason for people not producing and selling sugar beets anymore. Of course people could transport the sugar beets to the further away sugar processing factories, but this would imply very high transportation costs. The regional disparity in sugar-beet production is confirmed by national data for 2000 as well. Mures had one of the highest sugar beet productions as compared to other counties where the survey was conducted, while the sugar beet production was very low in the counties Harghita and Constanta (NCS 2002).

The lack of purchasing power of the consumers hinders sales of good quality products. In the village in county Vrancea, one of the most famous wine producing areas of the country, the agricultural producers find it very difficult to find customers for good quality wine. One of the interviewed farmer said that his clientele is a small group of university professors from the capital city acquired through acquaintances throughout the years (own interviews).

### **3.5 Cooperation among producers**

Given the transaction costs encountered when using the agricultural input and output markets a solution for the individual farmers would be to cooperate with respect to the various agricultural activities. Indeed the advantages of organizing the farmers into groups are widely acknowledged in the literature. The advantages comprise the reduction of transaction costs in accessing input and output markets and the strengthening of the negotiation power of the farmers (STAAL et al. 1997, KHERALLAH and KIRSTEN 2001).

Among the various forms of cooperatives, service cooperatives are considered to be most beneficial for the transition countries. Service cooperatives are defined as providing services in the areas of input supply, marketing, credit, or technology. They are particularly useful in the transition economies, characterized by incomplete markets, often lack of technical knowledge and other problems (DEININGER 1995).

Despite the advantages of cooperation, the qualitative information obtained in the villages during the AHS 2003 underlines that currently peasants in Romania reject cooperation. Indeed this result is reconfirmed by several surveys and case studies from all the Eastern European countries (DOBAY 1996).

The rejection of cooperation is related to the social embeddedness factors, mentioned in the Figure 1. Firstly, there is a significant difference between Transylvania and the rest of Romania as concerns „social embeddedness”. Transylvania was a former Hungarian territory inhabited by ethnic Hungarians from the 10th century on and by ethnic Germans beginning with the 12th century. The unification of Transylvania with the Kingdom of Romania in 1918 turned the Hungarians and Germans into „minorities”. These minorities had to start their struggle, especially under the „romanization” policy of the socialist regime, for the maintenance of the ethnic identity (FEDERAL RESEARCH DIVISION 1989).

The multiethnic character and history of Transylvania has different implications for cooperation than the other parts of Romania. Firstly, the history of the Transylvanian Germans and Hungarians was marked by the spirit of ethnic togetherness. This spirit of togetherness, therefore cooperation was reinforced by the presence of threats on ethnic identity, especially during the socialist regime.

Moreover formal cooperation for agricultural production was established early in the German and Hungarian context, at the same time when the first forms of cooperation in agriculture appeared in Western Europe. On the contrary, in the Romanian context the first ideas of cooperatives have penetrated together with the socialist ideology. The practical knowledge of the organization of cooperatives -represented by names like ROCHDALE, SCHULZE-DELITZSCH or RAIFFEISEN has occurred relatively late (DOBAY 1996).

**Table 4: Individual farms in the county and the existence of professional associations in the village**

Regions	Land- scape	Study sites	Land used in individual farms before 1985 in the county <sup>1</sup> (%)	Land used in individual farms as of 1993 in the coun- ty <sup>1</sup> (%)	Peasants member of pro- fessional asso- ciations in the village
Transylvania	Mountain	<i>Harghita</i>	12.17	94.30	Yes
Moldova	Hill	<i>Iasi</i>	0.33	28.40	No
Moldova	Hill	<i>Vaslui</i>	0.25	17.40	No
Moldova	Hill	<i>Vrancea</i>	15.24	74.60	No
SR	Plain	<i>Braila</i>	0.11	2.20	No
SR	Plain	<i>Constanta</i>	0.68	30.40	No
SR	Plain	<i>Ialomita</i>	0.11	1.00	No
SR	Plain	<i>Oltenia</i>	0.57	29.70	No
SR	Hill	<i>Valcea</i>	25.23	97.00	No
SR	Mountain	<i>Mehedinti</i>	12.73	88.00	No
Transylvania	Plain	<i>Arad</i>	5.51	58.60	Yes
Transylvania	Hill	<i>Bihor</i>	11.27	81.30	No
Transylvania	Hill	<i>Cluj</i>	7.53	92.90	No
Transylvania	Hill	<i>Alba</i>	32.35	85.30	Yes
Transylvania	Hill	<i>Mures</i>	5.78	79.50	Yes

Sources: AHS (2003), <sup>1</sup>RIZOV et al. (2001).

Given all the above factors at play in the Transylvanian context, it is not surprising that large share of villagers were members of professional associations in Transylvania region in the first place. Table 4 presents that from the 15 visited localities there were several villagers member of professional associations in 4 localities, all of them in Transylvania. Moreover, there were two villages in the sample with predominant Hungarian ethnic composition and in both of these villages professional associations existed. The inhabitants of the Hungarian villages reconfirmed that the tradition of professional associations has existed in their village from the time before the socialism.

Besides the difference in the impact of the historical regions, the rejection of cooperation is also related to the regional difference in the impact of the socialist cooperatives, as well as of the Agricultural Societies (AS) established in their place after the fall of socialism. As mentioned already at the transaction costs section, there was a significant variation in the existence of agricultural cooperatives and whether individual farms were formed in their place across the regions. Table 4 illustrates the regional variation: the lowest share of land

was farmed in individual farms in the hills of Moldova and the plains of South Romania in 1985.

The agricultural cooperatives as well as later the AS offered negative experiences to the peasants as concerns cooperation. Agricultural cooperatives of production were created beginning with 1949, when the forced collectivization of the agricultural land has taken place. In these forms of production the peasants have lost their property rights and got only remuneration after the work done (DOBAY 1996). However, the agricultural cooperatives have failed to perform, because of general organizational problems<sup>8</sup>.

In the transition many of the cooperatives were directly transformed into AS, encouraged by the government (DOBAY 1996). The information about the percentage of land farmed in individual farms in 1985 and 1993 in the counties, presented in Table 4, underline that AS were usually formed where the land was predominantly farmed in cooperatives before. Many members of the previous socialist cooperatives left their land in the newly established AS, often without having it physically demarcated. At the beginning of the privatisation joining of AS seemed to be a good solution due to the endowment of the AS with factors of production and the advantages of economies of scale (SABATES-WHEELER 2001).

However with time it has become evident that people did not receive appropriate returns after the land contributed. Many individual farmers still have their land in AS despite the lack of appropriate returns from them. Among the reasons are the too low endowment with factors of production to farm individually or that the farmers have become „land locked”. Land-lockedness results from the land not being physically demarcated, thus the managers of the AS can demarcate any territory from the common land to the farmers who would like to exit. The managers threaten the farmers that they would allocate them very bad territories if they want to take their land out from the AS (SABATES-WHEELER 2001). The bad experiences of cooperation in the agricultural cooperatives of production and AS determine especially those farmers who have been members of these forms of organizations to avoid formal cooperation.

An example where cooperation could encourage sales originates from a village in Vaslui, where previously cooperatives and currently AS operate. In the village

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<sup>8</sup> The failure of the cooperatives is not unique for Romania, the history of traditional cooperatives in developing countries is rather similar. Cooperatives in most cases have failed to serve the needs of their members, one of the drawbacks being that the state had the main financial stake in the cooperative. In addition, the lack of clearly defined property right assignments resulted in opportunistic behavior, moreover cooperatives were characterised by bureaucratic inefficiencies and under-investment in the activities (KHERALLAH and KIRSTEN 2001).

people fail to cooperate with respect to sales of such products like milk. Milk can be sold only 40 kms away, and since the peasants have only few liters of milk each of them, for none of them is worth to transport the milk to the city. If there could be organized a common transportation ensuring also the necessary conditions for transport the peasants could benefit from the income from milk. Currently they are feeding their pigs with the milk, more rentable than selling it.

### 3.6 Transaction costs of establishing and maintaining property rights

An important aspect influencing commercial orientation is the transaction costs involved in establishing and enforcing property rights. The costs can be direct costs, as well as inefficiencies which result in production or in misallocation of resources due to the need to protect property rights (ALLEN 2000).

The transaction costs involved in the establishment of property rights of agricultural land exercise a significant influence on agricultural sales. In the Romanian agriculture, since the ownership of land is fragmented, the producers who want to increase their land size and produce to the market face high transaction costs when they want to purchase new land territories. Indeed the buyers have to coordinate with many owners to acquire land, and usually not all the owners of adjacent land plots are willing to sell their land, therefore there are also search costs involved in identifying a larger land territory which can be entirely purchased.

The enforcement of property rights implies a significant transaction cost as well. In the village from Ialomita for example, the interviewed farmers as well as the veterinary doctor reported that the lack of safety of property rights determines the peasants not to have surplus production and sell. Indeed, in this village there were the fewest sellers from the interviewed households as compared to other surveyed localities. The veterinary doctor said that products are stolen already from the field, therefore people have to guard their agricultural produce all the time. He named the existence of a large share of gipsy minority in the village as the main reason for the lack of safety of property rights<sup>9</sup>. The Ialomita village case is an example where the transaction cost of enforcement of rights are higher than the benefits associated with them. There is also an indirect transaction cost, resulting from the not optimal level of production due to the threat of theft.

Since the state does not have the capacity to fully enforce the protection of property rights, individuals need to watch after their products themselves. The feasibility and the cost of monitoring of agricultural products depends on how far is the land plot from the house of the farmer, how much workforce the household possesses which can be engaged in monitoring activities but especially on how safe the region is.

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<sup>9</sup> The author does not share the view of the veterinary doctor about the gipsy minority.

The safety of the region is influenced by the development of the region, whether there is ethnic minority and the past of cooperatives. Transylvania is in general more developed, more occidental than the other parts of Romania due to historical reasons, but also because of its location in the North-Western part of the country. Moreover, as mentioned already at the issue of cooperation, the regions inhabited by ethnic minorities have a stronger community spirit. Therefore the likelihood of theft is for example lower in Transylvania than in the other parts of Romania.

The past of cooperatives can also influence the safety of property rights, since in cooperatives everything was considered common property and adequately used by the people. Indeed, the agricultural engineers reported that where formerly agricultural cooperatives of production existed, all the equipment was stolen during the transition. This information is underlined also by the literature: when AS were formed from the old cooperatives for agricultural production, they lost a significant part of their assets because for example “animals were sold to pay off debt, stables destroyed for their bricks and in some instances animals and machines were stolen” (EUROCONSULT 1995).

#### **4 FACTORS INFLUENCING THE DECISION OF SALES: AN ECONOMETRIC ANALYSIS**

In order to illustrate how the institutional factors described in the analysis before influence the decision of sales, a logit regression model is employed. The dependent variable is the decision of sales of agricultural products, taking a value of 1 if the household has sold agricultural products and 0 otherwise. Independent variables are the endowment of the household with factors of production –age, gender, education, participation in a specific agricultural training of the household head, amount of family and hired labor, yearly non-agricultural per capita income, size of cultivated land, livestock, machinery, ownership of a car. Other independent variables are the approximation of informal cooperation, regional characteristics like distance to the next city, road leading to the village and a dummy for Transylvania.

Education is an ordered variable with values from 1 to 5, 1 being the lowest and 5 the highest level of education, while the categories are less than 4 years of education, primary school, 8 classes, 12 classes and university or high school. Participation in a specific agricultural training is binomial, taking the value of 1 if the household head has participated in any kind of agricultural courses or studied in an agricultural domain.

In the model non-agricultural income and not total income is used, in order to avoid the two way causality between the decision of sales and total income. Indeed, higher total income can determine the decision of sales, but the decision of

sales is also important in determining the revenue generated from sales, therefore total income.

Livestock is calculated adding the number of cattle, the number of pigs multiplied by 0.5 and the number of sheep multiplied by 0.3. Machinery is calculated adding 1 for the ownership of a truck, 1 for the ownership of a tractor, 0.2 for the ownership of a plough for the tractor, 2 for the possession of a combine, 0.5 for the ownership of a carriage and 1 for the ownership of a harvesting machine. Therefore machinery can take the minimum value of 0 and maximum value of 5.7. The calculations for the livestock and machinery are based on the methodology of another study on Romania (RIZOV et al 2001). The variable ownership of a car takes value of 1 if the household owned a car and 0 otherwise.

The approximation for informal cooperation is a variable with the value of 1 if the household was cooperating with the owners of the neighbouring plot with respect to the planting of compatible of crops and 0 if not. This variable is a very rough approximation of informal cooperation, however it is the only available.

The indicator road leading to the village takes the value of 0 for international, 1 for European, 2 for national, 3 for county and 4 for communal road. The variable Transylvania takes the value of 1 if the village is located in Transylvania and 0 otherwise. The reason for not including the existence of the dummy for the localities where there was a large number of households member of professional association is that it overlaps with the variable for Transylvania. The model was tested also with the dummy for these localities and it gave positive significant result, just like the dummy for Transylvania.

Table 5 presents the results of the estimation. The household head's characteristics are not significant, however the gender of the household head is close to significance and it suggests that male household heads are more likely to sell. The hired in labour has a positive impact on sales, underlining the importance of the use of labour markets for agricultural sales.



**Table 5: Logit model estimation results**

Dependent variable: sales	Coefficient	Standard Error
Intercept	-1.17	1.61
Age of the household head (years)	0.00	0.01
Gender of the household head (1-male, 0-female)	0.58	0.41
Education of the household head (1-lowest, 5-highest)	0.02	0.20
Agricultural education (1-yes, 0-no)	0.43	0.52
Family labor (mandays/month)	0.00	0.01
Hired labor (mandays/month)	0.13*	0.07
Yearly per capita non-agricultural income (euro)	0.00*	0.00
Size of cultivated land (ha)	0.23**	0.10
Livestock	0.32***	0.08
Machinery	0.21	0.33
Ownership of car (1-yes, 0-no)	-0.11	0.38
Informal cooperation (1-yes, 0-no)	0.38	0.34
Distance to the closest city (km)	-0.02	0.01
Best road leading to the village (0-international, 4-communal)	-0.20	0.13
Transylvania (1-yes, 0-no)	0.63**	0.31
Log-likelihood	-121,99	
No observations	288	
Prob>chi2	0.000	
Pseudo R2	0.31	

Notes: \*\*\* Significance at the 1% level; \*\* Significance at the 5% level; \* Significance at the 10% level.

Source: Author's calculations.

The cultivated land size is highly significant and positively influences sales. Indeed, the larger the land size, the more it allows the household to have a surplus production above the subsistence needs and be able to sell. Moreover, as mentioned already in the qualitative analysis, large land size can decrease input purchase, production and sales related transaction costs, due to the advantage of economies of sales and since the household does not need to use the land markets to increase its land size. The yearly per capita income of the household is also highly significant but its coefficient is 0, therefore it does not have any economic meaning.

The amount of livestock in the possession of the household has a positive impact on sales. Livestock is a modality of storage of wealth and the ownership of live-

stock permits the household to have animal products for sales. Ownership of machinery and of car is not significant, indeed these variables are more likely to influence the amount of sales but not so much the decision of sales.

Informal cooperation has the expected sign but it is not significant. Among the regional characteristics the distance to the nearest city, as well as the quality of the road leading to the village are close to significance and they have the right sign. The larger the distance to the nearer city the less sales can occur and the worse the road type the lower the amount of sales, both variables meaning lower market access. The dummy for Transylvania is significant and positively influences sales. This result was expected, since as it was presented in Figure 1 the households from the localities in Transylvania are likely to have a more cooperative attitude and face lower transaction costs than in the other parts of Romania.

## 5 CONCLUSION

The paper aimed at determining what institutional factors are important for the decision of sales of the individual farmers. For this purpose the social analysis framework of WILLIAMSON was employed, the transaction costs on the input markets together with the household's endowment with factors of production, the transaction costs on the output markets, cooperation and the transaction costs of establishing and enforcing property rights were analyzed with the help of qualitative analysis, descriptive statistics and finally with a logit regression.

The analysis shows that the high transaction costs emerging as a result of the inadequate restructuring of the input and output markets, reinforced by the small size of the individual farms, and their lack of endowment with factors of production hinder commercial orientation. Most of the households reject cooperation, a modality of reducing transaction costs, due to no tradition/spirit of cooperation in certain regions as well as due to the negative experiences of formal cooperation from the time of the socialism and from the time of transition. Moreover the transaction costs involved in the establishment and enforcement of property rights negatively impact on the decision of sales.

By showing how the different institutional factors influence sales of the individual farmers the paper contributes to the understanding how the structural reforms in agriculture led to the amplification of the phenomena of subsistence farming and the low degree of commercialization of agriculture. Moreover it suggests that only by addressing the institutional factors leading to the lack of sales of agricultural products, the number of sellers can be increased and the performance of Romanian agriculture improved. The challenge is to answer the question how institutional factors like high transaction costs or the rejection of cooperation could be influenced. This is an important topic for further research.

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## SOCIAL CAPITAL IN RURAL AREAS OF LATVIA WITHIN THE CONTEXT OF PUBLIC ORGANISATIONS

MODRĪTE PELŠE\*

### ABSTRACT

This study targets social capital development possibilities in the rural territories of Latvia, and focuses on its inhabitants' public activities. Private property was restored more than 10 years ago, and since then the number of public organisations has sharply increased. These organisations offer the chance to solve several problems. The social capital potential of the rural population is substantially affected by historical developments in the country. The owners of farms in the Zemgale region were questioned within the framework of this study. According to the survey results, only one third of them are involved in public organisations. Generally, these organisations are connected with farmers' professional activities; there are relationships between participation in such organisations and respondents' opinion on the efficiency of their economic activity. In rural areas, elements of different means of increasing social capital are left unused.

**Keywords:** social capital, public organisation, rural areas of Latvia.

### 1 INTRODUCTION

New economic development factors and their impact are current topics of study. In this spirit, interrelationships between social capital and various voluntary public organisations in Latvian rural regions are sought in this study. The aim of the study is to determine the role of public organisations in accumulating social capital. The concept of social capital, by PUTNAM (2000), and his views on social capital, which refers to ties among individuals in social networks and reciprocity and trust norms in these networks, were used in the study. In order to find out whether these and other views are useful under Latvian conditions, a sociological survey and a correlation and contingency analysis were employed.

### 2 SOCIAL CAPITAL IN RELATION TO PUBLIC ORGANISATIONS

Although PUTNAM's concept of social capital is differently assessed, his idea of "social contacts" being affected by individual productivity or population groups, communities, and organisations is accepted. Social capital greatly depends upon

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what is considered “civil moral”, which is tightly connected with “active civic duties”, and with the political dimension of society members’ identity (PUTNAM 2000). Putnam stresses the role of groups, societies, and associations in the process of building trust. At the same time, he points not only to individuals playing their role, but also to society and communities as actors participating in this process.

PUTNAM’s term of social capital states that “social” is related to both politics and economic development and has a practical value. Therefore, this term is topical not only to sociologists, but economists, too. The increasing number of studies and publications on social capital prove it.

The French sociologist P. BOURDIEU defines social capital as active and passive resources that have durable connections with more or less institutionalised and mutually-recognised societal networks (BOURDIEU 1986). He considers social capital an instrument and stresses gains obtained by individuals using their abilities to work in groups as forming sociability in order to access these resources. However, sociologist A. PORTIES defines social capital as individuals’ abilities to manage scarce resources by virtue of their participation in social networks or in any social structure. Further, these abilities are not expressed by individuals themselves, but by their relations with others. Social capital is the capital of duties (PORTIES 1998). When discussing social capital issues, these authors also transform social capital into human relations, which arise from different situations with a more or less concrete purpose. Organised relations emerge in voluntary public organisations, societies, and associations and promote forming the quality and quantity of social interactions.

The strength of civil associations as an indicator is used in several social capital studies. KNACK and KEEFER used it to test two assumptions stating that social capital impacts economic growth, i.e., “OLSON’s” effect (associations hinder growth) and “PUTNAM’s” effect (associations promote development when the social trust radius increases). They researched how trust, civil activities, and associative qualities impact the economy. One of the conclusions of the study was that trust and civil co-operation is stronger in countries having strong formal organisations that effectively defend property rights, and in countries with a non-polarised society. According to them, there is no correlation between associative actions and economic activity, which is in contradiction to PUTNAM’s research results on Italy’s regions in 1993 (KNACK and KEEFER 1997). Ronald INGLEHART (1981-1995), studying the data of 43 countries, also could not discover any correlation between economic growth and a population’s involvement in groups. INGLEHART states that a negative correlation exists between the GDP per capita and a population’s participation in organisations in high national income countries, but in countries with the GDP per capita under \$8,300 the correlation is positive (SKIDMORE 2001). INGLEHART believes this proves that volun-

tary organisations play an important role in early economic development stages; R. PUTNAM's theory states the same. Today's statistical data of developed countries proves it. For instance, civil activities have been decreasing over the last 30 years in the USA.

### **3 RESEARCH SUBJECT AND ITS CHARACTERISTICS**

The subject of this study regarding social capital is one of the new EU member countries, Latvia, and its rural areas. Latvia is divided into 5 regions: Vidzeme, Kurzeme, Latgale, Zemgale, and Rīga. The rural population's main occupations in the respective regions are as follows:

Vidzeme – livestock farming, forestry industries;

Kurzeme – agriculture, forestry industries, fishing industry;

Latgale – forestry industries, livestock farming;

Zemgale – intensive agricultural production;

Rīga – vegetable farming.

The study focuses on the Zemgale region, which is the main agricultural region in Latvia. On the one hand, Latvia is a fast growing economy, on the other hand, its standard of living, compared to the developed EU countries, is low. If the findings of INGLEHART are taken into account, public organisations must play an important role in the economy of Latvia. The Latvian GDP per capita has grown over the years. However, it is still lower than the majority of EU members and other economically-developed countries. Table 1 shows that the GDP per capita reached €8,500 in 2002.

**Table 1: GDP per capita according to purchasing power parity in 2002**

<b>Country</b>	<b>Euros</b>
USA	33,010
Ireland	29,850
Denmark	27,480
Austria	26,450
Belgium	25,950
France	24,660
Germany	24,630
Japan	24,440
Greece	15,840
Czech Republic	14,370
Estonia	10,020
Poland	9,460
Lithuania	9,391
Latvia	8,500
Bulgaria	5,940
Romania	5,890
Turkey	5,500

Note: Purchasing power characterises the GDP denominated in a single currency for the group of countries included in this estimate, excluding price differences.

Source: LRCSP (2003) Latvijas statistikas gadagrāmata.

GDP per capita in rural areas is even lower; the value added gained in rural areas accounts for 4.7% of the total value added. 32.2% of the total population lives in rural areas of Latvia and 13% of the total employed work in these areas. Rural residents are mostly employed in agriculture, forestry, and the services sector, or they come to towns in search of jobs. Other kinds of entrepreneurship have developed in rural areas as well, but too slowly. As the employed are mostly rural entrepreneurs or farmers, a survey targeting farmers was carried out in Zemgale region. The total territory of Zemgale region is 10,741.6 km<sup>2</sup> (16.6% of the country's total territory); the total population is 291,326, of which 52%, or 152,564, are rural residents.



#### **4 ROLE OF PUBLIC ORGANISATIONS IN THE LIFE OF LATVIAN RURAL RESIDENTS**

Public organisations have been variously defined in different countries over the course of time. The structure, formation, and existence conditions of public organisations have also changed. In this study, the term “public organisation“ is a union, society, charity foundation, non-profit organisation, or other legal entity, which doesn't belong to the state sector and has no profit gaining purpose; the principle of voluntary participation dominates in such an organisation.

An upsurge or decline in public organisations is tightly connected with the overall development of the whole country. Latvia as an independent state was founded on November 18, 1918, and on May 4, 1990, regained its independence after the Soviet occupation. However, an upsurge of public organisations was observed in Latvia during the following periods:

1920-1934 (initially political parties);

1993 to present.

The dynamics of founding public organisations in Latvia after regaining independence is shown in Table 2. When analysing public organisations and their activity, one can observe that their activity has risen over the last 10 years, and new organisations are still actively being founded.

Almost 8,000 public organisations of various sorts have been set up in Latvia since regained independence. If we talk about the first upsurge of public organisations in the 1920s, there is no precisely-compiled statistical data available. It is known that in 1928 Latvia there were 60 political parties and their groups, 2,905 cultural, 342 sports, 590 assistance, 106 religious organisations, as well as 2,730 co-operatives, 721 financial co-operatives, 512 trade unions, and 129 firemen societies, etc. In those years, a society was considered a union organised in compliance with specific regulations, which had a specific purpose to be achieved through its common work (LKV 1929).

A very favourable situation for public organisations was set up for rural residents during the first period of independence. During that time, 1,192,729 inhabitants lived in rural areas and accounted for 74.7 % of the total population (1920). The rural economy was based on agriculture, although its role declined over time. In 1920s Latvia, national romanticism dominated (the same situation was observed in late 1980s and early 1990s), and farmers were considered the strength of Latvian national identity and a source of inspiration. Societies played an important role, especially in rural areas. In 1934, an authoritarian regime was established and the parliament was dismissed. As the result, the number of societies declined; they were transformed in order to control them, and the system of chambers was established. For instance, in 1935, the Chamber of Agriculture

was founded, which controlled, and often closed, agricultural co-operatives and organisations.

**Table 2: Dynamics of founding public organisations in Latvia**

<b>Year</b>	<b>Number</b>
1991	50
1992	19
1993	908
1994	544
1995	451
1996	698
1997	590
1998	647
1999	650
2000	968
2001	749
2002	757
2003	765
Quarter 1, 2004	192
<b>Total</b>	<b>7,888</b>

Source: <[www.lursoft.lv/stat/ur](http://www.lursoft.lv/stat/ur)>, (accessed 05.04.2004).

A more complicated situation existed during the Soviet occupation in Latvia after 1945. For instance, the participation in trade unions was a required duty for every employee. The government and the Communist Party tightly controlled public organisations. There was only one political party – the Communist Party – and joining it was obligatory. Only Communist Party members were allowed to take leading positions. This bygone period has left negative memories of participation in public organisations because the principle of voluntary participation was not present. A thesis that proves to be correct is that under liberal regimes, there is a greater chance for defending an individual's own, or their group's, interests compared to the majority's interests. Individuals can obtain social capital for their own desired interests and needs.

Presently in Latvia, the following 6 multi-branch self-governing organisations exist: Farmers' Parliament, Latvian Farmers Federation, Latvian Rural Support Association, Agricultural Statutory Companies Association, Latvian Agricultural Co-operatives Association, as well as about 60 different agricultural producers' associations and other public farmers' organisations. The breakdown of

public organisations by types in Latvia's regions is shown in Table 3. These organisations are mostly located in the Rīga region, where the capital city of Rīga is situated.

**Table 3: Public organisations' breakdown by Latvian regions (by their registration address)**

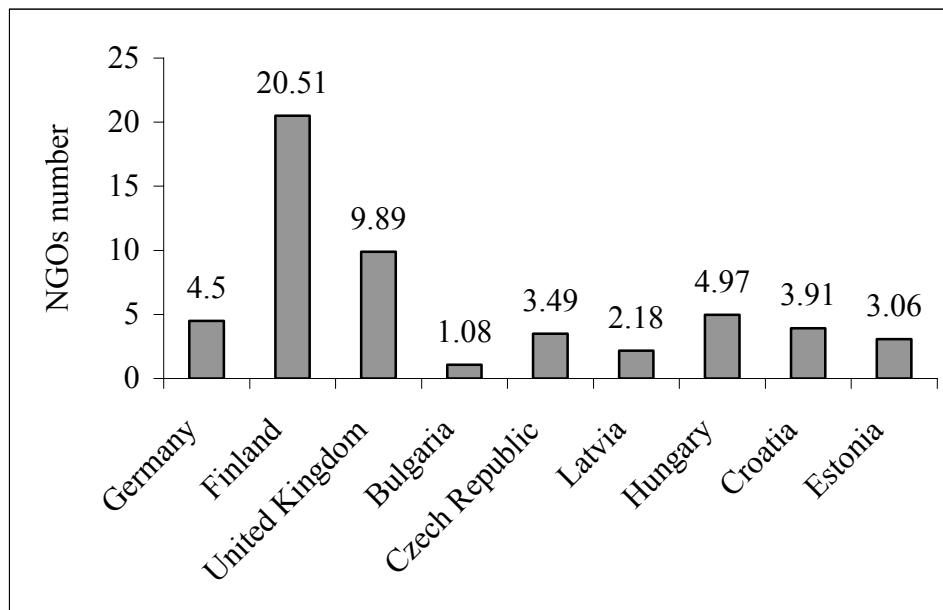
Type of public organisations	Regions					Total
	Zemgale	Vidzeme	Kurzeme	Latgale	Rīga	
Public organisations and their associations	417	457	610	458	3165	5,107
Public Sports organisations and their associations	118	143	168	110	898	1,437
Public foundations	50	72	89	56	764	1,031
Trade unions	2	3	16	7	116	144
Professional associations	1	-	2	3	107	113
Political organisations (parties)	2	1	4	5	73	85
Professional creative organisations	1	-	2	2	15	20
<b>Total</b>	<b>591</b>	<b>676</b>	<b>891</b>	<b>641</b>	<b>5138</b>	<b>7,937</b>
Number of public organisations per 1,000 inhabitants	2.02	2.69	2.82	1.71	4.68	3.4

Source: <[www.lursoft.lv/stat/ur](http://www.lursoft.lv/stat/ur)>, (accessed 05.04.2004).

According to the Register of Enterprises data, 7,937 public organisations were registered in Latvia on April 5, 2004. However, their operation is conditional because only 57% of all organisations submitted their financial reports to the State Revenue Service in 2003. This implies that a portion of registered organisations don't, in fact, function. Therefore, we can assume that only about 60% of all registered public organisations in Latvia are functioning. This situation can be corrected by the law on public organisations, which requires all public organisations to register by the end of 2004.

More than 60% of public organisations function in the capital city of Latvia and its region. The least public organisations are in operation in the Latgale region, i.e., 1.71 NGOs per 1,000 inhabitants. This indicator reaches 3.4 on average in the country. In 2001, this indicator was 2.18. Information on other European countries is presented in Figure 1.

**Figure 1: Number of non-governmental organisations (NGOs) per 1,000 inhabitants in Europe in 2001**

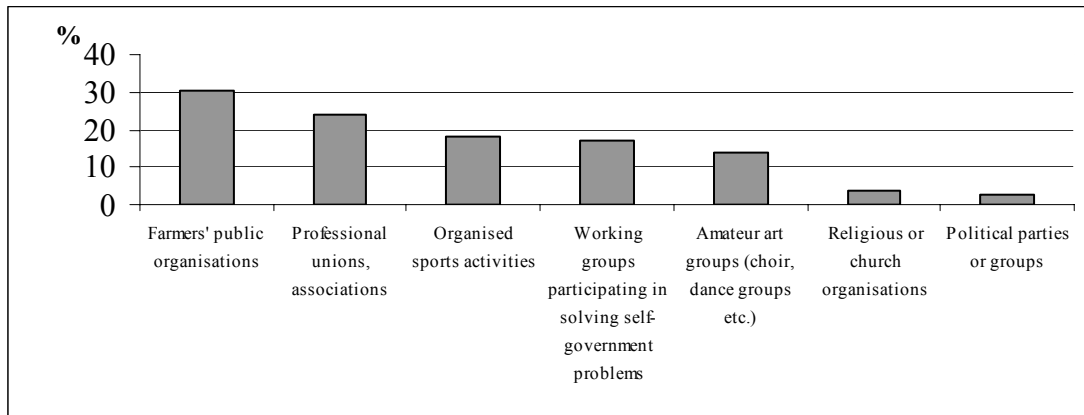


Source: LRCSP (2003) Latvijas statistikas gadagrāmata.

Among European countries, the Scandinavian countries usually lead in this field. We can see in Figure 1 that the number of NGOs per 1,000 inhabitants in Finland reached 20.51 in 2001. The number of members in these NGOs is also large. About 70-80% of the total population in the Scandinavian countries is involved in public organisations. According to Latvian statistical data, on the other hand, only one third of the population takes part in public organisations. Since no precise data are available on the number of members of public organisations, the indicator of the number of public organisations per capita was used to test the correlation between the GDP per capita and the population's organisational membership. The correlation coefficient  $r=0.9381$  was gained. This implies that there is a tight positive correlation between the GDP per capita and the number of public organisations in a country.

According to the author's field research, 33% of surveyed farmers are involved in public organisations in the Zemgale region. The population of this region mostly participates in agricultural public organisations and professional associations. The rural population is also interested in work groups and public organisations dealing with issues related to local self-governments. Urban residents are less interested in this kind of organisation. Organisations holding sports and cultural activities are important to rural residents, too.

**Figure 2. Participation of respondents in various organised public activities (as %)**

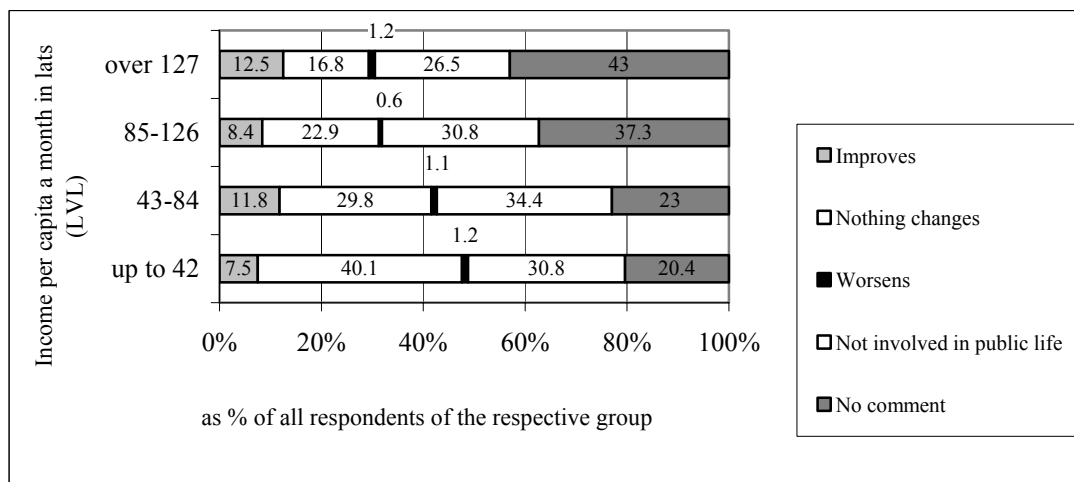


Source: Author's data.

Among the surveyed farmers, only 2 respondents admitted involvement in religious or church organisations. Moreover, rural entrepreneurs exhibit no interest in the activity of political parties.

At the same time, respondents were asked to name 3 of the most essential information sources used for their business. 41% of the respondents said that public organisations are an essential information source, which is a good indicator for advertising the third sector. When analysing relationships between involvement in public networks and other factors, a tight correlation was observed between income level and respondents' opinion on whether they improve their life through involvement in public organisations (see Figure 3). Here we can observe the following relationship – the higher the income level, the more social capital and its advantages are valued.

**Figure 3. Opinion on whether active involvement in public life improves their own and their relatives' life, by income level**



Source: Author's data.

People with higher income consider public activities to be an advantage which leads to success in their lives. This fact brings to mind an old proverb: "The more I know, the less I understand." In general in Latvia, the following factors promoting the population's initiative or active involvement, can be mentioned: gender, age, educational level, place of residence, standard of living, income level according to self-assessment, employment, and an individual's special needs.

**Table 4: Interrelationships between economic growth and public organisations**

Activity in	Economic growth indicators				
	farm size, ha	changes in farm area	SAPARD funds usage	financial situation	farm viability
political parties or groups	0.068	0.355	0.183	0.367	0.722
professional societies, unions, associations	0.000	0.001	0.083	0.680	0.39
agricultural public organisations	0.000	0.001	0.012	0.378	0.094
working groups dealing with local government issues	0.252	0.532	0.625	0.061	0.615
organised sports activities	0.198	0.200	0.061	0.230	0.045
amateur art groups	0.399	0.164	0.21	0.209	0.764

Notes: p value using  $\chi^2$  - Pearson Chi-Square method; probability ratio  $\alpha = 0.05$ .

Source: Author's data.

The relationship between the participation of rural entrepreneurs in public organisations and their business success indicators was discovered using the contingency analysis approach, the results of which are presented in Table 4. The following indicators, characterising the development level of farms, were selected:

- farm size, ha;
- changes in farm size over the last 10 years;
- SAPARD funds used for developing the farm;
- the farm's current financial situation;

- respondents' views on their farm's viability in the future.

The data compiled in Table 4 indicate that there are relationships between those respondents which participate in agricultural public organisations, professional unions, or associations and their opinion on the indicators regarding economic development of their farms. However, no relationship was revealed between the economic growth indicators and the participation of respondents in political parties, local self-governments activities, and amateur art groups. One can say that rural entrepreneurs are mainly involved (see Figure 2) in public organisations related to agriculture, and the development of their farms is mostly stimulated by these agricultural organisations. Their occasional involvement in other types of public organisations brings them mostly moral satisfaction.

What factors make the rural population reluctant to get involved in professional public organisations, which simultaneously leads to creating a narrow network of contacts? What are the main reasons for low participation of the rural population in the third sector and in increasing their social capital? The responses were as follows:

- lack of experience in activities of efficient public organisations;
- insufficient standard of living; people contribute most of their thoughts and time to satisfying their primary needs;
- population's residual mindset inherited from the Soviet occupation period, the negative previous experience of obligatory participation in public organisations;
- depopulation of rural areas, leading to changes in traditions and the population's composition; the most active individuals move from rural areas to towns;
- quite close ties among relatives, domesticity.

Social capital refers to the essential advantages any individual, family, or group gains from better mutual contacts. Networking is the forming of formal and informal networks when people approach each other on different matters. One can say that public organisations are one of the creators of organised and institutionalised relations and are an essential element in forming social capital. This element is a factor that can be affected both by the state and the society.

## **5 CONCLUSIONS**

1. Public organisations are an important indicator for the social capital of Latvian rural residents. Several relationships exist between the participation of farmers in public organisations and economic growth indicators on their farms.

2. The low GDP per capita implies that the environment for developing public organisations in Latvia's regions is favourable; the growing number of public organisations in Latvia proves it. There is a tight positive correlation between GDP per capita and the number of public organisations in a country.
3. The number of public organisations and their members is closely connected with political regimes in Latvia. A rapid increase in the number of public organisations was observed during Latvia's independence before World War II and after Latvia regained its independence.
4. Latvian farmers are not aware of social capital as an economic development factor. Their way of farming is oriented towards the activity as a process. However, owners of well-developed farms consider public activities important for their businesses; they get involved in these activities knowingly. Farmer's social capital is sufficient and keeps growing.

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## THE EFFECTS OF SOCIAL CAPITAL ON THE ORGANIZATION OF AGRICULTURAL ENTERPRISES AND RURAL COMMUNITIES IN TRANSITION: THE CASE OF UKRAINE

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### ABSTRACT

The paper develops a new perspective in social capital theory by outlining the significance of social capital for organizational development and change. Different mechanisms of economic coordination such as markets, hierarchies and teams have been shown to exhibit various and consistent social capital-dependence. Accordingly, insufficient amount of social capital is predicted to make highly social capital-dependent mechanisms infeasible. This conceptual framework has been applied to the empirical context of organizational development in Ukrainian agricultural enterprises and rural communities. Although the first test of available empirical data revealed the existence of differential social capital-dependencies of organizational forms, as well as a significant correlation between enterprise-level social capital and a number of organizational parameters, the data do not fully support the proposed theory of social capital-dependence. Further research, both conceptual and empirical, is necessary.

**Keywords:** social capital, economic organization, Ukraine.

### 1 INTRODUCTION

The effects of social capital on the organizational structures of economic activities is attracting increasingly more attention from researchers. In fact, the beneficial influence of social capital on economic and social development are realized through transformation of the organizational and governance mechanisms concerned. In particular, social capital is often seen as closely related to such organizational phenomena as decentralization (e.g., THÖRLIND 1999), community governance (e.g., BOWLES and GINTIS 2001), networks (e.g., BURT 1992), cooperatives (e.g., WORLD BANK without year), associational activities and grassroots development (e.g., PUTNAM 1993).

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Whereas many studies discuss the relationship between social capital and *specific* levels and structures of economic organization, we see an interesting research problem in integrating these insights into a *comprehensive* assessment of the general organizational significance of social capital and the ways that social capital affects economic organization at the levels of organizations and communities. The objective of this paper is to develop a comprehensive theoretical framework and a tentative empirical assessment of the effects of social capital on the development of organization structures in agricultural enterprises and rural communities in transition. In particular, two research questions can be formulated:

- Does social capital affect the choice and development of organizational structures and forms of agricultural enterprises?
- Does social capital affect the organizational arrangements of community life in rural areas (i.e., forms of cooperation among rural inhabitants beyond their immediate production needs)?

Ukraine is selected for this research because interpersonal relations have traditionally been a strong determinant of agricultural and rural development there. In particular, the large-scale organization of agricultural production, which accounts for about half of the gross agricultural output in Ukraine, presupposes a potentially significant effect of the quality of intra-organizational relations on enterprise performance. On the other hand, small-scale farmers often need business services and so find it expedient to develop inter-organizational linkages, the feasibility of which also depends on inter-personal relations.

## **2 THE CONCEPT OF SOCIAL CAPITAL**

### **2.1 Definition and structural levels of social capital**

An analysis of social capital definitions proposed in the literature reveals that they are diverse, numerous, and illustrate various important aspects of the concept. No definition, however, seems to be generally accepted. Most of the available definitions of the concept contain references to norms, values, relationships, connections, or networks as characteristic features of social capital. In order to classify these features, GROOTAERT and BASTELAER (2001, p. 6) draw a methodological distinction between two forms of social capital – structural (established roles, social networks and other social structures) and cognitive (shared norms, values, trust, attitudes, and beliefs).

However, it seems more appropriate to differentiate between content and form, rather than between two kinds of form. In this research, it will be accepted that roles, social networks and other structures represent the structural form of social capital, whereas norms, values, trust, attitudes and beliefs constitute its contents.

Therefore, we will understand social capital as norms, values, and trust embodied in the specific structural forms (e.g., networks, associations, groups etc.).

In this study, we classify the diverse views of social capital according to two dimensions: 1) what structural entity does the bearer of social capital (individual, group, community) represent, and 2) what specific content, corresponds to its respective structural level. Based on this, the following groups of approaches for understanding social capital can be identified: social capital at the level of communities, organizations, and individuals.

*Community-level social capital*, conceptually introduced primarily by PUTNAM, seems to dominate the theoretical reasoning of most contemporary studies of the concept. The purely cooperative essence, with no implications of non-member excludability, is observable in the following definitions of social capital: "an instantiated informal norm that promotes cooperation between two or more individuals" (FUKUYAMA 1999); "networks, norms, and trust that enable participants to act together more effectively to pursue shared objectives" (PUTNAM 1996, p. 56).

*Organizational level (or enterprise level) of social capital* is probably least represented in the literature in its pure form. On this level social capital generates network externalities, which imply both cooperation and exclusion, in that the organization members should cooperate to enjoy the externality providing for their privileged status in relation to non-members which are, respectively, excluded. This viewpoint is represented by COLEMAN'S definition, "Social capital is defined by its function. It is not a single entity, but a variety of different entities, with two elements in common: they all consist of some aspect of social structure, and they facilitate certain actions, whether persons or corporate actors, *within the structure*" (COLEMAN 1988, p.98, emphasis added).

The concept of *individual-level social capital* is typified by e.g., BURT (1992, p.9) in his interpretation of the latter as one's relationships with "friends, colleagues, and more general contacts", and DIPASQUALE and GLAESER (1999) in their view of social capital as "an individual's connection to others".

The empirical part of this study will be focused on community level and organizational (enterprise) level of social capital.

## 2.2 The organizational relevance of social capital

The interrelationship between social capital and economic organization is mediated through a central category of new institutional economic theory – transaction costs. As was discovered by COASE (1937), transactions costs dramatically affect the organizational framework of business activities and in fact make it a relevant economic variable, since with zero transaction costs, the organizational choices arguably would not be important.

Since the substantive components of social capital – especially shared norms,

shared values, and trust – facilitate information sharing, collective action and decision making, and reduce opportunistic behaviour (GROOTAERT and BASTELAER 2001, p.7) it is reasonable to argue that social capital has the capacity to reduce transaction costs (see also e.g., FUKUYAMA 1999; GROOTAERT 1998). Consequently, whenever social capital changes the transaction costs of economic activities, it will influence the type of organizational arrangements that are efficient for these activities. Moreover, whenever an accumulation of social capital can be observed within an organizational framework that developed without this social capital, it can be expected that this framework will change in accordance with the reduced values of transaction costs.

### 3 THE ORGANIZATIONAL EFFECTS OF SOCIAL CAPITAL

#### 3.1 Social capital and coordination mechanisms

The organizational effects of social capital can be explained through the concept of coordination mechanisms, representing qualitatively different approaches to manage the situations of interdependency among agents. In the literature, various types of coordination mechanisms are identified, of which markets, hierarchies, teams, rules, norms should be particularly mentioned (see e.g., GRANDORI 2001). Each of these mechanisms has distinct advantages and limitations. Therefore, a key aspect of organizational analysis and design is the determination of optimal coordination mechanisms for governance of various specific types of business situations.

The relevance of certain coordination mechanisms for specific business situations can be established by considering two questions: 1) whether the mechanism should be applied in the situation; and 2) whether it can be applied. Whether the mechanism should be applied is determined by technical attributes of business relations, the prominent place among which can be given to their transparency and interdependency among agents involved. Strong interdependency requires deeper coordination (see PFEFFER and SALANCIK 1978) and cannot be effectively governed by market mechanism, whereas low transparency makes also the hierarchical governance poorly suitable due to agency problems. In other words, the technical attributes of business relations dictate the choice of the optimal coordination mechanism.

On the other hand, though, the applicability of various coordination mechanisms is determined by the fact that they differ in their demands on the quality of inter-agent relations required to sustain them. Although the nature of business relations might require a certain mechanism, it would remain unachievable unless the actual quality of inter-agent relations, i.e., available social capital, is sufficient. In other words, various coordination mechanisms exhibit various and consistent *social capital-dependence*, which determines their feasibility in specific

institutional and cultural contexts. While the applicability of less social capital-dependent coordination mechanisms is more generic and universal, the same is not true for the more social capital-dependent mechanisms: they can be used only in well-established networks or in communities or organizations with significant stocks of social capital.

For the purposes of our analysis, we consider the following generic coordination mechanisms: 1) markets, 2) hierarchies, 3) relational contracting, and 4) social capital-supported internal organization, which will be assumed to represent a combination of team/network and rules/norms coordination (see Table 1). The relative degrees of their social capital-dependence can be derived from a combination of different levels of inter-dependency and transparency of business relations. In particular, the situations of high inter-dependency and low transparency can be effectively governed only by the social capital-based coordination mechanisms, whereas for opposite cases market governance is sufficient.

**Table 1: Social capital-dependence of coordination mechanisms**

		Transparency <i>(determines if actors need social capital to support their relationship)</i>	
		High	Low
Interdependency <i>(determines if actors need coordinated governance)</i>	Low	External organization (market) <i>(Low social capital-dependence)</i>	Social capital-supported external organization (relational contracting) <i>(Intermediate to high social capital-dependence)</i>
	High	Internal organization (hierarchy) <i>(Low to intermediate social capital-dependence)</i>	Social capital-supported internal organization (cooperative, association, other forms of self-organization) <i>(High social capital-dependence)</i>

Source: Authors' presentation.

The consequence from here is that in situations of low community-level social capital, less social capital-dependent mechanisms tend to operate in place of more social capital-dependent ones. This is a negative phenomenon, meaning that certain complex business relations could not be governed appropriately, which results in less efficient organizational structures in the community. This theoretical argument can be summarised as follows: *Low community-level social capital will make more social capital-dependent coordination mechanisms infeasible*, with two possible consequences: 1) either the respective activity is not performed; or 2) is performed within the framework of a less social capital-dependent coordination mechanism, which will lower its efficiency.

The first consequence, when a certain activity is not performed due to the infeasibility of highly social capital-dependent mechanisms, can be considered characteristic mainly for the organization of communities, whereas the second one, respectively, is mainly for enterprises. This is explained by the existence of strong economic linkages between the participants of enterprises that do not exist between the members of a community. Due to these linkages and the enforcement mechanisms that support them, decisions of individuals occupying leadership positions in the enterprise are much more likely to be implemented than decisions of community members.

Empirically, this paper will focus on the analysis of instances of hierarchical and social capital-supported internal organization. According to the above-mentioned reasoning, it will be hypothesised that at the community level, a shortage of social capital will cause the underdevelopment of activities which can be realised only through social capital-supported organization. At the enterprise level, respectively, a shortage of social capital will cause the hierarchization of those organization structures based on the importance of informal interpersonal relations.

### **3.2 Implications for the organization of agricultural enterprises**

The relevance of social capital-dependence for the choice and operation of various organizational forms of agricultural enterprises stems from the fact that the different incentive structures, presupposed by these forms, require different types of interpersonal relations. The differences in the extent to which the incentive structures rely on trust, collective decision-making and informal communications give rise to the differences of social capital-dependence levels of organizational forms.

In particular, the presence of social capital must be a more important requirement for the creation and maintenance of organization structures with an important role of informal structure, which is particularly the case with cooperative organizations. Hierarchies can be assumed to be less dependent on interpersonal relations and social capital because the behaviour of individual members is guided by the incentive instruments of authority relations. Family farms represent a particularly interesting case: on the one hand, relations among family members are based on very strong social capital; on the other, though, this type of social capital is normally 'inborn' and pre-existing, and can be designated as "bonding social capital". Family farms therefore exhibit very low dependence on that type of social capital that is important for ensuring high performance of organizations constituted by non-relatives ("bridging social capital").

It is possible to identify three major aspects of the quality of inter-personal relations that are decisive for determining the general dependence of an organizational form on social capital: 1) ability to achieve internal consensus; 2) trust

among members; and 3) the intensity of agency problems (here understood as related to trust between members and employees). The relative importance of these aspects for various organizational forms is directly proportional to their relative dependence on social capital.

In Ukrainian agriculture, the most common organizational forms are represented by producer cooperatives, joint stock companies (both closed and open types) partnerships, family farms, so called "private enterprises", and state enterprises. A "private enterprise" is owned by one person and normally involves hired labour. In contrast to family farms, family relations are not important for its operation. Although the legal foundation of this organizational form has been devised to address the needs of non-agricultural sectors, it is often used in agriculture to avoid certain limitations present in the legal framework of family farms.

A theoretically interesting case for determining social capital-dependence is provided by state enterprises. Although aspects of interpersonal relations such as achievement of consensus or importance of trust among members do not represent major issues (or are irrelevant) for this organizational form, state ownership generates a significant potential for agency problems, since in this case there are no effective principals.

A comparative analysis of organizational forms with respect to the above-mentioned criteria of interpersonal relations is presented in Table 2.

High social capital-dependence means that organizations cannot perform effectively, efficiently and equitably unless they are supported by the required amount of social capital. In case this amount is not sufficient, it must respectively lower the standard of organizational performance (defined in terms of effectiveness, efficiency, and equity) and thus give rise to difficulties in the process of governance. The nature of these social capital-induced difficulties can be well seen in the example of the incentive problems of cooperative organizations: the common property problem (the members' equity contribution may not be proportional to the distribution of resulting benefits); the horizon problem (members can capture benefits from their investment only after certain time horizons of their expected membership in the organization, which causes a bias toward short-term investment and/or under-investment); the monitoring problem (decision management is allocated to decision specialists who are not residual claimants); the influence cost problem (some groups of members may have opposing interests and engage in costly lobbying activities); the decision problem (large number and heterogeneity of members complicates reaching a consensual decision) (BORGÉN 2003). These problems evidently emerge in those cooperatives which no longer dispose of the required amount of social capital.

**Table 2: Social capital dependence of various organizational forms**

Organiza- tion form	Aspects of quality of inter-personal relations			Compara- tive de- pendence on social capital
	Achievement of internal consensus	Intensity of agency problems	Impor- tance of trust among members	
Agricultural producer co- operative	Complicated due to democratic collective deci- sion making	Significant due to twofold nature of agency problem (agents as principals and principals as agents (SCHMITT 1993:154-155)	Trust is essential	High
Closed-type joint stock company	Less complicated due to equity- based collective decision making	Standard agency relation between employees and members	Trust is essential	Medium
Limited part- nership	Less complicated due to equity- based collective decision making	Standard agency relation between employees and members	Trust is essential	Medium
State enter- prise	Not a significant problem under hierarchical deci- sion making	Significant due to absence of effective principals	Trust is not essential	Medium
Open-type joint stock company	Less complicated due to equity- based collective decision making	Standard agency relation between employees and members	Trust is not essential	Low
Private enter- prise	Not a significant problem under individual deci- sion making	Standard agency relation between employees and members	Not relevant	Low
Family farm	Not a significant problem	No agency relations (in conditions of no hired labour)	Trust exists <i>a priori</i> due to family connections	Very low

Source: Authors' presentation.

To summarise, the idea of social capital-dependence of organizational forms allows the formulation of the following hypotheses:

- Different organizational forms exhibit different and consistent, theoretically predictable, social capital-dependence;
- Enterprises with highly social capital-dependent organizational forms will perform effectively, efficiently and equitably only if they are supported by the required amount of social capital;



- Under shortage of social capital, enterprises with highly social capital-dependent organizational forms will be confronted with complications in the governance process.

### 3.3 Implications for the organization of rural communities

At the community level, the social capital-supported internal organization takes two major forms: 1) producer self-organization, including agricultural cooperation and other forms of associational activity; 2) activity for the benefit of the community. These forms are different in the types of functions they perform (economic versus social) and similar in their voluntary and not-for-profit character. By definition of high social capital-dependence, both of these forms share a critical dependence on the quality of interpersonal relations between people in the community (i.e., community-level social capital), because any grassroots and bottom-up initiatives can be created and maintained only to the extent that their actual and potential members are willing and able to cooperate with each other.

Whereas the first form is likely to be represented by clearly identifiable organization structures, the voluntary activities undertaken within the framework of the second form often do not have, and do not need, formal governance in transitional conditions. The absence of formal governance, though, does not mean the absence of economic coordination, which in this case is performed informally. Informal governance, however, can be considered as even more social capital-dependent than the formal one: since formal rules and routines are not available, the coordination process must be fully based on social capital. It is important to note that both of these activity types are undertaken neither in response to price signals, nor in response to administrative incentives, but rather as an outcome of norms and values shared by community members as well their mutual trust. This reasoning gives rise to the hypothesis that *the extent of realization of both of these activity types will be conditioned by (and proportional to) social capital available in the community.*

## 4 DATA AND METHODOLOGY

To check the proposed hypotheses, we carried out a first empirical test on a sample of 51 agricultural enterprises located in ten oblasts of Ukraine – Zhitomir, Kiev, Sumy, Chernigov, Zaporozhye, Kherson, Khmelnytsky, Donetsk, Vinnitsa, Cherkassy. Completed questionnaires were returned by 227 respondents who occupy managerial and specialist positions in the above-mentioned enterprises. Rank-and-file workers and support staff were not covered by the survey. The 227 questionnaires were distributed across organizational forms as follows: 31 questionnaires to open-type joint stock companies; 17 to closed-type joint stock companies; 95 to partnerships; 51 to "private enterprises"; 15 to producer cooperatives; 8 to family farms; 10 to state enterprises.

As the undertaken survey was only a first test, it was not our objective to derive general evaluations of the practical relevance of the theory of social capital-dependence; rather, we intended to find out if the application of the proposed conceptual framework to interpret a specific piece of real-world data yielded consistent and reasonable results.

The verification of hypotheses required the measurement of the following aspects: 1) social capital in the enterprise and the community; 2) respondent's subjective evaluation of the economic performance of the enterprise; 3) respondent's subjective evaluation of the extent of problems in the governance process of the enterprise; 4) extent of not-for-profit activities of the enterprise.

The answers to the questions posed by the questionnaire have been transformed into numerical values through the ordinal scale, whereby a certain score was assigned to each answer variant. Since organizational forms are represented by a different number of questionnaires, the total score of each organizational form with respect to a particular question was calculated by multiplying the scores of selected answer variants by percentage weights of these variants within the organizational form.

The measurement of social capital is based on the methodology developed by the World Bank, in particular presented in the "Integrated Questionnaire for the Measurement of Social Capital" (2003). A number of formulations in the questionnaire have been modified in order to better reflect the specific conditions of Ukrainian agriculture. An important modification was undertaken with respect to the dimensions of social capital: since the research questions are concerned with the organizational effects of social capital, the membership in organizations, in particular, cooperatives, as a determinant of social capital has been omitted. The questions used to measure social capital relate to dimensions such as: trust and solidarity, information and communication, social cohesion and inclusion. The other dimensions of social capital proposed by GROOTAERT et al., (2003), namely collective action and cooperation, as well as empowerment and political action, cannot, in the framework of this research, be considered representative of social capital itself, but rather its effects and consequences. The theory of social capital-dependence suggests that these consequences would be more frequently observed with more social capital-dependent organizational forms; consequently, indicators of collective action, cooperation, empowerment and political action also have to be excluded from the factors used to identify social capital.

The data received from the survey have a number of important limitations with respect to their appropriateness for verifying the hypotheses. The data contain no information about the objective performance of analysed enterprises. This gap is filled by asking for subjective levels of satisfaction of employees with the performance of their enterprises. The data regarding problems in the governance

process are difficult to obtain (in large part due to difficulties in the empirical definition of what constitutes a governance problem) and replaced by subjective evaluations of the extent to which the governance process may be viewed as problematic.

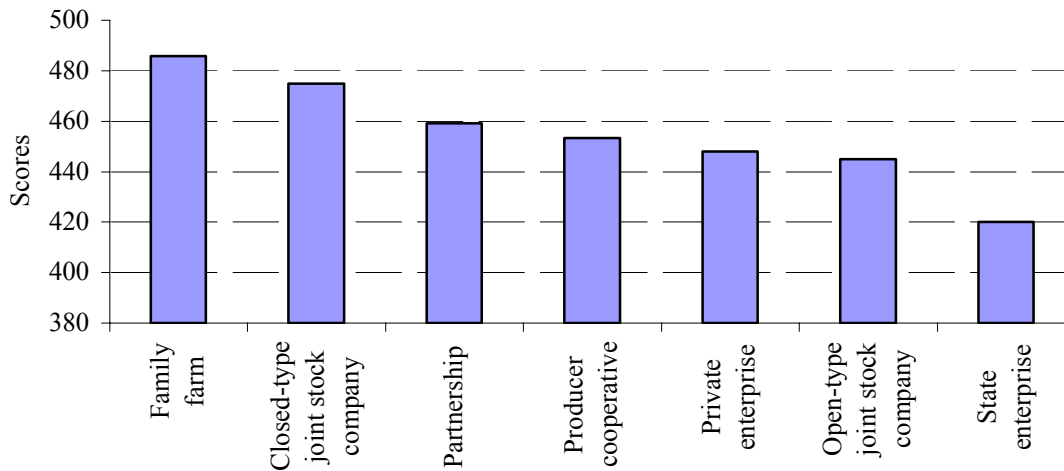
## **5 RESULTS**

An interesting result is that the enterprise level of social capital is, in most cases, significantly and strongly correlated with such organizational parameters as employee evaluation of organizational performance and the effectiveness of the governance process (understood as the inverse of the extent of governance problems).

Available data allow several indirect approaches for identifying the existence of differential social capital-dependence in organizational forms. The first one consists of direct interpretation of individual subjective perceptions of the importance of interpersonal relations for the performance of the enterprise, grouped by organizational forms. The results of this grouping are presented in Fig. 1.

As follows from Fig. 1, the highest level of this measure of social capital-dependence is observed in family farms, which can be explained by the traditionally important role of intra-family bonding social capital for the governance and performance of these enterprises. Since the concept of social capital-dependence in our theory relates to bridging, rather than bonding social capital, this evidence cannot be regarded as contradicting the theory. The lowest social capital-dependence is observed in state enterprises, whereas the rest of the organizational forms occupy an intermediate position, with closed-type joint stock companies being more social capital-dependent than private enterprises and open-type joint stock companies. Interestingly, the position of producer cooperative is distinctly intermediate rather than highest.

**Figure 1: Subjectively perceived importance of interpersonal relations as a determinant of the performance of the enterprise**



Source: Authors' calculations.

The second approach, presented in Table 3, presupposes the comparison of the Spearman rank correlations coefficient describing the relationship between enterprise-level social capital and organizational parameters such as employee satisfaction and effectiveness of governance process. According to the proposed theory, the most social capital-dependent organizational forms will exhibit the greatest correlation of this kind.

As follows from Table 3, according to the employee satisfaction criterion, the highest social capital-dependence level is characteristic for producer cooperatives and closed-type joint stock companies, whereas the lowest level is exhibited by partnerships and state enterprises. According to the effectiveness of governance process, the highest social capital-dependence is characteristic for producer cooperatives and open joint stock companies, with the lowest, respectively, being for private enterprises and family farms.

Thus, both approaches suggest that producer cooperatives do not necessarily exhibit the highest social capital-dependence and often are behind partnerships and joint stock companies with respect to this characteristic. According to the second approach, family farms exhibit the lowest social capital with respect to two criteria and intermediate with respect to the remaining one. According to both approaches, the social capital-dependence of private enterprises and state enterprises primarily varies from low to intermediate.

**Table 3: Correlation between social capital and organizational parameters**

Organizational form	Critical value for significance level 0.01	Rank correlation of enterprise-level social capital with	
		employee satisfaction	effectiveness of governance process
Open-type joint stock company	0.432	0.89	0.89
Closed-type joint stock company	0.601	0.92	0.75
Partnership	0.0438	0.74	0.75
"Private enterprise"	0.0438	0.65	0.69
Producer cooperative	0.645	0.997	0.85
Family farm	0.833/0.643*	0.89	0.51**
State enterprise	0.746	0.76	0.76

Notes: \* – significance level 0.05.

\*\* – correlation insignificant.

Source: Authors' presentation.

At the level of rural communities, the Spearman rank correlation coefficient between community-level social capital and the extent of not-for-profit activities of agricultural enterprises constitutes 0.36, which means a weak relationship.

## 6 DISCUSSION

The most general and important result emerging from the analysis of available data is that enterprise-level social capital is significantly correlated with the considered organizational parameters such as employee satisfaction and effectiveness of governance process. This confirms the idea that social capital in an organization may be closely related to its behaviour and performance.

The empirical results, however, are not fully consistent with the predictions of the proposed theory in two respects: 1) the organizational forms with highest social capital-dependence turned out to be partnerships and joint stock companies rather than cooperatives; 2) community-level social capital turned out to be only weakly correlated to the extent of community-oriented not-for-profit activities of enterprises located in the respective communities.

The first inconsistency can be attributed to the existence of path dependencies in the organizational development of the agricultural sector. Producer cooperatives evidently represent organization structures with maximal similarity to collective enterprises that existed under communism; in many, the former represent the legal successors of the latter, with a preservation of the management team. Con-

sequently, the nature of governance relations of collective enterprises under communism had a deeper impact on producer cooperatives than on other organizational forms, represented by newly-created agricultural enterprises.

An important characteristic of collective enterprises that existed under communism was their hierarchical orientation, which presupposes an authority relation, rather than trust, norms and values (i.e., social capital) as the main mechanism of economic coordination in the enterprise. Accordingly, the path dependency effects in modern Ukrainian producer cooperatives must be causing the transfer of intra-organizational coordination functions from social capital to the authority relation. This substitution, in our opinion, explains the lower-than-predicted social capital-dependence of producer cooperatives.

The second above-mentioned inconsistency can be explained by the tendency of enterprise managers to be guided only by the interests of their enterprise, and, respectively, the detachment of the interests of the community from those of the enterprise, which is particularly true in those cases where the major decision-making individuals originally come from outside the community. Another factor possibly contributing to this detachment is the financial stress characteristic of most agricultural enterprises. Because of these factors, a high trust and positive interpersonal atmosphere within the communities will have little bearing on the decision-making process of enterprise managers. The deeper reason behind the above-mentioned factors evidently lies in the generally low endowments of social capital in Ukrainian rural communities. It could be hypothesised that the increase in social capital endowments would be associated with a stronger relationship between these endowments and the extent of community-oriented not-for-profit activities of agricultural enterprises.

Finally, it should be mentioned that although the correlation between enterprise-level social capital and organizational parameters are strong, the respective differences between organizational forms in some cases appear to be marginal. This may be attributed to the fact that the legal differences between organizational forms are not yet clearly reflected in the behaviour of their stakeholders. It may, therefore, be to some extent true that distinctions in performance between enterprises stem not so much from the differences in social capital-dependence but rather from the differences in the quality of leadership, which is irrelevant for distinctions between organizational forms.

## **7 CONCLUSIONS**

The paper develops a new perspective in social capital theory by outlining the significance of social capital for organizational development and change. The general organizational relevance of social capital is explained by its ability to reduce intra- and inter-organizational transaction costs. Specifically, different mechanisms of economic coordination such as markets, hierarchies and teams

have been shown to exhibit various and consistent social capital-dependence, i.e., the degree of dependence of their feasibility and performance on the availability of social capital. Accordingly, an insufficient amount of social capital is predicted to make highly social capital-dependent mechanisms infeasible.

This conceptual framework has been applied to the empirical context of organizational development of Ukrainian agricultural enterprises and rural communities. A number of hypotheses were formulated, all of which share a common core that the performance and feasibility of more social capital-dependent coordination mechanisms at the levels of enterprises and communities should be more correlated with social capital measured at the respective levels than would be the case with mechanisms exhibiting lower social capital-dependence.

The first test of available empirical data revealed the existence of differential social capital-dependencies of organizational forms, as well as a significant correlation between enterprise-level social capital, with a number of organizational parameters such as employee satisfaction, effectiveness of governance process, and the extent of not-for-profit activities. The empirical results, however, are not fully consistent with the predictions of the proposed theory in two respects: 1) the organizational forms with highest social capital-dependence turned out to be partnerships and joint stock companies rather than cooperatives; 2) community-level social capital turned out to be only weakly correlated to the extent of community-oriented not-for-profit activities of enterprises located in the respective communities. These deviations can be explained by the institutional peculiarities of the Ukrainian agricultural sector, which include organizational path dependencies and a generally low stock of social capital. Or, they may be attributed to an insufficiently large sample size.

The available empirical data, therefore, provide neither full support nor are completely inconsistent with the proposed theory of social capital-dependence of coordination mechanisms. Further research, both conceptual and empirical, is necessary, in which an important place belongs to the better accounting of specific institutional contexts containing the examined organizational entities.

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**NON-TRADITIONAL DEVELOPMENT PATHS FOR  
AGRICULTURE**

## FARM TOURISM: MYTH OR REALITY?

ŠTEFAN BOJNEC \*

### ABSTRACT

The paper distinguishes between rural, agro- and farm tourism, but focuses on farm tourism. Farm tourism as a part of rural tourism is often seen as an opportunity to expand and diversify employment and incomes. The romanticism of tradition, nature and social tourism, diversification efforts, gender issues within the farm business, and political economy reasons are often seen as the main driving forces behind farm tourism development. Farm tourism is economically less important than rural tourism. We present farm tourism experiences in Western countries, as well as lessons learnt in Central and Eastern European (CEE) countries, focusing on Slovenia as a case study and its comparison with Austria. Using existing farm capacities, farm tourism is inexpensive to develop, and provides alternative accommodation facilities for different tourist demands such as social, heritage, green and eco-tourism.

**Keywords:** farm tourism, farm scope, Central and Eastern Europe.

### 1 INTRODUCTION

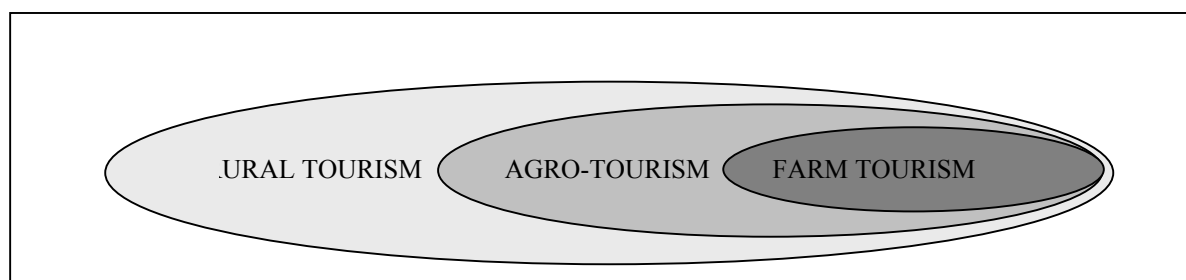
This paper presents the perspectives of farm tourism development in the wider framework of structural change within a rural economy as a part of a tourist destination in a certain regional or territorial economy. Besides empirical evidence on farm tourism development in Western and CEE countries, the paper draws attention to policy implications. Three concepts have been developed regarding relations and distinctions between rural tourism, agro-tourism and farm tourism. Various traditions in rural areas and different patterns in tourism development have caused these differences. Farm tourism is either defined as a type of agro-tourism, or is identified with agro-tourism, while agro-tourism is often considered as a kind of rural tourism closely related to agriculture. Farm and/or agro-tourism usually represent only a small part of rural tourism (Figure 1). These mixtures in terminology, meaning and interpretation are also clearly visible from the presented county reports at the 1st European Congress on Rural Tourism in

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Jaén in Spain in October 2003, while the conclusions of this congress clearly call for wider rural tourism (EUROGITES 2003).

**Figure 1: Rural Tourism, Agro-tourism and Farm Tourism**



Source: Author's presentation.

NILLSON (2002) reviewed the proposition and the distinction between farm tourism and rural tourism. Rural tourism considerably differs from agriculture, forestry and fishery in that it is expanding, labour intensive, generates an influx of money, and maintains the service base in the region. Farm tourism as a part of rural tourism is a more ideological construction based in the romanticism of nature and social tourism. According to the Eurostat statistical classification of economic activities "Nomenclature Generale des activities economiques dans les Communautés" (NACE), the major part of rural tourism activities such as hotels in rural areas are included in the H activity, hotels and restaurants, while farm tourism is organized as a supplementary farm activity in the A activity, agriculture, hunting and forestry, and to a lesser extent in the B activity fishing. As there are differences across countries in taxation, investment and other economic policies across NACE economic activities, the distinction between rural tourism and farm tourism not only has statistical, but economic implications for different economic subjects. This can create conflicts of interest, but can also provide incentives for greater interdisciplinary work and cooperation with tourist destinations in a certain territory, which can either be predominantly rural or urban or mixed. The main characteristics of rural tourism, agro-tourism and farm tourism are summarised in Table 1.

**Table 1: Characteristics of rural, agro-, and farm tourism**

Characteristics	Rural tourism	Agro-tourism	Farm tourism
Territory characteristics	Rural territories with natural and cultural attractions such as lakes mountainous, natural forestry parks	Agricultural territories	Farmer's farm and its environment
Service provider	Rural community, various for-profit and non-profit organizations	Farmers and their organizations	Owners of tourist farms and their associations
Main product	Rural environment with natural and cultural tourist attractions, sports and recreational activities, rural holidays	Farm products, rural way of life, rural holidays, trades	Life on farmer's farm
Additional products	Holiday villages, rural hotels, private houses, camping sites, eating establishments, shops, points of interest, tourism information	Lodging at active farms, agricultural companies, eating establishments, shops of recreational goods	Lodging at active or traditional farm, board of farm products, recreational activities

Source: Based on VAINIENE (2003, p. 5).

## 2 FARM TOURISM AS A PART OF RURAL AND/OR TERRITORIAL TOURISM

### 2.1 Farm tourism

NILSSON (2002) provides an overview on farm tourism in different Western countries, which is summarized in Table 2. The interpretation of farm tourism across Western countries is a mixture of agro-tourism (e.g., in Italy), small-scale rural tourism (e.g., in Norway) and tourism on farms within the farmhouse or additional buildings at the farm. The tourist farm should be active in farming, but the required activities vary considerably across countries. This gives greater opportunities to farms for market segmentation and finding its own comparative advantages and market niches. In general, farm tourism is considered to be an alternative to mass tourism, which should be more linked to environmentally-friendly, ecological tourism. Local conditions and farm locations close to natural beauty, cultural or rural history with traditional villages and folk art, archaeological sites, and other tourist attractions are important for farm tourism demand. Sometimes farms offer activities for tourists at the farm, as they are selling a lifestyle and the guests can participate in agricultural work with animals, in working vineyards, orchards, and so on. Some farms also offer guided tours in the surroundings, thus presenting the identity of the rural way of life, archaeological attractions and castles, wine tourism attractions and similar village and rural attractions. A recent development are farms that do not arrange activities for the guests at the farm, but only provide (inexpensive) accommodation in the

farmhouse or in farm apartments close to hunting, fishing, boat tours and similar activities in the countryside. Within the division of labour in agricultural households, farm tourism is more often the responsibility of the "farmer's wife". Networking between the tourist farms and farms within the tourist economy are important as well, but they differ across countries in their organization and importance. The integration of a farm in the society they live and membership in professional associations are important for getting information, promotional activities and marketing. Farm tourism in some Western countries, particularly in Scandinavian and Alpine countries, and among the agriculturalists in most other EU countries, not only plays an entrepreneurial economic role for the engaged farms in the farm tourism business, but also should play a more active role in raising the awareness of tourists from non-agricultural and urban areas regarding the roles agriculture plays in the countryside.

**Table 2: Characteristics of farm tourism by selected Western countries**

	Importance	Organisation	Main important features
Austria	One-fifth of the total tourist beds: 220,000 beds in more than 21,000 establishments	Urlaub auf dem Bauernhof	Accommodation in the countryside for recreation and tourists. Link between tourism and agriculture. Diminishing profitability. Winter and summer seasons. From full board to bed and breakfast (B&B) and self-catering. Important location in suitable tourist environments.
Canada	Small- and medium-sized farms	Farm tourism association.	Hospitality farms and hosts in country homes. Renting out a room in the farmhouse and serving meals to tourists.
Denmark	About 10% of farms engaged in farm tourism	Farming interest groups and nationwide organization for farm tourism "Landsforeningen for Landboturisme" with a bit more than 200 members	Farm activities, social life at farm in creating contacts between host and guest and countryside life. Additional income for the farm.
Germany	More than 150 years tradition	Landesarbeitsgemeinschaft der Urlaubsringe. Urlaub auf dem Bauernhof	Holidays in the countryside close to the cities. Rural life and the every-day life of the farmer. Baden-Württemberg: Maximum two flats on the farm to rent.
Italy	Agro-tourism is growing. 7,500 agro-tourism farms, of which 1,226 in Tuscany (Siena)	Different organizations by regions	Accommodation to tourists as diversification. Revenue is taxed. Income from tourism must be less than from agriculture. Additional rules by regions regarding construction norms of buildings. Farmers set prices. A special licence and rules are required for the farmers offering meals or handicraft. Interdependence between tourism cities and agro-tourism farms.
Ireland	Often three to four rooms are rented in the farmhouse	Irish Farm Holiday Association	History, landscape, tradition and social rural life. The quality of the accommodation and the products from the farm.
Norway	Small-scale rural tourism	Norwegian Farmers Union, the forest owners, and the holiday village-renting agency	Individual travel, activity holidays, self-catering and lifestyle-based experiences. Net income from tourism is low.  Occupancy rate for farms with tourism is ten weeks per annum. Guest: 50% Norwegians, 30% Germans, 12% from Sweden and 8% others.
Sweden	An average season of 20-25 weeks	Bo på Lantgård (Stay at Farm).	Active farm, a certain standard of accommodation, personal engagement, but no presence of animals. Nature romanticism and rural life-style, alternatives to mass tourism and social contacts. Self-catering and bed and breakfast.
Wales	On very small and relatively large farms	No special farm tourism association. Promotional and similar activities conducted through Wales Tourist Board	Additional, but an uncertain income. Location close to a national park.

Source: Compiled based on NILSSON (2002).

The creation of this "overall image" of farm tourism as rural tourism is one of the important conclusions of the 1<sup>st</sup> European Congress of Rural Tourism (EUROGITES 2003), which indirectly gained support from the Second Conference on Rural Development in Salzburg in November 2003 (FISCHLER 2003). However, as already underlined, and as is further illustrated, except for Austria and some small territorial parts in rural areas close to natural, cultural and various other world-known tourist attractions, farm tourism has only become important for some agricultural households. Yet, different taxation and other fiscal and investment treatments between the farm tourism businesses as a supplementary farm activity vis-à-vis other small tourism businesses in villages often creates conflicts of interest in terms of violating the rules of fair competition. Due to this, the experiences and lessons learnt in Western countries should be critically evaluated in the CEE countries, where farms situated close to natural, cultural, historical and other attractions see their own future in diversification of farm activities in the direction towards farm tourism.

Spain is among three of the world's largest tourist destinations, with more than 76 million tourist arrivals and almost 340 million overnight stays per annum (Table 3). Most tourism activities are, however, conducted by hotels and to a lesser extent in apartments and camps, but less than 2% by rural tourism.

**Table 3: Tourism in Spain in 2002**

	Number of visitors	Overnight stays	Length of overnight stays	Occupancy rate (%)		
		%	%	%		
Total	76,101.8	100.0	338,886.0	100.0	4.5	-
Hotels (ths.)	59,868.8	78.7	222,554.8	65.7	3.7	55.3
Apartments (ths.)	8,842.5	11.6	80,953.9	23.9	9.1	51.0
Camps (ths.)	6,020.1	7.9	31,272.7	9.2	5.2	35.1
Rural tourism (ths.)	1,370.4	1.8	4,104.7	1.2	3.0	21.8

Source: Based on data from PEÑA and JIMÉNEZ (2004, p. 43).

Rural tourism in Spain shows two striking features (Table 4). First, overnight stays are the shortest. Second, the occupancy rate of tourist beds is the lowest in comparison with other types of tourist accommodations. Domestic tourists are also the most important customers in rural tourism accommodations in Spain.<sup>1</sup>

<sup>1</sup> While evidence of the importance of rural tourism for most other Western countries is not available, this data for Spain seems to be a bit inconsistent with the Conclusions of the 1st European Congress on Rural Tourism (EUROGITES 2003). According to the latter, rural tourism is: a strong segment of European Tourism, vitally important for the economy of the European countryside, a trend-setter, well-organized, independent, and has common

Across regions in Spain, rural tourism is the most important in Castilla y León, Galicia, Catalonia, and Cantabria. In 2002, 19.6% of rural tourists in Spain visited Castilla y León, 12% Catalonia, 8.8% Galicia and 8.6% Cantabria. These are largely regions with a combination of cultural and historical attractions, which are connected with rural social life and agricultural tourist products such as wine tourism, heritage tourism, ecological tourism, countryside sport tourism and so on. Rural tourism seems to be less important in some world-known tourist destinations that are more dominated by hotels, such as La Rioja, Canarias, Murcia, Extremadura, Madrid and Valencia. This suggests that rural tourism in Spain targets largely domestic tourists visiting cultural, historical, and rural attractions inside Spain, but is less important for tourists visiting larger cities and tourist destinations in coastal regions.

**Table 4: Rural tourism in Spain in 2002**

	Number of visitors		Domestic		Foreign	
		%		%		%
No. of tourists (ths.)	1,370.4	100	1,229.9	89.7	140.5	10.3
No. of overnight stays (ths.)	4,104.7	100	3,423.8	83.4	680.9	16.6
Length of overnight stays	3.0	-	2.8	-	4.8	-

Source: Based on data from PEÑA and JIMÉNEZ (2004, p. 41).

## 2.2 Farm tourism in Central and Eastern European (CEE) countries

Mass tourism in CEE countries already developed during the previous governmental system. Except in the former Yugoslavia, and to a lesser extent in Hungary, Poland and the former Czechoslovakia, where in the mid-1960s tourism was also opened to Western tourists, tourism in other CEE countries was mostly closed to domestic tourists and tourists coming with special visas from the former socialist countries. Due to institutional constraints and closed areas around natural rural attractions, rural and farm tourism in the Western sense are only recently emerging. Some exceptions are the abovementioned CEE countries.

According to the CEE countries' reports at the 1st European Congress on Rural Tourism (EUROGITES 2003), there is no clear distinction between rural, agro-and

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needs (statuary and tax regulations, product and quality criteria, new technologies, sustainability and success of rural tourism initiatives, human resources, and environment). It is clear that "sustainable development of rural tourism is necessary for Europe." It is also clear that farm tourism is an agricultural activity, but it seems to be less clear how to consider inns, small family-run hotels and restaurants in villages at the Mediterranean and other non-agricultural tourist areas. This calls for greater cooperation and synergies in the development of rural tourist destinations between both the agriculturalists and nationwide tourist organizations, as has already been done in some countries.

farm tourism in individual CEE countries. However, they are considered as an alternative, often-inexpensive tourism (e.g., in Bulgaria and Kyrgyzstan). In most CEE countries, different rural, agro-tourism and farm associations are set up, as well as associations related to rural ecological and cultural tourism (Romania), rural and green tourism (Ukraine), and "alternative" tourism (Bulgaria). These associations provide education and training courses, seminars and advice regarding rural, farm and eco-tourism services, training on family businesses in the field of rural tourism, organize study tours, marketing, promotion and advertising in tourism, train and consult local authorities and accommodation owners how to start a tourist business and support project developments in the countryside. The eco-labelling is particularly underlined for the Czech Republic and Latvia, as accommodations in the countryside and small towns in CEE countries are considered farmhouses with bed and breakfast (B&B), self-catering vacation cottages, apartments, guesthouses and small hotels, and even castle-hotels. These clearly suggest that rural tourism is considered much more widely, including the overall tourism economy outside urban areas with the NACE H activity hotels and restaurants, and not only activities directly associated to agriculture. Several of these capacities, among others in the former Yugoslav republics, Hungary, Poland and the former Czechoslovakia, were developed in the past as known thermal spas and health resorts. Rural and agro-tourism products are connected with the natural environment and natural attractions (mountains, lakes, rivers, spas), cultural and historical attractions (historical buildings, castles, and fortresses), heritage and crafts, agricultural products (wine tourism and wine routes), various agricultural work and study tours, and sport activities in the countryside such as bicycling, hiking, hunting, horse riding, boating, fishing, and water sports.

### **2.3 Farm tourism in Slovenia**

Farm tourism in Slovenia has a longer but interrupted tradition. Farms with tourists were recorded in the 1930s in the Alpine and mountainous parts of Slovenia, which were visited by urban dwellers who over the summer period climbed the mountains. After World War II, farm tourism disappeared as an activity of farms, as it was not consistent with the ideology of the communist system towards individual farms, socialization of villages and rural areas. While the collectivisation process of individual agricultural farms failed, the farms were still regulatory- and institutionally- limited by set legal rules in their size and activities. On the list of prohibited activities were also farm tourism activities. As an alternative, farm tourism again occurred in the 1970s with the regulated institutional and economic liberalization during the previous system. Re-established agricultural service cooperatives and state subsidies for co-financing the reconstruction of buildings and necessary equipment helped set up the farms with tourists in the mountain parts of Slovenia. From offering food and drink at the



farms, they developed and diversified further towards providing accommodations and other tourist product services. Since the end of the 1980s, the number of tourist farms in Slovenia has doubled and an important further development is envisaged in the near future as more than 200 tourist farms are in the developmental phase (ČUČEK 2003).

Among its major projects, the STB (2003) has included typical Slovenian foods and wine for tourism, as well as wine routes, forest and similar education routes, and viticulture – wine and forestry tourism. In addition, holidays on farms are promoted as "oases where a dweller can spend holidays in the middle of idyllic nature and the rural way of life" within the countryside "... with hospitable people in green surroundings". In Slovenia, there are 482 registered tourist farms, of which 190 are excursion farms, which offer warm and cold meals and beverages, 74 wine cellars, which offer cold snacks, wine and non-alcoholic homemade drinks, 28 "osmicas" (tourist farms where the local farmer is allowed to sell his wines directly) and 190 tourist farms with accommodations. The latter have 2,595 tourist beds in rooms or apartments and 22,284 seats (SEBENIK 2004, p. 10).<sup>2</sup> Tourist farms "offer their guests excellent Slovene wines, and in dining rooms with beautiful ceramic heating stoves they serve generous home cooked meals" (STB 2003).

Tourist farms in Slovenia were once organized within the tourist agency "Vas" (Village), which collapsed in 1995. In 1997, the Association of Tourist Farms of Slovenia (ATFS) was established, in which there are 285 tourist farms (SEBENIK 2004). The ATFS members have around 2,000 tourist beds and 11,000 seats. The ATFS has a representative and coordination role in joint promotional, marketing and information activities, as well as education and product development, and works closely with the Slovenian Tourist Board (STB).

In 2002, tourist farms with accommodation recorded only 0.4% of tourist arrivals in Slovenia (Table 5). The low importance of tourist farms with accommodation holds for both domestic (0.4%) and foreign tourist arrivals (0.6%). The importance of tourist farms with accommodations in overnight stays is also less pronounced, as only 0.5% of domestic and 0.4% of foreign overnight tourist stays are recorded.<sup>3</sup> Tourist farms are also those with the lowest average annual occupation rate of beds. The average length of stays of tourists on farms with

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<sup>2</sup> Farm tourism in Slovenia has further developed in recent years. According to statistical data, in 2001 there were 1,097 beds in tourist farms with accommodation and the average annual occupation rate of these beds was 9.4%, which varied between 8.3% in health resorts (147 beds) and 12.4% in other tourist resorts (87 beds). In mountain resorts, there were 606 beds and in other places, 257 beds. However, there are no tourist farms with accommodation in the Slovenian capital of Ljubljana and in seaside resorts.

<sup>3</sup> It is likely that some tourist arrivals at farms are not registered. However, even if recorded, this is not likely to change the main recorded findings.

accommodation is, on average, 3.1 days. It is rather equally-distributed for domestic and foreign tourists.

**Table 5: Farm tourism in Slovenia in 2002**

	Total		Domestic tourists		Foreign tourists	
	Tourist arrivals	%	Tourist arrivals	%	Tourist arrivals	%
Total tourist arrivals (ths.)	2,162.0	100.0	859.9	100.0	1,302.0	100.0
Tourist farms with accommodation (ths.)	9.6	0.4	5.0	0.6	4.7	0.4
	Total		Domestic tourists		Foreign tourists	
	Overnight stays	%	Overnight stays	%	Overnight stays	%
Total overnight stays (ths.)	7,321.1	100.0	3,300.3	100.0	4,020.8	100.0
Tourist farms with accommodation (ths.)	29.3	0.4	14.9	0.5	14.4	0.4
	Total length of stay	Length of stay of domestic tourists		Length of stay of foreign tourists		
	(No. of days)					
Total length of overnight stay (No. of days)	3.4	3.8		3.1		
Tourist farms with accommodation (No. of days)	3.1	3.0		3.1		

Source: STATISTICAL OFFICE OF THE REPUBLIC OF SLOVENIA (2003).

In Slovenia, the ATFS closely collaborates with the Ministry of Agriculture, Forestry and Food <[www.gov.si/mkgp](http://www.gov.si/mkgp)>, the Ministry of Economy <[www.mg-rs.si](http://www.mg-rs.si)>, STB <[www.slovenia-tourism.si](http://www.slovenia-tourism.si)> and the Tourist Association of Slovenia <[www.rr-vel.si/tzs/](http://www.rr-vel.si/tzs/)>. The most frequent types of accommodations on tourist farms are rental rooms with B&B and self-catering homes. Within the ATFS there are 71 rooms and B&B tourist beds, while in Slovenia there are 190 units with 2,583 bed places (ČUČEK 2003). Within the ATFS, there are also 79 self-catering homes with 350 tourist beds.

A quality grading and classification scheme are obligatory for all tourist accommodations in Slovenia. It is regulated and controlled by the state every three years and represents the costs for the owner. The quality of accommodations and services on tourist farms for rooms and apartments is ranked from one to four apples, while the quality of accommodations and services for B&B and apartments is ranked from one to four stars. One apple means simply-furnished rooms with a common washroom and toilet. Two apples means furnished rooms with at least half of them having a private washroom and toilet. Three apples means well-furnished rooms with majority of rooms with private washroom and toilet. Four apples means an outstanding offer with large and comfortable, well-furnished rooms with a private washroom and toilet, a wide offer of meals, diverse additional facilities such as tennis courts, swimming pool, riding, and other activities and programs.<sup>4</sup> Tourist farms in Slovenia provide relatively

<sup>4</sup> Included in the assessment are accommodations inside the farmhouse, the overall attractiveness of the farm, the arrangement of outdoor areas for guests, and the offer of typical local dishes and beverages, local folk customs and traditions, available sports and leisure time activities, and other activities and programs at the farm.

cheaper holidays. Prices per person per day ranged between 10 Euro and 15 Euro in self-catering homes and rented apartments, between 15 Euro and 20 Euro for B&B room arrangements, between 15 Euro and 24 Euro for rooms with half board, and between 18 Euro and 29 Euro with full board.<sup>5</sup> The basic, low quality levels must satisfy only minimum requirements. In medium, 2-3 star, facilities, 50% of rooms must have a suite bath or 5 persons/bath and similar. In the high, 4 star level, all rooms must provide a suite bath, central heating and similar. Two regulatory opportunities exist for setting up tourism on a farm as a supplementary activity of the farm or as an independent entrepreneur. First, it can be set up as the supplementary activity at the farm with a maximum of 10 rooms and 60 seats. Income earned from supplementary activities per adult family member should not exceed 1.5 the average yearly earnings per person in paid employment. In less-favoured areas for agricultural production, income should not exceed 3 average yearly earnings. Moreover, certain minimum education and hygiene standards for the production of food and classifications must also be set.<sup>6</sup> Second, farm tourism can be set up as an independent entrepreneur just as in any other tourism or economic activity.

One important difference between purely tourist activities such as hotels, restaurants, inns, and motels on one side, and tourist farms on the other, is tax treatment.<sup>7</sup> Taxation policies can provide considerable incentives or disincentives for private business development, including tourism on a farm. This holds for both personal income tax treatments for farm tourism and for value-added tax (VAT) rates. As in some other countries, Slovenian personal income tax treatment for farms with tourists is more favourable than for other, purely tourist activities such as inns. This different treatment creates conflicts between inns and tourist farms, and some bankrupted farms aim to convert themselves into inns, but register as tourist farms (SEBENIK 2004, p. 13). The tax rate in Slovenia is 25%, but provides two possible tax bases. First, according to the general tax rule, the tax base is determined as a difference between realised income and normative costs in the amount of 60% of realised income. Second, there is a possibility that a person who runs the business can decide on bookkeeping systems. In that case, the tax base is determined by deducting the actual costs from realised income. Moreover, the VAT is obligatory for all businesses with an income exceeding

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<sup>5</sup> These price levels are comparable with Austrian prices, where price per overnight stay with breakfast in tourist farms is around 20 Euro and price per apartment for four people is around 56 Euro (EMBACHER 2003).

<sup>6</sup> These standards are now harmonized with EU hygiene standards, which caused some processing facilities at tourist farms to be temporary closed.

<sup>7</sup> Slovenia is known for its inns, which offer local culinary specialities and wine in several villages. However, the number of inns has fallen from 6,000 in the past to something more than 1,000. Among the most considerable constraints for their development seem to be high taxes and increased sanitary requirements (SEBENIK 2004, p. 13).

22,000 EUR per year. All others businesses, particularly the self-employed, can decide upon this system voluntarily. VAT for food, B&B arrangements and similar is 8.5%.

Farm tourism in most Western countries has gained through different investment funds and government support measures. Recently, similar governmental support measures have been launched in Slovenia with the addition of EU support. During pre-EU enlargement in Slovenia, this was the three-year EU-SAPARD program. In Slovenia, 3,391 tourist bed places and 4,061 seats were co-financed within this program (SEBENIK 2004, p. 11). The EU-SAPARD program was a combination of EU and national funding, where grants could be in the amount of 50% of investment costs. These investments were used towards reconstructing old farmhouses and apartments, completing existing buildings and new construction and equipment activities for farm tourism. The amount of co-financing from the EU was around one-third of the value of investment. There are also some investment opportunities for tourism on farms from the Slovenian fund for development of agriculture and countryside, as well as from bank loans and funds in local communities.

Among the lessons learnt in Slovenia, there is the crucial importance of different sales channels (ČUČEK 2003). Most sales of holidays on farms are conducted directly via catalogues, mouth to mouth, Web and e-mail (95%). Also, the importance of the Web is increasing particularly rapidly.<sup>8</sup> Travel agencies make up the remaining 5%. The ATFS assists tourists in obtaining more information about tourist farms and in making reservations directly with the farm.<sup>9</sup> The

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<sup>8</sup> This is also consistent with findings for Austria and most other countries. New tourists on farms in Slovenia find information about the tourist farm based on recommendations from friends (27%), Internet (36%) and catalogues (37%).

<sup>9</sup> ATFS activities are related to promotional activities. They publish information materials and catalogues on tourist farms in Slovenia, among which are two important publications. First, in cooperation with the Slovenian Tourist Board, each year the catalogue "Slovenian Countryside: Tourist Farms" is published in German, English, Italian and Slovene <<http://www.slovenia-tourism.si/touristfarms>>. The publication of the farm with its photo in the catalogue costs around 100 Euros. In a separate chapter, all registered tourist farms are published with their address and phone number, irrespective of whether they are or are not members of the ATFS, and even if they do not the pay for publication in the catalogue. Yet, on the Internet portal a list of 25 ecological farms appears according to ATFS criteria. Second, in cooperation with tourist farms in Carinthia in Austria and Friuli Venezia Giulia in Italy, the catalogue "Holidays Beyond Borders" (2003) is published in German (Urlaub am Bauernhof in Kärnten: <<http://www.urlaubambauernhof.com>> or <[www.grenzenlos.at](http://www.grenzenlos.at)>, Italian (Associazione Agriturismo Friuli Venezia Giulia Agenzia Regionale: <<http://www.agriturismofvg.com>> or <[www.agriturismosenzaconfini.com](http://www.agriturismosenzaconfini.com)> and Slovene (Združenje turističnih kmetij Slovenije – Association of Tourist Farms of Slovenia: <<http://www.slovenia-tourism.si/touristfarms>> or <[www.touristfarms.net](http://www.touristfarms.net)>) within the

ATFS also provides assistance and other marketing activities such as the presentation of tourist farms at national and international fairs in Europe, advertising, assuring information for tourists and marketing research.

## 2.4 Comparison of farm tourism in Slovenia and Austria

Tourist farms in Slovenia among other offer specific food and tourist services. As such, they are still negligible when compared with neighbouring Austria, which is the leading European country in farm tourism development in the post-World War II period. Table 6 presents comparisons in farm tourism developments between Austria and Slovenia. Besides German Bavaria, Austria provided an especially successful example of holidays on farms (EMBACHER 2003). In 2000, Austria had about 15,500 holdings with tourist accommodations.<sup>10</sup> With 170,000 beds in rooms and/or holiday apartments, around 15% of all Austrian tourist beds are located on farms. The number of tourist beds on farms has declined, but the number of beds in "holiday apartments and houses" has increased. The spending of farm tourists in rural areas is estimated to be 700-900 million Euro per year, which generates around 20,000 jobs in rural areas (EMBACHER 2003). This is equivalent to a turnover the size of around half of all hotels and restaurants in Slovenia.

Slovenia, as well as other CEE countries, can learn much from farm holiday trends in Austria. Among the most important lessons are improved professionalism and commitment to high quality offers, the reduction of marketing costs, a shift from B&B to holiday apartments, market segmentation and different theme offers, development of tourist destinations with close horizontal and vertical cooperation to offer different opportunities, and promotion, education and training. There is increased competition in the tourist markets, while the image of agriculture and rural life still plays an important role for farm holidays. Authenticity, rather than "animation", and segmented markets focusing on "farm life" for children and "peace, relaxation and nature" for adults seem to be gaining importance (EMBACHER 2003). There are strong trends in marketing efforts using the Internet and advance information and communication technologies are more and more closely connected to holidays on farms and other tourism economies where professional (marketing) organizations, which rely on broader cooperation and

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INTERREG IIIA project. The catalogue includes 400 tourist farms with accommodation, 300 tourist farms which offer food, tips for trips, culinary specialities and events.

<sup>10</sup> Austria has 199.5 thousand agricultural holdings. Among them are 18.3 thousand organic farms. Several active agricultural holdings are specialised in farm holidays and direct sales of farm-produced food. In general, around 8% of Austrian family farmers offer holidays on the farm (Urlaub am Bauernhof). There is the Farm Holidays Association with around 3,400 members, which have 44,800 beds in rooms and apartments. The returning guest rate is 55%. The average size of operation is 12 beds.

networking in marketing agricultural products and holidays on farms, play important roles in successful marketing. Most farm tourists in Austria are from Germany (56%), while in Slovenia most are domestic tourists. While domestic tourists on Austrian farms are also important, they represent a bit more than half of tourists from Germany. Other tourists on farms in Austria are spread among different Western countries, particularly those in the nearby regions. The number of tourists on farms in Austria is several times greater than in Slovenia.

**Table 6: Comparison of farm tourism in Slovenia and Austria**

	Austria	Slovenia
Organization	Austrian Association for Farm Holidays (AAFH) (Bundesverband Urlaub am Bauernhof): 3,400 members, 44,800 tourist beds in rooms and apartments, average size of 12 beds	Association of Tourist Farms of Slovenia: <ul style="list-style-type: none"> <li>established in 1997</li> <li>has 270 members – holders of tourist activity on farms (2,100 tourist beds and 10,000 seats)</li> </ul>
Activities of the Association	The AAFH: particularly promotion and lobbying. 8 regional AAFH and local and regional landlord rings: cooperation with tourism organisations. Holiday farms: cooperating and networking between holiday farms and with other tourist operators such as hotels and inns. Important promotional activities. Assistance of members in project and product developments considering EU and other relevant policy supporting measures. Representation of members' interests. Advertising, instruction, information and providing Internet portal for members. Joint offer and prospects.	<ul style="list-style-type: none"> <li>Marketing communication.</li> <li>Representing the interests of members and all the tourist farms in Slovenia.</li> <li>Informing the members (publication of the Association Welcome on the farm).</li> <li>Organizing different trainings for members.</li> <li>Projects dealing with developing quality tourist products and marketing cooperation.</li> </ul>
Strategic objectives	Main slogan is "discover natural diversity" by recognizable products, quality assurance, specialization and attractive offers of target groups, cooperation between holiday farms and tourist economy, and providing Internet portals and new media technology as new sale channels and new markets. The concept of "positive future development" is the main vision assuring competitiveness and improved capacity utilization by offering concept, higher price level, sales and promotion.	<ul style="list-style-type: none"> <li>improved quality of the offer of tourist farms</li> <li>greater occupancy rates</li> <li>more daily guests on excursion farms, wine cellars</li> <li>making a positive image of the countryside in the public</li> <li>to preserve jobs on farms</li> <li>to contribute to maintaining the density of population and cultural heritage in the rural areas.</li> </ul>
Quality grading and classification scheme	Classification between two and four flowers and special offers: specials set up for children, handicap accessible, seminars, agricultural crafts, wine, organic farming and health, and horseback riding.	<ul style="list-style-type: none"> <li>Obligatory for all the accommodations in Slovenia.</li> <li>Regulated and controlled by the state (every three years).</li> <li>The quality of accommodation and service on tourist farms (rooms, apartments) ranked from one to four apples.</li> <li>The quality of accommodation and service for B&amp;B and apartments is ranked from one to four stars.</li> </ul>
Occupancy rates	55% returning guest rate	<ul style="list-style-type: none"> <li>60 days per year, on average</li> <li>farms near tourist centres, thermal spas, ski resorts and similar tourist attractions have more than 150 days.</li> </ul>
Tourists	<ul style="list-style-type: none"> <li>Germany (56%),</li> <li>Austria (32%, of which 11% Vienna)</li> <li>The Netherlands (4%)</li> <li>Belgium, Luxembourg and France (2%)</li> <li>Italy (1%)</li> <li>Switzerland (1%)</li> <li>Other countries (4%)</li> </ul>	<ul style="list-style-type: none"> <li>Slovenia (60%)</li> <li>Germany (13%)</li> <li>Italy (12%)</li> <li>Croatia (8%)</li> <li>Other countries (7%): Austria, Hungary, Netherlands, Denmark, Belgium, France, Switzerland, Scandinavian countries, Israel, Japan, the USA, Canada, Poland and others</li> </ul>
Internet	Internet, new media, information and communication technologies very important for promotion and holiday sales.	The ATFS and the tourist farms that are presented in printed catalogues have their comprehensive web presentation in four languages (English, German, Italian and Slovene) at the Official Slovenian Tourism Information Portal < <a href="http://www.slovenia-tourism.si">www.slovenia-tourism.si</a> >. This Internet address is promoted through more than two million pieces of promotional materials per year, international fairs, press releases and all other promotion activities of the Slovenian Tourist Board. 25 % of tourist farms presented in the catalogue (41 farms) have their own additional web page. The importance of the Internet is increasing, especially for tourists coming from abroad.
E-mail	Widely used.	More than 150 tourist farms have their e-mail addresses (60%).
Training for farmers	Education, training and marketing: the key to success	In cooperation with the Chamber of Agriculture and Forestry of Slovenia: <ul style="list-style-type: none"> <li>Courses of foreign languages.</li> <li>Basic courses for tourist farms.</li> <li>Workshops "Successful marketing on a tourist farm, selling with the phone or mail, relationship building and similar".</li> <li>Workshops "Specialization-the key to success".</li> <li>Courses in computer knowledge, Internet, culinary specialties and similar.</li> </ul>

Source: Compiled based on EMBACHER (2003) and ČUČEK (2003).

Besides different levels of farm tourism development, the most striking difference is much better farm tourism capacity utilisation in Austria than in Slovenia. While the occupancy rates differ across tourist farms according to their location, the tourist farms in Slovenia are largely occupied over the summer season, while the occupancy in Austria is dispersed across the summer and winter seasons. Similar to Slovenia, the peak is achieved in August, but at a much greater num-

ber, with more than one million overnight stays. Among higher overnight stays recorded in July, Austria also enjoys higher numbers to a lesser extent in December, January, February, and September. Less overnight stays are recorded in March, April, October, and particularly in November. While the specialization of tourist farms in Slovenia is emerging, the major interest of tourists on Austrian farms is for holiday apartments, followed by children tourism, mountain farms, horseback riding, organic farms, then agricultural production, mountain huts, vineyards and bicycling, and finally by art and crafts and helping on the farm (EMBACHER 2003). Among the most important Austrian strategy measures in farm holidays are further strengthening the importance of training and consulting, information and motivation of the members, quality improvements, investments in leisure and activities, marketing improvements enhancing a clear profile of offers, particularly by the Internet and websites, and creating stronger links between agricultural and food products with holidays on the farm. Moreover, a European campaign for farm holidays is envisaged in support of closer efforts between holiday farms, tourism and other economic activities to strengthen implementation and organisational structures.<sup>11</sup> Diversification and innovative ideas for new offers remain important, but due to new technological opportunities, all member operations should be combined onto one website. The latter objective is already largely conducted for the catalogues of holiday farms in both Austria and Slovenia, which are also available on Internet websites.<sup>12</sup>

Among lessons learnt in both Austria and Slovenia, there are four important messages for other CEE countries. First, the education of farmers and local people is important for creating awareness of the possibilities to implement and use the farmhouse for tourism. An educational program and a countrywide campaign are important for raising the educational and consultancy expertise among institutions, farmers, employees in the tourist economy and other people living in rural areas. Second, the membership of a farm in a farm holiday association may play an important role in providing training for the development of new offers and marketing concepts, qualification seminars for members, providing the

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<sup>11</sup> Also, the AFTS became a member of the European Federation of Farm and Village Tourism (EUROGITES), and presents on its Internet portal <[www.eurogites.org](http://www.eurogites.org)> a link to around 200 tourist farms in Slovenia. Among EUROGITES members, the largest is the French Association "Gîtes de France" with around 50,000 members, then ASETUR (Spain) with 4,500 members, Austrian "Urlaub am Bauernhof", a Polish and Romanian Association with around 3,000 members, respectively, and England's Association "Farm Stay UK" with around 1,200 members. Among important EUROGITES activities are lobbying and networking of similar European organizations in tourism, marketing, support to members, exchanges of experiences particularly via Internet, joint projects and quality standards for farm and village tourism.

<sup>12</sup> For Austria, see: <<http://www.farmholidays.com>>. For Slovenia, see: <<http://www.slovenia-tourism.si/touristfarms>>.



Internet as an information, promotion and marketing tool, and cross-border cooperation. Most farm holidays are sold directly via the Internet, e-mail and other advanced information and communication technologies. Third, there might be some constraints regarding the distinction between tourism on farms and some similar tourist activities in rural areas within restaurants, family hotels, motels, inns and similar tourist establishments.

As there might be some special taxation and other economic policies, transparent regulatory frameworks and practices are important for avoiding conflicts of interest in rural areas, particularly between agriculturalists and other small- and medium-sized entrepreneurs in hotels, restaurants and similar activities. Particularly, experiences in Austria show that it is important to develop synergies between different providers of tourist services. Due to this, there is also a need for closer cooperation and joint promotional, selling and similar actions in the tourist markets between organizations responsible for tourism on farms and tourism nationwide. This is clearly confirmed in Austria, and more recently in Slovenia as a good practice.<sup>13</sup>

Finally, the quality grading and standardization classification scheme of farms with tourist accommodation, including biological farms, and the real quality of farm tourist services, special tourist products, Internet advertising and marketing, and knowledge of languages are crucial for competitiveness. They are also important for sustainable tourist farm development and for cultivating future market development with a greater role of tourist farms in rural tourist destinations.

### **3 CONCLUSION**

Farm tourism, which is a part of rural tourism and rural development, is often seen as an opportunity to expand and diversify employment and incomes on farms. The romanticism of tradition, nature and social tourism, declining incomes from pure agricultural activities in small- and medium-sized farms, associated shifts toward diversification efforts, gender issues with changed ranking of positions within the farm business and the political economy of farm tourism have been included among policy objectives and measures eligible for government supports. These are often seen as the main driving forces behind farm tourism development in Western countries.

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<sup>13</sup> The ATFS established closer cooperation in the regions bordering Slovenia, Austria and Italy through the Interreg III project "Agrarcontact", which covers environment, ecological agriculture, forestry and fisheries, education and tourism on farms. Since the Slovenian farms have appeared on the website portal address <[www.touristfarms.net](http://www.touristfarms.net)>, the number of visitors has increased (SEBENIK 2004).

Among important factors for farm tourism development are a farm's location close to natural, ecological, cultural, and some other heritage or historical attraction, tradition in entrepreneurship, education and nationwide promotional activities, opportunities for additional incomes, the wife's ability to stay on the farm, and government policies targeting farm income.

While rural tourism shows increased employment and income structures in the rural-based economy aside from agriculture, forestry and fishery, there are less clear developmental patterns in farm tourism. Farmers control the greatest parts of the surface in several developed countries, while the bulk of the population lives in concentrated urban land areas. Several rural recreational resources are used for tourism and contribute to employment and the development of infrastructure and service activities. Except Austria and some regions and micro-locations with natural, cultural and similar rural tourist attractions in other EU and developed countries, it seems that farm tourism is still much less important for employment and income generation than rural tourism. Aside from Austria and farms situated closely to important natural, cultural, historical and similar attractions, farm tourism is not widespread in Western nor in CEE countries. Typically, it is a small business that operates during a short season or maybe two seasons, and generates low incomes. So far, it has been important only for some farms, but not in general. While the overall economic role is largely negligible, it has a significant "myth" for the image of tradition in agriculture and in rural areas. So far, this is in spite of the fact that EU rural development and structural policies aim to contribute to the development of farm diversification, infrastructure and service development in the countryside, and guard the environmental importance of tourism development.

Besides farm tourism experiences in some Western countries, this paper also presents lessons learnt from the development and promotion of farm tourism in CEE countries focusing on Slovenia as a case study. While in neighbouring Austria, tourist farms play an important role in employment and in income generation of agricultural households, this is still less so in Slovenia and in any other CEE country, as farm tourism is small in scale. The most recent experiences in CEE countries, such as rural tourism in Rožnava Okres in Slovakia or agro-tourism in some regions in Romania (e.g., the Prahova valley and Transylvania) and some other CEE countries (e.g., Hungary, Croatia, Poland, the Czech Republic and Bulgaria) show some positive results. Using existing farm capacities, farm tourism is inexpensive to develop and provides additional (inexpensive) accommodation facilities for different tourist demands such as country society, heritage, wine, and green and eco-tourism. Also in Slovenia, the capacities of tourist farms are relatively small and are utilized to a relatively low degree. Similar to Austria and other Alpine regions of Europe, rural tourist destinations in Slovenia have the potential to advance the common economic space in the enlarged EU. Effective tourism development and the promotion of rural tourist

attractions and tourist destinations may create jobs and income opportunities, including tourist farms. Experiences in Austria have proved that appropriate organization at the regional and local levels for conducting product development, joint promotional and marketing activities and investment supports are crucial for tourism development. Education and training in rural areas for farmers, as well as broader citizens' networks to create an appropriate investment and business climate, and to improve tourist services are other important issues. Possible target customer groups require a tailored marketing approach. New tourist demands and development opportunities for farm tourism may arise from these visitors and different development initiatives in the enlarged EU, but the entrepreneurial spirit and initiative have to come from farmers and other people living in rural areas.

Economic policies can provide important incentives, but also disincentives to farm tourism development. These policies are diversified across Western and CEE countries, particularly in the areas of fiscal policies (income tax and VAT) and investment policies. Differences also exist for tourism activities across NACE classifications within a certain country, particularly between activities A agriculture, hunting and forestry and B fishing on one side, and H hotels and restaurants on the other.

Transparent legal and policy frameworks and greater cooperation between different tourism units and organizations can assure the growth of certain tourist destinations beneficial to different participants. Taxing the turnover from farm tourism discourages farm tourism development. It is well known that the income from tourism is even more uncertain and unstable than agricultural production, which is more and more dependent on governmental subsidies for several agricultural products. Networking, organization, critical volume of business and local factors in the tourist markets, as well as innovativeness and quality of tourist services on the farm are crucial for farm holidays.

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## BIOMASS PRODUCTION AS A FUTURE AGRICULTURAL DEVELOPMENT FACTOR IN WEST POMERANIA (POLAND)

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### ABSTRACT

The paper presents the pros and cons connected to biomass production in the northwest part of Poland, where agriculture is a significant sector of the economy. At the moment, biomass-based industries in West Pomerania do not exist, and organisations and initiatives are being developed to identify potential biomass uses, producers, and consumers. In Poland, it has been estimated that energy from renewable resources should increase from 2.65% in 2003 to 7.5% in 2010. The current target for 2004 is 2.85%. To help achieve this in West Pomerania, a new program has been started in co-operation between local government, the Dolna Odra power station, non-governmental, pro-ecological organisations, the Agricultural Advisory Service and the Agricultural Academy of Szczecin. It has been estimated that at the beginning of biomass firing, 30,000 ha of energy crop plantations would be required to cover the demand of the Dolna Odra power station for biomass in order to replace coal. As a final target in 2007, 750,000 tons of biomass are planned to be delivered to Dolna Odra. A maximum 100- to 150-kilometre radius was considered for economical transportation of biomass to the plant. The authors focus on harvesting, transportation and technical problems that should be solved in the near future to optimise the program.

**Keywords:** biomass, co-firing process, renewables, energy crop plantations.

### 1 INTRODUCTION

The rotation of the earth and its orbit around the sun allow solar energy to be absorbed by matter on earth during the day and to be emitted into space again at night. The resulting temperature differential enables the conversion of solar radiant energy into renewable forms of energy, including hydro- and wind power. One particularly notable process whereby solar energy is converted is photosynthesis, which converts constituent elements such as carbon dioxide and water into carbohydrates (biomass/organic waste) and releases oxygen in the process.

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Millions of years ago a part of the biomass formed by nature was cut off from air and carbonised into what we now know as fossil fuels. These processes can be summarised in terms of an empirical formula that is known as the “earth’s fuel formula” (CHOREN GMBH 2004).

The capture of solar energy as fixed carbon in biomass via photosynthesis, during which carbon dioxide (CO<sub>2</sub>) is converted to organic compounds, is the key initial step in the growth of virgin biomass and is depicted by the equation:



Carbohydrates, represented by the building block (CH<sub>2</sub>O), are the primary organic product. For each gram mole of carbon fixed, about 470 kJ (112 kcal) is absorbed. The upper limit of the capture efficiency of incidental solar radiation in biomass has been estimated to range from about 8% to as high as 15%, but under most field conditions, it is generally in the 1% range or less. However, the global energy potential of virgin biomass is very large. It is estimated that the world’s standing biomass carbon, i.e., the renewable, above-ground biomass that could be harvested and used as an energy resource, is about 100 times the world’s total annual energy consumption.

The world’s energy markets rely heavily on the fossil fuels coal, petroleum crude oil, and natural gas as sources of energy, fuels, and chemicals. Since millions of years are required to form these fossil fuels in the earth, their reserves are finite and subject to depletion as they are consumed. The only other naturally-occurring, energy-containing carbon resource known that is large enough to be used as a substitute for fossil fuels is biomass. Biomass is all non-fossil organic materials that have an intrinsic chemical energy content. They include all water- and land-based vegetation and trees, or virgin biomass, and all waste biomass such as municipal solid waste, municipal biosolids (sewage) and animal wastes (manures), forestry and agricultural residues, and certain types of industrial wastes. Unlike fossil fuels, biomass is renewable in the sense that only a short period of time is needed to replace what is used as an energy resource. Biomass is a material that can be processed to create heat, steam, hot water, electricity, or alternative fuels, such as ethanol. Biomass is organic material such as wood, crops and animal wastes that can be used as fuel in either raw or processed form. For example:

- fast growing trees and grasses like willow and Miscanthus, i.e., energy crops,
- agricultural residues such as cereal straw or used vegetable oils,
- wood “waste” such as sawdust and tree pruning,
- municipal waste.

Energy derived from these sources is described as biomass energy and is an environmentally friendly alternative to fossil fuels. Biomass energy can be used to

generate electricity and heat and also for the production of liquid transport fuels such as bioethanol, a petrol additive or substitute and biodiesel, a diesel substitute. Unlike fossil fuels, biomass is renewable in the sense that only a short period of time is needed to replace what is used as an energy resource. The idea of using renewable biomass as a substitute for fossil fuels is not new. In the mid-1800s, biomass, principally woody biomass, supplied over 90% of U.S. energy and fuel needs, after which biomass energy usage began to decrease as fossil fuels became the preferred energy resources. Some analysts now believe that the end of the Fossil Fuel Era is in sight because depletion of reserves is expected to start before the middle of the 21<sup>st</sup> century, probably first with natural gas. This eventuality, and the adverse effects of fossil fuel usage on the environment, are expected to be the driving forces that stimulate the transformation of biomass into one of the dominant energy resources (KLASS 2003).

## **2 THE TECHNOLOGIES**

Energy derived from these sources is described as biomass energy and is an environmentally friendly alternative to fossil fuels. Biomass energy can be used to generate electricity and heat and also for the production of liquid transport fuels such as bioethanol, a petrol additive or substitute, and biodiesel, a diesel substitute. Under ordinary circumstances, virgin biomass is harvested for feed, food, fibre, and materials of construction, or is left in growth areas where natural decomposition occurs. The decomposing biomass or waste products from the harvesting and processing of biomass, if disposed of on or in land, can in theory be partially-recovered after a long period of time as fossil fuels. Alternatively, virgin biomass and any waste biomass that results from the processing or consumption of virgin biomass can be transformed into energy, fuels, or chemicals.

The technologies that enable this include a variety of thermal and thermochemical processes for converting biomass by combustion, gasification, and liquefaction, and the microbial conversion of biomass to obtain gaseous and liquid fuels by fermentative methods. Examples of the former are wood-fuelled power plants in which wood and wood wastes are combusted for the production of steam, which is passed through a steam turbine to generate electric power; the gasification of rice hulls by partial oxidation to yield a low-calorific-value fuel gas, which drives a gas turbine to generate electric power; the pyrolysis or thermal decomposition of municipal solid waste to yield liquid fuel oils and chemicals; and the hydrofining of tall oils from wood pulping to obtain high-acetone diesel fuels. Examples of microbial conversion are the anaerobic digestion of biosolids to yield a relatively high-methane-content fuel gas (biogas) of medium-calorific-value, and the alcoholic fermentation of corn to obtain fuel ethanol for use as an oxygenate and an octane-enhancing additive in motor gasolines.

Another route to liquid fuels and products is to grow certain species of biomass that serve the dual role of a carbon-fixing apparatus and a natural producer of high energy products such as triglycerides or hydrocarbons. Examples are soybean, from which triglyceride oil co-products are extracted and converted to high-cetane biodiesel fuels (which are the transesterified methyl or ethyl esters of the fatty acid moieties of the triglycerides); the tapping of certain species of tropical trees to obtain liquid hydrocarbons suitable for use as diesel fuel without having to harvest the tree; and the extraction of terpene hydrocarbons from coniferous trees for conversion to chemicals. A multitude of biomass conversion technologies thus exist that can be employed to obtain energy, fuels, and chemicals. Many of the processes are suitable for either direct conversion of biomass or the conversion of intermediates. They are sufficiently variable that synthetic fuels produced are either identical to those obtained from fossil feedstocks, or are suitable as fossil fuel substitutes.

It is important to emphasise that all of the fuels and chemicals currently manufactured from fossil fuels can be manufactured from biomass feedstocks. For example, the German company Choren Industries GmbH converts solar energy into synthetic automotive fuels. The final product, so called SunDiesel (registered name) should cover 4% of the German demand for diesel in 2010 (DEUTMAEYER 2004).

The key to the large-scale production of energy, fuels, and commodity chemicals from biomass is to grow suitable virgin biomass species in an integrated biomass production-conversion system (IBPCS) at costs that permit the biomass to be grown both as an energy crop and at a profit. Much research has been carried out to screen herbaceous and woody biomass species and to apply advanced technologies such as the development of hybrids and the use of genetic engineering techniques to help meet this goal. Many parameters are involved. In the idealised case, plants are located in or near the biomass growth areas to minimise transport costs.

### **3 DOLNA ODRA POWER STATION AND ITS IMPACT ON BIOMASS PRODUCTION**

In the northwest part of Poland, where agriculture has always been a significant sector of the economy, biomass could be produced on a large scale. There are many reasons for this. First, there is enough agricultural land left after the decomposition of former State Owned Farms (PGR). Second, a relatively mild climate, much better than, for example, Sweden, with a longer vegetation period should ensure good increases of biomass from energy plantations. Third, a high unemployment rate among former State Owned Farm workers will provide enough manpower at favorable prices. At the moment, biomass-based industries in West Pomerania do not exist, and organisations and initiatives are being developed to identify potential biomass uses, producers and consumers.



Research conducted by Warmia and Mazury University in Olsztyn has showed that the cultivation of *Salix* sp. as an energy crop could be profitable for Polish farmers. The 1 ha plantation was founded in 2002 near the city of Kwidzyn, with 40,000 seedlings. The biggest part of the total costs connected to establishing the plantation were the seedlings (77% of the costs). Machines and other technical equipment used to work generated only 9.33% of total costs. The cost of labour forces generated the next 7% of total costs. Table 1 presents the cost of production of willow (*Salix* sp.) on an arable area with regard to various harvesting cycles.

**Table 1: The cost of production of willow (*Salix* sp.) on an arable area considering various harvesting cycles**

Specification	Harvesting cycle (Frequency)		
	Every year	Every two years	Every three years
Cost of production (PLN/ha)	1,191.90	2,502.20	4,260.60
Yield of raw biomass (t/ha)	31.70	64.30	119.50
Cost of production of 1 ton (PLN)	37.50	38.90	35.60
Price for 1 ton of willow chops (PLN)	80.00	80.00	80.00
Profit of 1 ton (PLN)	42.50	41.10	44.40
Profit of 1 ha (PLN)	1,350.10	2,633.30	5,302.60
Profit (PLN/ha/year)	1,350.10	1,316.60	1,767.50

Note: Exchange rate: 1€ = 4.4 PLN.

Source: STOLARSKI, M., Ph.D. work, UWM Olsztyn, 2001.

The highest profit was achieved in the three-year harvesting cycle (1,767.50 PLN/ha/year). The price taken for calculating one ton willow chops was the average Polish price (80 PLN). If we compare the profit achieved from willow cultivation to that of the cultivation of crops, it may turn out that crop cultivation is less profitable (spring barley by the yield of 5 t/ha brings a surplus of 590 PLN/ha, winter wheat by the yield of 5.6 – 6.6 t/ha brings surplus of 1,152 PLN/ha – 1,508 PLN/ha). There are three very large obstacles to cultivating renewable energy plants in Poland: a small demand on the market for willow chops, the lack of reliable research that definitely shows how to bring a fallow area back to arability after 25 years of cultivation, and lack of know how for cultivating willow among Polish farmers. In Poland, according to The Order of Ministry of Labour from 30th May, 2003, it has been estimated that energy from

renewable resources should increase from 2.65% in 2003 to 7.5% in 2010 (Dz.U. Nr 104, Poz. 971). The current target for 2004 is 2.85%. To help achieve this in West Pomerania, a new program has been started in co-operation between local government, the Dolna Odra power station, non-governmental, pro-ecological organisations, the Agricultural Advisory Service and the Agricultural Academy of Szczecin. It has been estimated that at the beginning of biomass firing, 30,000 ha of energy crop plantations would be required to cover the demand of the Dolna Odra power station for biomass in order to replace coal. As a final target in 2007, 750,000 tons of biomass are planned to be delivered to Dolna Odra. A maximum 100- to 150-kilometre radius was considered for economical transportation of biomass to the plant.

Heat can be produced directly from boilers where the biomass is burnt, and used for heating buildings, greenhouses, industrial premises, etc., or steam can be produced to drive a turbine for the generation of electricity. The most efficient systems are combined heat and power (CHP) plants, where the heat produced during the generation process is used rather than wasted. The Dolna Odra power station is a CHP-type station and is the biggest electricity producer in West Pomerania (electrical power 1,742 MW). The station is connected directly to the electrical network, which means that electricity is produced not only for the local market but nationwide. Heat (heat power 100 MW), however, is produced only for the local market. Dolna Odra provides the city of Gryfino with hot water.

Biomass can be co-fired in small quantities with coal in existing boilers, which leads to a reduction in the emissions typically associated with coal burning. The experimental co-firing of coal and biomass in the coal-fired power station Dolna Odra has already started, and investigations undertaken this year will show how coal firing, along with the co-firing of different types of biomass, will influence the process of high temperature corrosion in biomass co-fired plants.

At the moment, the most reliable research that has been conducted took place in 2002, in the Heating Station in the city of Elbląg, and was undertaken by Instytut Chemicznej Przerobki Węgla (The Institute of Chemical Processing of Coal) from Zabrze. The results of the research show that the co-firing process (willow chops and coal) can be done without any technical changes in equipment. The only restriction is that the share of willow chop cannot be higher than 25%. Increasing the share of willow chops in the co-firing process, however, will require a modification of firing in the boiler, which will greatly increase costs and is not acceptable for the company. The research underlined the ecological effect of co-firing. CO<sub>2</sub> air contamination was lowered by 27.4%, SO<sub>2</sub> was lowered by 23.5% and NO<sub>x</sub> was lowered by 8.1% (RAPORT Z BADAN... 2002).

#### **4 BENEFITS OF THE PROGRAM**

There are many environmental and social benefits of utilising biomass energy:

- biomass used as fuel is CO<sub>2</sub> neutral in that the CO<sub>2</sub> released when the fuel is used is equivalent to that taken from the atmosphere by the plants as they photosynthesise,
- acid rain reduction - energy generation using fossil fuels is a major source of greenhouse gases which, apart from CO<sub>2</sub>, include nitrogen dioxide and sulphur dioxide, the latter also contributing to the acid rain problem. Biomass has little or no sulphur content.

Social benefits include:

- improvement in rural economies due to the development of local industries in agriculture (biomass plantations),
- opportunities for farmers to diversify into the production of energy crops or to utilise their agricultural residues,
- opportunities for foresters in improved wood waste management – large areas of West Pomerania woodlands are currently “undermanaged”, which means that an occasion to build a market for forestry and wood industry waste can be created to cover the future demand for biomass delivery to the Dolna Odra power station.

When full-scale delivery of biomass to the Dolna Odra power station begins, huge economic impacts will occur. Biomass energy production and distribution will be a growth industry, while the oil and gas industries will decline. Employment in agriculture and forestry, and their supporting industries, will significantly increase in West Pomerania. Unlike petroleum refineries, which are geographically concentrated in relatively few areas and are consequently dependent on various long-distance modes of transporting refined products to market, the biomass energy industry will be widely dispersed in rural areas. The transport distances of biomass to the Dolna Odra power station must be relatively small to keep the price of biomass at an acceptable level.

Aside from the environmental benefits of utilising biomass energy mentioned above (reduction of greenhouse gas levels, reduction of acid rain, soil erosion, and water pollution), we can point to some social and economical benefits for rural economies, forestry, forwarding companies and supporting industries in the West Pomerania territory.

First of all, biomass energy utilisation will help to reduce dependence on coal and imported gas. Second, it will help farmers put idle cropland to use, will boost rural economies by developing new local industries (hard wood pellets, briquettes). In general, the project will possibly help foster the development of a biofuel/biomass industry and provide an alternative crop for area farmers.

The scale of program that should be implemented by 2007 in West Pomerania can even frighten people that are professionally connected to forwarding and transportation. The question of how to transport such amounts of biomass to Dolna Odra, if one truck can only carry approx. 25 tons, still needs to be answered. How to transport 750,000 tons within the range of 100 – 150 km from producers to a boiler? At the moment, there are too many weak points in the program and too many technical barriers limit the process of firing biomass. After a few months of co-firing at Dolna Odra, we still do not have a clear answer how the boilers work with different shares of biomass.

People should, however, be convinced that the only way to ensure a sustainable, responsible and reliable power supply is by using energy sources which preserve the environment and its natural resources. A combination of energy sources coming from agriculture and forestry should create additional income for the regional farms and forest industry (SCHOLZ et al., 2004).

Because of the multitude of organic residues and biomass species, and the many different processing combinations that yield solid, liquid, and gaseous fuels, as well as heat, steam, and electric power, the selection of the best conversion technology for specific application in the Dolna Odra power station is extremely important. Many factors must be examined in depth to choose and develop a system that is technically feasible, economically and energetically practical, and, of course, environmentally superior. These factors are especially significant for large-scale biomass energy plantations where continuity of operation and energy and fuel production are paramount. But major barriers must be overcome to permit biomass energy to have a large role in displacing fossil fuels.

Among strictly technical barriers limited to the process of firing biomass (or co-firing with coal), there are some barriers connected to the development of large-scale energy plantations that can supply sustainable amounts of biomass. Moreover, the development of regional biomass distribution systems that simplify consumer access at the time delivery, and ease usage, will be one of the biggest challenges for the poor infrastructure in rural areas, where biomass should be produced. These and other barriers must be overcome if a large-scale biomass energy market should be created in West Pomerania.

Without a detailed program of biomass production, distribution and consumption, biomass energy will be limited to niche markets for many years until coal, oil and natural gas depletion start to occur. The environmental problems related to fossil fuel consumption, coupled with the beginning of fossil fuel depletion, are expected to provide the driving forces that will most likely stimulate the return to biomass energy as a major energy resource.

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## **RURAL IMPLICATIONS OF FOREIGN DIRECT INVESTMENTS IN THE FOOD INDUSTRY OF THE VISEGRAD COUNTRIES**

CSABA JANSIK\*

### **ABSTRACT**

In most of the CEE countries large expectations were associated with foreign investment to the food industry. The study examines the question of whether or not these expectations were met by the investments. A list of determinants, which have driven the regional distribution of food industry investments in the CEE and in particular the Visegrad countries, is investigated. Among these driving forces, concentrated consumers' markets and the locations of formerly established facilities have been powerful determinants, while rural and social considerations did not affect the geographical choices. Food industry FDI has often caused disappointment in the host countries, as investors have ignored local expectations concerning regional development objectives. The balance of benefits and disadvantages of food industry FDI is a complex issue. From a rural point of view it may have aggravated employment or social tensions, but on the level of the entire agri-food sector it has contributed to the overall improvement of performance and brought several important positive spillover effects.

**Keywords:** foreign direct investment (FDI), food industry, rural development, Poland, Hungary, Czech Republic, Slovakia.

### **1 OVERVIEW OF FOOD INDUSTRY FDI**

The Visegrad countries were often considered forerunners of economic and political reforms in Central and Eastern Europe. Although the observation holds in general, the developments of macroeconomic indicators differed in time because of the discrepant schedule and implementation of various reform measures. Specifically, the reforms in the food industries were launched early in all the four countries, however, the speed and way of implementation showed notable differences.

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## **1.1 Privatisation background**

A common objective was set throughout the Visegrad group to transform the food manufacturers from socialist to market oriented companies and sell them to private owners. However, the policy chosen for privatisation differed substantially in the four countries.

A coupon based, mass privatisation was employed in the Czech Republic and Slovakia, in which private citizens and raw material producers were given preferences to buy shares of the processors. In Hungary, the basic character of food industry privatisation was market oriented, although the interests of raw material producers were also taken into account in a few industries. Processing companies were sold to strategic investors, usually to those who presented the best offer in the bidding process. In Poland, a mixed privatisation policy was applied consisting of a wide variety of schemes from direct selling to indirect privatisation or various ways of slower ownership changes with the involvement of intermediary institutions such as the State Treasury Company or property management agencies called national investment funds.

The different privatisation policies resulted in diverse outcome in the food industry's ownership structure by the midst of 1990s. Domestic ownership became dominant in the Czech Republic and Slovakia including both private persons and corporate owners. Hungary witnessed a rapid headway of foreign investors, their total share exceeded 50 % as early as in 1995. In Poland the ownership structure changed quite slowly due to the mix of various privatisation methods and the strong role of state institutions, hence more than half of the food processing sales originated from state-owned companies still in 1995.

Despite the different policy approaches and implemented methods, food industry privatisation was essentially completed in the four countries by the turn of the millennium. Even in Poland most of the food industry – with the exceptions of sugar and distilling industries – was transferred into private hands by the beginning of the 2000s.

## **1.2 The inflow of foreign capital**

Foreign investors arrived at varying pace and intensity into the four countries. Yet, the beginning phase was common again, as multinational companies rushed to get hold of the large-scale processors in certain second-stage processing industries such as confectionery and soft drinks and moreover in the tobacco industry right after the commencement of reforms in the early 1990s. By acquiring the leading firms, the multinational investors became the dominant players at once in many of these industries.

The first wave of FDI inflow was supported by the nascent competition supervision and by the fact that monopolies and dominant companies in the second-stage processing industries remained intact privatisation objects. On the contrary, in first-stage processing industries, such as milling, meat, dairy, sugar and fruit and vegetable industries, the policy objective to cease state monopolies and increase competition lead to the disaggregation of huge state-owned companies and the separate privatisation of their constituent processing plants. The deconcentrated market structures and the strong agricultural lobbying forces made foreign companies cautious about their investment decisions in these industries.

After the first common peak, the intensity of FDI inflows diverged in the four countries, a fact that can be largely attributed to the different privatisation policies and FDI incentives. Hungary continued to attract foreign capital with direct sales of the state-owned companies, and as a result international strategic investors soon occupied the beer, starch and vegetable oil industries. Furthermore, considerable FDI arrived to such first-stage processing industries as dairy, feed, fruit and vegetable and meat processing, which elsewhere received only moderate foreign capital injections by the middle of the 1990s.

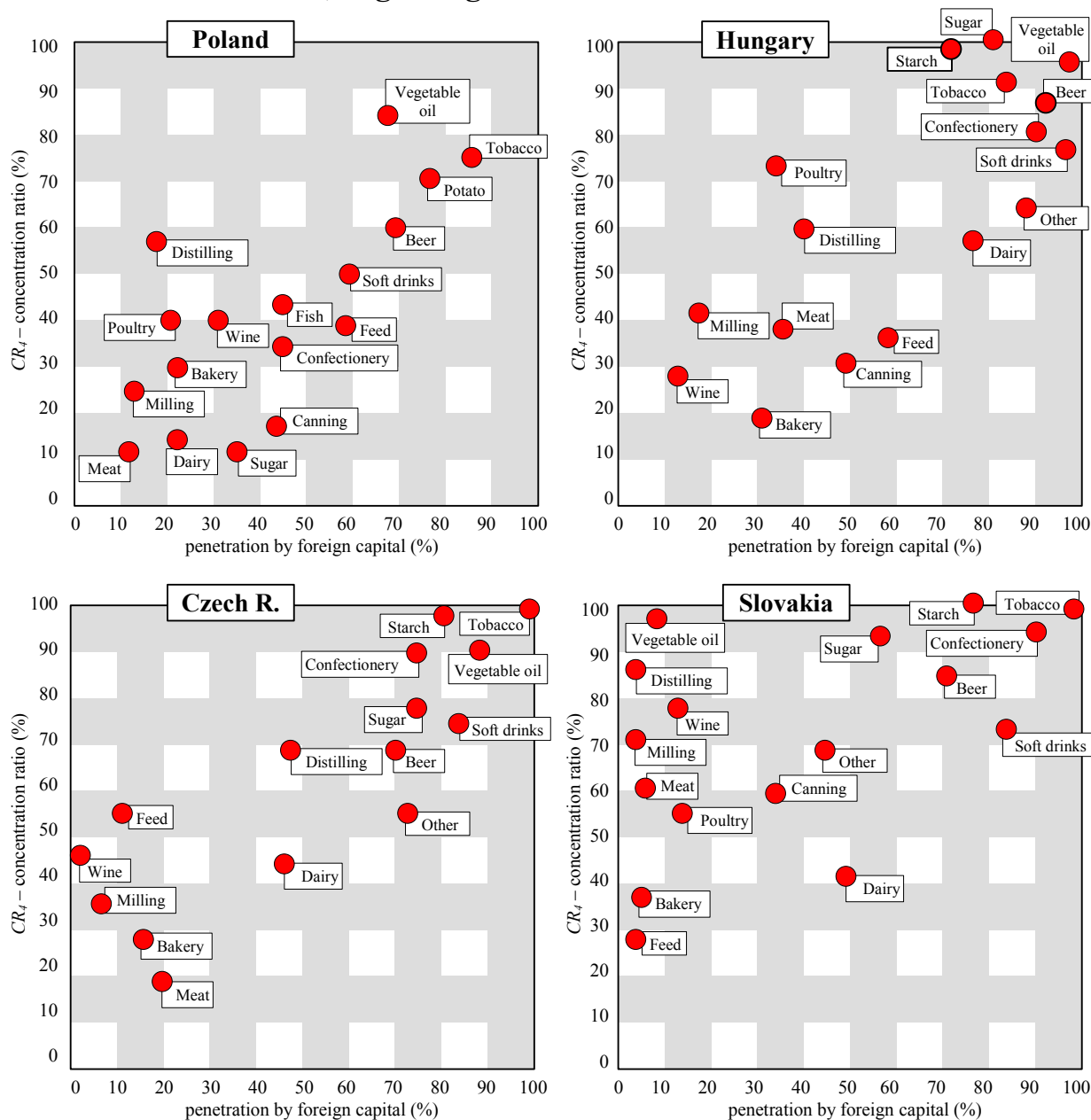
The mass privatisation in the Czech Republic and Slovakia discouraged foreign investors for many years from penetrating into the large first-stage processing industries, but the policy changed distinctly in 1998 stimulating an intense wave of FDI inflows among others to the sugar and dairy industries. At the end of the decade many of the foreign investors made their acquisitions by purchasing stakes from the new private owners, a phenomenon called “second step of ownership change”.

Due to the procrastinating privatisation, FDI flowed into Poland slowly but steadily during the second half of the 1990s and accelerated notably by the end of the decade. While the amount of cumulated FDI stocks in the Polish food industry was USD 3.2 billion in 1998, it exceeded USD 6 billion in 2003.

Despite the discrepant pace of FDI inflow in the 1990s, a fairly similar level of foreign ownership proportions emerged in all the Visegrad countries by the time of EU accession. Foreign capital became a strong shaping force, as the share of foreign ownership in the aggregate company capital of food manufacturers was over two-thirds in Hungary and approached 45-50 % in Poland, Slovakia and the Czech Republic.



**Figure 1: FDI-concentration maps<sup>1</sup> in the food industry of the Visegrad countries, beginning of the 2000s**



Notes: <sup>1</sup> The concentration ratio  $CR_4$  represents the sales of the largest four companies as a percentage of total sales in the given industry. Penetration by foreign capital was calculated as the percentage of total registered company capital in foreign ownership. The Czech FDI-concentration map is indicative only as FDI penetration figures are based on data of companies with over 100 employees and  $CR_4$  figures were calculated or estimated by using industry sources.

Source: Author's calculations based on data of the Statistical Institute of Poland, Statistical Office of the Czech Republic, Statistical Office of Slovakia, Research Institute for Information and Agricultural Economics in Hungary and various industry sources.

### 1.3 The role of market power

Foreign investments in the food industry – unlike in many other export oriented industries such as the textile or electronic industries – have been primarily domestic market driven in Central and Eastern Europe, therefore it is the size and growth of food markets in the host countries that are of utmost importance to the food industry investors. A general trend of sub-sectoral FDI distribution can be perceived among the food processing industries in the four countries; concentrated industries attracted much foreign capital, while scattered industries tend to receive relatively less or almost none.

The four FDI-concentration maps (Figure 1) reveal common patterns for several industries, since the tobacco, beer, soft drinks, confectionary, starch, sugar and vegetable oil industries are typically concentrated and have high share of foreign capital, whereas the meat, bakery and milling industries and winemaking usually have scattered market structure and relatively little foreign capital. Dairy is usually one of the largest food processing industries in the Visegrad countries, and has been the recipient of considerable foreign investments recently, which fact has moved its position towards the middle of the maps.

Despite the common patterns, the positions of a few individual industries deviate from the trend due to unique implementation of privatisation, special political objectives, measures of the competition office, or other FDI discouraging factors. One example is distilling, which attracted considerable FDI in Hungary and the Czech Republic, but is in almost exclusive domestic ownership in Slovakia and Poland.

The FDI-concentration maps verify that market power has been one of the most important motivating factors of FDI in the Visegrad countries. The penetration of foreign capital is the highest in those industries, where the market structure has been characterised by a dominant firm, duopoly or oligopoly. Foreign investors have endeavoured to attain high market shares by the acquisition of market leaders, they apparently anticipate that market positions will translate into growing sales and solid profitability as income and consumption expand on the long run.

## 2 RURAL IMPLICATIONS OF FOOD INDUSTRY FDI

In most of the CEE countries large expectations were associated with foreign investment to the food industry. One of its important inputs, agricultural produce, originates from the countryside, so food industry FDI was expected to alleviate the deep recession in rural areas by absorbing the local raw material supply, resolving the severe employment crisis and bringing business relations to various local services. Next, we investigate the question, whether the regional

distribution of food industry investments and strategies of the investors met these expectations in the host countries.

## 2.1 Determinants of regional choices

The determinants, which are presumed to influence the regional distribution of food industry FDI, are divided into a strong and a weak or indifferent group in Table 1. These determinants are scanned and explained in detail in the current section.

As far as the regional distribution is concerned, Central and Eastern European experience indicates that *foreign investments in the food industry tend to primarily be driven by concentrated consumers' markets as opposed to concentrated supply of raw material* and other inputs. This characteristic has largely contributed to a direction of uneven regional distribution in those countries where a considerable proportion of the national population is concentrated into the capital city and its surroundings. Besides the high concentration of demand, urban population is the ultimate target consumer group for food investors for two reasons:

1. It is typically the capital city that hosts an emerging group of well-to-do consumers, who generate demand also for high-quality, high-priced or culinary foodstuffs.
2. City dwellers are more exposed to the availability of a full range of foodstuffs as they have limited access to home-produced alternatives. On the other hand, in the rural areas of Central Eastern European countries the consumption of home-grown and locally purchased food is extraordinarily high.

The second most affecting factor is *the locations of the formerly existing food processing facilities*. The majority of food industry FDI arrived to the CEE countries through purchasing the privatisation objects, therefore these locations predetermined the regional choices of the investors. Many companies used to be established near to consumer markets also in the previous era, however, numerous locations indicate the deliberate decisions of past economic regimes to settle food processing plants into agriculture-intensive areas. Foreign investors were found to take over processing facilities of both location types, however the locations of green-field investments appeared to be determined more by the proximity of consumers.

*Geographical distances from markets and the available infrastructure* are definitely affecting the regional choices of food industry investments. The perishable nature of raw material and the end products, bulkiness, transportation and logistic issues are important factors in this respect. The significance of

geographical distances is obviously less pronounced in the smaller countries than in the large ones.

The *level of processing* is also a determinant factor that eventually affects the choice of regional location. Investors involved in second-stage processing tend to be purely driven by the proximity of consumers, while first-stage processors are also forced to pay attention on the proximity of raw material access.

**Table 1: Determinants of the regional choices of food industry investors in the Central and Eastern European countries**

<b>Strong determinants</b>	<b>Weak or indifferent determinants</b>
<ul style="list-style-type: none"> <li>◆ Consumers' market.</li> <li>◆ Existing locations of processing companies.</li> <li>◆ Geographical distances and infrastructure.</li> <li>◆ Type of processing activity (first-stage or second-stage).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Regional investment incentives.</li> <li>◆ Individual contracts with governments.</li> <li>◆ Rural social and unemployment issues.</li> <li>◆ Regional development.</li> </ul>

Source: Author's presentation.

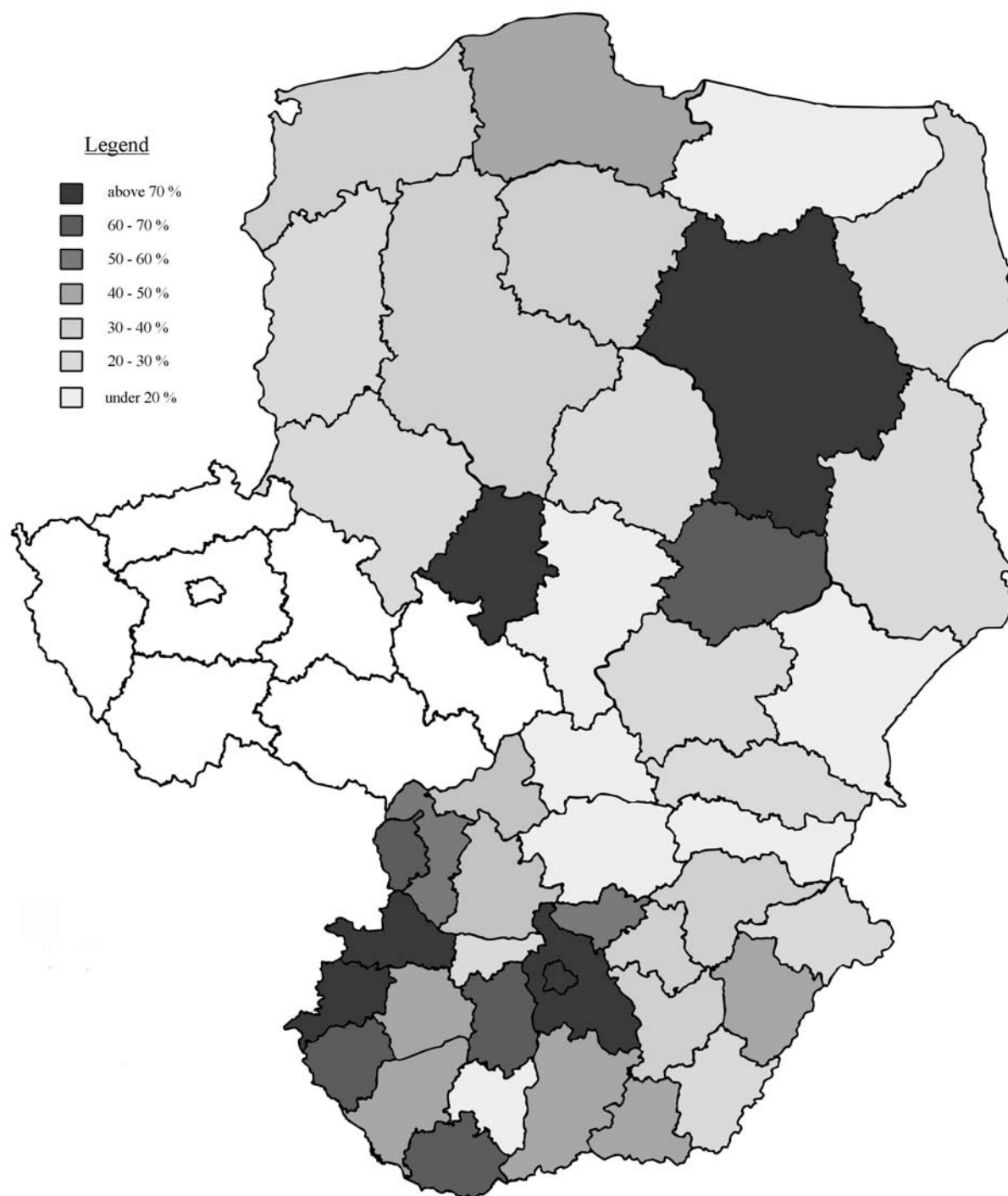
Food industry FDI has often caused disappointment in the host countries, as investors have ignored local expectations concerning *regional development objectives*. The regional choices of investments were not made on the basis of *rural needs* or acute *regional unemployment problems*.

One option to make the investors more dedicated to a provincial approach is the introduction of *regional investment incentives*. Such a policy may include tax breaks, exemptions or employment-related benefits to attract investment projects into the designated underdeveloped rural areas. Despite the carefully designed incentives, regional FDI enhancement policies have not resulted in a breakthrough in the patterns of actual regional choices of investors in the Visegrad countries. Although they may have motivated the investing companies, their affecting power is rather weak compared to the primary determinants.

## **2.2 Regional distribution of food industry FDI in the Visegrad countries**

Food industry FDI has been distributed among the regions in the Visegrad countries rather unevenly. Figure 2 illustrates the geographic distribution in Poland, Slovakia and Hungary by the share of food industry company capital in foreign ownership. Foreign investors have acquired high ownership share usually in the capital cities and the surrounding regions, their share is over 60 % in the Bratislava area, over 70 % in Warsaw and the surrounding Mazowieckie voivodship and over 80 % in Budapest and Pest county.

**Figure 2: Proportion of food industry company capital in foreign ownership by regions in the Visegrad countries**



Notes: Data on the Czech Republic were not available.

Sources: Statistical Institute of Poland, Statistical Office of Slovakia, Research Institute for Information and Agricultural Economics in Hungary.

Another common pattern of the geographical distribution, which is particularly observable in Hungary and Slovakia, is the relatively higher foreign ownership in the western regions, while foreign investors attained typically under 40 % in

the eastern parts of these countries. In the case of Poland, the central and north-western voivodships have clearly become the most popular regions for foreign investors, while the share of foreign ownership in the eastern and southern voivodships have usually stayed below 30 %.

The share of foreign ownership in Figure 2 is a relative indicator demonstrating the penetration intensity of FDI in the particular regions. However, the size of food industry may be very different in the individual regions, the total sum of food industry company capital varies across the regions just as well as food industry output does. Table 2 presents the percentage of the foreign owned company capital that has been absorbed by the capital city and the surrounding region in each country. While these metropolitan areas contribute 20 to 30 % to the national food industry output, they have received roughly half to three-quarters of the food industry FDI.<sup>2</sup> At the same time, certain remote regions, usually in the eastern provinces, have got less FDI than their contribution to the food industry output. These figures underline the fact that food industry FDI did not have a preference to penetrate into these remote rural areas.

**Table 2: The capital region's share in foreign owned company capital and food industry output**

	Share of capital region in foreign owned company capital (%)	Share of capital region in food industry output (%)
Poland (Warsaw and Mazowieckie)	63.5	22.7
Czech Republic (Prague and Střední Čechy)	73.6	n.a.
Slovakia (Bratislavský kraj)	46.0	21.7
Hungary (Budapest and Pest county)	56.8	29.6

Source: Author's calculations based on data of the Statistical Institute of Poland, Statistical Office of the Czech Republic, Statistical Office of Slovakia, and Research Institute for Information and Agricultural Economics in Hungary.

Foreign investments in the food industry are always driven by business opportunities and eventually by profit regardless of the concrete physical location of the plant. Food industry FDI has most often resulted in rationalisation and modernisation at the acquired companies. In many subsidiaries, spectacular productivity growth rates were accomplished through

<sup>2</sup> The inequality of geographical allocation is, in fact, not as high as the figures in Table 2 suggest, since several food processing companies, which have facilities in the countryside, have their headquarters in the capital cities, therefore the investments have also been registered there. Although the magnitude of this inaccuracy is hard to identify on the basis of existing data, the tendency that the capital cities have absorbed notably more food industry FDI than their share in food industry output is definitely true.

streamlining activities and dramatically downsizing workforce. This strategy was felt especially hard to approve in the recession-struck rural areas. Geographical rationalisation attempts of foreign investors owning more subsidiaries in the same country often presents threats to agricultural producers in the most badly hit regions that they may lose the large or the only buyers.

### **3 CONCLUSIONS**

Foreign investors have acquired high shares in the food industries of the Visegrad countries. They have preferred certain processing fields to others, which fact complies with the patterns throughout the CEE region.

The investments of foreign food manufacturers induced both negative and positive reactions in the host countries. FDI, indeed, have had some painful repercussions, but the favourable impacts ultimately surpass them.

The uneven geographic distribution was seen as a negative impact from a rural development point of view. The capital cities and their surrounding regions in Hungary, Slovakia and the Czech Republic have received a significant share of food industry FDI, whereas the geographic distribution was more even in Poland. Quite obviously, foreign investors chose the sites for their investments primarily by logistic reasons, the proximity of consumer markets and the locations of existing processing plants.

Corporate rationalisation, the most common implication for companies in foreign ownership, has itself raised both negative and positive aspects. On the one hand, it has involved a massive lay-off of labour and closure of production lines, even whole processing plants, on the other hand, the resulting growth of corporate performance has improved the overall international competitiveness of the national food industries.

Other positive impacts can be observed throughout the whole agri-food sector, as the subsidiaries of foreign companies tend to utilise domestic raw material, provide employment, contribute to the continuance of food industry and offer the consumers the option of domestically processed foodstuffs.

It would be unrealistic to expect that the agri-food sector and food industry in particular alone would provide remedy for the aching problems of underdeveloped areas. Foreign investors in the food industry will not make miracles, however, once they are settled in a region, they definitely make important contributions to increase the region's economic wealth on the long run. Underdeveloped rural areas will have to find alternative sources of income, alternative ways to develop and other industries and services that together are capable of dragging them out of their current status. The agri-food sector is one of these options, but cannot provide an exclusive solution.

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## THE IMPACT OF INFORMATION SOCIETY ON AGRICULTURE AND RURAL AREAS DEVELOPMENT

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### ABSTRACT

The paper discusses the impact of Information Society (IS) on Bulgaria and Ukraine and their rural areas. IS is considered a key factor for rural development in terms of new business opportunities, e-Business, modern public services, education and training, etc. The data analyses show that IS penetration in both countries is doubtless present. And though e-Readiness in Bulgaria is higher than in Ukraine, the two countries lag far behind e-Business leaders (for example Germany). Information and communication technologies (ICT) in rural areas are far removed from those found in urban settings in other European countries. There exists a lack of proper data for the Bulgarian and Ukrainian rural areas. Nevertheless, Bulgaria has adopted an IS strategy + Action Plan (Ukraine has only a draft) which includes an article for agriculture. It is considered that the plan needs specific and concrete articles for rural areas.

**Keywords:** Information Society, agriculture, rural areas.

### 1 INTRODUCTION

In the past few years, the issue of Information Society (IS) has established itself worldwide as one of the main topics at high-level political and business forums. This has led technologically-developed countries (USA, EU-members, etc.), to adopt strategies and programs for transition to an IS. Practically all Central and Eastern European (CEE) countries prepared such documents. These acts outline the integrated framework for IS and encompass key sectors such as telecommunications, scientific research and development, innovations, competitiveness, small- and medium-sized enterprises, economic and social cohesion, intellectual property, data protection, electronic commerce, international relations and cultural exchange, etc.

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IS appears as a result of the changes caused by the massive introduction of new information and communications technologies (ICT). As stated in the EU Decree: “The Information Society is a society with qualitatively new structure, organisation and public relations, based on global access and usage of information and communications networks and services free of national, geographic or any other restrictions, for exchange of information, scientific, intellectual, cultural and other achievements.”

According to DG ER/04 of the European Commission: “Information Society is the global knowledge-based community, with its increasingly dominant information and communications networks, the new technology they use and the information they impart, and the interrelationship between this information, the networks and the various levels of government and people, as well as the society, now global, in which these phenomena operate.”

It is obvious that IS development generates a number of complex issues related to various fields of social and business activities that require coordinated action from both governments and business.

The tremendous challenge of preparing and implementing a strategy for IS in CEE countries stems from both limited time and great scope. On the one hand, IS issues concern all sectors of public and economic life, and at the same time the activities leading to the transition to an IS are seen as vitally important for the CEE countries' integration into the European Union.

However, the share of agriculture (e.g., employment, etc.) in some CEE countries (Bulgaria, Ukraine, Poland, Romania) is rather above the EU average. Furthermore, many less-developed rural areas exist in Bulgaria, Ukraine, Romania, etc.

Consider that IS penetration in agriculture and rural areas is expected to lead to positive economic and social results. The main reason for that will be the increase of information among agricultural workers and rural inhabitants, as they naturally and/or simultaneously acquire the qualification and predisposition to seek, find, interpret and apply the information necessary for their particular economic activities.

## **2 GOAL AND ISSUES OF THE INVESTIGATION**

The goal of the paper is to identify the impact of IS on agriculture and rural development in Bulgaria and Ukraine. In order to achieve the goal, the following issues will be considered:

- Contribution of IS to agriculture and rural development;
- Investigation of ICT in rural areas;
- Comparative study on IS strategies in Bulgaria and Ukraine.

### **3 OBJECT AND INVESTIGATION METHODS**

Rural areas in Bulgaria and Ukraine have been selected as subjects of investigation to achieve the above-stated goal. IS and its main dimension, ICT, present the investigation subject. In this research we use scientific methods such as logical and structural analysis, query, interview, observation, etc.

### **4 MAIN RESEARCH RESULTS**

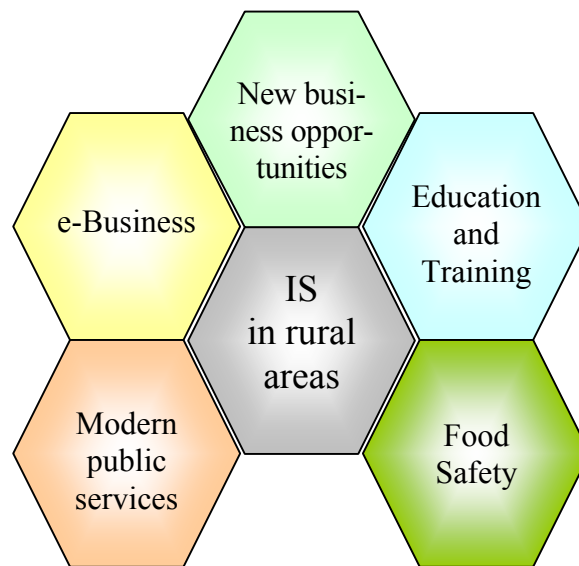
#### **4.1 Contribution of the Information Society to agriculture and rural development**

Rural development is not only about competitive agriculture. Each day it focuses more and more on meeting the expectations of citizens in rural areas (which comprise 80% of total European area and 22% of European inhabitants) of achieving deeper integration into today's society and promoting economic development. The large opportunities that technological progress offers for addressing key social challenges still requires significant progress in state of the art technologies, not only in their application in rural areas but also for their transformation into products and services that address their specific situation (O'FLAHERTY 2003).

That is why the vision of IS in rural areas is "to foster European development and integration, to increase competitiveness of European companies, to stem rural depopulation and to diversify income and employment opportunities in rural areas." (O'FLAHERTY 2003)

IS can contribute to agriculture and rural development through some main types of applications (Figure 1):

- **Modern public services** - Applications that will allow rural inhabitants access to information and services and to integrate into virtual communities – e-government, e-communities, e-culture, e-health;
- **e-Business** - Applications for improving processes and management practices inside the organisations, as well as trading support, e.g., increasing agriculture and rural areas competitiveness;
- **New business opportunities** - Decentralisation of business services, tourism, etc.;
- **Education and training** - Reducing the gap between training facilities in urban and rural areas, thus increasing opportunities for rural inhabitants;
- **Food safety** - Managing and tracing the food chain from the farm to the market.

**Figure 1: Contribution of Information Society to Rural Development**

Source: Information Society As Key Enabler For Rural Development And Integration (draft working document), European Commission, DG Information Society Technologies: New Methods of Work and Electronic Commerce, Brussels, 26 October 2001.

According to the conclusions of @rural Brussels Conference (15/09/2003) and the Rural Wins Roadmap, there are four main barriers that currently limit the development of rural areas (O'FLAHERTY 2003):

- Distance barriers in accessing administrative and governmental structures (subsidies etc.)
- Economic barriers in accessing wider business and labour markets (suppliers, customers, opportunities)
- Social barriers of rural inhabitants to information, education facilities, health and social services, etc.
- Information barriers – The current situation of many rural areas and their amenities are "invisible" to the "outside world" (other areas, urban centres or other states - rural tourism, local products, etc.)

However, when introducing IS to agriculture and rural areas, we consider issues such as:

- Exceptional variety of content, form and type of necessary information;
- Relatively low suitability and educational qualification of the potential users;
- Large demographic and geographical disunion;
- Expected psychological resistance.

ICT offers an opportunity to introduce new activities, services and applications into rural areas or to enhance existing services, thus providing a chance to overcome the barriers to bridging the rural-urban divide.

## **4.2 Investigation of ICT in Bulgarian and Ukrainian rural areas**

### *Specifics of Bulgarian and Ukrainian rural areas*

For the purposes of Bulgarian EU accession, rural areas have been defined as rural municipalities, the largest town of which has a population of less than 30,000 inhabitants, and a population density of less than 150 people per square km. Out of 262 municipalities, 229 are found in rural areas. The number of settlements in rural areas totals 5,307. Rural areas basically rely on farming as a major form of economic activity, followed by forestry, craftsmanship and rural tourism. Rural areas cover 90,371 sq. km of territory, or 81.4% of the country's total area. The rural population amounts to 3,612,974 people, accounting for 43.6% of the country's total. Rural areas have traditionally had an important share in the Bulgarian economy and population.

Rural natural resources and climate in Bulgaria are an important pre-condition for the promotion of multiple economic activities in rural areas: agriculture, forestry, industry, tourism, etc.

In general, the rural industry in Bulgaria is of the multi-functional type. Almost all industries were developed prior to the outset of the economic reforms (food-processing, timber, textiles and knitwear, electronics, machine building located in small- to medium-sized enterprises).

The collapse of the Bulgarian command economy and follow-up of radical economic reforms triggered the liquidation of enterprises, which has in turn resulted in a drastic reduction in rural employment. Many small private farms have emerged instead, and rely on self-sufficiency. Only promoting alternative economic activities can raise rural household income.

The 2001 census revealed that Ukraine's population had dropped 3,000,000, to 48,600,000, since the previous count, taken during the Soviet Union's 1989 census. This is due to a low birth rate and a high percentage of elderly. Rural dwellers comprise 33%, or 15,878,000, of the population. There are seven western *oblasts* where the share of rural population is higher than urban areas. At the same time, the eastern regions are more urbanised, with the percentage of the population living in cities reaching 90% in Donetsk, 86% in Luhansk, and 83% in Dnipropetrovsk. Altogether, Ukraine has 454 cities with a population exceeding 50,000, and five cities with over one million residents: Kyiv, Donetsk, Kharkiv, Dnipropetrovsk, and Odessa.

According to analyses of various data and National plans for developing agriculture and rural areas in Bulgaria and Ukraine, the following strengths, weaknesses, etc., can be considered (Table 1):

**Table 1: SWOT-analysis of rural areas in Bulgaria and Ukraine**

<i>Strengths</i>	<i>Weaknesses</i>
<p>Availability of region-specific products: water resources, raw materials, conditions for herb cultivation, ecological resources, cultural and historical heritage that may generate alternative employment;</p> <p>Availability of social infrastructure, e.g., kindergartens, schools, cultural and community centres, public libraries, primary medical care units, etc.;</p> <p>Availability of water supply and drainage, electricity, road infrastructure including post and fixed phone services;</p> <p>Well-developed rural culture: ancient holidays traditions and national identity that are preconditions for the development of rural tourism.</p>	<p>Low quality of life and high unemployment due to lack of alternative to employment in agriculture;</p> <p>Migration of young, economically active people from rural to urban areas, leads to the reduction of an active rural population;</p> <p>Obsolete transport and communication infrastructure – poor condition of municipal roads, lack of digital telephone system and internet and e-mail provision. Necessity of renovating electrical supply network;</p> <p>Underdeveloped public and tourist services, i.e., problems in rural tourism;</p> <p>Out-of-date and inadequate pre-accession policy for lack of funds;</p> <p>Inadequate management and marketing experience for alternative activities aimed at additional employment. Insufficient experience of local authorities in executing regional development projects;</p> <p>Unsatisfactory co-operation and partnership among local authorities, government administration and NGO.</p>

<i>Opportunities</i>	<i>Threats</i>
<p>Stable macroeconomic environment that allows long-term planning of economic agents and increases the incentives for investments in agriculture and rural areas;</p> <p>Gradual recovery of incomes and increased demand for quality goods;</p> <p>Availability of external financial and technical assistance through EU pre-accession instruments;</p> <p>Formulation and implementation of consistent policies for rural development and increased government concerns about regional development issues;</p> <p>Access to EU-accumulated experience in rural development approaches and increased possibilities for the exchange of experience and know-how;</p> <p>Improved policies for continuing vocational training;</p> <p>Strengthening of civil society institutions and increasing awareness of the benefits of cross-sector partnerships;</p> <p>Increased environmental consciousness of consumers and stringent regulations improve return to investments in environmentally-friendly production methods;</p> <p>Trends in tourist industry that increase the demand of specialised tourist products in the rural areas for which Bulgaria has potential for development.</p>	<p>Quick introduction of high EU environmental, hygiene and animal welfare standards, which increase costs and require additional investments for upgrading technologies, premises and management practices;</p> <p>Liberalisation of trade and increased competition on the domestic market, which requires policy for adjustment of local producers;</p> <p>Deteriorating social infrastructure in rural areas that threatens the social integrity and quality of life, leading to the migration of the young population;</p> <p>Growing disparities between incomes in urban and rural areas that lead to draining of highly qualified and motivated young labour force.</p>

Notes: SWOT-analysis is based on Rousse District, Bulgaria and Sumy Oblast, Ukraine.  
 Source: Authors' presentation.

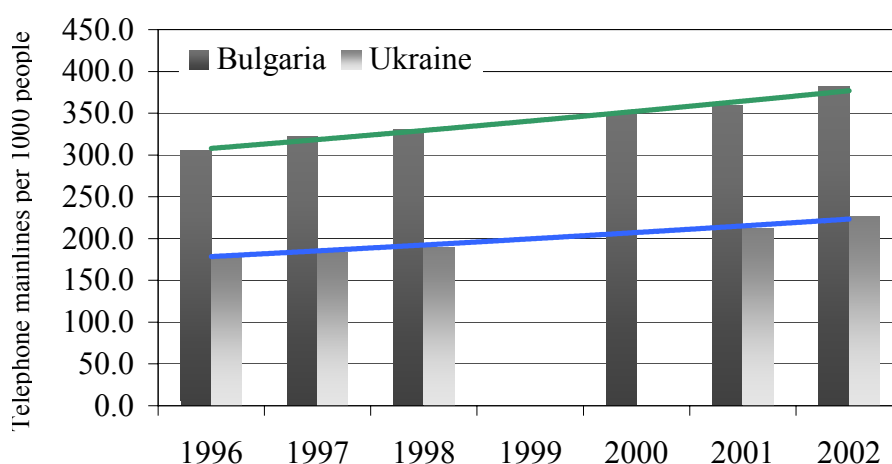
### *e-Readiness assessment of Bulgaria and Ukraine*

One of the important indices for the e-Readiness is the information infrastructure and access. Here, we discuss just some of the main dimensions – telephone mainlines and mobile phones, personal computers (PCs) as the most common access device, and Internet users.

As is common in many countries, Ukraine's information infrastructure is more developed in urban areas than in rural locations. The majority of the urban population has access to both fixed mainlines and mobile telephones. Telephone density in urban areas peaks in Kyiv at 45%, while in rural areas it is estimated to be only 5%. Nationwide, the average is 20.7% according to local estimates and 22.7% according to the International Telecommunication Union (ITU).

The ITU ranking for Ukraine fell between 1990 to 2000 – from 66th to 87th position – perhaps reflecting a lack of the sector's readjustment and fairly severe difficulties in making the transition from a Soviet, centrally-administered economy to a market-driven one. Fixed-base telephony is regulated and 80% of subscribers use the services of Ukrtelecom for domestic and long distance calls. The local loop is subject almost entirely to the monopoly of Ukrtelecom, while Utel is the provider of international services (E-READINESS 2002).

**Figure 2: Telephone mainlines in Bulgaria and Ukraine (per 1,000 people)**



Sources: ITU; Development Data Group, World Bank; UN Statistics Division.

Unlike Ukraine, fixed telephone density in Bulgaria is high for a country of its income level, at 38.2% for 2002 (Figure 2). Household penetration is around 83% and is similar to the new EU members (for example Slovenia). Even in rural areas the penetration of fixed lines is high – approximately 30%. That can be associated with the low local-call charge per minute, the low (according to EU reports) monthly subscription fee – approximately €5, discount prices, etc.

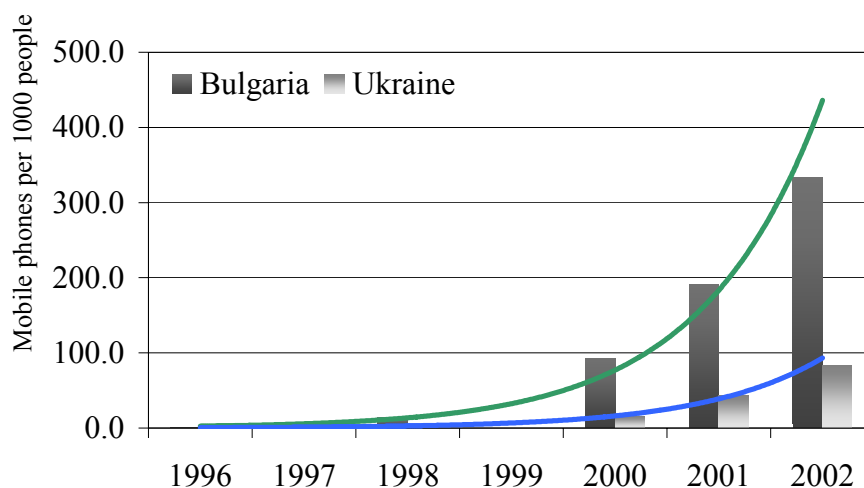


As in all accession states the mobile market in Bulgaria is growing rapidly and in the late 2002 mobile telephone density had reached 382 per 1000 people (Figure 3). Three companies operate on the Bulgarian mobile market – Mobikom (NMT 450) with approximately 10% share, MTel (GSM 900) – 65%<sup>1</sup> and Globul (GSM 900, hold by OTE Greece) with 25%. There will be a certain rearrangement in the mobile market because of the third generation GSM license, obtained by Bulgarian Telecom, which is now a private company. The coverage area of the mobile network is high, at about 98%, and monthly subscription fees have dropped since 1996 and are now almost at the levels of the fixed network.

In contrast to Bulgaria, the Ukrainian mobile market lags behind and below the Bulgarian standard of the year 2000 (Figure 3). Six companies operate on the Ukrainian market – Kyivstar GSM (49% of the market share), UMC (46%) and Golden Telecom Ukraine, Wellcom Ukrainian Radiosystems, DCC, Astelit with 5% of the market share (E-READINESS 2002).

Using a linear regression model for the last three years, it is calculated that the penetration of mobile phones in Bulgaria and Ukraine in late 2004 will be 56.4% ( $R^2 = 0.9884$ ) and 14.9% ( $R^2 = 0.9902$ ), respectively. However, the Ukrainian mobile market is expected to develop faster during the next few years.

**Figure 3: Mobile phones in Bulgaria and Ukraine (per 1,000 people)**



Sources: ITU; Development Data Group, World Bank; UN Statistics Division.

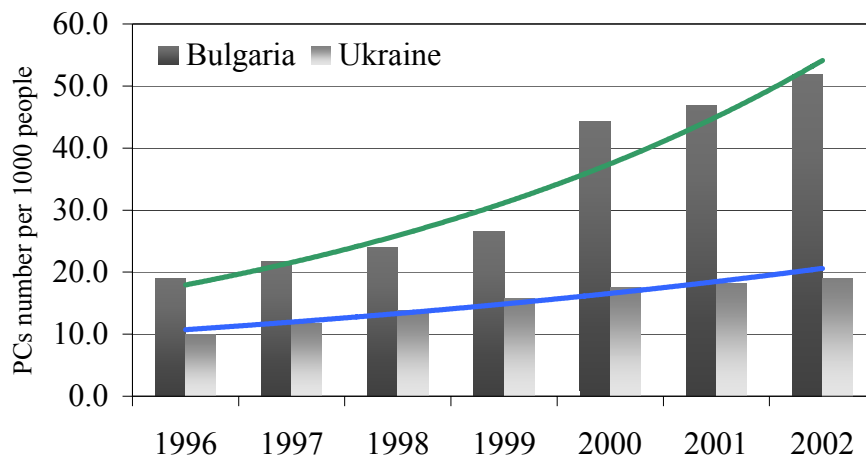
Another key index for IS development are indicators such as the number of PCs (the most common access device) and the number of Internet users (per 1,000 people).

<sup>1</sup> At the end of August 2003, the number of MTel subscribers was 2,065,000 and was expected to be 3,000,000 by late 2004. Source: <<http://www.mobitel.bg/index.php>>.

The number of computers in Bulgaria and Ukraine per 1,000 people, from 1996 to 2002, increased 2.71 and 2.65 times, respectively. However, the density of PCs per 1,000 people in Ukraine in 2002 reflects the Bulgarian level from 1996, (Figure 4) an effect of the rural areas as well.

Our investigations on farms (BORISOVA et al., 2003, NEDYALKOV et al., 2003) show that PC density in Bulgarian farms is approximately two times higher than in the Ukrainian. Bulgarian farms have a minimum of two PCs, usually allocated in the manager's office and in the financial-accountancy unit. Still other issues are how obsolete those PCs really are, as well as their actual usage. We consider the two countries to be dropping behind the EU countries' in PCs innovation. A certain index for that is the ICT expenditures as a percentage of GDP. Our survey found that Bulgarian ICT expenditures are 3.8% of GDP, which is almost two times less than Germany's (7.9% of GDP). Unfortunately, there is a lack of information from international resources about Ukrainian ICT expenditures.

**Figure 4: Personal computers in Bulgaria and Ukraine (per 1,000 people)**



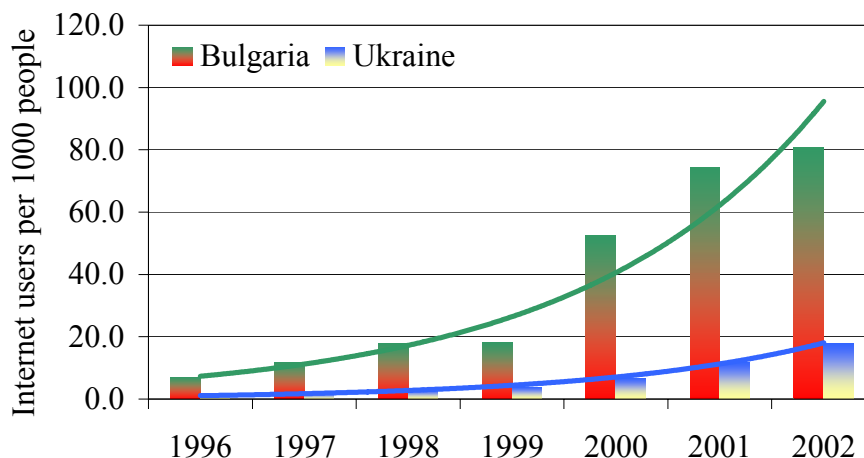
Sources: ITU; Development Data Group, World Bank; UN Statistics Division.

Internet access as a whole registered a remarkable increase between 1996 and 2002 – 10 times in Bulgaria (from 60,000 to 630,000 users) and 18 times in Ukraine (50,000 to 900,000). However, comparing the Internet access density per 1,000 people (Figure 5) Bulgaria is progressing much faster – 4.5 times in 2002. Nevertheless, Internet penetration per inhabitant is too low in Bulgaria (8.1%) and Ukraine (1.8%) and can be compared to Romania – 8.1% and Turkey – 7.3%. In contrast, Germany has 42.4% and the former EU-15 had approximately 36.0%.

The exponential trend between 1996 and 2002 shows that Internet users in Bulgaria and Ukraine will be 22.5% ( $R^2 = 0.9496$ ) and 4.6% ( $R^2 = 0.9922$ ), respectively, by late 2004. When a linear model is applied, data for the two countries

shows a lag behind Germany, which is expected to have a 56.3% ( $R^2 = 0.974$ ) share of Internet users in 2004.

**Figure 5: Internet users in Bulgaria and Ukraine (per 1,000 people)**



Sources: ITU; Development Data Group, World Bank; UN Statistics Division.

There is a direct connection between the place of residence and the level of penetration and access to ICT, and, not surprisingly, the rural population is fairly disadvantaged in the use of ICT (O'FLAHERTY 2003).

Unfortunately, there is lack of proper data for ICT in rural areas of Bulgaria and Ukraine. However, it is important to note some specific features of Internet use in small settlements and rural areas.

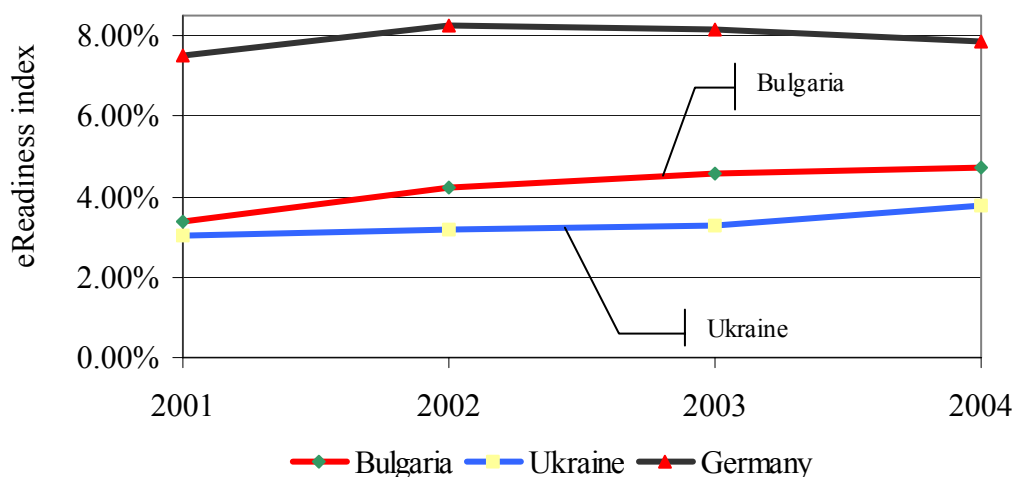
According to the findings of a Bulgarian survey of Community Centres conducted in year 2000, fewer than 3% of all Internet users are residents of small towns (in Ukraine - less than 1.0%). In 22 Bulgarian settlements (12,000 to 15,000), the survey found only 50-70 Internet users. The Internet market is highly limited in smaller communities and there is practically no choice of alternative Internet service providers (ISP). Less than 30 percent of the surveyed towns have more than one ISP. Consequently, these communities pay much higher prices for Internet services than people in larger, urban areas (BULGARIA: ICT 2002).

Expectedly, the lowest level of awareness about the Internet in Ukraine was observed among farmers and workers of collective farms. This corresponds to the low level of available information infrastructures in rural areas (E-READINESS 2002).

In the end, the e-Readiness of Bulgaria and Ukraine has to be evaluated. There are various statistical and questionnaire-based assessments, but the e-Readiness ranking of the Economist Intelligence Unit (EIU) is considered the most appro-

priate because it is made for both of the countries and includes 60 others.<sup>2</sup> According to EIU data from 2002, Bulgaria has moved from 48<sup>th</sup> to 42<sup>nd</sup> place (of 60 countries) in the group of e-business followers.

**Figure 6: e-Readiness assessment of Bulgaria and Ukraine**



Note: The tendency of German scores for 2004 to be lower than 2003 scores is mainly due to a change in EIU methodology to include broadband penetration, which is still very low in most countries.

Sources: EIU, Bulgaria: ICT 2002, E-Readiness 2002.

Ukraine is in the group of e-business laggards and remains in a tie for 52<sup>nd</sup> place. The overall scores for Bulgaria and Ukraine in 2002 are 4.71 and 3.79, respectively (Figure 6). Germany, in the group of e-business leaders, is in 12<sup>th</sup> place of 60, with a ranking of 7.83, or two times higher than Ukraine.

### 4.3 Comparative study on IS strategies in Bulgaria and Ukraine

In spite of some low levels of ICT penetration, the Strategy IS + Action Plan in Bulgaria (which included an Article for Agriculture, but not for rural areas) was adopted in 1998 (redesigned in 2001 according to e-Europe+). Unfortunately, the Ukrainians have only a draft version of IS Strategy, and it is not comparable to that of the Bulgarians.

IS penetration in agriculture and among agricultural workers is expected to lead to positive economic and social results. The main reason for that will be the steep increase of information among agricultural workers as they naturally and/or simultaneously acquire the qualification and predisposition to seek, find,

<sup>2</sup> Some of the assessments are not available for the two countries.

interpret in a proper manner and apply the information necessary for their particular economic activities.

Main priorities for development of IS in the agriculture and rural areas are the following:

- Creation and realization of program for gradual education (e-Learning) and convincing the agricultural workers and rural inhabitants in the necessity of usage and application of ICT in the agricultural and rural activities;
- Renovation of the fixed telephone lines from analogue to digital and the improvement of network density in rural areas in order to develop modern public services;
- Renovation of access devices (PCs) and provision of conditions for the gradual creation of respective infrastructure for ICT. Development of preconditions for ISP to enlarge the network in rural areas;
- Development of information systems to promote rural area tourism, provide advice in different agricultural areas, e.g., farming, stock-breeding, fruit-growing, etc.; agro-market information; agro-meteorological information;
- Development of dynamic register of farmland that could be used at different levels and by different offices - municipalities, tax offices, courts, notaries, the Agrarian Ministry, particular interested citizens.

## **5 CONCLUSIONS**

Information Societies are doubtless present in Bulgaria and Ukraine. Hence, it is of concern that there are no specific strategies for Bulgarian and Ukrainian agriculture and rural development, aside from some specific measures of the Bulgarian Action Plan under SAPARD.

An alarming tendency emerges in terms of the geographical distribution of Internet users. A sizable gap exists between urban and rural inhabitants, while some rural residents had never even used the Internet. Yet, Bulgarian and Ukrainian rural areas are affected by the rapid growth of Internet use in their countries.

Some investigations on the IS are quite problematic. There is not full investigation of the complete impact of IS on agriculture and rural areas in CEE countries. Above all, urban areas influence countries' current e-Readiness assessments. Hence, the e-Readiness of rural areas should be assessed more precisely.

In that sense, by adopting only strategies and action plans, Bulgarian and Ukrainian ICT and Internet penetration (as a part) are progressing too slowly. However, we believe that Information Society will have a tremendous impact on agriculture and rural area development in these two countries.

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# **BETTER POLICIES FOR RURAL DEVELOPMENT**

## AGRICULTURAL POLICY AND RURAL DEVELOPMENT: THEORETICAL AND EMPIRICAL ASPECTS

HEINZ AHRENS\*

### ABSTRACT

The paper discusses the impact of industrialized countries' agricultural policy on the development of rural areas, with special reference to the CAP. Against the background of the principles of rural development policy it analyses effects on employment and environmental objectives in rural areas. The impact of agricultural market policies is highly problematic. Structural and agri-environmental policies are largely of a "second best" nature. Policies for less-favoured areas are hardly suited to help in the development of structurally weak rural areas. The new reform of the CAP tends to reduce many of the drawbacks but does not contribute sufficiently to rural development. The paper draws some conclusions as to how agricultural policy can make a more fruitful contribution to rural development in the future with a view to shifting from a sectoral to a more territorial policy approach.

**Keywords:** agricultural policy, CAP, rural development.

### 1 INTRODUCTION

In this paper I first discuss the impact of industrialized countries' agricultural policies on the development of rural areas, with special reference to the CAP. Against the background of the philosophy and major objectives of rural development (section 2), effects of agricultural market, structure and environment-related policies are analyzed (section 3). This is followed by a discussion of the influence of the new CAP reform (section 4). I then derive some conclusions for an enhanced contribution of agriculture and agricultural policy to rural development under a less sectoral and more territorial approach (section 5).

### 2 PRINCIPLES AND OBJECTIVES OF RURAL DEVELOPMENT POLICY

The ultimate objective of rural development policy is to guarantee what in German regional policy language is called "equivalent living conditions". Theoretically

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cally, the development policy for a specific rural region consists of two elements: An objective function that reflects agreed social priorities for the development of the relevant region, and a specific mix of instruments aimed to attain these objectives. The objectives and their weights would be defined against the background of the region's "endogenous development potential" which in turn is determined by (a) its endowment with natural and man-made resources and (b) the services to society that the resources are expected to render, both from a national and regional point of view.

In the pyramid of objectives and instruments, on the level below the uppermost goal "equivalent living conditions", there might figure the three objectives of sustainable rural development: the "economic" objective, the "ecological" objective, and the "social" one. The weighting of these objectives, and of the sub-objectives on the levels below, will vary from region to region, with due respect to the principle of a "functional interregional division of labour". It is most important that the instruments or measures, situated on the lowest levels of the pyramid, be selected in such a way as to achieve the objectives above them efficiently. As they work together, and as there are complementarities and conflicts between objectives, measures have to be harmonized. The idea is to generate as many complementarities and as few conflicts as possible.

In spite of the great diversity of rural regions and objective functions, in a market economy some general rural policy principles can be defined.

(1) Rural development should be based on Rural Development Programmes spelling out the objectives and instruments.

(2) If by the "economic" objective we understand the generation or maintenance of employment and income, its attainment presupposes an adequate national economic framework in the fields of monetary and fiscal policy, labour market policy, anti-trust policy, education policy, etc. Entrepreneurial spirit, free markets, and competition are essential to bring about the necessary permanent intra-sectoral, intersectoral and interregional reallocation of productive resources like capital, labour, and know-how. Such reallocation provides *the* channel for a rural region to develop. Rural development policies should support the region indirectly, by improving *conditions for a reallocation of resources* in their favour, instead of *supporting certain sectors*; this would reduce the allocational efficiency in the rural economy.

On the basis of this approach, the following conclusions may be derived: (a) The primary instruments of a rural development policy should be the development of infrastructure, in particular in the field of transportation and communication, education, training and retraining. (b) If the productive sector is to be supported, aid should be focussed on investment and not on current operations; it should help in the establishment or modernization of enterprises that are expected to stand on their own feet later on; permanent subsidies are to be avoided. (c) In-

vestment subsidies should be focussed mainly on sectors with good employment and income creating perspectives, and less on shrinking ones. (d) When grants are given for a *sectoral* structural measure, it would be useful if the measure could be made to serve the specific Rural Development Programme of the region concerned. This means that sectoral structural policies should (i) be "regionalized" and / or (ii) be made to compete with other rural development measures for funds for the inclusion in the Rural Development Programme.

(3) As far as the "ecological" objective of rural development is concerned, four points are important: (a) The internalization of externalities presupposes functioning market, free from direct public intervention. (b) Environmental policies should be based on the Polluter Pays Principle (PPP) as far as possible. Otherwise the quality of the environment depends too much on the budget available. (c) Special importance should be attributed to the environmental policies of those sectors that have a relatively great share in the region's total land use; in particular agri-environmental policies should figure prominently in a Rural Development Programme. (d) Sectoral environmental policies should be "regionalized" to meet the specific needs of the specific region.

### **3 EFFECTS OF AGRICULTURAL POLICY ON RURAL DEVELOPMENT**

#### **3.1 Agricultural market policy**

##### *Effects on the "economic" objective*

In most industrialized countries agricultural market policy tends to boost total income and employment of the farming sector. Traditionally, this is its primary task. However, the sector's quantitative importance is dwindling. Furthermore, part of the additional income and employment effects accrue in non-rural regions because of the policy-induced rises in land prices which benefit not the occupiers but the owners of the land. Indirectly, agricultural policy also boosts income and employment in the upstream and downstream sectors. However, these effects increasingly accrue in non-rural regions as a result of the concentration processes taking place in the sectors concerned.

Agricultural market policy of the classical interventionist type - producer support prices, production quotas, set-aside schemes and direct payments coupled to production - is often at the cost of the efficiency of the allocation of productive sectors: They reduce their mobility and thereby impede intra-sectoral and inter-sectoral structural change. The deceleration of the economy's structural change and of national economic growth has direct and indirect negative effects on the economic performance of rural areas. However, the decline of the agricultural sector reduces the weight of these negative effects in overall rural development.

Agricultural market policies, by raising the profitability of agricultural cultivation, have the effect of distorting the pattern of land use to the detriment of non-agricultural uses. To the extent that this is not justified by overriding positive externalities of agricultural production, the result is an inefficient allocation of resources. In many cases, this has harmful effects on the economic objective of rural development. For example, the emergence of income creating golf links, camping grounds, or children's adventure parks, is discouraged.

#### *Effects on the "ecological" objective*

Agricultural market policy has a negative impact on the ecological objective to the extent that it creates, or increases, economic incentives for what may be called "an exploitation of the landscape". Producer price support and arable area payments linked to production typically have this effect.

*Intensity of input use:* According to the theory of optimal input use, high output prices such as those brought about by producer price support, quantitative restrictions of production or import protection tend to boost the intensity of fertilizer and pesticide use. Figure 1 shows the basic idea. As a consequence of a rise in output price, the marginal revenue product curve shifts from  $MRP_1$  to  $MRP_2$  so that the optimal intensity of nitrogen application rises from  $N_1$  to  $N_2$ .

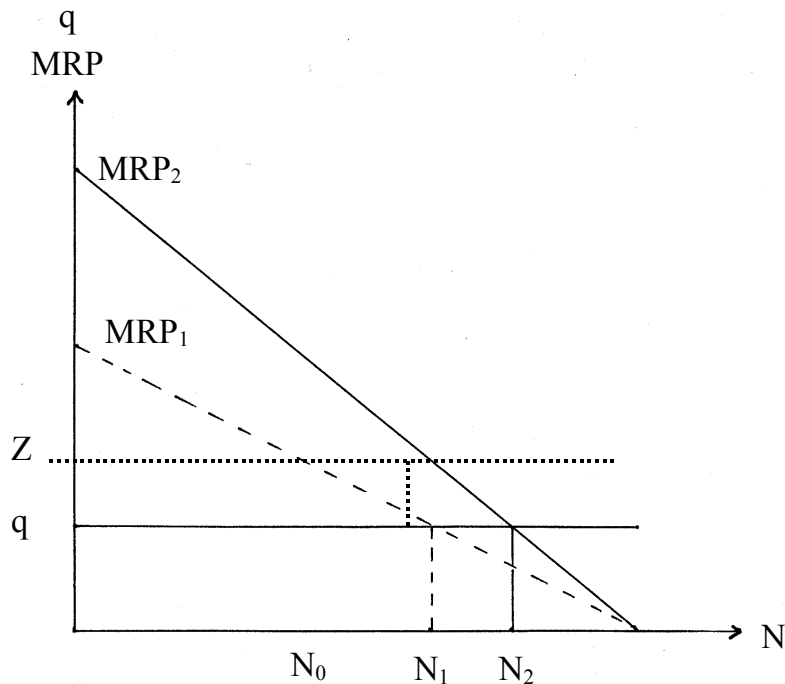
However, it seems that the underlying assumptions concerning the shape of the production function may be open to doubt (GRIMM et al. 1987, WAGNER 1995): If farmers act on the premise not of a production function characterized by diminishing returns but of a von Liebig response function, the optimal intensity remains unaffected by the rise in output price. In this case in Figure 1, the initial MRP-curve is not  $MRP_1$  but a horizontal line which begins e. g. in Z, turns southward to zero at  $N_1$  (because the "law of minimum" begins to operate here) and then continues eastward along the abscissa. Again, the optimal intensity of nitrogen use is  $N_1$ . However, a rise in output price, resulting in an upward shift of the western part of the curve, leaves the optimal intensity unaffected. More research seems to be necessary to clear up this issue.

*Landscape structures:* The above-mentioned agricultural market policy favours the elimination of landscape structures like trees, bushes, ponds, and balks. Furthermore, there is a tendency to abolish *field margins*.

*Agricultural land use:* Under market policies that rely on income support measures that are differentiated according to products (as most of them do), there is the danger of a discrimination of ecologically valuable agricultural land uses. For example, the CAP has discriminated against *grassland farming* as compared to arable farming, both under the system of support prices and under direct payments. The fact that often grassland is converted to arable cultivation or left idle, is often in conflict with certain ecological objectives, in particular in certain

ecologically valuable areas. Another example is the discrimination of non-maize *field forage* on arable crop land.

**Figure 1: Effect of output price on the optimal intensity of N use**



Notes:  $q$  = Price of N fertilizer (€/kg),  $N$  = Use of N fertilizer (kg/ha), MRP = Marginal revenue product of N fertilizer (€/ha).

Source: Author's presentation.

These effects are illustrated by Table 1. It gives some of the aggregated results from a study analysing the effects of agricultural and agri-environmental policies on the situation of agriculture in Saxony. They were generated by a system of five LP models, one each of for Saxony's Agricultural Regions ("regional farm models").

On the arable land, the elimination of direct payments (and of the set-aside regime) would reduce the area under cereals and silage maize, largely to the benefit of field forage (grass-clover, lucerne, ley). The relative profitability of grassland husbandry, indicated by the relative shadow price of land, would rise, thereby increasing the incentive to maintain grassland use; in some of Saxony's Agricultural Regions there would even be an incentive to convert arable land to grassland use.

**Table 1: Land use in Saxonian agriculture 1996: Model results**

Indicator	Unit	Real Situation	Situation without direct payments
<i>Agricultural Land Use Structure</i>			
Cereals (incl. maize)	% of AUA	69.9	59.6
Oilseeds	% of AUA	4.8	.0
Field forage	% of AUA	.6	11.7
Fallow land	% of AUA	3.6	.6
Miscellaneous	% of AUA	21.1	28.1
<i>Profitability of Land</i>			
Shadow price AL	DM/ha AL	1124.0	511.0
Shadow price GL	DM/ha GL	363.0	197.0

Notes: AUA = Agriculturally used area; AL = arable land; GL = grassland.

Source: AHRENS and BERNHARDT (2000).

*Non-agricultural land use:* As mentioned earlier, agricultural market policy has the effect of distorting the pattern of land use against non-agricultural uses. This also has a negative impact on the ecological objective of rural development: It discourages public, semi-public, or private organisations to buy up ecologically valuable land for purposes of nature conservation.

Another example is the discouragement of afforestation. This is most harmful in areas where afforestation is badly needed from society's point of view. The situation south of Leipzig is a case in point. For several years, the state of Saxony has been pursuing the goal of increasing the share of forest in this region by promoting afforestation on farms, but with little success. Our empirical study, based on interviews with 70 farm managers, suggested that the major impediment was the relatively low profitability of forest cultivation as compared to agricultural cultivation. To verify this, we made our own comparisons on the basis of calculations of the annuities of gross margins; for agriculture, we worked with annual margins, derived from an average land use pattern; for forestry, calculations were based on a Forest Yield Model developed at the Technical University of Munich. Table 2 shows some of the results for beech and pine trees in sand loess landscapes. It can be seen that in 1999 the annuities of the gross margin for forestry (including grants for maintenance and afforestation) were considerably lower than the average gross margin from agricultural production (including all direct payments). The results are similar for fir trees, or heath soil, or alternative discount rates.

**Table 2: Gross margins in forestry and agriculture - Model calculations for sand loess landscapes in Saxony, 1999 (values in DM/ha)**

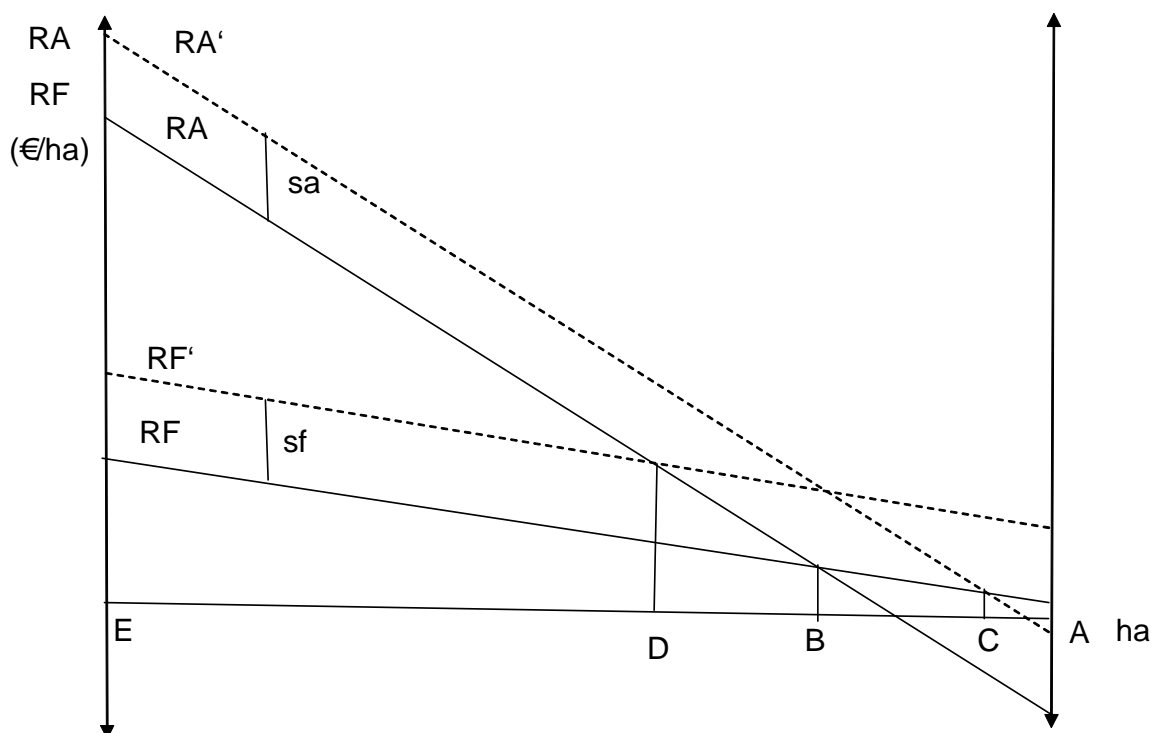
Indicator	Beech tree		Pine tree	
	$i = .05$	$i = .1$	$i = .05$	$i = .1$
<i>Forestry</i>				
GM without aid	-877	-1 656	-465	-833
GM with Maintenance Grant	-56	-64	-26	-29
GM with Mainten. + Afforestation Grant	552	766	582	801
<i>Agriculture</i>				
GM excl. Arable Area Payments	351	351	351	351
GM incl. Arable Area Payments	1 059	1 059	1 059	1 059
set aside-payment	836	836	836	836

Notes:  $i$  = Discount rate; GM = Gross margin.

Source: RITTERSHOFER (2000).

The effect of the subsidization of agricultural land use on the extent of forestry cultivation is illustrated by Figure 2.

**Figure 2: Agricultural subsidies and afforestation**



Notes: RA = Rent from agricultural land use (decreasing quality of location), excl. subsidy; RF = Rent from forestry land use, excl. subsidy; sa = per ha subsidy for agricultural land use; sf = per ha subsidy for forestry land use.

Source: LIPPERT und RITTERSHOFER (1997).

### *Digression: Effects on Innovation*

All in all, the above-mentioned market policies have negative effects on entrepreneurship, the creative spirit and the innovative ability of the farming population: Firstly because of their structure conservation effect (preserving the inefficient); secondly because interventions like guaranteed producer prices, quotas, or set-aside arrangements reduce the entrepreneurial and competitive spirit; and thirdly because farmers are made increasingly dependent on public funds. The farming population is not always a nucleus of imaginative rural development approaches.

## **3.2 Agrarian structural policy**

### *Effects on the "economic" objective*

It has three types of effects on incomes and employment in rural areas: (1) It contributes to boost the sector's total income by helping to improve the structural conditions of the production, processing and marketing of agricultural commodities; measures supporting land consolidation, irrigation, soil improvement or cooperative marketing are typical examples. (2) It contributes to the diversification of agricultural incomes; grants for farmers' investments in farm holiday and agrotourism facilities, camping grounds and motor camps. (3) It contributes to make rural areas more attractive for living and tourism; the support of village renewal activities is a case in point.

Of no less importance is the effect on the allocation of production factors. To the extent that agrarian structural policy - early retirement schemes, grants for on-farm investment subsidization or land consolidation - promotes intra-sectoral structural change it tends to reduce the number of jobs in the sector while contributing to the creation of jobs and income in non-agricultural sectors, at least in the long run. It should, however, be noted that in a context of the above-mentioned policy-induced low mobility of production factors, measures of agrarian structural policy that are aimed to increase the mobility are typical "second best" measures in the sense that they serve to counter-act the opposite effects of a preceding intervention (for the theory of the second best cf. LIPSEY and LANCASTER 1956). The situation is analogous to that of a driver who erroneously puts his foot on the brake, finds that he is driving too slow, and tries to correct his mistake not by taking his foot off the brake (first best solution) but by simultaneously putting his other foot on the accelerator (second best solution). (The increased consumption of fuel symbolizing the loss in welfare.)

### *Effects on the "ecological" objective*

Agrarian structural policies, formerly obeying the imperatives of agricultural market policies and therefore in a certain conflict with the ecological objective of rural development, have become more and more environment friendly in the

last few decades. Not only do they refrain from committing former "sins" like the drainage of ecologically valuable wetlands; they also contribute more and more to correct negative by-effects of agricultural market policy, e. g. by integrating measures like the planting of hedges or bushes.

*Digression: Effects on Less-favoured areas*

These areas are disadvantaged by unfavourable natural conditions for agricultural production and are partly identical with the structurally weak rural areas. The programme is aimed at the maintenance of agriculture in these regions, with the double objective (1) to preserve a certain population density (in order to maintain an adequate supply of infrastructure services) and (2) to maintain the character of the landscape. The instrument is the compensatory allowance for farming in less-favoured areas, a direct per hectare payment differentiated according to the natural production conditions.

Looked at from a systematic point of view, the programme has two kinds of weaknesses. First, the objectives mentioned above are not socially agreed. This is particularly evident for the second one. The preservation of the landscape in its present form would be absurd. The shape of the cultural landscape has continually undergone changes in the past. What is claimed to be worth preserving today is partly the result of a massive impairment of the landscape in former times.

Second, the instrument is hardly suitable to contribute substantially to the objectives mentioned above. (1) *Population density*: (a) Since in most disadvantaged regions the share of agriculture plus the upstream and downstream sectors is fairly small, the contribution to this objective cannot be high. (b) Direct transfer payments to producers are not an efficient instrument to promote employment; in the long run, they are self-defeating for the economy as a whole, with spill-overs to rural regions. (c) If the objective is to prevent an exodus of population from sparsely populated regions, direct payments remunerating economic activities should not be limited to less-favoured regions or to farmers. (d) Such payments should be governed by the general principles of rural development policy.

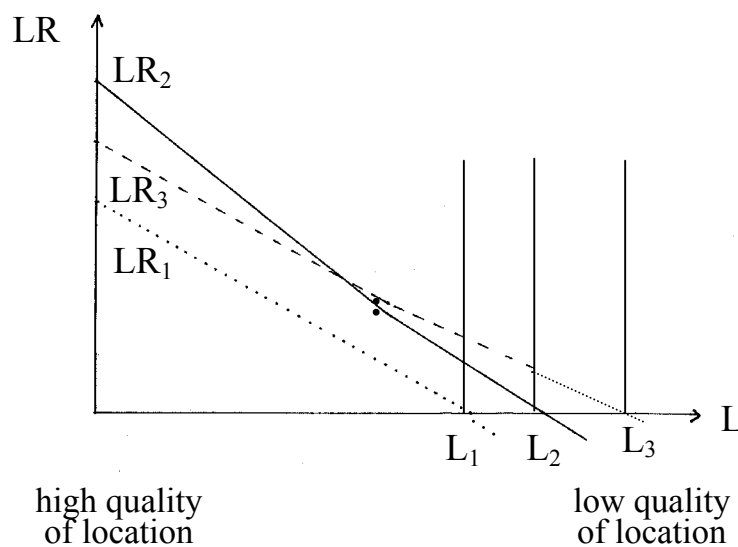
(2) *Character of the landscape*: (a) An automatic direct per hectare payment for all farmers irrespective of their environmental output is not an efficient instrument to induce, or remunerate, positive externalities from agriculture pertaining to the landscape. (b) The principle of subsidiarity requires that decisions on the landscape be taken more on a regional and local level. To sum up, if the declared regional goal of the compensatory allowance is taken seriously, the financial resources had better be redirected into integrated development programmes for rural regions (cf. also NEANDER 1992).

Other instruments supporting agriculture in Less-favoured areas are:



(a) *Non-differentiation of direct payments:* Under the McSharry CAP reform of 1992, in Germany most Länder added a second element of support for less-favoured areas, namely the non-differentiation of direct area payments according to the quality of the farming location, although these payments were supposed to compensate farmers for income losses resulting from the reduction of price support ("direct price compensation payments"). The effect is illustrated in Figure 3.

**Figure 3: Influence of the type of CAP on the land rent of different locations**



Notes: LR = Land rent per ha, L = Land (decreasing quality of location).  
 Source: Author's presentation.

Assume that the theoretical land rent based on intervention-free market prices is  $LR_1$ . Producer price support and the compensation allowance for less-favoured areas shift the line to  $LR_2$  - which is kinked at the dotted point because from there eastwards the compensation allowance is added. Leaving out other land use alternatives, the land under agricultural cultivation is  $L_2$  instead of  $L_1$ . The substitution of price support by a fixed area payment changes  $LR_2$  into  $LR_3$ , thereby benefitting less favoured areas to the detriment of high quality agricultural locations; and formerly sub-marginal land now yields a positive land rent.

(b) *Milk quota system:* This system - which, within the realm of market policy alone, is a second best measure *par excellence* - has also contributed to maintain agricultural production in less-favoured areas. The quota system has the negative effect of reducing competition from other, more productive regions, at least to the extent that quotas are not - or only partially - transferable between regions.

### 3.3 Agri-environmental policy

Agri-environmental policies are typical "second best" measures: They serve to counter-act the above-mentioned negative environmental effects of agricultural market policy. The situation can be compared to that of a driver who puts his foot too hard on the accelerator, finds he is driving too fast, and decides to correct his mistake by simultaneously putting his other foot on the brake. Major aims of such EU agri-environmental policy are: (a) to reduce the use of fertilizers and/or plant protection products, (b) to convert arable land into extensive grassland, and (c) the maintenance of the landscape e. g. by the upkeep of habitats like orchards and field margins.

However, agri-environmental policy is also of a "second best" type with respect to another peculiarity. To the extent that agricultural market policies like producer price support generate production surpluses, agricultural producers cannot shift the additional costs, or losses in yields, that are caused by the introduction of environmental standards, on to output prices. The internalization of negative externalities via the market price and corresponding consumer reactions does not work any more.

More important from a policy point of view, the distribution of income clearly moves against agricultural producers. While the farmer has to face losses in income, the taxpayer is even made better-off to the extent that export quantities and the concomitant costs of export subsidies go down. This is why agri-environmental policy often tends not to apply the Polluter-Pays Principle (PPP) but the Beneficiary-Pays Principle (BPP). The best-known examples in Europe are the compensatory payments or premia granted to farmers (b) in water protection areas and (b) under agri-environmental programmes (for the latter cf. POTTER 2002).

Such application of the BPP may not present an ethical problem, on the basis of the insights gained by COASE (1960). However, as mentioned above the inevitable consequence is that in rural areas the quality of the environment largely depends on the budget available. This is aggravated by the fact that the premia that have to be paid to agriculture are particularly high due to the considerable policy-generated income element they also have to compensate. In times of scarcity, existing agri-environmental policies tend to be discontinued and new ones put off. In recent years, we have witnessed exactly this phenomenon in the European Union.

It should be noted that to the extent that agri-environmental programmes are designed and administered by Ministries of *Agriculture* the premia contain an additional cost factor, namely the often considerable net income element. High wind-fall gains on the part of farmers are not unusual (AHRENS et al. 2000). To this extent agri-environmental programmes make a contribution to the *economic* objective of rural development.

#### 4 THE INFLUENCE OF THE NEW CAP REFORM

The major feature of the new CAP reform consists in the - at least partial - decoupling of direct payments from production. The following preliminary hypotheses on some effects of decoupling on the elements and objectives of rural development can be derived.

*Efficiency:* As the farmers' production decisions will be taken mainly on basis of market prices, the result will be a more efficient allocation of resources, with respect to (a) the commodities produced and (b) the question of production or non-production (if one makes abstraction from a possible liquidity effect).

*Economic objective:* The impact on employment and income is yet unclear. Total agricultural employment may go down to the extent that production will be reduced. Total agricultural income would also fall if direct payments were to be cut over time. On the other hand, rural areas may benefit, directly or indirectly, from a more market-oriented behaviour of the agricultural sector and from the removal of intersectoral distortions of resource allocation. It is possible, however, that the intersectoral reallocation of land will remain expensive.

*Ecological Objective:* The CAP reform will reduce many of the negative environmental effects of the old policy.

(1) To the extent that output prices are reduced, this will have a disincentive effect concerning the intensity of input use. It would be a continuation of what may have taken place since the McSharry reform of 1992. In Figure 1 it is depicted by a shift from  $MRP_2$  and  $N_2$  to  $MRP_1$  and  $N_1$ . However, in case of an expected von Liebig function, the optimal intensity of N use would remain at  $N_1$ . Unfortunately, there seems to be no quantitative analysis of the effect of falling output prices on the intensity of N use since 1993. It may be noted in passing that if one assumes a behaviour of farmers according to the expectation of diminishing returns, it was a wise strategy on the part of politicians not to introduce an N tax in the 1980s (in Figure 1, given  $MRP_2$ , an increase of the fertilizer price from  $q$  to  $Z$ ) but to wait until time was ripe to reduce output prices. For this measure would have implied a second best solution, with all the problems involved.

(2) The discrimination of ecologically valuable agricultural land uses like grassland farming and field forage on arable crop land will belong to the past.

(3) It is not clear whether this also holds for the discrimination of certain ecologically valuable non-agricultural land uses including afforestation in sparsely wooded areas. As can be seen from Table 2, in the case of the region south of Leipzig, annual gross margins from forestry including the maintenance and the afforestation grant, exceed gross margins from agriculture excluding the arable area payments. The effect of such decoupling on the extent of forestry cultivation can be illustrated by Figure 2. Assume the initial situation is characterized

by RA' and RF' where the equilibrium allocation of land is given by B. Decoupling of the agricultural subsidy implies a shift from RA' to RA and from B to D. The desired reallocation of land is achieved while the cost of total subsidization remains the same. The next step might be a reduction of the decoupled agricultural subsidy.

(4) Agri-environmental policy will be freed from its task to serve as second best measures, namely to counter-act negative environmental effects of agricultural market policy. They will, of course, still be necessary to a certain extent because even under free market conditions there will remain certain externalities of agricultural production. It may still be appropriate to further reduce the use of fertilizers and/or plant protection products (perhaps even by - albeit lower - input taxes), to support the conversion of arable land into grassland, or to the upkeep of habitats like orchards and field margins. Such agri-environmental schemes as are still necessary under the new CAP reform will be less costly than in the past, for two reasons: First because they need to be less corrective and second because the opportunity cost of environment-friendly farming practices will be lower.

The combined effect can be illustrated by Figure 1. Assume that the socially optimal intensity of N use is  $N_0$ . To reduce the private optimum  $N_2$ , to  $N_0$ , a Pigouvian bounty (PIGOU 1932, p. 192) of  $3 \cdot (Z-q)$  for each kg N foregone would be necessary so that the total cost would amount to  $3 \cdot (Z-q) \cdot (N_2 - N_0)$ . To reduce the private optimum  $N_1$  which results from a lower output price, to  $N_0$ , a bounty of  $(Z-q)$  per kg N is necessary, and the total cost is only  $(Z-q) \cdot (N_1 - N_0)$ .

Perhaps the abolishment of support prices will make it possible one day for agriculture to shift the additional costs, or losses in yields, of environment-friendly practices on to output prices. In this case the PPP principle could be applied to a greater extent than has been possible so far (e. g. by applying an N *tax* instead of an N *premium* (for the reduction of the intensity of N application).

*Less-favoured areas:* They might find it profitable to give up farming. Figure 3 shows what would happen to land rent. Since the latter is defined to exclude direct payments coupled to production, the land rent function would shift back from  $LR_3$  to  $LR_1$ . As a result, land rent would become more negative in some less-favoured areas. In others it would turn from positive to negative with the result that here there would be no economic incentive to keep up agricultural production.

## 5 ENHANCING THE ROLE OF AGRICULTURE IN RURAL DEVELOPMENT

As I have shown, agricultural policy is mainly a sectoral policy which is in conflict with major principles and objectives of rural development policy. The contribution of classical agricultural market policy to the "economic" objective of rural development is relatively small and largely at the cost of efficiency in re-

source allocation. Its contribution to the "ecological" goal tends to be negative in many respects. Classical agrarian structural policy has positive effects on the "economic" objective, helping to improve the production, processing and marketing structure. To the extent that it is aimed to increase the mobility of production factors, it serves to correct mobility-reducing effects of agricultural market policy. In the past it has increasingly taken into account environmental concerns some of which were partly created by agricultural market policy. The scheme supporting less-favoured areas is hardly suitable to meet its professed objectives, both economic and environmental. Agri-environmental policy serves to reduce negative environmental effects partly generated by agricultural market policy.

The new CAP reform is characterized by a higher degree of market orientation. As such, it will tend to increase the efficiency with which the agricultural income objective is attained. At the same time, negative ecological effects will be reduced.

Two conclusions can be derived:

First, if agricultural market and income policy is to contribute more to rural development in the future, it should continue on its way towards more market conformity and at the same time begin with a reduction of direct payments. Concerns that this might harm the attainment of ecological objectives and the development of less-favoured areas, seem to be unwarranted; the application of "Tinbergen's rule" would even make it possible to attain the objectives pursued more efficiently.

Second, agrarian structural and agri-environmental policies should be integrated more into Rural Development Programmes, to the extent that the transaction costs are not too high. In the past already, in Germany some beginnings towards the inclusion of non-sectoral goals have been made: (1) *Agri-structural Development Planning*: The task of this measure is to point out regional conflicts between agricultural and other land-use interests and to make suggestions for conflict-reducing solutions. (2) *Land consolidation*: Environmental and even social goals of rural development have for a long time been taken into account. (3) *Village Renewal and Development*: This measure increasingly goes beyond the narrow confines of the agricultural sector. (4) *Regional Management*: The financing of this task by German agrarian structural policy (GAK) further enhances the wider view on rural regions. (5) *Leader Programmes*: They are especially positive examples of the formulation of rural development concepts characterized by a holistic view on the respective region. (6) *Programmes financed under the reformed Structural Funds*: Here also experience on an integration of sectoral and territorial measures has been gained.

Agri-environmental programmes lend themselves particularly to an inclusion in Rural Development Programmes; in Germany where the "regions" defined for the programmes are mostly the Länder (!) there is still ample room for regionalization.

The strategy implied by these two conclusions amounts to transforming the decoupled direct payments, which will become less and less acceptable to the public, to Pigouvian bounties for selected positive externalities generated by agricultural and non-agricultural actors in and for rural regions under Rural Development Programmes. The so-called "modulation" under the new CAP reform - the shifting of part of the funds from the first to the second pillar of the CAP - is a first step in this direction. However, the philosophy of the present second pillar would have to be changed. Suggestions in this direction have been made (ANANIA et al. 2003). It is clear that many questions, in particular institutional ones, remain unsolved. But in the long run there is no viable alternative to integrating parts of agricultural policy in Rural Development Programmes.

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## **A TAILOR-MADE COMMON AGRICULTURAL POLICY FOR THE ACCESSION COUNTRIES: HELP OR HARM FOR AGRICULTURE IN EASTERN EUROPE?**

DAVID SEDIK\*

### **ABSTRACT**

This paper outlines the ways in which and the reasons why the tailor-made CAP for the EU-accession countries differs from the CAP in the EU-15. The accession CAP is then examined in light of two key problems of CEE agriculture in the transition period: low profitability of farms and low agricultural incomes.

**Keywords:** common agricultural policy, competitiveness, Central and Eastern European agriculture.

### **1 INTRODUCTION**

On December 13 2002 the ten candidate countries and the European Union (EU) reached an agreement on the terms of expansion of the Union from 15 to 25 members in May 2004. The European Commission press release called the agreement on agriculture “a fair and tailor-made package which benefits farmers in accession countries.”<sup>1</sup> The agreement on agriculture reached at the Copenhagen European Council provided for a separate, less financially generous Common Agricultural Policy (CAP) for the 10 new EU countries for 10 years.<sup>2</sup> Only after 2013 will these countries enjoy agricultural benefits similar to those of the current EU-15.

The first purpose of this paper is to outline the manner in which the CAP for the EU-8 countries differs from the CAP operating in the EU-15. There are significant differences in the level and structure of aid between the two CAP programs, as well as a phase-in period for direct payments in the new EU countries concerning both administration of these payments and their level. Last, the rela-

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<sup>1</sup> EUROPEAN COMMISSION (2002c).

<sup>2</sup> The accession countries are Estonia, Latvia, Lithuania, Hungary, Czech Republic, Slovakia, Poland, Slovenia, Malta and Cyprus. This paper focuses on the East European accession countries which include each of the above save Malta and Cyprus. These are referred to as the EU-8 countries.



tively egalitarian structure of landholding in Eastern Europe will probably mean that direct payments in these countries will be distributed more equitably.

Second, the reasons for the differences between the two CAP programs are examined. The debate about the CAP in the accession countries was largely driven by understandable budget concerns within the EU-15, but there was also a debate on what type of support is appropriate for agricultural producers within the CEE countries.

Finally, the CAP is examined in light of two key problems of CEE agriculture. Can the EU-8 CAP assist in resolving the problems of low profitability and low incomes in agriculture? Or will the CAP inhibit the changes necessary to address these problems? The answers to these questions are not totally clear, if only because many details of how the CAP is administered in the CEE countries differ from country to country. Nevertheless, a preliminary verdict on the CAP is largely positive for CEE agriculture, though there are negatives as well.

## 2 THE EU-15 CAP AND THE EU-8 CAP

CAP producer support benefits break down into two main categories: market price support and budget support. *Market price support* is the non-budgetary financial benefit that accrues to EU domestic producers by selling their agricultural products at prices that are higher than world market prices. 58 percent of producer support in the EU-15 in 2001 came from market price support.<sup>3</sup> Because of the unified market, there should be no principle differences in the way market price support accrues to producers in EU-15 countries and accession countries. Minimum prices are based on production costs in designated regions with commodity purchase programs to maintain the prices.

There are three instruments of *budget support* offered under the CAP—market support payments, direct payments and rural development payments. Market support payments are budget expenditures to support EU-established farm prices through intervention purchases and storage subsidies. The maintenance of such prices for exporters requires export subsidies when world market prices are less than internal EU farm prices. The EU calls these “export refunds.” Direct payments are per-hectare area payments (for crops) and per animal headage payments (for livestock). Area payments are granted for cereals, oilseeds and protein crops and vary according to regional historical yields in the reference period (1989-91 for the EU-15, three most recent years for the EU-8 countries). Per headage payments are granted for three types of “beef animals” in the EU-15 (steers, suckler cows and bulls), and are given once in the lifetime of every bull and twice in the lifetime of every steer. A large portion of direct payments were

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<sup>3</sup> OECD (2002, p. 167).

introduced during the CAP reforms of 1992 and 2000, and were supposed to compensate farmers for reductions in EU-established farm prices. The third type of budget payment is for rural development. These funds are granted to beneficiaries for investment projects, subject to co-financing by the recipient.

Market price support is limited by set asides and marketing quotas within the CAP. For CEE farmers, set aside requirements are not yet clear. However, these limitations are more a function of the CAP itself, rather than part of the Copenhagen Agreements.

The Copenhagen Agreements make it inevitable that CAP direct payments to CEE farms will be quite modest compared to those for farms in the EU-15 for the foreseeable future. The reason for this is the methodology agreed upon for computation of direct payments to CEE farms, which in the future will make up the majority of CAP payments in the CEE countries.<sup>4</sup> The Copenhagen Agreements defined the level of direct payments to CEE farms through setting the reference areas, yields and livestock herds, as well as a schedule for the gradual introduction of payments over the next 10 years.<sup>5</sup> During the negotiations the candidate countries argued that reference levels should not be connected to the current state of agricultural production, because this is far less than production potential, as evidenced by production in the socialist period before 1990. The EU argued that area, yield and livestock numbers in these countries before 1990 are largely irrelevant, because they reflect production under a non-market system. Though this is quite true, it is also true that EU area, yield and livestock numbers are the result of many years of subsidies specifically directed at raising them. Therefore, it is not quite correct to assert that high production and livestock numbers in the EU-15 countries reflect competitiveness only. They reflect competitiveness within a specific policy environment of longstanding generous government support. Without having had the benefit of such support, CEE countries have agreed to ceilings on direct payments and livestock payments that reflect their production position in a relatively low-subsidy environment, though some have done their best to increase support in the pre-accession period with the aim of offsetting this disadvantage. The ceiling on direct payments will mean that land prices and perhaps yields in the CEE countries will likely be less than those in the EU-15 over a long period of time.

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<sup>4</sup> Estimates indicate that by 2013 direct payments will make up the majority of CAP payments (50 to 60 percent) to CEE farms (Table 5).

<sup>5</sup> Agreed reference area, yield and beef animal numbers are compared with CEE country proposals in BAKER (2003), p. 20. The governments of the 10 accession countries agreed at the Copenhagen European Council that direct payments for their farmers will be phased in over 10 years. In 2004 accession country farmers are eligible for direct payments at only 25 percent of the rate for EU-15 farmers. In 2005 the rate will rise to 30 percent and will continue on a set schedule through 2013.

The upshot of these differences between East and West is that for budget support, there is a significant difference in the CAP for the EU-15 and for the EU-8 countries in the overall level of aid per farm.<sup>6</sup> An average farmer in the 10 new EU countries should be eligible to receive 502 euros in 2004, while an average EU-15 farmer will be eligible for 6,319 euros. The low aid per farm is a direct result of the lower per farm production levels in the new EU countries, compared with the EU-15. Out of total EU-25 CAP benefits for 2004 farmers in the 10 new EU countries will receive only 4.2 percent. This number is nearly in line with the share of production, though it contrasts sharply with the share of agricultural area and employment. In 2000 the 10 accession countries produced only 7 percent of the value added of a future EU-25. However, utilized agricultural area in these 10 countries is 22.5 percent of the total in the EU-25 and agricultural employment in the 10 accession countries makes up 35.8 percent of the EU-25 total.

**Table 1: EU-15 Agricultural Expenditures in 2000**

	Billion Euro	Percent of agriculture expenditures	Percent of EU budget
Total	40.5	100.0	45.0
Market support	10.6	26.2	11.8
Direct payments	25.6	63.4	28.5
Rural development	4.2	10.4	4.7

Source: SWINNEN (2002).

Further differences in the CAPs for the accession countries and the EU-15 can be found in the balance of different types of aid and in the way aid will be distributed. Direct EU-15 expenditures on agriculture made up 45 percent of the EU budget in 2000 (Table 1), and two thirds of these payments went toward direct payments to farmers. In the accession CAP, rural development commitments make up 50 percent of the first three years with direct payments absorbing only 21 percent of total appropriations (Table 2).

<sup>6</sup> Budget support accounts for only a portion of the benefits of CAP policies. 58 percent of producer support in the EU in 2001 came from market price support, i.e., from higher than market prices (OECD, 2002, p. 167).

**Table 2: Estimated EU payments for agriculture in 10 Candidate countries, 2004-2006 (billion Euro, 1999 prices)**

	2004	2005	2006	Total	Structure
Total	1.897	3.748	4.147	9.792	100
Market support	0.327	0.822	0.858	2.007	20.5
Direct payments	0.0	1.211	1.464	2.675	27.3
Rural development	1.570	1.715	1.825	5.11	52.2

Notes: 1. Table 2 does not account for topping up of direct payments from funds earmarked for rural development. The Copenhagen Agreement allows for a substantial transfer of money between the rural development and direct payment budget in the CEE countries. Each new member state is allowed to transfer up to 20 percent of total rural development allocation for 2004-2006 to top up direct aid payments. 2. No direct payment allocation will be payable against the EU budget in 2004, because payment for this item in the first year will not be made until late in the year, when they will be charged to the budget for the following financial year.

Source: Agreed commitments from Copenhagen European Council from European Commission.

Because of temporary differences in the distribution of direct payments, the EU-8 CAP may distribute benefits slightly more equitably than the CAP in the EU-15. Under the Copenhagen Agreement accession countries may opt for a simplified distribution of direct payments based on land area, instead of land area adjusted by regional yields (as in the EU-15). This option means that direct payments can be made to farms, regardless of the crops raised and regardless of differences in regional yields. The resulting bias toward equity is temporary. After a maximum of 5 years distribution of direct payments in the CEE countries should be carried out as in the EU-15. Then, as in the EU-15, market support and direct payments will act to reinforce regional yield differences and be distributed disproportionately to larger farms. In countries such as Poland, where smallholding poverty is regionally distributed, causing low yields and smallholder agriculture to be concentrated in some areas, the change to a regionally based yield criteria will multiply differences in income distribution in rural areas. Rural development payments under SAPARD were directed predominantly to the larger, more productive food processors and farms. This is largely a result of the need for various government documents attesting to conformity with the *acquis communautaire* and the need for a viable business plan. CEE countries had difficulties disbursing available rural development funds in the pre-accession period because of a lack of viable applicants.

The differences in distribution of direct payments should not be overestimated as a source of reward for more competitive farmers or even as a source of payments for them. In the US and EU-15 most direct payments accrue to landowners, not the farmer, since land rents rise to take account of higher direct pay-

ments (BURFISHER and HOPKINS, 2003; OECD, 2003). Since the distribution of ownership of land in the CEE countries is generally more equitable than in EU-15 countries, direct payments in CEE countries will probably be more equitably distributed in the CEE countries than in the EU-15.

### **3 WHY AN ACCESSION CAP?**

The separate CAP for the accession countries is often explained or justified by two issues of CAP expansion: limited budget appropriations and the lack of a competitive agriculture in accession countries. EU funds earmarked for CAP expansion in the Agenda 2000 budget agreement (2000-2006) agreed on in 1999 were not intended to cover extension of direct payment benefits to accession country farmers. Extension of these benefits to the candidate country farmers in 2004 would probably have required an increase in the budget for CAP spending. Beyond budget matters lay a second, more economic argument for moderating CAP benefits to farmers in the candidate countries for 10 years. For the Central and East European countries building a competitive agriculture and implementing the *acquis* have been demanding tasks. It has been argued that immediate granting of full direct payments would slow improvements in the competitiveness of CEE farms, thus leaving these countries with an uncompetitive agriculture.

#### **3.1 Budget Considerations**

The EU Financial Framework (FF) for 2000-2006 was approved at the Berlin European Council in 1999 (Table 3). The FF foresaw funds for expansion of the CAP, as well as funds for pre-accession agricultural aid for the candidate countries. At the time it was believed that 6 countries would join the EU in 2002 and that no direct payments would be offered to farmers in these countries. Thus, line 3 in Table 3 shows an increase in estimated EU payments for the candidate countries starting in 2002. Though the expansion of the EU was delayed until 2004, current member governments decided to maintain the budgetary constraint implied by the funds earmarked for agriculture under the expansion. This implied a budget constraint of approximately 16.05 billion euro for the 10 accession countries, Romania, and Bulgaria for the period 2000-2006.

The financing commitments announced at the Copenhagen European Council of December 2002 fell within the budget envelope originally agreed upon in 1999, i.e., the total appropriations for 2004-2006 in Table 2—9.792 billion euro—are less than those for 2004-2006, line 3 in Table 3—10.34 billion euro). Delay of

accession until 2004 meant that there was no problem financing admission of 10 new member states under the terms offered to them.<sup>7</sup>

**Table 3: Estimated EU payments for agriculture in 1999 Financial Framework, 2000-2006 (billion Euro, 1999 prices)**

		2000	2001	2002	2003	2004	2005	2006	Total
1	Total Agriculture	41.44	43.32	47.92	46.32	45.73	45.38	45.58	313.69
2	EU-15	40.92	42.8	43.8	43.77	42.76	41.93	41.66	297.64
3	10 Candidate countries, Bul- garia and Ro- mania	0.52	0.52	2.12	2.55	2.97	3.45	3.92	16.05
3a	--For agriculture accession	0.0	0.0	1.60	2.03	2.45	2.93	3.4	12.41
3b	--Pre-accession aid	0.52	0.52	0.52	0.52	0.52	0.52	0.52	3.64

Source: 1. Sum of 2-3; 2. SWINNEN (2002), p. 13; 3. Sum of 3a, 3b; 3a. SWINNEN (2002), p. 13; 3b, 4. SWINNEN (2002), pp. 13, 16.

If the EU seems able to accommodate CAP expansion for 10 new members in 2004, the financial details known about the CAP budget ceiling from 2007-2013 do not seem to be able to accommodate estimates of increases in direct payments authorized in the Copenhagen deal. To see this, consider first the budget ceiling for CAP market support and direct payments agreed on at the Brussels Council in October 2002 (Table 4, line 1). According to this agreement, CAP “first pillar” expenditures are to be kept below the level of 2006 in real terms. In nominal terms, the ceiling is set at the level of 2006 plus 1 percent per year. This seems to imply that if inflation in the EU is greater than 1 percent per year, the ceiling on CAP market support and direct payments will actually decrease in real terms over the 2007 to 2013 period. The 2006 ceiling amounts to 39.612 billion euro in 1999 prices.

An estimate of first pillar expenditures (in 1999 prices) for 2013 exceeds this ceiling. Two studies published in 2001 projected the budgetary effects of CAP enlargement in 2013 (in 1999 prices) with 100 percent direct payments going to the Central and East European candidate countries (including Bulgaria and Romania, without Malta and Cyprus) (Table 5). According to these projections, market support and direct payments for the 10 Eastern European candidate countries would total approximately 10.5 billion euro in 2013. Without Romania and Bulgaria these projections fall to 6-8 billion euro. Thus, first pillar expenditures

<sup>7</sup> The figures in table 2 announced at the Copenhagen European Council represent commitments of funds. Experience indicates that actual payments can be quite a bit less, because much of rural development funds go unutilized.

for the 8 CEE countries (not including Malta and Cyprus) would amount to about 7 billion euros in 2013 (in 1999 prices). This figure can be taken as a very conservative estimate of first pillar expenditures in the 10 new EU countries by 2013. It does not include Cyprus, Malta, Romania or Bulgaria.

**Table 4: EU 25 Market support and direct payments (1999 prices)**

	2006	2013
1 First pillar spending ceiling	39.612	39.612
1a --EU-15	37.29	--
1b --Accession 10	2.322	--
2 Projected Expenditures	39.612	44.29
2a --EU-15	37.29	37.29
2b --Accession 10	2.322	7.0
3 Projected shortfall	0.0	4.678

Source: 1. Sum of 1a, 1b; 1a. SWINNEN (2002), p. 13; 1b. Table 2 for 2006; 2. Sum of 2a, 2b; 2a. SWINNEN (2002), p. 13; 2b. Table 2 for 2006 and SWINNEN (2002), p. 19.

Using this projected estimate of the cost of the CAP and keeping EU-15 first pillar expenditures constant at their level of 2006 implies a budget shortfall of nearly 5 billion Euro in 2013 (in 1999 prices). These figures undoubtedly underestimate CAP first pillar expenditures in 2013, because they do not include Malta and Cyprus, nor do they include Romania and Bulgaria, slated for accession in 2007.

**Table 5: Budgetary effects of CAP enlargement: Projections for 2013 (1999 prices)**

Source	DIW				IBO/LEI			
	Market Support	Direct Payments	Rural Development	Total	Market Support	Direct Payments	Rural Development	Total
Czech R.	-181	696	235	750	489	735	191	1,415
Hungary	362	932	346	1,640	539	1,030	330	1,899
Poland	1,101	2,480	994	4,575	845	2,551	1,461	4,857
Slovakia	-120	326	136	342	131	360	175	666
Slovenia	-73	69	38	34	79	101	55	235
Estonia	-2	79	57	134	38	84	105	227
Latvia	-21	230	136	345	70	122	253	445
Lithuania	5	485	191	681	184	307	353	844
Bulgaria	433	506	311	1,250	172	489	445	1,106
Romania	-104	3,351	807	4,054	498	1,698	1,060	3,256
EU-10	1,400	9,154	3,251	13,805	3,045	7,477	4,428	14,950
EU-8	1,071	5,297	2,133	8,501	2,375	5,290	2,923	10,588

Source: SWINNEN (2002), p. 19. EU-10 includes each of the 2004 10 accession countries. EU-8 includes only the CEE accession countries of 2004.

### 3.2 Competitiveness of Agriculture in the EU-8

The primary economic argument for limiting CAP benefits to candidate country farmers is that large payments to farmers in the candidate countries would inhibit the restructuring of farms required for the development of a competitive agricultural sector. The Copenhagen criteria for EU accession emphasize that accession countries should have market-oriented economies capable of competing within the single market of the European Union. Thus, if CEE farms are significantly less competitive than those in the EU-15 and if CAP benefits would inhibit changes toward greater competitiveness, then it may be beneficial in the long run to withhold such benefits.

The view that CEE farms lack competitiveness is based primarily upon partial productivity indicators. POULIQUEN (2001), whose study was contracted by the European Commission, has written the most extensive account of this point of view (Tables 6 and 7). POULIQUEN (2001), WORLD BANK (2002) and EUROPEAN COMMISSION (2002b) argued that the low competitiveness of CEE agriculture, as manifested in low productivity measures, is connected with the structure of landholding in the CEE countries and the large portion of the labour force in-



volved in agriculture. Agriculture in CEE countries accounts for considerably more of GDP and labour force (Table 6). Poland and Lithuania have the highest portion of their labour forces employed in agriculture (19 and 20 percent), while countries such as the Czech and Slovak Republics, Hungary and Estonia are comparatively close to the EU-15 average.

**Table 6: Partial Productivity Indicators and the Size of the Agricultural Sector in European Countries, 2000**

Country	GVA per employee (EUR)	GVA per ha (EUR)	Portion of GDP in agriculture (%)	Portion of total employment in agriculture (%)
Accession	3,160	312	3.4	13
Poland	1,840	273	2.9	19
Hungary	8,427	327	3.9	6
Slovak R.	4,706	230	4.5	7
Czech Rep.	8,875	431	3.4	5
Slovenia	10,457	1,725	2.9	10
Estonia	5,510	285	4.7	8
Latvia	2,593	123	4.0	14
Lithuania	3,191	240	6.9	20
Malta	26,000	6,500	2.0	2
Cyprus	23,500	2,455	3.5	9
EU-15	21,629	1,123	1.7	4.3
Belgium	33,848	1,915	1.1	1.9
Denmark	35,697	1,326	2.0	3.7
Germany	19,811	1,112	0.9	2.6
Greece	12,244	2,106	6.8	17.0
Spain	22,848	891	3.7	6.9
France	32,667	1,062	2.3	4.2
Ireland	20,626	612	2.6	7.9
Italy	25,882	1,840	2.4	5.2
Luxem-	32,750	970	0.6	2.4
Netherlands	36,207	4,434	2.2	3.3
Austria	10,906	716	1.2	6.1
Portugal	4,419	699	2.4	12.5
Finland	8,082	537	0.9	6.2
Sweden	13,958	562	0.7	2.9
UK	25,224	680	0.7	1.5

Note: Accession countries do not include Romania and Bulgaria.

Source: EUROPEAN COMMISSION (2002a); EUROPEAN COMMISSION, DIRECTORATE FOR AGRICULTURE (2002), p. 43.

The significance of the rather high share of agriculture in GDP and the labour force should not be exaggerated, however. The importance of agriculture in Spain 5 years before accession and in Portugal at the time of accession (1986) was quite similar to the average of the 10 accession countries. For example, in

Spain, five years before enlargement the share of agriculture in GDP was 8.1 per cent and in employment 16.4 per cent, very close to the average levels in the accession countries of 7.6 per cent and 16.7 percent, respectively.<sup>8</sup>

One of the main reasons for low partial productivity measures is that agricultural holdings in the CEE countries are thought to be considerably more fragmented than in EU-15 countries. This is difficult to establish using existing statistics on size distribution of farms, because these are not sufficiently detailed or comparable across countries. Nevertheless, a comparison of the portion of farms and farmland in holdings of 5 ha or less indicates that Romania, Lithuania and Poland seem to be as fragmented or more than the countries with the highest land fragmentation in the EU (Greece, Italy and Portugal) (Table 8).

**Table 7: Physical Crop Yields and Livestock Productivity Indicators in European Countries, 1998**

<b>Yields (100 kg/ha)</b>	<b>Soft Wheat</b>	<b>Maize</b>	<b>Sun- flower</b>	<b>Rapeseed</b>	<b>Milk per cow (l/head)</b>	<b>Beef, veal (kg/head)</b>
EU-15	57	88	18	31	5,639	92
Poland	36	58		24	3,477	59
Hungary	41	60	17	14	5,225	65
Czech Rep.	42	61	21	26	4,837	77
Slovak Rep.	41	55	16	19	4,000	70
Slovenia	59	73		24	3,199	100
Estonia				12	4,070	58
Lithuania	30			17	3,104	80
Latvia	25			14	3,560	55
Romania	26	28	11			52
Bulgaria	28	27	10			73

Source: POULIQUEN (2001).

A second problem of farming in CEE countries is the low profitability of nearly all types of farms due to their employment of excess labour. According to POULIQUEN (2001), this holds for semi-subsistence farms as well as for larger corporate farms. Excess labour on corporate farms tends to discourage investment, because it diminishes profitability. Though there is a new group of privately owned, profitable farms, these farms still represent a small portion of total production and land area in the CEE countries.

<sup>8</sup> EUROPEAN COMMISSION, DIRECTORATE GENERAL FOR ECONOMIC AND FINANCIAL AFFAIRS (2001, p. 53).

**Table 8: Portion of Farms and Land in Farms in Holdings of Less than 5 ha (%)**

Country	Year	Percent of Farms	Percent of Land
EU-15	1997	55.3	5.4
Greece	1997	75.8	31.7
UK	1997	14.6	0.5
Italy	1997	75.6	19.0
Denmark	2000	3.0	0.2
Germany	1997	31.0	2.2
Spain	1997	52.7	5.1
France	1997	26.2	1.3
Portugal	1997	75.9	14.3
Romania	1998	81.9	38.0
Lithuania	1998	66.0	30.0
Latvia	1999	30.0	4.0
Poland*	2000	56.4	19.5

Notes: \*1-5 ha.

Source: EUROPEAN COMMISSION DIRECTORATE FOR AGRICULTURE (2002); EUROPEAN COMMISSION (2002a).

There is no doubt that partial productivity indicators for farming in the CEE countries are considerably lower than those in the EU-15. However, it is not clear that these large differences reflect lower competitiveness of CEE farms, because partial productivity measures are imperfect indicators of the competitiveness. It is quite possible to produce a commodity with intensive or extensive technology with the same (or lower) unit cost of production. For instance, physical yields of wheat in North America and Australia are quite a bit lower than those in the EU-15, because farmers do not find it profitable to apply as many complementary inputs in these countries where land is more abundant. The choice of technology should depend on relative prices of land, labour and capital available in the country as well as on support policies. The low value added per ha and per worker in CEE countries may reflect entirely rational factor use in countries where wages and land values are far lower than in the EU-15. The differences in value added per worker and ha are also a consequence of different agricultural policies in these two sets of countries. The EU-15 has operated under agricultural policies that distribute subsidies to farms based on historical or current production levels since the aftermath of WWII. Such policies provide plentiful incentives to increase production per farm. Farms in CEE countries have received less support than their EU-15 counterparts in the post-socialist period, with the exception of Slovenia. Hence, it may make more economic sense for CEE farms to produce commodities using more land and labour than in EU-15 countries.

The competitiveness question is also complicated because of the previous existence of different policy environments in the CEE and EU-15 countries for some

time. The differences in partial productivity measures in EU-15 and CEE countries reflect both differences in price competitiveness in the two regions and the effects of two different policy regimes for an extended period of time. Moreover, because of the limitations on direct payments in the CEE countries under the CAP, the different policy environments will continue to a great extent. In addition, CEE farms will continue to operate in a different factor price environment as well. For this reason, it is not quite correct to judge the competitiveness of farms by partial productivity indicators.

The important difference between farming extensively (with relatively low value of production per ha and employee) and farming intensively (with relative high value of production per ha and employee) is that income per employee and per hectare tend to be higher under intensive farming. Thus, rural incomes and land rents should be higher when farms utilize intensive agricultural technologies.

### **3.3 Do Direct Payments Inhibit Changes Toward Competitiveness?**

A number of uncertainties make it difficult to predict the effects of direct payments on fragmentation of land holdings and excess labour in farms. First, it is still not clear what type of smallholdings will qualify as “farms” for the purpose of payments. For instance, BAKER (2003, p. 89, citing PLEWA, 2002) noted that small farms of less than 0.3 hectares in Poland would be ineligible for direct payments. The EC issues paper also made this suggestion, though it is not clear whether it will be followed in the CEE countries.<sup>9</sup> Second, the CEE countries all negotiated area quotas for crops that (together with yields of the past three years) determine the level of direct payment support for which CEE countries will be eligible. However, it is unclear how these payments will be distributed in each country. Contrary to the situation in the EU-15, the new EU countries have the option to distribute area direct payments strictly on a per hectare basis for five years.

In the face of such uncertainty, it may nevertheless be useful to work through an example in order to get a rough quantitative idea of the incentive to stay in agriculture afforded by direct payments under the Copenhagen Agreement. Assuming that a one-hectare semi-subsistence farm would be eligible for direct area payments at the same rate as more intensive commercial farms, consider the following example. A one hectare Hungarian farm raising soft wheat will initially be eligible for direct area payments at 25 percent of the EU-15 level. Using rural development and national funds the government of Hungary may increase this to 55 percent of the EU-15 level in 2004. The EU-15 level of payment per ton per hectare is 63 euros per ton for raising cereals, oilseeds and protein crops.<sup>10</sup> Using

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<sup>9</sup> EUROPEAN COMMISSION (2002b, p. 8).

<sup>10</sup> SWINNEN (2002, p. 2).

the Table 6 yield figure for soft wheat in Hungary in 1998 to approximate soft wheat yields of the past three years, a Hungarian semi-subsistence farmer would be eligible for an annual payment of 63 euros/ton x 0.55 x 4.1 ton/ha = 142 euros. A one-hectare Hungarian semi subsistence farm raising soft wheat can anticipate the following annual payments over the next five years:

2004, 142 euros

2005, 155 euros

2006, 168 euros

2007, 181 euros

2008, 207 euros

After 2008 the aid package for the one-hectare farm may change slightly. Under the Copenhagen agreement Hungary will no longer have the option to distribute direct payments under the simplified scheme after 2008. If the 2008 CAP in Hungary will work like it currently does in the EU-15, payments to farms will be adjusted according to regional historical yields. But an average one-hectare farm even under these conditions will be able to claim a maximum of 258 euros in 2013. If the subsistence farm has a cow, a one time payment may be added to the aid package the size of which is uncertain. In the EU-15 these range from 150-200 euro per beef animal.

Under this simple example, the difference between the amount a one-hectare soft wheat farm would receive under the Copenhagen Agreement for 2004 and what it would have received if Hungarian farmers had been immediately eligible for full direct payments is (258-142) 116 euro per year. Though this is a very simple example, it seems to indicate that fears that direct payments on the level of the EU-15 will slow restructuring may be overdrawn. The effect of direct payments will be to raise land values, because the hectare of land under consideration will now carry with it an entitlement for an annual income of 258 euros, if farmed. But it is difficult to see how such payments would significantly inhibit semi-subsistence farmers from taking up alternative employment if employment offers an annual income above 258 euros.

There are deeper remaining problems in CEE agriculture that are probably quite a bit more important than the rather small monetary difference afforded by the above example. For instance, even if a farmer takes up alternative employment, this does not necessarily mean that he will sell the one-hectare farm. It may make sense to keep the farm to provide in-kind unemployment insurance and a pension. Moreover, in many rural areas there are very few alternative sources of employment.

#### 4 HELP OR HARM FOR EAST EUROPEAN AGRICULTURE?

At the base of concern about the competitiveness of CEE agriculture is an abiding fear that CEE farms and food processors will not be economically viable in the enlarged EU, and will therefore constitute an economic and social burden on their countries and government budgets.<sup>11</sup> Though from the point of view of the EU the primary issue may be competitiveness, the issues for the CEE countries are low profitability of farms and low rural incomes. Though these problems are partly connected with the structure of agricultural holdings in these countries, the structure per se is not the problem. Rather, the structure of landholding is a problem only because it leads to low profitability and low incomes.

Can the CAP assist in resolving the specific problems in CEE countries that limit efficiency and keep rural incomes low or will it deepen them? A judgment on this matter is tentative, because only the broad details of how the accession CAP will be implemented are known. But an initial verdict on the accession CAP is favourable, subject to some reservations. First, the bias towards rural development within the accession CAP is undoubtedly positive, since many of the structural problems of CEE agriculture are connected with a lack of employment opportunities in the countryside. This judgment, of course, depends on the ability of CEE countries to administer rural development funds in a transparent and effective manner. Second, the bias towards rural development funds allows for more precise targeting of funds in an environment in which the distribution of direct payments is likely to be affected by smallholder farm politics and in which regional yield differences may not be a good indicator of comparative advantage. Third, there are definite advantages of accession for the East European food industry in the opening up of the common market after tariff and quota barriers to trade are removed. These changes will initially primarily lead to more competition for primary commodities on CEE farms. But at least CEE farms and exporters will now be free to export food to EU-15 countries without quotas and without going through West European importers. Fourth, for as complex as the CAP is, at least it is more transparent and perhaps more sensitive to efficiency concerns than many current agricultural support policies in the CEE countries. If the CAP can now define the methods and level of aid for CEE agriculture, perhaps the CEE countries will have some political leeway to make more robust reforms in land tenure policies and eliminate soft budget payments to corporate farms.

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<sup>11</sup> The debate about competitiveness of CEE farm and food sector has been largely driven by fears within the EU-15 that the extension of the CAP to CEEs could break the EU budget. This concern seems to have been effectively addressed within the Copenhagen agreement. The size of direct payments for the CEEs is independent of the number of farms, farmers or their competitiveness in the enlarged EU, depending only on reference areas and yields, as well as livestock numbers and other technical quantities agreed at the end of 2002.

This praise for the accession CAP must be limited by usual criticisms. Certainly dairy and sugar policies under the CAP are designed to prevent competition and the quotas for CEE countries are no exception. Dairy quotas will constrain CEE country potential for expanding resources in dairy and beef production. Reference land area and yield for the purpose of computing direct payments in CEE countries will act to reinforce per farm inequities between East and West. Though these differences may be due to less competitive production in the CEE countries on average during the past three years, the situation is to a great degree due to past policies. The end result—no matter what the cause—is the same: CEE countries will enjoy less support per farm for the foreseeable future. Lower support payments may mean that land markets will eventually be less distorted by agricultural policy in the CEE countries. This depends on the willingness of CEE countries to eliminate existing distortions. Finally, EU accession will require raising average tariff barriers for food imports for some CEE countries, such as Estonia, Latvia, Lithuania, Slovenia, Czech Republic and Slovakia. This policy will decrease competition in these countries. Other countries within CEE already have tariff barriers on imported food that are higher than those in the EU-15. For these countries (Bulgaria, Romania, Hungary and Poland), EU accession will mean a fall in the overall level of applied tariffs on agricultural products (BAKER, 2003, p. 35).<sup>12</sup>

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## EVALUATION OF THE EFFECTS OF PRE-ACCESSION AND ACCESSION INSTRUMENTS ON THE DEVELOPMENT OF THE NORTHEAST REGION IN BULGARIA

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### ABSTRACT

Evaluation of the effects of pre-accession and accession instruments on rural development in Bulgaria is done by applying Input-Output (I-O) methodology to the Bulgarian NUTS II Northeast Region (NER). Three different sets of pre-accession and accession measures are used for constructing the relevant scenarios for the NER in Bulgaria. The first one can be considered as a baseline scenario, which includes national investments and funding under the Phare programme. The second scenario explores the effects of funding from the baseline scenario, plus funding under the SAPARD and ISPA programmes. The third is based on the financial package that was accepted during accession negotiations with Bulgaria and Romania. The comparisons of the effects from the three scenarios on the development of the NER, and especially on agriculture and its related sectors, allow important conclusions to be drawn.

**Keywords:** Rural development, Input-Output, Pre-accession, Accession, Scenarios, NER.

### 1 INTRODUCTION<sup>1</sup>

The CAP reform, following the agreement of the Council of Agricultural Ministers of the EU in Luxemburg on 26<sup>th</sup> June 2003, changed the nature of EU support for the rural economy. The EU paid a lot of attention to overcoming the disparities between rural and urban areas as laid out in Article 138 of the Treaty establishing the European Community.

The problem of disparities between rural and urban regions is even stronger in Bulgaria. Due to the egalitarian (to a certain extent) policies of the former so-

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cialist system, the transition process has contributed to stronger economic differentiation and to rural-urban disparities. Despite the fact that rural areas in Bulgaria are associated with high environmental values, they lag substantially behind their urban counterparts in terms of income and employment opportunities, population density and technical, social and cultural infrastructure.

The development of rural areas in Bulgaria directly depends on the process of EU accession and the adoption of its policies. However, EU policies and its accompanying national measures are not strictly determined. Their elements can be combined in a way that assures the best effects on rural development, and especially on employment, as its current low level is considered one of the basic challenges in Bulgarian rural areas.

## **2 IMPORTANCE OF RURAL AREAS IN BULGARIA**

Rural areas have traditionally played an important role in the Bulgarian economy and in maintaining social stability. The rural areas cover 90,371 km<sup>2</sup>, or about 81% of the country. According to a survey conveyed by the National Statistical Institute, the rural population in Bulgaria for 2002 is 2.4 million and accounts for 30% of the total population. The number of rural residences is estimated to be 5,091, which consists of 95% of the settlements in the country.

The National Agriculture and Rural Region Development Plan formulates its priority thusly: “Integrated rural region development aiming to preserve and strengthen their economies and help limit depopulation.”

Key directions for the economic development of rural regions include:

- restructuring the economy in favour of light industry, mainly foods;
- developing local crafts;
- increasing the scope of small business activities in village communities;
- agricultural development: reviving strategically important endeavours such as vineyards, market gardening, silkworm farming, attar rose harvesting, berry gardening;
- developing tourism where appropriate.

The impact of possible scenarios on regional and rural development in Bulgaria is the main objective of the paper. The criteria for selecting the region were as follows:

1. The region must be classified as NUTS II.
2. The region must be rural, according to OECD definition.

Regions are defined as:

- *predominantly rural* if the population living in rural communities is more than 50% of the total regional population.
- *significantly rural* if the population living in rural communities is between 15% and 50%.
- *predominantly urbanised* if the population living in rural communities is below 15%.

The region fits the criteria of rurality if the ratio between the regional population living in rural communities and the total regional population is such that the region can be defined as predominantly rural.

3. The region must have positive employment dynamics that: span the last decade (1991-2001); are relative to the country; are in industry and service sectors.

Following the above-presented methodology, the results from the selection process in Bulgaria show that of the six NUTS II regions of Bulgaria, the NER meets all these criteria and is also ranked in first place, which led to this region being chosen for the case study region of this paper.

### 3 METHODOLOGY

The Input-Output methodology was the analytical tool chosen to assess the integrated policies' impact in the NER of Bulgaria. We consider that I-O models can be used as a policy tool in order to estimate and predict, with relative accuracy, anticipated changes in income, employment and output levels from policy measures for all sectors of an economy.

For the derivation of the regional Input-Output tables for the selected case, the variable interference non-survey GRIT (*Generation of Regional Input-Output Tables*) technique developed by R. C. Jensen (JENSEN et.al., 1979) is used. In summary, the GRIT technique is a formalised non-survey compilation method that allows the user to insert survey data at any stage of the compilation procedure. As with any other non-survey technique, GRIT is based primarily on a mechanical procedure (mainly on the cross-industry location quotient-CILQ) for the regionalisation of the national direct requirements matrix (DRM), which is at the core of any Input-Output table. At the same time, the analyst can determine the extent to which he/she should interfere by the insertion of superior data from a survey or other secondary sources, either at the elements of the regional direct requirement matrix, or at the elements of other final payments and demand.

To regionalise the national direct requirements, the recently suggested modification of the cross-industry location quotients by FLEGG et al., (1995), is applied,

which takes into consideration the relative size of each region in the respective country.

It is important to point out that the analysis of the economic impacts within I-O model concerns a mid-term period. If the aim of the analysis has long-lasting prospects, then it is essential to adapt the total and direct requirement matrices so the technological changes in the productive structure of the system can be taken into account. According to several authors, any I-O model can be reliably used for impact analysis over a period of five years (MILLER and BLAIR, 1985; LIVAS, 1994).

Traditionally, the impact analysis within I-O models is done by using the backward linkages proposed by RASMUSSEN (1956) and HIRSCHMAN (1958) and forward linkages proposed by AUGUSTINOVICS (1970). These linkages show the size of structural interdependence in an economy, as well as the degree to which the enlargement of a sector can contribute directly or indirectly to the enlargement of other sectors in the model. Because of this last property, backward and forward linkages are also reported in the bibliography as multipliers of output, income or employment, depending on their empirical specification.

#### **4 RELEVANT REGIONAL SCENARIOS FOR NER IN BULGARIA**

Accession to the EU is considered an event that will have crucial influence on the development of Bulgaria. Opinions on the outcomes of accession vary from overly-optimistic to entirely negative. One of the manners of evaluating the possible results of accession is to define realistic scenarios and to compare the results. Designing the scenarios for the NER is based on the assumption that the scenarios for the region are similar to national scenarios.

We consider three NER scenarios to be relevant:

*Baseline scenario.* The baseline scenario describes the level and direction of investments in the region as they would be if there were no process of accession. Beside national investment, the funds under the PHARE programme are included. The logic behind this idea is that PHARE support to Bulgaria started in the early 1990s, when relations between the EU and Bulgaria were targeted at co-operation and not accession. PHARE programme priorities changed during the 1990s, and since 1997, as a response of the Luxemburg European Council's launching of the enlargement process, were re-focused on "pre-accession". But since PHARE-funded projects are aimed more at the preparation of accession – the adoption of the "*acquis communautaire*"; institution building – and only a small component are for investments, PHARE significantly differs from accession funds such as SAPARD and ISPA, and can therefore be considered as a component of the scenario which is not aimed at accession.

*Scenario 1.* The second scenario explores the results of pre-accession measures and programmes undertaken in the country, including national funding and the application of typical pre-accession tools such as SAPARD and ISPA.

*ISPA* provides financial support for investment in the areas of environment and transport in order to speed up compliance, in candidate countries, with EU legislation in these two areas. Transport assistance is provided for large-scale transport infrastructure projects connecting the national transportation networks (railroads, highways, etc.) with the Trans-European networks (TEN), as well as for the construction and renovation of ports and airports. The environmental protection measures financed by ISPA mainly address the drinking water supply, wastewater, solid-waste management and air pollution projects.

The main activities currently funded under the *SAPARD* programme are: investments in agricultural holdings, improvements of the processing and marketing of agricultural and fishery products, the development and diversification of economic activities, and the provision of possibilities for multiple activities and alternative incomes. After the authorisation of the SAPARD agency in Bulgaria, in August 2003, new measures began being implemented: forestry, afforestation of agricultural lands, investment in forest holdings, processing and marketing of forestry products, setting up producers' organisations, renovation and development of villages, protection and preservation of rural heritage and cultural tradition, development and improvement of rural infrastructure and the improvement of qualification through vocational training.

*Scenario 2.* The third scenario is based entirely on the accepted financial package from the accession negotiations between the EU and Bulgaria and Romania. For this scenario, we consider it unrealistic to form the financial inflow as a sum of funds from all programmes included in the previous scenarios as well as new financing. In fact, the PHARE, ISPA and SAPARD programmes, as pre-accession funds, will terminate with the accession of Bulgaria in 2007. After that they will be replaced by commitments to agriculture and structural operations. So, in our view, the third scenario is more realistic when financing from national funds and sums intended for Bulgaria after EU accession are included.

## **5 DATA USED**

The impact analysis was based on the last available national Input-Output table for the year 1997, which was regionalised by applying the GRIT technique for the NER of the country. Further, derived multipliers from the regional I-O table are used.

**Table 1: Total sectoral output, national and NER's employment (1997)**

Sectors	Output		Bulgaria	Employment			
	Total (million lv.)	Sectoral Share		NER	Sectoral share of NER to the country	Sectoral share at regional level	
<b>B1</b> Agriculture	1,805,092	<b>31.6</b>	800,353	169,797	<b>21.2</b>	<b>33.1</b>	
<b>B2</b> Mining and quarrying	26,141	<b>0.5</b>	60,540	1,819	<b>3</b>	<b>0.4</b>	
<b>B3</b> Foods, beverages and tobacco	456,850	<b>8</b>	121,652	19,247	<b>15.8</b>	<b>3.8</b>	
<b>B4</b> Chemicals and chemical products	333,984	<b>5.8</b>	47,290	10,023	<b>21.2</b>	<b>2</b>	
<b>B5</b> Other non-metallic mineral products	180,259	<b>3.2</b>	39,072	12,677	<b>32.4</b>	<b>2.5</b>	
<b>B6</b> Transport equipment	136,238	<b>2.4</b>	24,354	12,806	<b>52.6</b>	<b>2.5</b>	
<b>B7</b> Other products of manufacturing	456,967	<b>8</b>	520,033	53,999	<b>10.4</b>	<b>10.5</b>	
<b>B8</b> Electricity, gas and water supply	284,858	<b>5</b>	58,488	8,886	<b>15.2</b>	<b>1.7</b>	
<b>B9</b> Construction	205,320	<b>3.6</b>	139,002	20,454	<b>14.7</b>	<b>4</b>	
<b>B10</b> Trade and repair activities	396,581	<b>6.9</b>	310,369	44,584	<b>14.4</b>	<b>8.7</b>	
<b>B11</b> Hotels and restaurants	112,357	<b>2</b>	72,136	14,608	<b>20.3</b>	<b>2.8</b>	
<b>B12</b> Transport and communication	563,985	<b>9.9</b>	228,231	38,286	<b>16.8</b>	<b>7.5</b>	
<b>B13</b> Financial intermediation	84,268	<b>1.5</b>	39,968	4,822	<b>12.1</b>	<b>0.9</b>	
<b>B14</b> Estate and business activities	262,810	<b>4.6</b>	98,675	8,984	<b>9.1</b>	<b>1.8</b>	
<b>B15</b> Public administration	156,960	<b>2.7</b>	78,899	11,160	<b>14.1</b>	<b>2.2</b>	
<b>B16</b> Education	111,721	<b>2</b>	242,605	40,890	<b>16.9</b>	<b>8</b>	
<b>B17</b> Health and social work	96,158	<b>1.7</b>	177,642	27,592	<b>15.5</b>	<b>5.4</b>	
<b>B18</b> Other activities	43,964	<b>0.8</b>	98,126	12,453	<b>12.7</b>	<b>2.4</b>	
<b>Total</b>	<b>5,714,515</b>	<b>100</b>	<b>3,157,435</b>	<b>513,087</b>	<b>16.3</b>	<b>100</b>	

Source: National Statistical Institute.

Eighteen sectors were included in the regional I-O table (which are also in the national I-O table) and well-depict the peculiarities of the NER's economy. Agriculture is the dominant sector in the Region (Table 1) in terms of output contribution (more than 31% of the total regional gross output is produced by this sector).

The transport and communication sector provides a significant contribution to the formation of the total regional output, with almost a 10% share, as do food, beverages and tobacco, other non-metallic mineral products and chemicals & chemical products. Agriculture is also the sector with the highest employment share (33%) in the region. It also possesses a very high share of the country's agricultural employment – more than 21% of the employees in the Bulgarian agricultural sector are located in NER. Other manufacturing, Trade, Education and Transport and communication are also among the sectors with the highest employment level in the region.

As concerns the sales from each sector to the others and to the final demand categories (consumption, export, investment, inventories), the sector selling more than half of its production to sectors within the region is Other manufacturing (Table 2).

**Table 2: Sectoral shares of intermediate and final demand and intermediate and primary inputs to total output at NER**

Sectors	Share of Total Intermediate Demand to Total Output	Share of Total Final Demand to Total Output	Share of Total Intermediate Inputs to Total Output	Share of Total Primary Inputs to Total Output
<b>B1</b> Agriculture	13.8	86.2	5.1	94.9
<b>B2</b> Mining and quarrying	33	67	35	65
<b>B3</b> Foods, beverages and tobacco	16.8	83.2	42.7	57.3
<b>B4</b> Chemicals and chemical products	21	79	13.9	86.1
<b>B5</b> Other non-metallic mineral products	31.7	68.3	11.3	88.7
<b>B6</b> Transport equipment	28.6	71.4	8	92
<b>B7</b> Other products of manufacturing	50.2	49.8	30.5	69.5
<b>B8</b> Electricity, gas and water supply	32	68	15.1	84.9
<b>B9</b> Construction	15.9	84.1	36.8	63.2
<b>B10</b> Trade and repair activities	17.2	82.8	34.7	65.3
<b>B11</b> Hotels and restaurants	15.3	84.7	26.8	73.2
<b>B12</b> Transport and communication	15	85	19.5	80.5
<b>B13</b> Financial intermediation	8.7	91.3	26.1	73.9
<b>B14</b> Estate and business activities	12	88	10.1	89.9
<b>B15</b> Public administration	4	96	29.9	70.1
<b>B16</b> Education	1.3	98.7	23.6	76.4
<b>B17</b> Health and social work	6.1	93.9	30.6	69.4
<b>B18</b> Other activities	2.6	97.4	40.1	59.9

Source: National Statistical Institute.

On the other hand, all the services sectors are selling almost their whole output to final demand.

Important backward and forward coefficients for the NER rank differently (Table 3). Specifically, the sector with the highest potential to generate both direct and indirect output impacts is Foods, beverages and tobacco (B3), followed by Mining and quarrying (B2), Construction (B9), Trade and repairing activities (B10). Concerning the income and employment multipliers, the services sectors have the greater impact on the NER's economy.



**Table 3: Sectoral ranking of Rasmussen and Hirschman backward, and Augustinovic forward linkage coefficients for the north-east region in Bulgaria**

Sectors	OBL	R	IBL	R	EBL	R	OFL	R	IFL	R	EFL	R
<b>B1</b>	1.068	<b>18</b>	0.045	<b>18</b>	0.099	<b>11</b>	1.167	<b>12</b>	0.061	<b>17</b>	0.109	<b>9</b>
<b>B2</b>	1.455	<b>2</b>	0.122	<b>16</b>	0.107	<b>8</b>	1.462	<b>2</b>	0.124	<b>16</b>	0.101	<b>11</b>
<b>B3</b>	1.484	<b>1</b>	0.143	<b>15</b>	0.085	<b>14</b>	1.199	<b>8</b>	0.136	<b>15</b>	0.066	<b>16</b>
<b>B4</b>	1.180	<b>13</b>	0.156	<b>12</b>	0.044	<b>18</b>	1.282	<b>6</b>	0.174	<b>12</b>	0.060	<b>17</b>
<b>B5</b>	1.145	<b>15</b>	0.211	<b>10</b>	0.081	<b>15</b>	1.386	<b>4</b>	0.265	<b>8</b>	0.104	<b>10</b>
<b>B6</b>	1.106	<b>17</b>	0.352	<b>4</b>	0.103	<b>10</b>	1.346	<b>5</b>	0.399	<b>4</b>	0.120	<b>7</b>
<b>B7</b>	1.396	<b>5</b>	0.226	<b>9</b>	0.151	<b>5</b>	1.654	<b>1</b>	0.290	<b>6</b>	0.180	<b>4</b>
<b>B8</b>	1.206	<b>12</b>	0.150	<b>14</b>	0.051	<b>16</b>	1.409	<b>3</b>	0.194	<b>11</b>	0.072	<b>14</b>
<b>B9</b>	1.453	<b>3</b>	0.333	<b>5</b>	0.136	<b>7</b>	1.192	<b>9</b>	0.292	<b>5</b>	0.116	<b>8</b>
<b>B10</b>	1.415	<b>4</b>	0.158	<b>13</b>	0.146	<b>6</b>	1.223	<b>7</b>	0.157	<b>14</b>	0.134	<b>6</b>
<b>B11</b>	1.334	<b>9</b>	0.268	<b>7</b>	0.158	<b>4</b>	1.184	<b>11</b>	0.268	<b>7</b>	0.147	<b>5</b>
<b>B12</b>	1.249	<b>11</b>	0.240	<b>8</b>	0.091	<b>12</b>	1.190	<b>10</b>	0.223	<b>10</b>	0.087	<b>12</b>
<b>B13</b>	1.349	<b>8</b>	0.203	<b>11</b>	0.088	<b>13</b>	1.108	<b>14</b>	0.165	<b>13</b>	0.067	<b>15</b>
<b>B14</b>	1.137	<b>16</b>	0.056	<b>17</b>	0.046	<b>17</b>	1.150	<b>13</b>	0.058	<b>18</b>	0.050	<b>18</b>
<b>B15</b>	1.389	<b>7</b>	0.453	<b>3</b>	0.105	<b>9</b>	1.052	<b>16</b>	0.408	<b>3</b>	0.078	<b>13</b>
<b>B16</b>	1.303	<b>10</b>	0.591	<b>1</b>	0.392	<b>1</b>	1.015	<b>18</b>	0.553	<b>1</b>	0.368	<b>1</b>
<b>B17</b>	1.395	<b>6</b>	0.470	<b>2</b>	0.318	<b>3</b>	1.072	<b>15</b>	0.435	<b>2</b>	0.296	<b>2</b>
<b>B18</b>	1.152	<b>14</b>	0.318	<b>6</b>	0.326	<b>2</b>	1.033	<b>17</b>	0.244	<b>9</b>	0.287	<b>3</b>

Notes: **R** is Rank; **OBL** is output backward linkage; **IBL** is income backward linkage; **EBL** is employment backward linkage; **OFL** is output forward linkage; **IFL** is income forward linkage; **EFL** is employment forward linkage.

Source: Authors' calculations.

Regarding the forward linkage coefficient, all services sectors exhibit low values concerning output. However, services sectors display high income and employment forward initiatives.

For the purposes of this paper, data regarding investments (Phare, SAPARD and ISPA) for the NER in Bulgaria for the year 2001 are used. The main concerns for this are: the data available for the above-mentioned year are final; the year is close to 1997 (for which year the last I-O table for Bulgaria was constructed and is used for the analysis under the project); the pre-accession programme funds are final and the real effect of their inflows into the country and the NER could be seen. Concerning Scenario 2, which includes national investments plus the EU policy funds, data for the flow of the EU policies are for the first year of accession, 2007.

**Table 4: Sectoral rise of final demand within NER (million leva)**

Sectors	National Investments 2001	Phare 2001	SAPARD 2001	ISPA 2001	EU Policies 2007
Agriculture	48.58	0	7.37	0	92.45
Mining and quarrying	8.83	0	0	0	0
Foods, beverages, and tobacco	28.70	0	3.90	0	19.93
Chemicals and chemical products	51.13	0	0	0	1.41
Other non-metallic mineral products	44.25	0	0	0	22.47
Transport equipment	12.32	0	0	0	5.61
Other products of manufacturing	3.54	0	0	0	21.24
Electricity, gas and water supply	0	0	0.45	6.47	7.46
Construction	52.95	0	0.56	6.47	43.88
Trade and repair activities	124.71	0	0	0	16.97
Hotels and restaurants	129.40	0	0	0	0
Transport and communication	56.41	0	1.08	12.95	11.33
Financial intermediation	0	0	0	0	0
Estate and business activities	21.22	0	0	0	33.19
Public administration	9.22	21.92	0	0	13.16
Education	4.19	7.31	0.36	0	15.17
Health and social work	8.56	7.31	0	0	0
Other activities	14.56	7.31	0	0	1.31
<b>Total</b>	<b>618.56</b>	<b>43.83</b>	<b>13.71</b>	<b>25.89</b>	<b>305.57</b>

Sources: National Statistical Institute; Financial Package for Bulgaria and Romania; <http://www.evropa.bg/>; authors' calculations.

For each scenario, a vector of final demand is calculated (Table 4). This vector contains a single year flow of funds generated by the policies considered in the scenario. However, to be used in the I-O analysis, these funds must be distributed among the sectors represented in the regional I-O table.

The distribution of funds from the pre-accession programmes among the sectors represented within the Bulgarian regional Input-Output table are as follows:

*Phare*: 75% of the total regional investments were allocated, with the other 25% being national co-financing and were not included. The sectoral allocation of Phare funds is based on programme priorities: the consolidation of institutions, participation in Community programmes, regional and social development, industrial restructuring and development of the small-business sector. Considering this, as well as the local knowledge of the economy of the NER of Bulgaria, the Phare inflow was distributed among the sectors as follows: Public administration (1/2 of the funds); Education (1/6); Health and social work (1/6) and Other activities (1/6).

*ISPA*: similar to Phare, only 75% of the funds were distributed among the NER sectors. The ISPA regional inflow was allocated considering its two priorities: the development of transport, and environmental infrastructure. Specifically, the sectors receiving support are: Transport and communication (1/2); Electricity, gas and water supply (1/4) and Construction (1/4).

*SAPARD*: the largest part of the contribution is provided by the EU (max 80%), with the rest co-financed by the Government. Fund distribution is done based on priorities and measures of the programme – modernisation of agriculture and rural development. Thereby, sectors receiving contributions are as follows: Agriculture, beverages, and tobacco; Electricity, gas and water supply; Construction; Transport and communication and Education. As could be seen, Agriculture receives more than 50% of the total SAPARD funds for the region.

Post-accession, the EU Commission will limit the Bulgarian financial package to a period of three years. Regarding the regionalisation of the funds from the EU policy, all six NUTS II regions in Bulgaria will receive equal contributions. The main fields that will be affected concerning the NER are as follows (also, see Table 5):

#### *Agriculture*

For **market measures** under the Common Agricultural Policy (CAP) it is foreseen that the *acquis*, including the CAP reform, will fully apply to Bulgaria upon accession to the Union. It is considered that all funds will be obtained by the agricultural sector.

**Direct payments** will be introduced in Bulgaria at a level of 25% of the EU-15 in 2007, 30% in 2008, 35% in 2009 and 40% in 2010. Although no expenditure will be incurred in 2007 due to the fact that reimbursements from the EU budget for any given year are made in the following year, the level of direct payments for the first year of accession is taken into account.

As regards **rural development policy**, the available funds will be allocated based on the relative share of utilised agricultural area and agricultural employment. For the purposes of the present paper, the funds are allocated following the distribution scheme of SAPARD funds.

#### *Structural actions*

Concerning structural funds, the strategy of MORILLAS et al., (2000) for translating the measures of the Common Structural Funds (CSF) programme, for the period 1988-1993, into eight areas according to a DGXXII proposal (BIPE classification) is taken into account in the paper. Funds aggregated into these areas are distributed among 44 NACE-CLIO sectors based on fixed percentages. Despite the fact that the sector aggregation for the I-O table for NER in Bulgaria differs from the 44-sector NACE-CLIO classification, as well as the fact that the

procedure was conceived to distribute the 1983-1993 CSF funds, it is used as a general reference to distribute the European structural funds among sectors in the NER.

**Table 5: EU policies 2007**

Sectors	Rural Development Funds	CAP market support flows (CMOs)	Direct Payments	General Structural Funds	Total (million lv.)
Agriculture	30.02	35.11	27.32	0	92.45
Mining and quarrying	0	0	0	0	0
Foods, beverages, and tobacco	15.88	0	0	4.05	19.93
Chemicals and chemical products	0	0	0	1.41	1.41
Other non-metallic mineral products	0	0	0	22.47	22.47
Transport equipment	0	0	0	5.61	5.61
Other products of manufacturing	0	0	0	21.24	21.24
Electricity, gas and water supply	1.84	0	0	5.61	7.46
Construction	2.27	0	0	41.62	43.88
Trade and repair activities	0	0	11.71	5.26	16.97
Hotels and restaurants	0	0	0	0	0
Transport and communication	4.38	0	0	6.94	11.33
Financial intermediation	0	0	0	0	0
Estate and business activities	0	0	0	33.19	33.19
Public administration	0	0	0	13.16	13.16
Education	1.47	0	0	13.69	15.17
Health and social work	0	0	0	0	0
Other activities	0	0	0	1.31	1.31
<b>Total (NER)</b>	<b>55.86</b>	<b>35.11</b>	<b>39.02</b>	<b>175.57</b>	<b>305.57</b>
<b>Total Bulgaria</b>	<b>335.19</b>	<b>210.66</b>	<b>234.15</b>	<b>1,053.71</b>	<b>1,833.70</b>

Sources: Financial Package for Bulgaria and Romania; authors' calculations.

## 6 RESULTS OF THE IMPACT ANALYSIS FOR NER

As previously-mentioned, the inflows affecting each final vector of the three relevant scenarios for the development of the NER are:

- National investments plus Phare funds on the regional level (*Baseline scenario*)
- Inflows from the Baseline scenario plus the funds from the SAPARD and ISPA programmes (*Scenario 1*).
- National investments plus the funds from EU policies for the first year of Accession (*Scenario 2*).

If the *baseline scenario* is considered, the services sectors (e.g., Hotels and restaurants, Trade and repair activities, Transport and communication and Other activities) exhibit the highest output, income and employment impact. Rasmusen and Hirschman's backward linkages and Augustinovics' forward linkages for the above-mentioned sectors do not possess that high of a rank, but the investments inflows in these sectors are among the biggest for the region (see Table 4).

As a result of the investments in the region, total output increased by 15.1% bearing in mind backward linkages, and by 14% focusing on the forward linkages. Particularly, the major change in output was in the services sectors: Hotel and restaurants raises its share by 153.7%; Other activities by 57.3%; Trade and repair activities by 44.5% (see Table A1 from the Annex). Concerning industrial output, the sectors creating significant contribution to the regional economy are Mining and quarrying, Other non-metallic mineral products and Chemicals and chemical products. The considerable change in the output of the Mining and quarrying sector is a result of the increased final demand (more than 50%) for its products, and at the same time the relatively small size of the sector for the regional economy. The output of Agriculture remains comparatively the same – the change is by less than 3%.

Looking at the changes in the income vector, it is seen that after applying the national investments and Phare funds in the region, the level of the income will increase by more than 19%. The sectoral shares follow the patterns of the output. Change in direct income tends to be higher in labour-intensive sectors, whereas capital-intensive industries with strong links to other sectors in the regional economy experience large indirect effects. However, if the induced effect of income generation is taken into account, it is obvious that the sectors doing this are mainly Trade and repair activities, Hotels and restaurants, Transport and communication, Construction, Agriculture, Chemical and chemical products, Foods, beverages and tobacco. In fact, this corresponds with the basic branches of the NER's economy.

Applying the investments into the region and keeping in mind the positive variation in the output and income levels, a change in employment is logical. As can be seen, employees in the NER of Bulgaria will raise by 16-17%, which leads to decreasing the rate of unemployment from 17% to 14.2%. The lack of job growth in the Electricity, gas and water supply and Financial intermediation sectors is due to the deficiency of investments. Despite the fact that the Agriculture sector in the NER possesses a very high share of the region's and country's employment, after applying the investments it increases by only 2.8%.

Moving to *Scenario 1*, we can conclude that the results do not widely differ from those in the Baseline scenario. After utilising the pre-accession funds, changes are only evident in NER sectors affected by SAPARD and ISPA investments. This is a corollary of the accumulation of investments inflows onto

the inflows from the Baseline scenario. The increase (of the Baseline scenario) in total output, income and employment is less than 1% (see Table A2 from the Annex). The sectors Hotels and restaurants, Other activities, Mining and quarrying, Trade and repair activities, and Construction all significantly contribute to total output, income and employment.

The inflows affecting the final demand vector of *Scenario 2* are the national investments made for 2001 (the choice of this year was explained in the previous section) and the inflows coming from the EU policies in the first year of accession. Considering this scenario, it is obvious (Table A3) that the effect of the inflows raises the total output of the region by around 20%, total income by more than 24% and total employment by 21-22%.

On the one hand, there is an increase in the output of Agriculture; Foods, beverages and tobacco; Transport equipment; Other products of manufacture; Construction; Trade and repair activities; Estate and business activities; and Education. On the other hand, there are sectors that exhibit a decrease in their output – Other non-metallic mineral products; Public administration; Health and social work; and Other activities. The same patterns are also present in income and employment.

## 7 CONCLUSIONS

Some policy implications which can be drawn are listed below:

First, the calculated regional linkage coefficients for NER show, through investment inflow into the region differing sectoral rankings by impact of importance. The investments in general are not directed to the sectors, which, according to the calculated coefficients, have the highest potential to generate impacts (output, income and employment). A well-designed regional strategy would speed the rate of economic development by stimulating the investment flow in the sector, thus producing a higher potential to generate impact.

Second, the small differences in the results of Baseline and Scenario 1 show that ISPA is not very efficient and funds under SAPARD are too small to have substantial influence.

Third, the change in the total level of output, income and employment in Scenario 2 compared to the baseline scenario is considerable. This shows that even at the very beginning, the accession of Bulgaria to the EU would have an important impact on the development of a typical rural region such as the northeast region in Bulgaria.

Fourth, the most important portion of the EU funds is directed to agriculture. Unfortunately, the potential of agriculture to generate output, income and employment is relatively modest.

Fifth, the impact of changes in Scenario 2 in comparison with the Baseline for employment when compared with the current level of unemployment in the region shows that, to a certain extent, the problem of unemployment will be eased even in the first years of accession (the rate of unemployment will drop from 17% to 13.7%).

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## ANNEX

**Table A1: Changes (%) in the Baseline Scenario**

Sectors	Rasmussen&Hirschman backward linkage coefficients			Augustinovics forward linkage coefficients		
	Output	Income	Employment	Output	Income	Employment
<b>B1</b> Agriculture	2.9	3.4	2.8	3.1	4.6	3.1
<b>B2</b> Mining and quarrying	49.2	80.7	52.1	49.4	82.1	49.0
<b>B3</b> Foods, beverages and tobacco	9.3	8.7	12.7	7.5	8.3	9.8
<b>B4</b> Chemicals and chemical products	18.1	18.8	22.5	19.6	21.0	30.6
<b>B5</b> Other non-metallic mineral products	28.1	27.2	28.3	34.0	34.2	36.3
<b>B6</b> Transport equipment Other products of	10.0	9.5	9.9	12.2	10.8	11.6
<b>B7</b> manufacturing Electricity, gas and	1.1	1.0	1.0	1.3	1.3	1.2
<b>B8</b> water supply	0.0	0.0	0.0	0.0	0.0	0.0
<b>B9</b> Construction Trade and repair	37.5	32.7	35.2	30.7	28.7	30.1
<b>B10</b> activities	44.5	42.1	40.7	38.5	41.8	37.4
<b>B11</b> Hotels and restaurants Transport and	153.7	133.6	139.8	136.3	134.0	130.1
<b>B12</b> communication Financial	12.5	12.5	13.4	11.9	11.6	12.8
<b>B13</b> intermediation Estate and business	0.0	0.0	0.0	0.0	0.0	0.0
<b>B14</b> activities	9.2	14.7	10.9	9.3	15.1	11.8
<b>B15</b> Public administration	27.6	22.6	29.4	20.9	20.3	21.8
<b>B16</b> Education Health and social	13.4	11.1	11.0	10.4	10.3	10.3
<b>B17</b> work	23.0	18.4	18.3	17.7	17.0	17.0
<b>B18</b> Other activities	57.3	66.8	57.3	51.4	51.1	50.4
<b>Total</b>	<b>15.1</b>	<b>19.6</b>	<b>17.1</b>	<b>14.0</b>	<b>19.2</b>	<b>16.2</b>

Source: Authors' calculations.



**Table A2: Changes (%) in Scenario 1**

Sectors	R&H backward linkage coefficients			Augustinovic forward linkage coefficients		
	Output	Income	Employment	Output	Income	Employment
<b>B1</b> Agriculture	3.3	3.9	3.3	3.6	5.3	3.6
<b>B2</b> Mining and quarrying	49.2	80.7	52.1	49.4	82.1	49.0
<b>B3</b> Foods, beverages and tobacco	10.6	9.8	14.5	8.6	9.4	11.1
<b>B4</b> Chemicals and chemical products	18.1	18.8	22.5	19.6	21.0	30.6
<b>B5</b> Other non-metallic mineral products	28.1	27.2	28.3	34.0	34.2	36.3
<b>B6</b> Transport equipment	10.0	9.5	9.9	12.2	10.8	11.6
<b>B7</b> Other products of manufacturing	1.1	1.0	1.0	1.3	1.3	1.2
<b>B8</b> Electricity, gas and water supply	2.9	3.1	3.9	3.4	4.0	5.6
<b>B9</b> Construction	42.5	37.1	39.9	34.8	32.5	34.1
<b>B10</b> Trade and repair activities	44.5	42.1	40.7	38.5	41.8	37.4
<b>B11</b> Hotels and restaurants	153.7	133.6	139.8	136.3	134.0	130.1
<b>B12</b> Transport and communication	15.6	15.6	16.7	14.9	14.5	16.0
<b>B13</b> Financial intermediation	0.0	0.0	0.0	0.0	0.0	0.0
<b>B14</b> Estate and business activities	9.2	14.7	10.9	9.3	15.1	11.8
<b>B15</b> Public administration	27.6	22.6	29.4	20.9	20.3	21.8
<b>B16</b> Education	13.8	11.4	11.4	10.8	10.7	10.7
<b>B17</b> Health and social work	23.0	18.4	18.3	17.7	17.0	17.0
<b>B18</b> Other activities	57.3	66.8	57.3	51.4	51.1	50.4
<b>Total</b>	<b>16.0</b>	<b>20.6</b>	<b>17.8</b>	<b>14.8</b>	<b>20.2</b>	<b>17.0</b>

Source: Authors' calculations.

**Table A3: Changes (%) in Scenario 2**

Sectors	R&H backward linkage coefficients			Augustinovic forward linkage coefficients		
	Output	Income	Employment	Output	Income	Employment
<b>B1</b> Agriculture	8.3	9.9	8.2	9.1	13.3	9.0
<b>B2</b> Mining and quarrying	49.2	80.7	52.1	49.4	82.1	49.0
<b>B3</b> Foods, beverages and tobacco	15.8	14.7	21.6	12.8	14.0	16.6
<b>B4</b> Chemicals and chemical products	18.6	19.4	23.1	20.2	21.6	31.4
<b>B5</b> Other non-metallic mineral products	42.4	41.1	42.6	51.3	51.6	54.8
<b>B6</b> Transport equipment	14.6	13.8	14.5	17.7	15.7	16.8
<b>B7</b> Other products of manufacturing	7.6	7.3	6.9	9.0	9.3	8.3
<b>B8</b> Electricity, gas and water supply	3.2	3.3	4.2	3.7	4.3	6.0
<b>B9</b> Construction	68.5	59.8	64.4	56.2	52.5	55.0
<b>B10</b> Trade and repair activities	50.6	47.8	46.3	43.7	47.5	42.5
<b>B11</b> Hotels and restaurants	153.7	133.6	139.8	136.3	134.0	130.1
<b>B12</b> Transport and communication	15.0	15.0	16.1	14.3	13.9	15.4
<b>B13</b> Financial intermediation	0.0	0.0	0.0	0.0	0.0	0.0
<b>B14</b> Estate and business activities	23.5	37.7	28.0	23.8	38.7	30.3
<b>B15</b> Public administration	19.8	16.2	21.1	15.0	14.6	15.7
<b>B16</b> Education	22.6	18.6	18.5	17.6	17.4	17.4
<b>B17</b> Health and social work	12.4	9.9	9.9	9.5	9.2	9.2
<b>B18</b> Other activities	41.6	48.5	41.6	37.3	37.1	36.6
<b>Total</b>	<b>20.7</b>	<b>24.3</b>	<b>22.1</b>	<b>19.7</b>	<b>24.4</b>	<b>21.5</b>

Source: Authors' calculations.

## **MEASURES OF RURAL DEVELOPMENT POLICY IN RUSSIA**

ALEXANDER PETRIKOV \*

Russian rural areas (populated areas outside towns and cities) occupy two thirds of the country territory. Practically all Russian constituent regions have rural areas, though varying by their share in a region's total area and by their population number. In the Southern and European Russia and Siberia the former reaches 50%. In the Non-Black Earth Zone it is under 20%. The total population of rural areas is 39,2 million, which is 27% of the country population. About 150 000 villages constitute 24 409 rural administrations further grouped into 1865 administrative districts.

Russia's social and economic transformation of the recent 10 years has negatively affected the living standards and, in general terms, the rural social and economic situation.

Russian rural areas are going through a systemic crisis which is manifested in:

### **1 WORSENING DEMOGRAPHICS**

The reduction of the population numbers reported in 75 Russian Federation regions is due to higher natural decrease and migration. Migration inflow to rural areas of the early 1990-ies was by 2001 replaced with an outflow and this trend remained the same in 2002 and 2003.

According to the Russian State Statistics Committee about 80 000 people leave Russian rural areas annually. However the data of the Ministry for Internal Affairs and the Federal Migration Service suggests that the actual migration figures are much higher (e.g. in 2002 such migration amounted to 750 000). The migrants are mainly young people under 30 and this makes migration of young people from rural areas twice as high as this parameter in average. If such an unfavourable trend remains unchanged until 2010 the cumulative outflow of population from rural areas will reach more than 6 million people. This will lead to an irrevocable loss of most efficient rural labour resources at the same time causing new problems in urban areas.

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With the insignificant birth rate growth in 2002 as compared to 1999 (i.e. by 0,3 per mille) rural mortality rate continues growing in all the population groups, especially with men aged 30-39. Rural life expectancy is 64,2 years, which is 1,5 years less than in the urban areas.

## **2 LOWER LIVING STANDARDS AND HIGHER UNEMPLOYMENT**

As of the end of 2002 the national economy employed 65,8 million people aging 15-72, which included 15,6 million of rural residents. Therefore the share of rural residents in the total number of the employed was 23,7%.

A comparison of the share of rural residents in the total number of population with the number of the employed demonstrates that the employment rate in rural areas is lower (54,8%) than in the urban ones (61,3%).

Today almost each fourth of the actually unemployed and each third of those unemployed who are registered with the Federal Employment Service is a rural resident, while in 1992 it was each sixth and each fifth, respectively.

Over the recent years we observed a reduction in the number of those employed in agriculture. This trend can be explained by a number of reasons, among which primarily are:

- An excessive number of those employed in this sector of the economy, which is a heritage of the “pre-perestroika times”;
- Economic and financial difficulties of agricultural enterprises;
- Jobs in agriculture less attractive as compared to other sectors of the economy (lower salaries, more harsh labour conditions, etc.).

Despite the income and employment growth of the recent three years, these indicators are still low. In 2001 rural unemployment totalled 11,1%, with its officially registered level of 2,6%. Most of the rural unemployed do not receive any unemployment allowances or any social benefits. In as many as 48% of Russian constituent regions the unemployment rate reaches the critical amount of over 10%, and in 10 Russian regions the overall unemployment rate is above 20%. By the estimates of cash income 29,5 million rural residents (75,6%) can be referred to as living below the poverty line, the estimates of availability of resources give the figure of 23,8 million (61,1%) of the same category. The resources available to 8,7 million of rural residents (22,4%) are equivalent to the amount twice as low as the officially defined subsistence minimum or even less. The share of the poor in rural areas is 1,3 times higher than in urban ones. In January 2003 the average salary in agriculture amounted to RUR 1,631 or 35% of the average salary in the national economy.

### **3 LOWER QUALITY OF LIFE**

To date living conditions of rural residents remain unattractive. Existing social and engineering infrastructures do not meet modern requirements. The majority of rural housing has no basic modern conveniences. There is a cut down in the rural social infrastructure, the basic social services, i.e. education and healthcare are becoming more difficult to access. Consumer services in rural areas are practically not rendered, as the network of respective organizations stopped operating. Existing roads do not meet modern requirements.

In particular, within the period from 1996 to 2001 the number of pre-school educational institutions in rural areas has decreased from 31,5 thousand to 22,0 thousand (by 30,2%), the number of secondary schools has decreased from 47,2 thousand to 44,8 thousand (by 5,1%), the number of community and leisure centers has decreased from 52,6 thousand to 48,0 thousand (by 8,7%), the number of public libraries has decreased from 40,1 thousand to 38,9 thousand (by 3,0%), the number of cinema installations has decreased from 30 thousand to 14,6 thousand (by 51,3%), district hospitals – from 4 409 to 3 261 (by 26,0%), post offices - from 85,4 thousand to 81,6 thousand (by 4,4%).

Over 380 thousand rural families need housing improvement. The quality of rural housing remains low: only 40% of accommodation area has running water, only 31% has sewage systems, 40% - central heating, 74% - natural gas and 19% has hot water. As of early 2002, 35,6% of villages had no access to telephone lines. The share of villages with no covered roadways and no access to highway/railway communication lines is 34%.

The reported gap in living standards and conditions between rural and urban areas impedes the formation of social and economic conditions of a sustainable rural development.

### **4 BREAKDOWN OF THE EVOLUTIONARY DEVELOPED SYSTEM OF RURAL SETTLEMENT**

According to the Russian State Statistics Committee, within the period between the population census of 1989 and the recent census of 2002 the total number of villages has grown by 2,4 thousand, however this was mainly due to small villages with the population numbers of under ten people. The number of big villages has decreased (see Table 1).

**Table 1: Population of villages, over the period from 1959 to 2002\***

	Number of villages				
	1959	1970	1979	1989	2002
Villages, total	294059	216845	177047	152922	155290
Including villages with the population of:					
No population	-	-	-	-	13032
Up to 10	41493	25895	23855	30170	34803
From 11 to 50	83311	62480	54638	44674	37337
From 51 to 100	55258	37205	26328	18094	14804
Over 100	113997	91265	72226	59984	55314

Notes: \*in the respective years: for 1959, 1970 villages with present population; for 1979, 1989, 2002 villages with permanently resident population.

Source: Official statistics.

The reasons for the rural crisis are rooted in the historically accumulated social and economic development lag of rural areas as well as in the shortcomings of the modern agrarian system and organisation of rural life.

Since Russia started developing as a state and especially in the times of industrialization, despite the release of labour resources from the agrarian sector, rural areas, were treated as an internal matter of the agricultural sector, with poorly developed industry, services and other non-agricultural activities. Low income, unsatisfactory working and housing conditions combined with the policy for liquidation of “unpromising” villages encouraged greater migration to large industrial cities. As a result Russia was facing stable reduction in the number of villages, at the same time losing social control over territories significant in their size and economic potential.

Measures for development of the Agro-Industrial Complex of the recent four years have secured stabilization and growth of agricultural production volumes, in particular in the food and processing industries, but have not brought about stable improvement of the economic situation in the agrarian sector. Agricultural producers struggle with the lack of finance for their current and especially investment operations (including those in the rural social sphere). Investors into the Agro-Industrial Complex, which in the recent two and three years have diversified from other sectors of the economy establish complex agro-industrial companies involving agricultural enterprises and investing practically nothing in the development of rural areas.

The growing technical and know-how backlog of Russian agriculture as compared to other developed countries is a source of concern, especially in view of Russia's WTO accession. The import of staple foods is growing, while domestic agricultural producers experience substantial difficulties with distribution of their products.

In addition, the following factors have affected rural living standards:

*The first one* is unjustifiably low social spending as a part of the government budget on the whole and the rural sector in particular. Here is an example, which is paradoxically accurate in describing the attitude to rural areas. In 2002 the federal and regional livestock raising support programmes budgeted RUR 430 per livestock unit, while in 2003 the federal programme "Social Development of Rural Areas" in combination with twelve other federal programmes implemented in rural areas and funded from the federal and regional budgets envisaged only RUR 415 per rural resident. This requires no comment, just evidences the need for raising social spending in the budgets of all levels especially in the federal budget.

*The second one* is that we have allowed extreme social differentiation between the various groups of the population both in urban and rural areas, between certain constituent regions, and between central and peripheral rural districts. In terms of social contrasts Russia is ahead of not just the European countries but also of the East Asia and the Pacific Basin countries (in this sense we are neither Europeans nor Asians) but are closest to the countries of South America.

What is needed is a well-targeted policy for alleviation of social differentiation, which methods may include budget allocations to economically disadvantaged areas, differentiated taxation and targeted social support.

*The third is* the obvious lack of inter-departmental coordination as applies to governance of rural areas. Rural areas have not been singled out as a separate governance object. 14 of the 43 existing federal targeted programs contain components which are pertinent to rural areas, but unfortunately these programs are not duly coordinated. The currently developed government strategy for Russia's sustainable development has no section on rural development whatsoever. The existing federal program of social development of rural areas instead of exercising a holistic approach to rural problems covers only the development of rural social and engineering infrastructure and information and consulting service networks. The above evidences the need for coordination of all rural-related programs at the federal level. The Ministry of Agriculture could facilitate this process, and in the course of administrative reform of 2004 the Ministry was authorized to manage rural development.

The budgets of the Ministry of Education, the Ministry of Healthcare, the Ministry of Culture and other social sector service budgets have no division between urban and rural spending. The effect is a reduction of rural services program in rural areas since the costs per service in a village are much higher than in a town. So, while budgeting, putting rural spending in a separate budget line should be considered.

In addition public service standards must be developed (they currently exist only as non-binding recommendations in urban construction legislation).

*The fourth* is the persistently narrow approach to rural development with the focus on agrarian production, instead of development of spheres, which can offer employment alternatives besides agriculture. Currently 17,9 million people work in the Russian agrarian sector (a quarter of the country labour resources). We will not resolve rural development problems until we stop linking it with agricultural development only. Diversification of the rural economy by means of non-agricultural activities is vital. It is also very important to support rural small businesses. Meanwhile the federal program for small business development has been in the process of adoption for a number of years. This practice must be changed.

It is also important to improve access of rural residents to the markets of products and physical/technical and financial inputs, which currently is limited due to the poorly developed rural market, engineering and banking infrastructure. It is necessary to establish specialized institutes for the implementation of rural development programs, i.e. foundations for support of rural development, credit cooperatives, demonstration farms and consultancy centres. It is obvious that the rural situation is improving in the areas where such institutes are being developed.

*The fifth* is an insufficient development of civil society institutions in rural areas, mainly local government. In most constituent regions of the Russian Federation municipalities are formed on the basis of administrative districts instead of villages or village groups, which deprives local rural communities of the right to use institutional capacities in their own interests and leads to their informational and social isolation. The reform of local government should envisage establishing municipalities in villages or village groups, as well as budgeting decentralization.

Elimination of the above shortcomings of current rural policy should become the priority of the National Sustainable Rural Development Strategy and the focus of the number of specific sector-wide and cross-sector programs developed on the basis of the above document. The Russian Ministry of Agriculture and the Russian Ministry of Economics have recently developed the first draft concept paper of this strategy. Involvement of other Ministries is necessary to further elaborate it and have it endorsed as a mid-term government policy paper.



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## **PRIORITY SETTING FOR RURAL DEVELOPMENT: AN INTERACTIVE PC-BASED PROGRAMMING APPROACH**

DIETER KIRSCHKE, ASTRID HÄGER, KURT JECHLITSCHKA, STEFAN WEGENER\*

### **ABSTRACT**

The rising importance of the “second pillar” of the Common Agricultural Policy creates new challenges to decision-makers and has a high relevance for the new member countries of the European Union. The formulation of strategies for agri-environmental and rural development programmes, however, is a complex decision-making problem. In this article it is demonstrated, how policy-making in complex systems can be supported by co-operation between scientists, policy-makers, and administrators. Using an interactive computer-aided programming approach the case of improving the agri-environmental programme of Saxony-Anhalt is examined. Selected results of the case study are demonstrated which are based on interactive simulations. By structuring and focussing communication among stakeholders, interactive programming approaches can substantially contribute to political strategy development.

**Keywords:** Agri-environmental policy, decision-making support, linear programming, policy consulting, priority setting, Saxony-Anhalt, strategy development.

### **1 INTRODUCTION**

The discussion about rural development and multifunctionality in agriculture as well as the “Luxembourg decisions” entail a rising importance of the “second pillar” of the Common Agricultural Policy of the European Union. This new trend has a high relevance for the new member countries, as they have to introduce new policy measures which need further development. However, the formulation of strategies for agri-environmental and rural development programmes is a complex decision-making problem. There are difficulties to define and to operationalise objectives and to put them into concrete measures. Decisions have to be made on priorities for objectives and measures and finally on the allocation of the budget. Thereby, various restrictions like the legal framework and the available budget have to be considered.

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The question is how such a political decision-making process can be supported effectively by scientific analysis. KIRSCHKE and JECHLITSCHKA (2002; 2003) suggest an interactive linear programming approach for the formulation of agri-environmental and rural development programmes. In our contribution we discuss a specific case-study for this approach: the formulation of the agri-environmental programme of Saxony-Anhalt<sup>1</sup>. It is demonstrated how policy-making in complex systems can be supported effectively by utilising the approach in close co-operation between scientists, policy-makers and administrators.

The paper consists of three parts. First, a description of the problem setting is given and the linear programming approach is explained. The specific model for the agri-environmental programme of Saxony-Anhalt is illustrated in the second part. Interactive simulations carried out during workshops together with stakeholders in Saxony-Anhalt are examined and the influence of various determinants like the level of co-financing, budget volumes, and other restrictions for priority setting will be discussed. In a third part, the results and future prospects for the application of the programming approach in transition countries are discussed.

## **2 INTERACTIVE PC-BASED PROGRAMMING APPROACHES FOR DECISION-MAKING SUPPORT**

### **2.1 Background of interactive decision-making support**

Interactive decision-making support is based on two fundamental ideas. The first idea is formulated e.g. by BANKES (1992), who demands that models for policy analysis should be used differently from those in the physical sciences. Due to inadequate historical data, the lack of complete experimental validation, and the need to consider initial conditions or boundary conditions that are not well known, models for policy analysis can hardly be used for making predictions. According to BANKES (1992), such models should be used “exploratory”. The aim of an exploratory use is not to predict the reaction of the target system but to gain insights and to develop arguments. Therefore an extensive sensitivity analysis, describing ranges of outcomes and assigning error ranges to outputs, is the main goal of analysis and not a “nice to have” additional result. GEURTS and JOLDERSMA (2001), VENNIX (1990) as well as WALKER (2001) and WALKER et al. (2001) follow the same argumentation. For such a concept,

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<sup>1</sup> The case study has been carried out in the context of the research project “Structural Change and Transition in Agriculture”, subproject 6: “Decision-making support for the implementation of environmental and quality goals”, funded by the Deutsche Forschungsgemeinschaft, <[www.agrar.hu-berlin.de/sutra](http://www.agrar.hu-berlin.de/sutra)>. There is a detailed report of the case study in KIRSCHKE et al. (2004).

smaller, problem adapted, and more flexible models are required rather than big and “monolithic” ones, incorporating all known factors of importance.

The second idea is based on a paradigm shift concerning the importance of single political instruments. In modern public management the “policy-mix”, the political framework, and the communication about objectives receive more attention as they have a much stronger impact than single political instruments. Examples for this view are the orientation towards “environmental performance goals” (OECD 1997 p. 19) or the “management by objectives” (DAMKOWSKI and PRECHT 1995). In such approaches the “policy-learning”, processes of defining and communicating goals, and the flexibility of measures are playing an important role.

DRIESSEN et al. (2001) describes how the concept of interactive policy-making could be put into practice. An overview of different approaches to interactive decision-making support is given by SALO (1995)

## 2.2 A linear programming approach

The method of linear programming is used to maximise a linear objective function being subject to a system of linear equations and inequalities with a finite number of variables. An introduction to the method is given, e.g., by CHIANG (1984). KIRSCHKE and JECHLITSCHKA (2002) report how to implement the method in MS-Excel<sup>®</sup> for its application to the formation of agri-environmental programmes. The programming approach delivers the budget volumes for single measures, showing how to allocate the budget under given restrictions in order to reach a maximum value of the objective function.

Under the assumption of constant, marginal, and average coefficients the following linear objective function can be defined:

$$(1) \quad Z_1 = \sum_{i=1}^n z_{1i} \cdot B_i$$

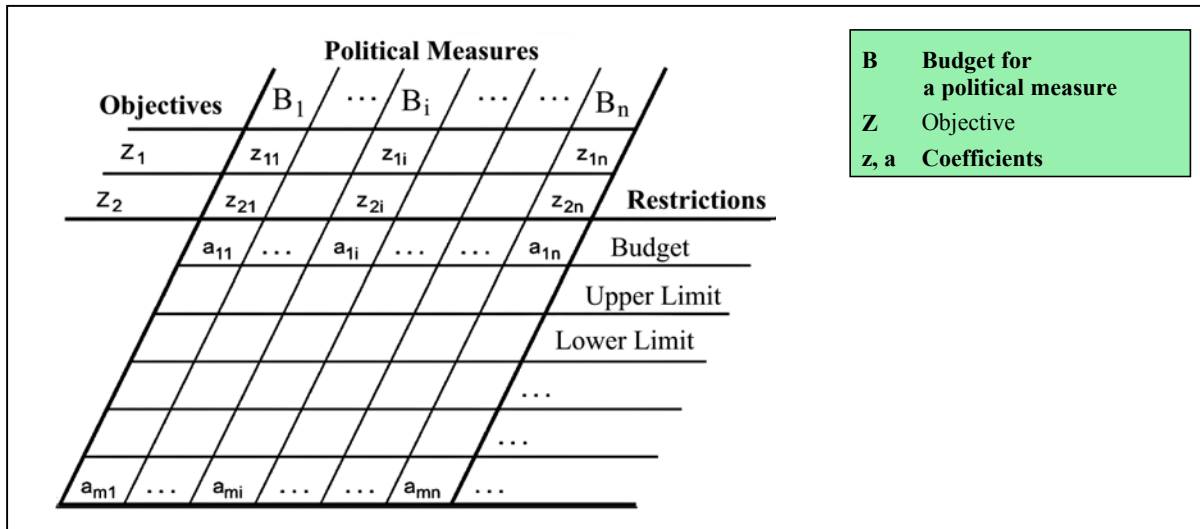
with:	$Z_1$	Objective 1
	$B_i$	budgetary expenses for a measure i
	$i = 1, \dots, n$	index of agri-environmental measures considered
	$z_{1i}$	constant, marginal, and average coefficient of the objective function, describing the impact of the budgetary expenses for measure i on objective 1.

In practical policy-making, however, there is more than one objective to be considered. The objective function for a second objective can be formulated similar to (1). An aggregated objective function can be formulated by combining both objective functions using weighting factors:

(2)  $Z = (1-\alpha) Z_1 + \alpha Z_2$  with  $(1-\alpha)$  and  $\alpha$  being weighting factors.

The weighting factors  $(1-\alpha)$  and  $\alpha$  are the shares of the objectives  $Z_1$  and  $Z_2$  in the aggregated objective function  $Z$ . It is advisable to limit oneself to two objectives only within the objective function, otherwise the handling of results would become difficult. More objectives can be considered, e.g., by formulating them as restrictions.

**Figure 1: Structure of the programming approach**



Source: Authors' illustration.

Figure 1 exemplarily shows a matrix describing the approach for two objectives.  $z_{1i}$  and  $z_{2i}$  represent the constant, marginal, and average coefficients of the linear objective function and, hence, the impact of the budgetary expenses on the objectives. The conditions of the optimisation problem, such as the level of co-financing or the overall available budget, are defined by the coefficients  $a_{ri}$  and the right hand site  $b_r$  of the restrictions.

The outlined programming approach can be formulated as follows (3):

$$(3) \quad \max_{B_1, \dots, B_n} Z = (1 - \alpha) \cdot \sum_{i=1}^n z_{1i} B_i + \alpha \cdot \sum_{i=1}^n z_{2i} B_i$$

$$\text{subject to:} \quad \sum_{i=1}^n a_{ri} B_i \begin{cases} \leq \\ = \\ \geq \end{cases} b_r \quad \text{for } r = 1, \dots, m \text{ and } B_i \geq 0 \text{ for } i = 1, \dots, n$$

- with:  $r = 1, \dots, m$  index of restrictions (equations or inequalities)
- $a_{ri}$  coefficient of restriction  $r$  for measure  $i$
- $b_r$  right hand site of restriction  $r$ .

In order to fill the matrix of Figure 1 for a specific problem setting, relevant political measures need to be chosen, consensus about the two most important objectives needs to be reached amongst stakeholders, the coefficients of the objective function need to be assessed, and relevant restrictions need to be formulated.

Filling the matrix is no easy task, but it can be tackled step by step in discussion with stakeholders and decision-makers. As long as no detailed and usable systems of agri-environmental indicators exist, the only practicable way to obtain coefficients for the objective function is a Delphi approach assessing the cost-effectiveness of the measures by experts. On the basis of the jointly formulated model, subsequent calculations and scenarios can be analysed interactively. The description of the specific model for Saxony-Anhalt is subject of the next chapter.

### **3 IMPROVING THE AGRY-ENVIRONMENTAL PROGRAMME IN SAXONY-ANHALT**

#### **3.1 Institutional Framework**

EU funded agri-environmental programmes exist since the MacSharry agrarian reform in 1992. The regulations of the AGENDA 2000 proceeded with this policy and strengthened the position of agri-environmental policy. The current institutional framework is defined by the “Council Regulation (EC) No 1257/1999 of 17 May 1999” and funded by the “European Agricultural Guidance and Guarantee Fund (EAGGF)”.

Agri-environmental measures are grants for agricultural production methods with the aim of protecting the environment and maintaining rural areas. These measures are the only compulsory element of the EU rural development policy. Farmers can sign up voluntarily to agri-environmental commitments with a minimum duration of five years and therefore receive a grant. The commitments must go beyond following good agricultural practice. Due to the calculation of the annually granted support on the basis of income losses, additional costs, and the need to provide a financial incentive, grants differ between measures and regions.

The community contribution covers 75% of the expenditures for agri-environmental measures in areas covered by Objective 1 and 50% of the expenditures in other areas. The fundamental importance the Community attaches to agri-environmental measures becomes clear in view of the fact that this contribution will raise to 85% in areas covered by Objective 1 and to 60% in the others according to the decisions of Luxembourg.

As a result of the federalism in Germany, the institutional framework for rural development, additionally, is subject of the “Joint Action for Improvement of Agrarian Structures and for Coast Preservation (Gemeinschaftsaufgabe Verbesserung der Agrarstruktur und des Küstenschutzes, GAK)”. Federal grants are provided for measures which are based on the “Principles of market-oriented and locally adapted land cultivation (Markt- und standortangepasste Landwirtschaft, MSL)”. Federation and Federal States share the funding of relevant measures at the ratio of 60% (federation) and 40% (federal state).

Under the conditions of Saxony-Anhalt, which is Objective 1 region, the EU covers 75%, the Federation covers 15% and Saxony-Anhalt covers 10% of the expenditures on MSL-measures. Other measures, which are not part of the GAK, do not receive federal grants. Therefore, the EU and Federal States share the expenditures at the ratio of 75% and 25%, respectively.

### **3.2 Designing the agri-environmental programme**

The modelling approach described in general in the last chapter, has been applied to design the agri-environmental programme of Saxony-Anhalt. During this case study workshops together with scientists, policy-makers and administrators have been organised to develop and use the approach in an interactive way. By using the interactive modelling approach for the complex decision-making problem of resource allocation for the agri-environmental programme, an improved decision-support and a facilitation of communication amongst stakeholders have been achieved. There is a detailed report of the case study in KIRSCHKE et al. (2004).

The purpose of the workshops held in Saxony-Anhalt was a strategic planning of the financial period from 2004 to 2008. In the following, a brief outline of the specific model structure is given.

Nine groups of measures have been used as activities in the modelling approach (Table 1, row 1), which consist of several single measures each. Thus, the modelling approach is looking at the strategic situation on a higher level of aggregation. The measures are defined as follows:

1. General extensive grassland use (on the farm as a whole), (M1);
2. Specific extensive grassland use (single grassland areas and sheep grazing), (M2);
3. Specific extensive grassland use (single grassland areas and cattle grazing), (M3);
4. Organic farming (M4).

These measures belong to the group called “Market-oriented and locally adapted land management (“Markt- und standortangepasste Landbewirtschaftung”, MSL)<sup>2</sup>

5. Environmental protective cultivation of special cultures (vegetables, medicinal and spice herbs, pip and stone fruit as well as vine and hop), (“Umweltschonender Anbau”, M5)<sup>3</sup>.

And finally, special nature conservation measures (“Vertragsnaturschutz”, VN)<sup>4</sup> are considered:

6. Management of grassland (M6);
7. Management of ancient orchards (M7);
8. Management of arable land (M8);
9. Management of former/given up agricultural land (M9).

The next important step was the definition of the two main objectives of the programme. After discussion, the stakeholders chose the objectives “Environmental Quality” and “Preservation of Agricultural Labour”. In order to assess the coefficients of the objective function, stakeholders have been asked about their estimations of the impact of the different measures on the objectives. For this purpose, questionnaires have been used on which the stakeholders had to give their estimations on a scale between one (very low impact) and nine (very high impact). The results have been subject to discussion after which the slightly adjusted means of the estimations have been used as coefficients. The coefficients of the objective function are shown in Table 1, row 4 and 5.

The restrictions have been defined in a last step. For the model used in Saxony-Anhalt the subsequent restrictions have been defined:

- Budgetary restrictions, like absolute upper and lower limits for the budget volumes of single measures (Table 1, row 6 and 7);
- Restriction for the available regional budget of Saxony-Anhalt (Table 1, row 8). The coefficients of this restriction vary according to the different levels of co-financing. It is assumed, that the amount of external co-financing is not limited and thus not binding in the model (Table 1, row 3);
- An upper and lower limit for the area of grassland being included in measures, which is based on the existing amount of grassland in Saxony-Anhalt (Table 1, row 9 and 10).

Table 1 shows the input matrix of the reference situation. The budget allocation of the last financial period is displayed in row 2. The optimal allocation resulting

<sup>2</sup> Ministry for Agriculture and Environment of Saxony-Anhalt, (2003).

<sup>3</sup> Ministry for Agriculture and Environment of Saxony-Anhalt, (2002a).

<sup>4</sup> Ministry for Agriculture and Environment of Saxony-Anhalt, (2002b).



from the programming approach is displayed in row 3 – this result is explained in the next chapter.

**Table 1: Input matrix of reference situation**

1.		M1	M2	M3	M4	M5	M6	M7	M8	M9	Sum	Use of resources
2.	Current allocation	23,000				1,736	20,000				44,736	
3.	Optimal allocation	0,000	6,000	10,573	12,000	2,000	15,507	2,000	0,000	0,000	100,000	≥ 48,080 Total budget (Mio. €)
4.	Goal: Agr. Labour	6,0	6,5	6,0	7,0	5,0	6,0	4,0	3,0	2,9		36,060 EU-budget (Mio. €)
5.	Goal: Environm. quality	5,0	6,9	6,0	7,0	5,5	7,1	7,0	5,0	5,3		4,286 Federal budget (Mio. €)
6.	Upper limit	100,0	6,0	15,0	12,0	2,0	100,0	2,0	100,0	100,0	437,0	
7.	Lower Limit	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
8.	Regional budget	0,10	0,10	0,10	0,10	0,25	0,25	0,25	0,25	0,25	7,734	≥ 7,734 Regional budget (Mio. €)
9.	Grassland upper limit	1785,7	1282,1	1538,5	303,0	0,0	800,0	0,0	0,0	0,0	40.000	≥ 40.000 Grassland (ha)
10.	Grassland lower limit	1785,7	1282,1	1538,5	303,0	0,0	800,0	0,0	0,0	0,0	20.000	≤ 40.000 Grassland (ha)

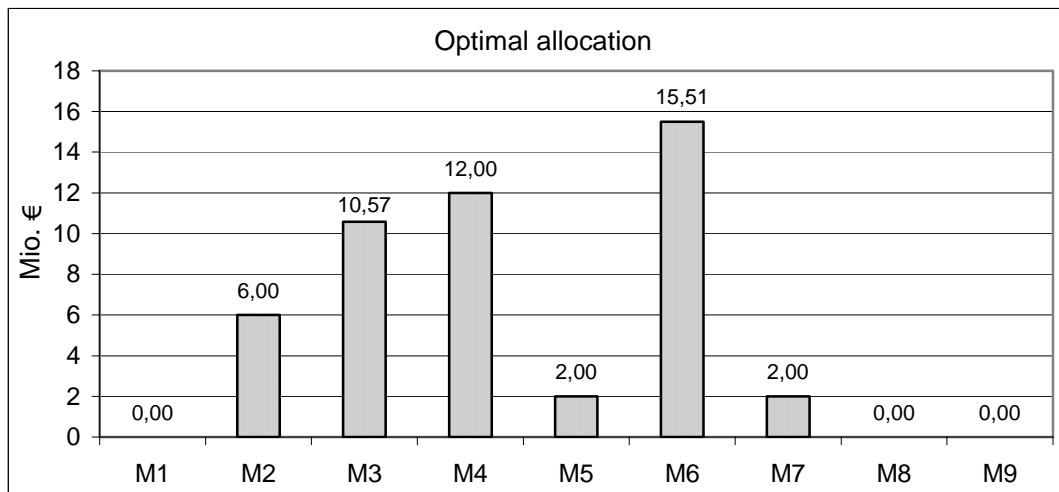
Source: Authors' illustration and calculation.

## 4 RESULTS

### 4.1 Reference situation

The budget allocation resulting from the jointly developed basic model is shown in Figure 2. In this situation five absolute upper limits are set (for M2, M3, M4, M5 and M7). The limit for the regional budget of Saxony-Anhalt is set at 7,73 Mio. €, which is binding and so is the upper limit for grassland.

In the optimal allocation the measures M2, M4, M5 and M7 are fully financed up to their upper limits, while the absolute upper limit for M3 (set at 15 Mio. €) is not binding. In the absence of an absolute upper limit, the measure M6 gets 15,51 Mio. € and the measures M1, M8 and M9 are not financed at all. This result is defined as reference situation and is used to analyse the consequences of varying assumptions and different policy scenarios.

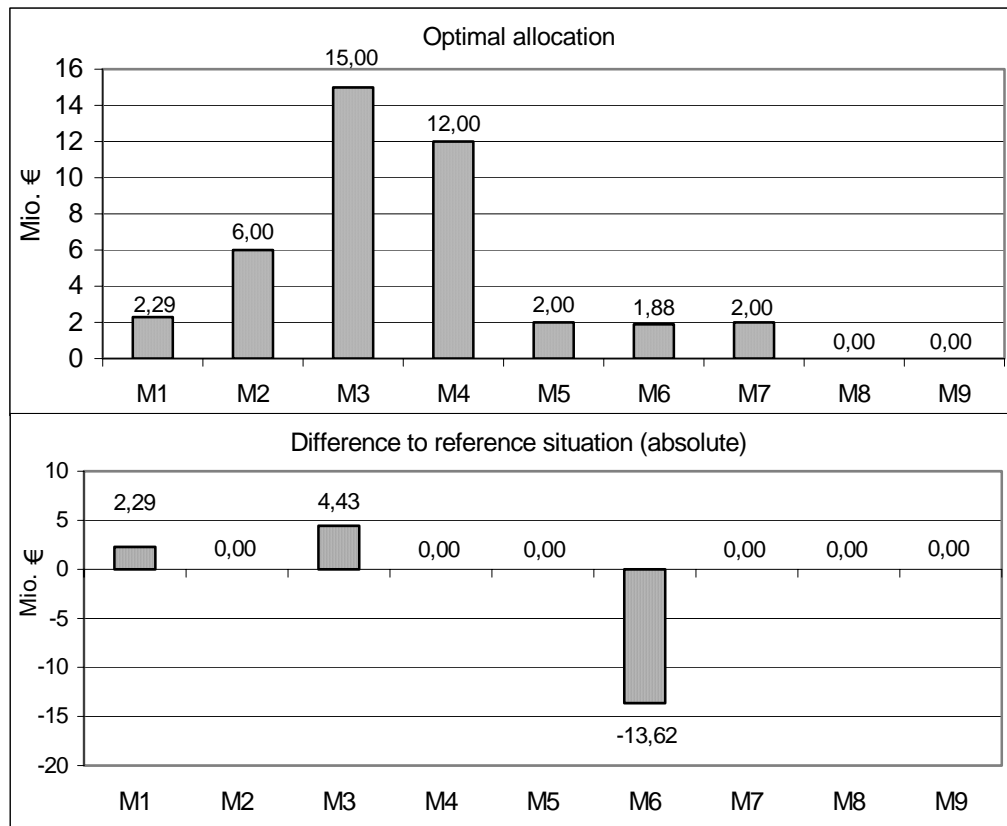
**Figure 2: Budget allocation (€) in reference situation**

Source: Authors' calculation.

## 4.2 The role of the regional budget

As the regional budget is scarce and very likely to be cut in the future, a question of interest is how a reduced regional budget would affect the resource allocation. Figure 3 displays the resulting allocation after a reduction of the regional budget from 7,73 Mio. € to 5 Mio. €.

**Figure 3: Allocation (Mio. €) after cut in regional budget to 5 Mio. € and comparison with reference situation**



Source: Authors' calculation.

After the cut of the regional budget to 5 Mio. € the volume of M6 is reduced by 13,62 Mio. € in the optimal solution of the programming approach. In contrast, the volumes of M1 and M3 have been increased by 2,29 Mio. € (M1) and 4,43 Mio. € (M3), although these measures are characterised by lower coefficients (Table 1, row 4 and 5). The reason for this budget substitution is the different level of co-financing. As has already been mentioned in chapter 3.2 the first four measures belong to the group called “Market-oriented and locally adapted land management” (MSL), which is part of the “Joint Action for Improvement of Agrarian Structures and for Coast Preservation” (GAK) and therefore receive an additional allowance from the federal budget. Consequently, the region gets for each Euro which it spends for the MSL-measures more external allowances.

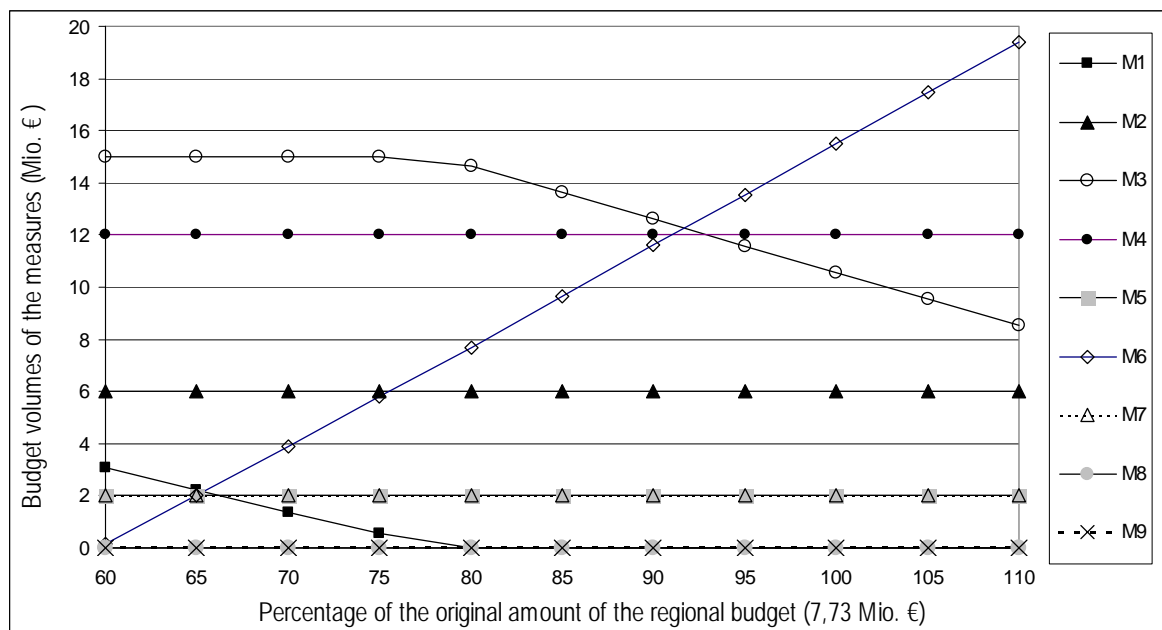
Table 2 illustrates this point comparing the use of resources before and after the reduction of the regional budget. Thus, the EU budget has decreased by 5,180 Mio. €, whereas the federal budget has increased by 1,007 Mio. €. After the reduction of the regional budget a higher level of goal-achievement can be reached by transferring resources to MSL-Measures.

**Table 2: Use of resources after budget cut**

	Regional Budget	Budget from EU	Federal Budget	Overall Budget (sum)
Reference Situation	7,734 Mio. €	36,060 Mio. €	4,286 Mio. €	48,080 Mio. €
Scenario: Regional Budget Cut	5,000 Mio. €	30,880 Mio. €	5,293 Mio. €	41,173 Mio. €

Source: Own calculations.

In order to examine the relationship between the level of the regional budget and the optimal budget allocation more closely, a parameterisation of the regional budget is carried out. Therefore the level of the regional budget is gradually changed in steps between 60% and 110% of the original volume (7,73 Mio. €).

**Figure 4: Parameterisation of the regional budget**

Source: Authors' calculations.

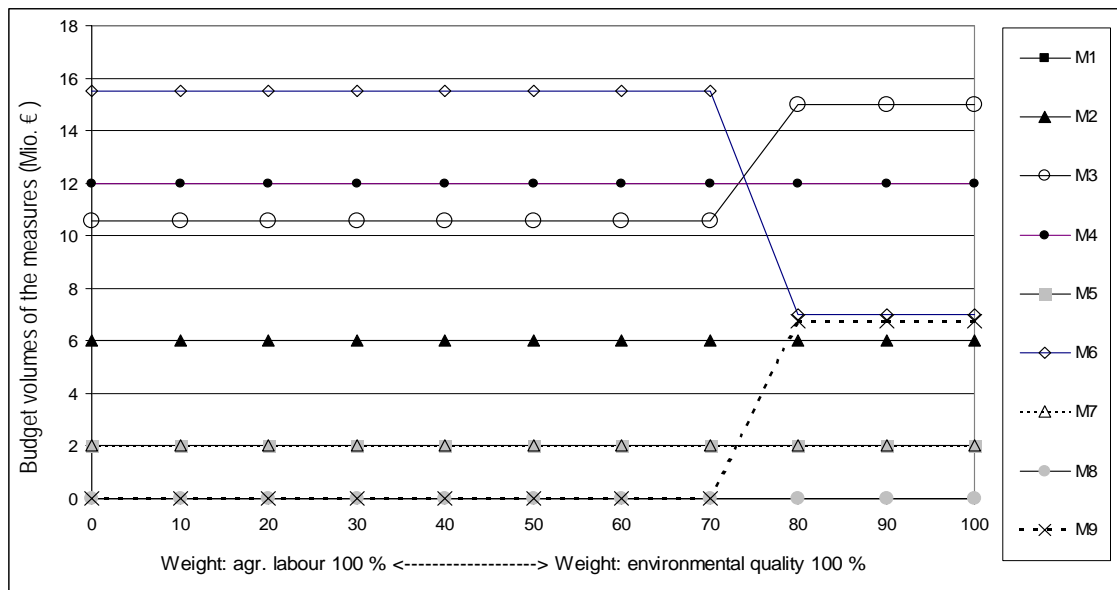
Figure 4 displays the resulting allocations of the overall budget at the respective levels of the regional budget. The results of the parameterisation show a trade-off between M3 and M1 on the one hand and M6 on the other hand. With a decreasing regional budget the financing of M6 is substituted by M3. At about 75 % from the original budget M3 reaches its upper limit of 15 Mio. € and further money from M6 is now transferred to M1.

One reason for this trade-off is the differing level of co-financing. Another reason is the upper limit for grassland. As the premium per ha for the MSL-measures is lower than the premium per ha for M6 the amount of supported grassland per € is higher for the MSL measures. Since the upper limit for grassland is binding for all levels of the regional budget, money is transferred to M6 when the regional budget is increased.

### 4.3 Parameterisation of objectives

The weights for the objectives in formula 2 and 3 are chosen by stakeholders. It is of interest, however, to analyse the influence of these weights on the budget allocation. Therefore the weighting factor for objective one was set in eleven steps from 0% to 100% and, correspondingly, the weight for the other objective was set from 100% to 0% according to the reference situation. Figure 5 shows the resulting budget allocations for the different levels of the weights.

**Figure 5: Parameterisation of objectives**



Source: Authors' calculations.

As can be seen in Figure 5 the allocation of the budget between the measures is almost not influenced by the level of weights between the objectives. With a higher weight for “environmental quality” there is only one change in the allocation of the budget. At a weight of 80% for the environmental objective (and 20% for labour), M6 is substituted by M9 and M3. This result is, of course, valid for the reference situation only. Due to the estimations of the coefficients of the objective function by stakeholders, which differ only a little between the two objectives, there is no major trade-off between the objectives “agricultural labour” and “environmental quality”.

During the workshops in Saxony-Anhalt the question arose if the priority for the objective “environmental quality” should be slightly higher (at 0,6) than the priority for the objective “agricultural labour”. As the budget allocation had been robust for weights between 0,4 and 0,6 for all calculations and scenarios that had been calculated, this question proved to be irrelevant.

## **5 PERSPECTIVES**

On the basis of exemplary calculations it has been shown how the complex decision-making problem of the formulation of agri-environmental programmes can be examined step by step using the interactive linear programming approach. By way of illustration, the influence of the level of the regional budget and the level of priorities have been analysed. It has been shown that existing measures should be substituted by those with higher external co-financing, if the regional budget has to be reduced. Furthermore, it has been demonstrated that the weights for the objectives had no influence on the budget allocation for the specific case and how this analysis was able to reduce conflicts.

The stakeholders in Saxony-Anhalt assessed the use of the programming approach successful and especially underlined the facilitation of the discussion process for the decision-making problem.

In view of the Eastern Enlargement of the European Union, interactive decision-making tools, like the presented one, could prove useful for policy formulation in the new member countries. There are new political programmes to be set up and the question how to support rural areas best has, like in the old member countries, a high significance. Therefore, decisions about priorities and objectives have to be made and different measures have to be assessed with respect to the objectives. Interactive programming approaches are capable of fostering communication between scientists, policy-makers, and administrators and can be used to gain insight into the complex decision-making problem. Thus, they can substantially contribute to political strategy development and improve the quality of policy decision-making support, yet they require the willingness of actors to an open dialogue.

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