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Book Part

Should risk management tools play a role in the CAP?

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Should risk management tools play a role in the CAP?

Contents

- 1 Introduction
- 2 Will agriculture be a more risky business in the future?
- 3 Risk and agriculture - how much different?
- 4 What can farmers do about risk?
- 5 Justification of state aid and insurability of risks
- 6 Risk management tools in use in Europe and elsewhere
- 7 Mid-term review
- 8 Is there an added value in common risk management policies?
- 9 Risk management tools and liberalisation of the CAP
- 10 Concluding comments

1 Introduction

Support of farm incomes and stabilisation of prices have always been very important objectives for the CAP. The ongoing process of the CAP reform i.e. weakening and possible future removal of some of the instruments that have contributed to income and price stability raises the issue whether instruments such as income insurance, safety nets or some other stability-providing tools should be introduced instead? The issue of using risk management tools as agricultural policy instruments has been intensely discussed in recent years, see below. This short paper, which draws very strongly on the existing literature, especially the below mentioned reports, raises some questions concerning income/price stabilisation instruments in relation to the CAP. Should some risk management tools be added to the existing CAP measures? Or should they rather replace some of the currently applied policies facilitating the process of the CAP reform? Which options would be preferable in such a case? What is a proper division of responsibilities between the Member States and the European Union with respect to use risk management tools? Will the enlargement affect pros and cons of using stabilisation instruments and a choice of a preferred method to do so?

There has been a considerable interest in the tools for risk management in agriculture in recent years. In May 2002, the Spanish presidency organised a conference on agricultural insurance and income guarantees. A year before a workshop on income risk management was held at OECD, (2001). In January 2001, the Commission has produced a report on the issue of risk management tools in relation to EU agriculture focusing especially on insurance (CEC, 2001). A report on income insurance for European agriculture was also published by DGII (European Economy, 1999). LEI (2001) has published a report on alternative instruments for the CAP, focussing especially on risk instruments.

Within agricultural policies as applied at present in many countries, in particular in the EU, stabilisation of prices and incomes is strongly connected to price and income

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support. This paper will focus exclusively on the issue of stabilisation i.e. on variability of incomes and not of the level of the incomes as such. Income instability is defined as excessive or unexpected departure from the normal trend of income growth. The issue of permanent support to unprofitable but socially desirable production will not be discussed. This is a highly relevant question but it falls beyond the scope of the paper. Income stabilisation can be achieved by various measures such as price stabilisation, crops insurance, income safety nets etc. A short evaluation of those measures will be provided in the paper.

Markets and incomes could also be stabilised by use of supply management measures such as long term set-asides, pre-pension schemes, herd-buy-outs. Those are not traditional instruments used for the purpose of dampening of variability of relevant variables but stabilise market by reducing supply. Use of such instruments could be justified in the process of reforming agricultural policy to facilitate a removal of resources that are deemed to leave agriculture but where the adjustment process may be slow. The paper will not cover this type of policy. It is not to deny the crucial importance of such or similar measures. Any substantial reform of the CAP may imply restructuring of agriculture, downsizing of some activities, regional reallocation of production etc. This could involve social hardship for the affected producers and should be avoided by an appropriate combination of economic and social policies.

2 Will agriculture be a more risky business in the future?

The recent surge of interests in risk managing tools for agriculture is to a large extent explained by the fact that it is believed the risk exposure the sector is facing will increase in the future. Several arguments are advanced to support this claim. Liberalisation of the CAP is expected to increase price variability and more restriction on the acceptable methods of production, e.g., ban of certain pesticides, may result in higher yield variability. Climate change will have an impact on production risk as well since volatility of weather and ensuing crop failures may increase. In addition, increased trade flows in animal products and growing mobility of people and movement of animals can result in an increased spreading of plant and animal diseases across national borders. Structural change in agriculture contributes also to an increased risk exposure. Specialisation in European agriculture is increasing which raises both producers' production and price risks (compare below).

The predicted increases of risk mentioned above are basically of two kinds. Some refer to exogenous changes of climate or travel patterns. Others connect to future policy changes, some of them yet to materialise, such as a more radical market liberalisation and more stringent environmental policies. Needless to say, increase of risk will depend on the extent such policy changes will take place.

3 Risk and agriculture - how much different?

How different is agriculture with respect to risk from other type of economic activities? Agriculture face many different risks (see below). However, all risk will ultimately affect income. Hence it may be useful to focus on income risk. Are farmers' incomes much more prone to variation than income from other firms and businesses that can be found in rural areas or in the economy in general?

Risk can be classified by its origin and its consequences. Agricultural enterprises face many types of risk. Several of them are common to all businesses such as risk linked to family situation, health, personal accidents or macroeconomic situation, financial and business environment. In addition, agricultural businesses are faced with number of

risks due to nature of production. Those include production risks as a result of plant or animal disease, natural damage as a result of drought, floods, frost, hail or storms, ecological risk caused by climatic change, pollution etc. Price and market risks as well as institutional risks could be added to the list. This paper will focus on price risk and yield risk. Those risks have major impact on farm income.

Risk in farming is often considered as having specific characteristics. Dependence on climate and biological processes makes it more difficult to control than mechanical processes. Inelasticity of supply and demand contributes to fluctuation in commodity prices. It can, however, be argued that risk is an inherent part of any business activity and some risks are taxed rather than subsidised (OECD 2001). Risks related to changes of demand are higher in other sectors and risks in agriculture are known. Unfavourable weather may ruin incomes in several branches of the economy especially in tourist industry including small businesses in rural areas.

The preceding section raised a question whether risk in farming will increase in the future. It can be observed that it is not only farming that may face a prospect of increased economic vulnerability in the future. The process of globalisation contributes to increased risk in many other spheres of economic life. For instance, small towns/communities that strongly depend on one single industry for income and employment face considerable risk in a globalised market.

The question whether farm incomes tend to vary more than incomes of other comparable groups (small enterprises) is an empirical matter. To some extent differences in income risk can be assessed by comparing relative frequency of bankruptcies in sectors dominated by small enterprises including farming. Swedish data for 1989-1990 indicate that the frequency for agriculture, forestry and fishing was considerably lower (0.16) than for other sectors (1.09-2.43), (MOLANDER 1993).

To summarise, the comparison between agriculture and other sectors with respect to risk is not easy to make especially as the relevant comparison relates to risk exposure in the future. On balance, one could argue that agriculture may in the future face somewhat higher risk than comparable sectors in the economy.

4 What can farmers do about risk?

Risk has always been present in economic activities of human kind and some of the strategies to handle it, such as saving surplus from periods of plenty to periods of scarcity are, indeed, very old. Farmers can either reduce the risk or cope with it by sharing risks with others. Farmers can achieve reduction of risks by measures on the level of household or by choosing less risky farm activities. Keeping low debt to asset ratio and a certain level of liquidity are examples of financial management that farm households can engage in. Diversification through increasing the share of incomes from other sources than agriculture contributes also to a reduction of an income risk of the household. On farm measures include reducing exposure to production risk by plant protection and disease control or diversification by selecting a mixture of agricultural activities that have net returns with low or negative correlation. Price risk can be reduced cultivating crops where prices are guaranteed by the government. Coping with risk involves sharing and shifting of financial and production risk to those for whom bearing risk is less costly. Strategies to share risk with others include buying insurance, engaging in contract marketing, leasing equipment, joint purchasing of inputs and marketing of products and hedging on futures markets. Finally, farmers may rely on existing social, fiscal and agricultural safety nets or count on public disaster aid.

5 Justification of state aid and insurability of risks

A standard argument for state intervention in the market rests on the existence of market failures. Other rationale for the intervention can be a desire to redistribute income to producers especially if welfare of the producers would be seriously affected otherwise. Besides having a negative effect on welfare of farm families, high fluctuation may, moreover, have negative impact on rural areas. The latter justification involves value judgement and is a matter for political opinions and preferences. Those vary considerably between different countries. Substantial differences exist even between Member States in the EU. This paper will focus more on economic aspects.

The economic argument for state intervention is based on missing markets. If uncertainty affects farmers' decision regarding production and use of resources and lead them to produce below profit maximising level of output and to avoid production of riskier commodities social welfare will decrease. Farmers could cope with uncertainty by relying on contingency markets to neutralise risks. In reality contingency markets are not always available and they have a cost. In addition they may not be sufficient in case of natural catastrophes. Moreover, unpredictability can lead to misallocation of resources. Excessive risk can make access to credit more difficult and may threaten the survival of the enterprises.

Market failures, contributing to difficulties in establishing contingency markets, can be significant due to human cognitive limitations related to low probability, high-magnitude risks, systemic risks and asymmetric information. People tend to underestimate or even ignore low probability risks. Furthermore, people tend to underestimate risks of natural disaster but overestimate man made risks. People are generally optimistic and think that their own risk is lower than risk for other people. Asymmetric information results in adverse selection because it gives the insured better possibilities to determine the soundness of premium rates than the insurance provider has. As a result level of risk of the insured population is higher than of uninsured population. Additional problem that is caused by the asymmetry of information is that of moral hazard which occurs when the insured is able to increase his or her indemnity by altering their behaviour after buying the insurance and without the knowledge of the insurer.

The CARPE report (EUROPEAN ECONOMY 1997) argued that justification of governmental assistance comes from the scale of the problem of risk management in relation to the size of the business involved and producers' capacity to act.

The aforementioned report by the European Commission has identified several market failures related to the risk management in agriculture. On demand side there is a lack of knowledge on behalf of farmers how to use risk management tools, cognitive failures that make farmers to underestimate the risk they face especially for events with low probability and high potential losses. Farmers may moreover rely on ad-hoc disaster aid, off-farm income and the demand for risk management products is therefore low. On the supply side, insurance may not be supplied, as a result of violating of the conditions for insurability (see below), catastrophic risks may be difficult to be insured at reasonable costs. Establishment of future markets requires a fulfilment of a number of conditions.

The most efficient method of correcting market failure is to facilitate the establishment of missing market for risk coverage. Public policy can intervene by setting the necessary legal framework for the creation of such markets or/and provide incentives for development of markets or lower the costs of such tools (by providing subsidies for insurance premia). If the establishment of missing markets is not possible,

the second best solution is to bridge the missing market. Income safety nets can perform this role.

However, even if presence of market failures can justify government intervention, it has been criticised because it prevents development of market solutions, transfer support to farmers and leads to rent seeking behaviour. In some cases government provided insurance may create an insurance market where none market existed, but this insurance does not necessary eliminate problems. Pooled insurance premiums and subsidised premiums can provide the wrong incentives to farmers. Excessive subsidisation of risk may easily result in “overcorrecting” of market failures with too much, not too little risky production taking place. Subsidisation can also encourage use of risky methods of production such as cultivation on marginal lands susceptible to drought or other natural disasters, high density of livestock, which contributes to spreading of animal diseases.

All risks cannot be insured. Moral hazard and adverse selection inhibit, as mentioned above, establishment of insurance markets. To avoid moral hazard, only accidental or unintentional losses can be insured, i.e. insured parties must not be able to affect damage or possible claim. Insured parties cannot have more information about their risk than the insurers. Insurance is based on aggregating similar independent risks into a single insurance pool for the purpose of reduction of variability of the loss. This presupposes existence of large number of roughly homogenous, independent exposure units and no catastrophic losses. The last mentioned can, however, be dealt with by re-insurance. In addition, conditions for insurability of risk include availability of statistical information enabling to establish extent and frequency of damages. Furthermore, premium rate for the participants must be acceptable and economically feasible (EUROPEAN ECONOMY 1999).

For the insurance contract to be financially viable for the insurer revenues from premiums must at least equal the cost of indemnities. In addition, if the insurance company is to stay in business administrative costs and normal profits must be covered as well. As a result the expected cost of buying the insurance is negative. Hence, unsubsidised insurance will usually be attractive only for risk averters i.e. to those who prefer a certain outcome to an uncertain outcome with the same expected value. Insurance is, accordingly, applied for risks that could threaten the continued existence of farm business or that could seriously damage the welfare of the owners, (EUROPEAN ECONOMY 1999).

6 Risk management tools in use in Europe and elsewhere

Many tools are available for managing risk in agriculture. While the ultimate objective is usually to reduce large farm income variations, in particular to avoid large income losses, various parameters are targeted. Some tools such as various insurance schemes or futures market are exclusively designed for the purpose of risk management. In other cases stabilisation is an element of a broader arrangement or even a by-product of a scheme designed for performing other functions. Below a short overview of major instruments that directly or indirectly contribute to stabilisation of incomes is provided. The reason for doing this is that the objective of this paper is not to provide a general discussion of risk management but to raise a question whether risk management tools should be added to pre-existing CAP measures or replace some of them in the process of agricultural policy reform. This question can only be answered taking into account the totality of existing measures.

- Price insurance

Market support in the framework of the CAP has major impact on farmers' price risk. Price stability provided by market regimes varies, however, between different commodities. Price variability for leading prices on European markets is illustrated below. Table 1 shows coefficients of variation for the same commodities. Considerable differences in the variability of prices can be observed. Diagram 1 and 2 illustrates development of prices for major agricultural commodities 1973-1993.

Table 1: Coefficients of variation for major agricultural commodities

Commodity	Mean	Var.	Stand. Dev.	Coeff. of Variation
Wheat (soft)	14,97	6,75	2,60	17,35%
Barley (feed)	13,52	4,90	2,21	16,37%
Maize (grain)	15,28	7,67	2,77	18,13%
Rapeseed	26,63	25,53	5,05	18,98%
Beef	287,18	1609,63	40,12	13,97%
Pig meat	134,14	365,32	19,11	14,25%
Lamb Meat	121,65	1715,23	41,42	34,05%
Broiler	138,88	337,60	18,37	13,23%
Butter	323,89	2049,62	45,27	13,98%
SMP	169,23	2482,90	49,83	29,44%

(Source: calculated by ANDERS BÄCKSTRAND (SLI) based on AGMEMOD Database)

Price risks can be covered to some degree on futures and option markets, i.e. an exchange in which futures contract and options are traded.² These instruments are efficient for systemic price risks. Hedging price risks on future markets reduces risks from price declines within a given year but provides little or no inter-year income stability. Besides reducing short-term risks, future markets increase price transparency. In Europe, futures can be traded on five exchanges. Traded volumes are low. Use of future markets in Europe is hampered by CAP-induced price stability. Uptake is, moreover, slow because use of futures requires considerable investments in know how and infrastructure. However, even when futures and option markets are well-developed farmers are reluctant to use them (EUROPEAN ECONOMY 1999).

- Exchange rate insurance

The agro-monetary system introduced in 1960 provided for a long time insurance against exchange rate volatility by allowing for differences in institutional prices between different MS thereby avoiding price reductions in countries with appreciating currencies. The completion of the internal market in 1992 resulted in equalisation of institutional prices and removal of MCAs. MS could, however, still compensate farmers for currency revaluations and ensuing reduction of prices by other means such as direct subsidies, partly financed by the Union. The completion of the third stage of EMU and the introduction of the Euro made any such arrangements redundant for the participating countries. The agro-monetary system has been eliminated in January 2002 even for those countries that do not participate in the EMU. Of the three countries, Denmark participates in ERM2 keeping its currency within 2.25 % band making the impact of monetary variability on farm income minimal. Sweden and the UK do not participate

² A futures contract is an agreement priced and entered on an exchange to trade at a specific future time a commodity with specified attributes. An option is a contract that gives the holder the right to, without obligation, to buy or sell futures contract at specified price within a special period of time regardless the market price of the future (OECD 2001).

Diagram 1: Livestock commodities

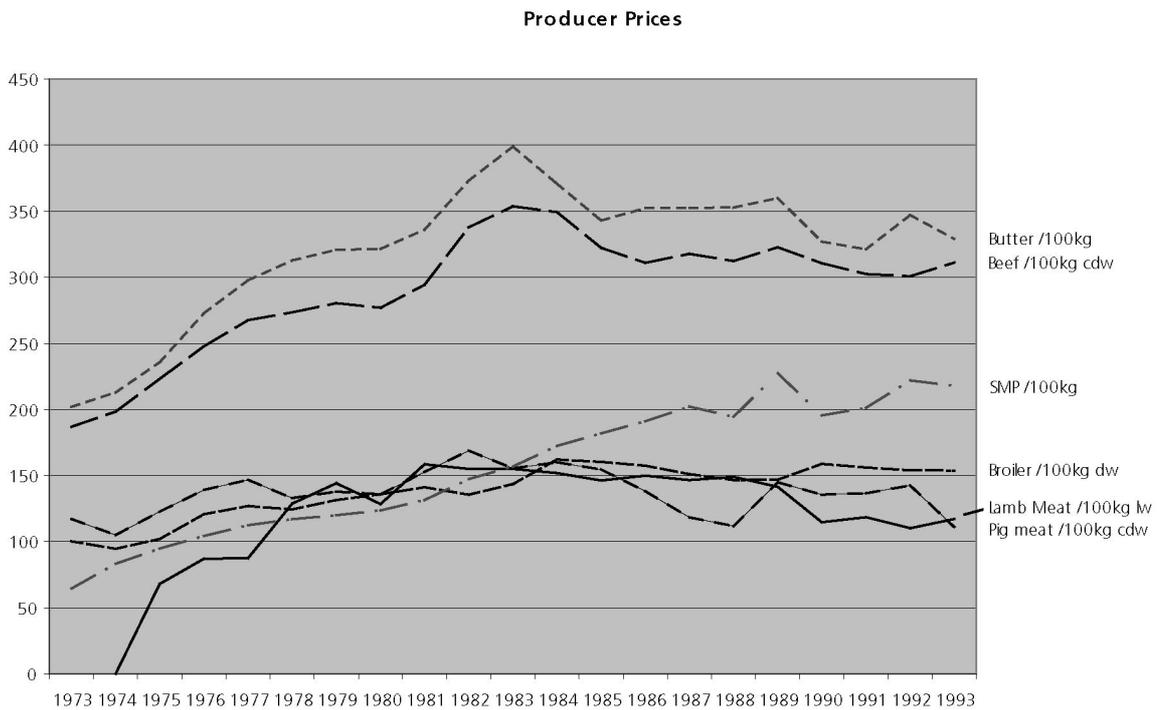
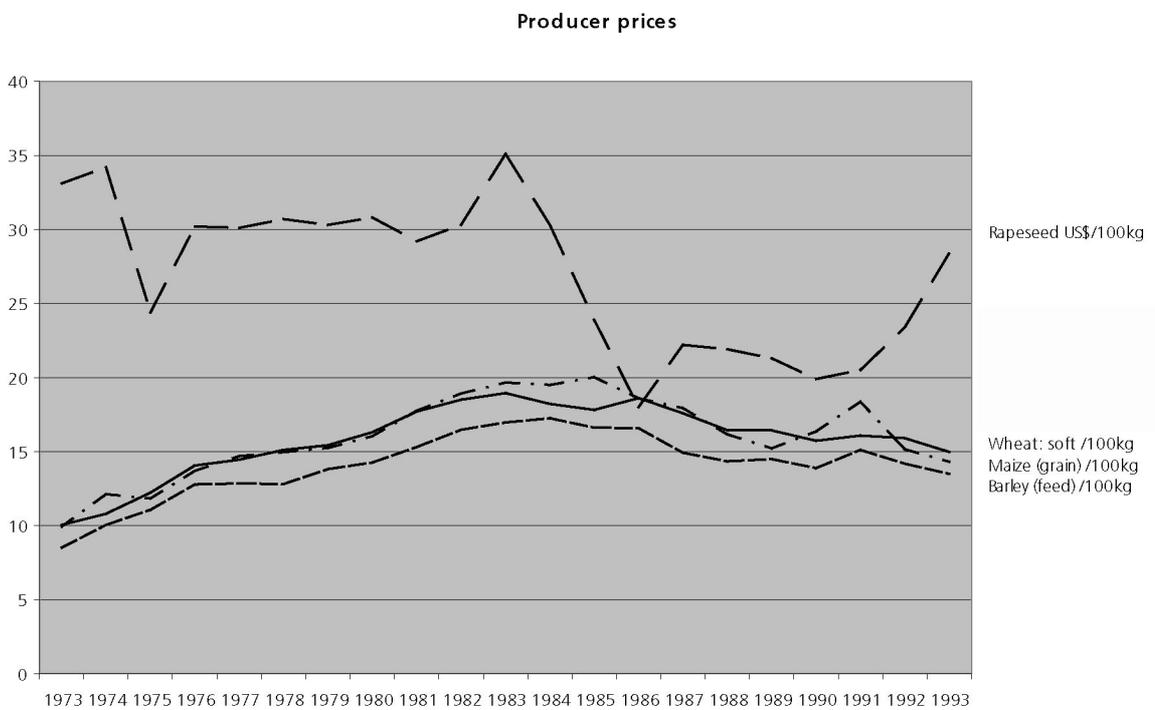


Diagram 2: Crops



(Source: prepared by ANDERS BÄCKSTRAND (SLI) based on AGMEMOD Database)

in the ERM2 and follow similar monetary regime based on inflation targets and floating currencies. A strong devaluation of pound sterling in 1992/3 and an equally strong revaluation since 1995 contributed significantly to massive instability of incomes in the UK agriculture.

The issue of coping with monetary instability may re-emerge after the enlargement. The new member countries will not join the EMU at the accession. The extent of the problem will depend on the monetary arrangements followed.

- Crop and yield insurance

Yield insurance is available in several countries, (see below for examples). Any field crop is subject to variability of yield. In reality, however, only the main commodities are covered. There are special problems in devising yield insurance for speciality products, intermediate commodities and livestock products (EUROPEAN ECONOMY 1999).

In the US a comprehensive system of crop insurance is in place with state involvement in subsidising insurance premia, covering administration expenses, reimbursing acquisition costs of private sector and providing reinsurance. In addition substantial “emergency aid” has been paid since 1998. In Spain there are numerous insurance companies which offer coverage for almost every agricultural risk. Premiums are subsidised by the government (between 20% and 40%). In addition the state provides reinsurance. In France agricultural calamity funds exist which covers perils such as excessive rains, flood, frost, drought, windstorms, epidemics and parasites (CEC 2001).

- Other type of production risks

For livestock products where epizootic diseases are eradicated by stamping out, full compensation is paid to the farmer for capital lost. The EU reimburses 60% of the costs. Only farmers that have their animals slaughtered are entitled to compensation. Farmers who suffer income loss due to restrictions on movement of animals are not compensated. Neither are other rural interests compensated.

The reimbursement from the EU is supposed to come from the Veterinary fund. The Veterinary Fund is, however, not a fund in proper sense of the word but rather a budget line in the agricultural budget. This is clearly demonstrated by the fact that the total spending exceeded allocated means several times. The issue of reforming of the fund has been raised during the Spanish presidency but not resolved as yet.

- Direct payments

Direct payments (DP) have now emerged as a major instrument of the CAP. Those payments account now for a substantial share of the budget. Roughly speaking two types of payments can be distinguished. The payments that originated as compensations in the process of reforming of commodity regimes, MACSHARRY and Agenda 2000 and various environmental payments. The switch from price support to area and livestock based payments has contributed significantly to an increased stability of farm incomes in the relevant sectors. Those payments are very unevenly distributed among commodities. Livestock, in particular, is less dependent on direct payments than the crop sector.

- Income and revenue insurance

It could be argued that the real problem of instability is income risk. Price and yield correlation determines the need for insurance. If the correlation is strongly negative

there is little need for insurance and if price (yield) only is insured farmers will be over-compensated, (EUROPEAN ECONOMY 1999). However, it should be observed that on large, well-integrated markets with varying natural and climatic conditions for agriculture, prices and quantities will not necessarily move in opposite direction for all farmers. Some producers may face low prices and below average yields at the same time. However, yields for some bulk commodities seem to be correlated across large geographic regions.

Different measures for income stabilisation exist. Those include gross revenue insurance, income stabilisation accounts, business continuation assurance or anti-bankruptcy assurance and allowing for different social security eligibility criteria for farmers when incomes are low. It is not possible to provide any detailed description or evaluation of the available measures here. The purpose is only to indicate what options exist.

Gross revenue insurance has an advantage over price and yields stabilisation by allowing for the fact that most farms are multi-product businesses and it is unusual that all markets fail simultaneously. Farm revenue insurance will, furthermore, be cheaper since low revenues from one enterprise are likely to be partly offset by high revenues from another enterprise. Moreover, insuring whole farm revenues will not distort market for any particular commodity.

An attempt to introduce a gross revenue scheme for pork production in the EU in spring 2000 failed. The scheme did not include any element of subsidy and basically did not offer the pork producers anything that they could not do better by themselves.

A net income stabilisation fund is an instrument with which producers can stabilise their income in the long term. The fund is set up by producers in good times and used for withdrawals in bad times. The government can stimulate participation in such a fund by granting a subsidy, guaranteeing an attractive interest rate or offering tax relief. The advantage of the scheme is that it supports income security and is principally suited to all businesses. The scheme does not offer a compensation for structurally declining prices and incomes being thus a pure stabilisation measures (LEI 2001).

Several variants of stabilisation funds are or had been in use around the world. The Australian scheme allows farmers to transfer money into income equalisation deposits in high-income years with funds so transferred being treated as deduction from income tax. When bonds are encashed, the funds are added to the taxable income that year. Canadian NISA subsidises and assist farmers in building savings for low revenues years. Farmers contribute and receive dollar-for-dollar match from the government. Farmers are allowed to contribute up to 2% of eligible sales. Withdrawal is allowed when gross revenue falls below a minimum income level. An another Canadian measure is anti-cyclical income support (AIDA). In this system, payments are made if individual farm incomes fall below 70% of their historical three-year average. The provisions for calculating the trigger for payments ensure that newcomers, high debt and low-debt are treated equitably.

Anti-bankruptcy assurance was part of the Swedish reform of agricultural policy of 1990, but more as an exit than as a stabilisation measure. (The intention was that new entrants and farmers who made large investment prior to the reform decision should not go bankrupt because of the reform. The option was not used in practice due to accession to the EU). This option has obvious merits from the social point of view since farmers are often personally responsible for their losses but can be very tricky to implement in practice due to difficulties to distinguish between the impact of “bad luck” and bad business practice. The risk for moral hazard is obvious.

Applying different social security eligibility criteria for farmers when incomes are low could be motivated by the fact that farmers cannot temporarily leave their business and look for other occupation in bad years (EUROPEAN ECONOMY 1999). The same applies, however, for many other businesses.

- Experiences with insurance schemes

Agricultural insurance systems that are in use vary considerably with respect to coverage, degree of subsidisation and degree of government involvement in the provision of the insurance. Greece relies on predominantly public system involving compulsory contributions and guarantees coverage of losses. In Spain and Portugal government plays a key role by providing both premium and subsidies and re-insurance. Italy, France, Austria have predominantly private systems of agricultural insurance but differ considerably with respect to subsidies for insurance premia. Italy grants considerable amounts. Germany is not providing any subsidy (CEC 2001).

Experience with multi-peril crop insurance indicates that governments are subsidising them to a great extent. Thus, coverage of a wide range of perils at a level of protection that is interesting for farmers seems to require considerable state involvement. However, even insurance systems benefiting from considerable public support do not have universal uptake rates, the coverage in terms of products and participants remains limited, 30 % in Spain, 20% in the US but more than 60% of eligible acreage is covered (CEC 2001).

Questions that can be raised with respect to insurance whether existing arrangements provide enough social returns to justify high costs indicated above. Questions arise also as regards efficiency of public-private partnership (CEC 2001). Since subsidies are normally set as percentage of premia, farmers facing highest risks receive highest subsidies. This may contribute to more risky production taking place.

7 Mid-term review

Since a decision to reform the CAP has been taken on 26 of July, the relevant question is whether the post-reform CAP should be amended. The studies that are available analyse the reform proposal by the Commission rather than the final outcome of the process. All studies indicate that production, in particular beef, will decrease. The question relevant to this paper is whether the reform will produce less or more stable farm incomes? It is beyond the scope of this paper to offer an in depth analysis what kind of impact further decoupling of direct payments, implied by the reform, may have on the variability of prices and yields. It could be hypothesised, however, that a joint effect of decoupling, modulation and cross compliance may result in lower use of farm inputs such as fertiliser and pesticides. This in turn could increase variability of yields.

Introduction of direct payments had a major impact on increased stability of incomes, especially in countries participating in ERM, i.e. with stable currencies since part of the farm income was replaced by a payment with zero variance being based on fixed yield and fixed remuneration per output unit. Since, according to the reform decision, only 5% of payments will subject of modulation, the stabilising effect of direct payments will remain more or less the same.

Hence, it may be concluded that, by and large, post midterm review CAP could be quite similar to previous CAP with respect to the stability i.e. the reform would probably not significantly increase instability, if at all. Hence, previously formulated conclusions should, on the whole, apply.

8 Is there an added value in common risk management policies?

One of the key issues raised in this paper is whether a case can be made for amending the CAP (present or post midterm review) with risk managing tools and if so which tools would be appropriate. From the presentation above follows that the CAP has, albeit indirectly, played a major role in reducing risk from farming activities but that the involvement of the Community in direct risk management is limited. The CAP contributes substantially to price stability, but there are considerable differences between different commodities. Some sectors operate already almost on market conditions. With exception of epizootic diseases, production risks are insured, at the MS level, if at all. Direct payments contribute substantially to income stability by being independent on current prices and quantities but have not been explicitly designed for that purpose.

A report on the insurance by the Commission, quoted before, states that the present CAP performs quite well in stabilisation of farm incomes. The report argues, furthermore, that there is no need to add insurance schemes to the present CAP since existing rules allow MS to introduce such schemes on the national level whereas adding insurance policies on top of the existing common regulations would only result in a very complicated policy.

What role should the EU play in providing stabilisation instruments? This question could be more suitably approached using the concept of subsidiarity. The principle of subsidiarity implies that the Commission, Council, or another EU body should not try to do things that national governments can do equally well, or better, by themselves. The major criterion of judging what is “better” for the purpose of our analysis is economic efficiency. Additional criterion that could be invoked relates to accountability of the policy, i.e. possibility of the citizens to exercise a democratic control over policy making. Accountability is basically a political economy argument. The underlying question is whether a common policy is less or more prone to be captured by special interests than it would be the case with national policies. Furthermore, common policies may include an element of income redistribution between countries, making it possible for the poorer members to afford policies which they otherwise would not be able to apply.

Existence of spillovers and economies of scale and scope are common efficiency arguments in favour of centralisation. Policy spillovers arise when the policy measures adopted at national level have economic effects that cross national boundaries and may in some cases have negative implications for living standards in other countries. Where actions of each national government have consequences which are felt outside its territory, it is unlikely that the policy decisions taken by national governments will fully reflect all the costs, and benefits of particular policy choices, in particular of non-residents are unlikely to be given adequate weighting. In such a case, independent national policies will produce inefficient results.

Some public goods cost less or are more effective if provided by the centre than by several separate states. Economies of scope may emerge when the Community is involved in several disciplines. Centralisation allows more specialisation and, hence, more gains from division of labour. Problem of communication and control will, however, generally increase more than proportionally with size. Hence, there are also likely to be *diseconomies* of scale with centralisation. Common decision-making *per se* may be associated with costs. Speed and easiness of making corrections and alteration may be impaired. Centralisation may require large bureaucracies (high

transaction/administrative costs), detailed regulations and far-ranging administrative controls in order to ensure that policies really are common.

An advantage of decentralised decision-making is that Member States may be better informed about conditions that affect the local implementation of policies, and have better knowledge about local preferences. Better knowledge about the effects of policies may also give an advantage to the state authorities. Decentralisation implies that policies can be more flexible and responsive to local conditions, while centralisation relies on rules on equal treatment of states/localities, and central authorities tend to prefer simple and relatively uniform policies.

Below, the aforementioned criteria will be applied to different type of risk (price, yield, income) and risk management instruments that are used or could be used in the EU. Efficiency arguments are better analysed separately for different types of risk. Political economy and equity considerations will be discussed jointly.

Price risks are at present mitigated by common instruments operating on the market. All stabilisation instruments that operate in this way must be a common responsibility. Different countries cannot independently intervene in the same market. Market-driven stabilisation tools such as futures markets are gaining some importance but volumes are still small. Active encouragement of development of such instruments (through provision of information, education etc) could be a joint responsibility of the Commission and MS.

With exception of epizootic diseases, where some financial support is provided, *production risks* are mainly a responsibility of MS. The EU plays only a limited role at present in setting the overall framework. In situations where national governments rely on ad hoc disaster aids, insurance could increasingly replace them. This would increase predictability, stabilise expenditure and reduce negative effects of disaster aid. Would it be efficient to centralise the provision of insurance against crop failures and other perils? In principle, insurance is based on pooling independent risks. The system works better the bigger the pool is. In addition, economy of scale in administration could provide arguments for a common scheme. However, implementation at the EU level may be problematic due to the fact that insurance schemes are susceptible to fraud which may be more difficult to control at EU level.

Moreover, crop insurance schemes that exist in different MS vary considerably with respect to the degree of subsidisation of premia. This reveals differences in policy preferences between the MS as far as desirable redistribution of income to farmers is concerned. In such a situation, a decentralised policy performs better (compare the discussion above). Insurance should, hence, be primarily developed at MS level. Spanish experience shows that a comprehensive system of agricultural insurance can be developed within common framework of state aids. As long as national schemes are compatible with this framework, there is no danger of distortion of competition and no negative spillovers.

Veterinary Fund as designed at present provides an example of common “insurance” that is not working very well. Veterinary Fund could be argued constitute a free of charge insurance for epizootic diseases with “re-insurance” provided, again free of charge, by the EU budget, (HOWE and WHITTAKER 1997). In reality such a scheme contributes to a substantial redistribution between regions and MS, to the advantage of MS facing high risk to regions facing low risk as well as encourages an inefficient, i.e. too risky production. A study of the impact of foot and mouth disease conducted in Sweden and based on the CAPRI model compared EU-budget financing of a hypothetical outbreak with financing based on the number of susceptible animals and

the stocking density coming to a conclusion that redistribution is considerable (NORELL et al. 2002). The same study came also to the conclusion that a risk based on the financing of the cost of the outbreak, if paid by farmers as an insurance premium or a fee to a fund, would affect allocation of production. Regions with highest stocking densities would lose competitiveness.

Accordingly, the EU should play a role only when production risk is to large extent systemic since in such a case either no insurance is being offered or is not commercially viable due to high cost. EU could facilitate re-insurance of risk by providing a proper legal framework. Providing re-insurance would address one of the most important obstacles for development of insurance systems, i.e. potentially catastrophic losses. If such re-insurance were provided, more insurance companies would offer the coverage of risks potentially resulting from catastrophic losses. Re-insurance should, however, not imply pooling all risk and subsidising high-risk areas. Annuality of the EU budget constitutes a problem if re-insurance payments were to be provided directly from the budget.

Income and revenue insurance schemes are at present not used in the EU. Since such schemes could constitute a future option for agricultural policy it may be of interest to analyse whether, in the case such tools were introduced, they should be a part of a common policy. Introduction of income and revenue insurance involves several issues, both technical and more principled ones. Income insurance schemes resemble socially motivated safety nets raising the questions of compatibility with existing national social security systems. Moreover, social policy is not a competence of the EU and it is doubtful whether this should be the case. Especially if only one sector of the economy is covered. The concept of "fair income" which is invoked in the Treaty has never been clearly defined. Moreover, in the Treaty, achievement of farm incomes is connected to raising productivity of farm labour rather than to providing social assistance.

Additional problem connects to co-ordination of taxation policy. Some income insurance schemes are based on tax concessions. Since tax policy remains at national level such policies would be difficult to implement as common policies. Schemes that do not rely on tax concessions but on public subsidy could more easily be implemented at EU level but differences between tax systems applied in different MS could pose problems with respect to identifying income. The issue is, however, how efficient would such a system be. As it is the case with crop insurance, the bigger the pool the easier it is to reduce variability. This would be the case if all countries and all commodities were involved. However, this type of measures are very demanding as regards information requirements, especially AIDA type solutions, (individual income histories are needed) and administrative provisions. Risk for fraud seems considerable. For farm level insurance, significant investment in monitoring and acquiring information must occur to connote moral hazard and adverse selection. Income insurance schemes seem, thus, more appropriate at national level.

Revenue insurance schemes would escape some of the problem of co-ordination with social and taxation policy that was discussed above. However, even in this case introduction of a common scheme may involve considerable bureaucracy. It could be noted that the proposed insurance scheme for pork was envisaged as a voluntary measure at the MS level.

Moving to political economy consideration, lobbyists and rent seekers who risk losing subsidies generated by price and income support programmes may switch their attention to obtaining rent from risk management and insurance programs. Centralisation of decision making may facilitate this process. Albeit not universally

agreed in the literature, it has been argued that the centralised bargaining process inherent in the CAP has increased the strength of the farming lobby and has created a bias in favour of farmers. An advantage of common schemes could be that this would make it possible for poorer farmers to participate.

9 Risk management tools and liberalisation of the CAP

The discussion above focussed on the present CAP. The question that emerges is what role risk management tools should play on a liberalised market. It is not easy to know how such a liberalised market would look like in details. The author of this paper has for obvious reasons some bias for a reform along similar lines as suggested by CARPE. Long term reform proposal advanced by CARPE envisaged a gradual elimination of market support and introduction of environmental support (landscape payments) as well as rural development support, which was suggested to include a broader range of measures, beyond present extend of the regulation.

The measures that are presently included in the CAP are designed to support farm income. By pursuing this objective stabilisation is achieved as a by-product. Risk management tools cannot reverse long income trends and hence accomplish this dual objective. Neither should they do so. Any serious liberalisation of the CAP presupposes a removal of the income objective. CARPE proposals argue that the purpose of granting payments to farmers is to remunerate them for provision of public goods that otherwise would not be produced.

With liberalisation of agricultural markets in the EU, price variability of products currently supported will tend to rise; though effect will be less in large, highly integrated markets. Annual income in agriculture can vary vastly in the absence of government intervention.

Should risk be primarily responsibility of farmer as manager or should farmers be offered some assistance for managing the risks? Removal of market regimes could stimulate development of futures markets. However, as pointed out before, even when such instruments are well developed, farmers are reluctant to use them. On the other hand, farmers that are facing most risks, i.e. large, specialised commercial farmers are best suited to use such instruments.

It is not likely that liberalisation will significantly increase yield risks. Hence, the issue is whether prices or incomes should be stabilised. Stabilisation of prices could be achieved by relying on existing CAP instruments and using them only as “safety nets”. This could imply keeping the level of border protection at a level implying zero protection at an average or trend value of world market prices and only to be activated when the price falls below a trend level. A variable levy system, which operated in this way, has been eliminated and replaced by bounded tariffs. However, as long as tariffs are fixed at a high level, the applied tariff can be varied. An alternative method would be the use of safeguard measures. Such measures are already available in the UR AoA and allow increasing tariffs if domestic prices fall too much or import volumes increase too much according to agreed formulas. These measures would imply a simple protection of farmers against low world market prices. A possible complication is “political sustainability” of safety measures. Historical experiences show that it is difficult to separate stabilisation of prices from supporting prices.

Income stabilisation could be achieved by different measures. It is beyond the scope of this paper to argue for a particular choice. Such measures, as argued before, are better suited to be designed and administered at the national level. The main issue is who should be a subject of income stabilisation policies?

In section three it was argued that farmers' incomes after the liberalisation may be more prone for variation than incomes from other comparable sectors but that risk may, due to globalisation, increase in other activities as well. If the difference would be considerable, which cannot be known for sure at present, the argument can be made for designing of farm-specific insurance schemes. Otherwise, a more appropriate solution could be general insurance schemes open for other businesses in rural areas or small firms in general. A related issue connects to choice of relevant policy variable for stabilisation of incomes of farm families namely whether a focus of stabilisation should be farm income or total income.

Risking an oversimplification of the case, future farm structure of Western Europe will consist of two types of farms. On one hand specialised commercial farms, often large ones, and on the other hand smaller farms deriving their income from multiplicity of sources: agricultural production, provision of environmental amenities, rural businesses which may or may not be related to farming, off-farm employment etc. A vast majority of farms have already multiple income sources with farming accounting only for a share of total income. This development has continued for a long period of time and is probable to become even more accentuated with a CAP reform.

The first category of farmers will face much higher income risk than the other one since both price and yield risk increase with specialisation. Risk management by means of diversification is hardly an efficient option for larger farmers who are fully occupied on their farms. Dividing their machinery, time and managerial capacity between several different activities impairs efficiency and hinders exploitation of economies of scale. Existing evidence indicates that farmers are not applying this strategy now and are not much likely to do so in the future. Income insurance schemes could be justified for this group.

The farmers who rely on many income sources will face a much smaller risk, as it is most probable that income changes will not be correlated. For those farmers, stabilising farm income only may be somewhat pointless, if the share is small. Opting for the total income raises again the issue whether farmers should be the only group that is offered income insurance or whether this type of policy should only be offered to other rural households or other small firms.

10 Enlargement

The enlargement will magnify market failures that inhibit establishment of insurance markets in agriculture. In particular establishment of individual income insurance schemes such as AIDA will face tremendous transaction costs in countries where fragmented farm structure prevails.

11 Concluding comments

The OECD (2001) has argued that to evaluate the need of government intervention, it is important to:

- i) assess extent to which there is a market failure and a lack of adequate risk management options,
- ii) assess how costly this failure is in terms of social welfare, and
- iii) calculate the cost and benefits of government intervention.

This paper has only addressed the first of the above-mentioned issues, namely market failures. The issue was raised in relation to the CAP. The main focus of the paper was

the question whether markets for risk reduction are missing or incomplete and risk not sufficiently reduced by existing stabilisation policies. Only in such a situation a case can be made for more government intervention. To justify that such an intervention should take place at the EU level, a common intervention should, according to the principle of subsidiarity, create an added value compared with national policies.

The paper has examined two cases. The first one related to the existing CAP, the second to a future, more liberalised CAP. The present CAP contributes substantially to stability of prices and incomes. This is achieved mainly as a by-product of policies that aim at income support. With exception of epizootic diseases, the CAP does not include insurance schemes against crop failures or other perils. The MS provides such insurance, to varying degree and under different institutional arrangements. It is difficult to find convincing arguments for centralisation of crop insurance. The conclusion that emerges from the analysis is that the EU should only play a limited role in risk management focusing mainly on provision of legal framework and possibly on re-insurance.

Income insurance schemes are at present not used in European agriculture. Such schemes could play an important role in the future agricultural policy. However, insurance schemes may be difficult to apply at EU level. The MS seem more equipped to deal with this type of policies. Incomes could also be stabilised by a common policy, safety nets operating on prices. By relying on safeguard measures within the framework of the WTO, excessive variability of prices could be prevented. The paper has not provided an evaluation of the relative merits of income insurance compared to price stabilisation as measures to stabilise incomes. In fact, those two measures do not exclude each other and could even be used as complements.

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