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Conference Paper

Agricultural knowledge development: Investing in people (human capital)

Provided in Cooperation with:
The Research Institute for Agriculture Economy and Rural Development (ICEADR), Bucharest

Suggested Citation: Njegovan, Zoran; Jeloécnik, Marko; Potrebić, Velibor (2012) : Agricultural knowledge development: Investing in people (human capital), In: Agrarian Economy and Rural Development - Realities and Perspectives for Romania. 3rd Edition of the International Symposium, October 2012, Bucharest, The Research Institute for Agricultural Economy and Rural Development (ICEADR), Bucharest, pp. 259-267

This Version is available at:
https://hdl.handle.net/10419/76843

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AGRICULTURAL KNOWLEDGE DEVELOPMENT - INVESTING IN PEOPLE (HUMAN CAPITAL)[1]

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Summary

In the paper the authors are challenging the human capital in agriculture issues and its ability to ensure development and reduce poverty, bringing such way better quality of life for the entire people. They are also discussing the role of high educational system – the causes of inefficiency and value of education people are getting. They are criticizing the position that land is overestimated and human capital underestimated, trying to identify that human capital (education, skills, experience and health are) is representing the base for the further national development. The hypothesis of the paper is to elaborate need for the better quality of the people as a factor of its prosperity. In that purpose they are bringing the critical approach to the high educational system and from that point of view the possibility of efficient management of knowledge and human capital as well.

Key words: *agriculture, knowledge, agro-economy, high education, human capital.*

INTRODUCTION

Problems of agricultural development from an aspect of its role and importance within the overall economic development are the subject of permanent and comprehensive research in number of paperwork. From primordial times people have been constantly confronted to care about food and available agricultural-production space (primarily about the way of its use)[5]. In parallel, considering the decreasing physical abilities of land, due to its improper and excessive use for various human needs, appears a large dose of pessimism. Logically, adequate solutions have been usually sought and offered in this direction, but with, it seems, negligence of role and importance of constantly increasing human capabilities, which are able to compensate and substitute decreasing physical abilities of natural factors. This topic has been discussed for many times over the previous decades, but with resignation should be noted that mentioned approach didn't find larger foundation, neither in professional, nor in political circles. Having this in mind, the basic intention was pointing to fact that investing in quality and knowledge of the population (primarily producers of goods and services in agriculture) can largely determine future appearance of national agriculture, as well as complete economy.

Mentioned supports practice in many underdeveloped countries where by investing in knowledge were achieved significant development results. In other words, human factor can be taken as a critical factor in poverty while the land for itself is not. Therefore, for a long time developed attitude about the importance of total population to agricultural production, in modern conditions has to be expanded by necessity of quality of population (human capital) improvement, how this can be the only possibility for improvement of economic prospects for the wellbeing of poor people. This includes development of home and work experience, gaining of general and specific knowledge, information and skills through education, as well as investment in better health and physical predisposition of population. Such this model of investment was everywhere and always brought success, except in cases of unstable political conditions, as well as under recent affects of global economic crisis. Because of that, although the investment in research and development in agriculture look justified, not so often this topic is neglected or inadequately approached.

Fact is that economists in developed countries are mainly dealing with the economy of developed, and that economists in developing countries follow their *Western paragons*. Meanwhile is forgotten that

[1] Paper is a part of research project III 46006 Sustainable agriculture and rural development in the function of strategic goals achievement within Danube region, financed by the Ministry of Education and Science of Serbia, project period 2011-2014.
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[5] According to Rikardo, D. and Malthus, R. T., one of the most important world theorists at the end of XIX and beginning of XX century.

majority of world population is poor and that only by knowing of economics of poverty will be implied conversance of larger segment of real applicable economics. Or, as most of the poor people are engaged in agriculture, surely that then elements of agriculture economics will be known much better. Unfortunately, economists rarely understand the preferences and limitations of scantiness that poor (small farmers are classified here too) are facing with.

Encourage the fact that in Serbia in recent decades, despite relative underdevelopment and low-incomes, agriculture evinced potential and economic capacity to produce sufficient quantities of quality food, both for its own and for population of countries in near and far surrounding. Support for aforementioned can be found in larger understanding of economics of agriculture and human capital, especially the segment of economics of research.

It should be commended reactions showed under the influence of current trends in agriculture by critical group of farmers (leaders of developmentally oriented husbandries) toward their relation to new, more efficient production techniques and technologies, which ensured better production completeness, relative prosperity and better family economics. Aforementioned represents considerable improvement, how in Serbia still dominates traditional view that the land and natural factors, as well as the number of people engaged in agriculture are the main factors of agricultural development. According to that it isn't a great mistake in statement that *the land is overestimated*. This indicates the fact that development of industry of mineral fertilizers, agro chemistry and seeds, then genetic engineering and other scientific-technical disciplines can provide growth of agricultural production without use of additional land surfaces (production growth is achieved even in conditions of its decreasing). On the other hand, additional labour is not required, as the development of agricultural mechanization and general computerization ensured its physical substitution in favour of smaller group of educated manpower that disposes with special skills and knowledge. Thus in both cases come to increase of human capita limportance[6].

RESULTS AND DISCUSSION

Quality of the human factor is underestimated

It's not difficult to conclude that the land doesn't represent a key factor of poverty in some countries (in agriculture too), but the human factor, for sure, can be. This is especially obvious during the economic crisis, which may be the primary element of overall economy exhaustion in long-term period, when usually most of measures with so-called physical character (mostly product of fiction and extrapolation) doesn't show desired effects. Problem overcoming is exclusively transferred to the field of poverty consequences elimination (inadequate living standard). Meanwhile, as cause of newly arisen problems, approach to spiritual poverty elimination (adoption of knowledge and skills) looks unsatisfactorily and inadequately. Strategic orientation of the state towards knowledge-based economy during the previous years at least increased on marketing level the importance of human resources.

Although more and more companies connect their financial success with the value of human capital of their employees, there is a paradox that while the company accepted the general importance of human resources corporate investment in human resources (such are basic skills, qualitive training and financing of further education) are internally rarely measured, or in other words there is still unknown how much benefit mentioned investments made. Unfortunately, enterprises rarely show level of investment in human resources in their financial statements [16].

Permanent care for children, gaining of home and work experience, adequate approach to information, skills overmastering and specialization through training, investment in the health care system,

[6] Characteristics of gained population quality, represented by value that can be increased with adequate investments, are usually treated as *human capital*. Starting from the fact that all human abilities are or innated or acquired, then the element of quality that a human being achieves during his lifetime contains a certain amount of cost. According to aforesaid, the learning process increase human capital, but it is also the cost as for the state budget, as well as for the individual and its close surrounding (family, company, etc.).

etc. can improve the general quality of the population. Expectations of producers in agriculture are formed through new opportunities and incentives on which they want, or are able to respond. On the other hand, aforementioned incentives expressed through the parity of final products prices and input prices were greatly deformed under certain level of state influence, what can decrease the potential contribution of agriculture as a vital branch of national economy.

Although within the segment of manpower contingent focused to agricultural production, there are individuals with different abilities to recognize, observe (interpret) and initiate various actions as response to actual trends in surrounding, All of them represent a significant resource of national entrepreneurship. Nowadays, state with its inadequate interference, or no interference in agricultural flows, succeed to deform significantly the interactivity and relationships within the production chains, or to destimulate (discourage) the entrepreneurial spirit of agriculturalists (especially small farmers). In fact, agriculture should be observed as a highly decentralized system, in which the ability of resource allocation is immanent to number of employees in micro production units (husbandries)[7]. Having this in mind, there is often impression that in agricultural activities, at which state overtook the entrepreneurial function, did not come to improvement in relations and establishment of stimulating business environment, or did not come to more efficient allocation of resources that would contribute modernization of agriculture.

Funds availability (domestic and foreign), good organization of activities and capable scientific-research sector represent the base of function of entrepreneurship and efficient agriculture development. Lack or insufficient development of some of mentioned elements has resulted that many developing countries do not use completely their developmental potentials [4]. Hence, the potential obstruction and lack of real technical-technological modernization (as source of new experiences that will improve human skills and allow the gaining of valuable information/knowledge) does not favor the developmental efforts within the national agriculture.

National research-scientifical auditorium often points out the absence or low level of human capital quality, what also indicates most of available literature from the domain of economic-analytical statistics of population. Observations go even to the thesis that poorer population in rural areas is not motivated to overcome with skills that can affect the improvement of human capital quality, as they are too tied to tradition. However, this assertion is in collision with the fact that poor agriculturalists successfully manage marginal costs and marginal returns within the lines of agriculture in which they are active[8].

Therefore, farmers ability in developing countries (mainly in transition countries too) to realize, interpret and respond to emerging situations, in the context of production risks, represents important competitive advantage of human capital. In economy that ability is defined as entrepreneurial capacity of farmers, which in conditions of Serbian agriculture is mainly a consequence of experience, knowledge and skills gained through a working activities (*learning by doing*). Of course, more and more complex economic conditions impose a necessity of formal knowledge owning as a basis for further development and improvement.

Education as an investment in human capital

We are witnesses of often criticism of higher education in Serbia, where in focus is mostly actual implementation of the Bologna education system, which is done, as many critics say *on Serbian way*. It's usually reproached to educational institutions that they don't unreservedly support state policy, redirecting the discussions into those which generate the most public impact. Before all is said that faculties ignore fairness in student enrollment, that tuition fees are not adequate or that they should be abolished (because education is something that should be accessible to all), that exists disparity of evaluation criteria of

[7] Modern business practice knows three basic concepts for employee organization: simple exchange seller-buyer, hierarchy and team work [3]. Until the 21st century we had a domination of hierarchy, where everyone had a certain position of a superior and/or subordinate. As opposed to that, the networks (in some cases production chains) have no centre/leader, everyone has certain autonomy and authority could be achieved by possessed permanently improved knowledge and skills [5].

[8] In favor to this comes the fact that in Serbia for years are achieved relatively low yields, not because farmers "*do not know how to produce*", but because they usually work in highly unstable and exhausting production conditions.

adopted knowledge by students, etc. So, in light of generality and populism are ignored essence, importance and mission which have to be carried by the act of pure education. Simply, there is some kind of animosity toward the universities for their devoted work on promotion of science and research, as on development of technologies that arise from these knowledge. In developing countries such as Serbia is unwillingly observed any help from abroad addressed to improvement of education, science and research.

It should be pointed out that higher education in each society is highly specialized and expensive activity. According to that, it should not be a concealed valve to state authorities to cover their inability to create new jobs, or to delay the time of confrontation with reality by misuse of education, how that can greatly impairs its quality. On the other hand, there is potential imbalance of generally scarce resources invested in state universities against the valuable services they provide. At the same time, it is much easier to calculate the costs of higher education[9] than its value. The value can be expressed by absolute gain in the wages of highly educated people, not in their relative difference, because no matter if education is valuable or not, the expected higher earnings (not the costs of education) primarily justify investment in it [6]. Based on these, relatively reliable information, the students, their parents, or public institutions and their employees can make allocation (investment) decisions.

During the time, at the global level, planning jobs (labor force) was not present reliability, so until now there is no economic model of planning that can solve mentioned problem in a longer-term[10]. Limitations of such models (projections) were proving in recent decades for many times through scientific researches [10]. Therefore, it is emphasized that the development in developing countries such as Serbia integrates at least three limitations: general capital scantiness; lack of long-term character of most of investments in higher education; and greater time-lag in public than in private behavior during the process of learning from previous experiences.

Capital from abroad (most often FDI and donations) is always under doubt, while relatively scarce domestic funds are usually spending irrationally (primarily on the maintenance of buildings, eventually on new equipment and minimally on investment in human capital). Hence, the total investments observed in relation to the GDP do not give a real picture, because already small financial resources for education and science also include investments in physical infrastructure (buildings). So, in 2009 from the national budget were allocated only about 4,5% of GDP for education and about 0,3% for science. On the other hand, even with meeting the recommended level of public investment in education from 6% of GDP (UNESCO), or 3% in science (according to EU request) can be asked a question of mentioned funds allocation (in which extent the funds for education and science are observed as investments in long-term sustainable development of the knowledge-based society, and in which part only as current expenditures).

Establishing appropriate teams (pool of researchers and university professors) in all segments of science and education, in agriculture too, can be a great developmental potential of Serbia. Also, long-term character of instrumentarium for monitoring and evaluation of scientific and applied research in agriculture should contribute to its modernization. Unfortunately, slowness in learning of authorized agencies that education policy needs to be constantly adjusted to changeable economic conditions has to be pointed out. Instead, it often happens that the authorities adjust economic conditions to its' own policy. Therefore, critics of higher education potentially underestimate the contribution of research to growth of agrarian economy (underestimating with that profession too). To this certainly contributes those employees (within the sphere of scientific-research activities) which for various motives put themselves at the service of mentioned slowdown policy. On the other hand, by using common sense and logic can not be bypassed the fact that each country, including Serbia, must develop and nurture its educational and research, in other words developmental capacity according to spirit of civilization progress.

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[9] Usually are not reconsidered expenditures of parents for their kids' education that are not negligible.

[10] The European Employment Strategy represents mechanism of law made to set up the employment policies of Member States in EU. Priorities and targets are agreed at EU level, but the national governments are completely responsible for formulating and implementing the required policies. On other hand, the National Action Plan for Employment is the main instrument of implementation of active employment policy in Serbia. It represents annually defined goals and priorities of employment policy and establishment of programs and measures which have to be realized and implemented, in order to achieve the set of planned goals and provide the sustainable incensement of employment [15].

According to international classification (ISCED), higher education includes higher (first degree of high education – college) and high (university) education. During the school year 2009/2010 education activity in Serbia was done in 59 colleges with 43.707 enrollees (11.674 graduated students), as well as in 130 faculties with 183.065 enrollees (31.871 graduated students). As indicator of success of higher education implementation is taken the share of population aged 30-34 years with completed higher education process within the total population aged 30-34 years. In compare to EU average (32,3%), as well as to some neighboring countries (Bulgaria 27,9%, Hungary 23,9%, Slovenia 31,6% and Croatia 20,5%), height of mentioned indicator in Serbia in 2010 (19,2%) can be considered as relatively low. Strivings of EU is to raise the value of presented indicator to 40% until 2020. According to conclusions of competent authorities, in future higher education in Serbia will be exposed to changes, both in segment of financing from the state budget and in adjustment of enrollment policy with labor market needs and national development priorities (according to available capacities of higher education institutions).

Currently, system of higher education in Serbia includes few accredited faculties that are active within agriculture, veterinary medicine and forestry: Faculty of Agriculture in Belgrade, Novi Sad and Zubin Potok, Agronomic Faculty - Čačak, Faculty for bio-farming - Sombor, Faculty of Veterinary Medicine - Belgrade and Faculty of Forestry - Belgrade. Among mentioned institutions only one is private [1]. Agriculture as a discipline is researched also in few high agricultural and food-technological schools. Besides formal education system, transfer of knowledge and human capital improvement in agriculture is provided by public scientific-research institutes, system of extension service, Ministry of Agriculture and some big companies professionally involved in agro complex[11], which organizes series of educational workshops, conferences, seminars, lectures, etc.

Among group of institutes active in some segment of agriculture and accredited by the Ministry of Education and Science next could be stressed: Institute of agricultural economics Belgrade; Institute of scientific appliance in agriculture Belgrade; PKB Agroekonomik Padinska Skela; Institute of field and vegetable crops Novi Sad; Maize research institute „Zemun polje“ Belgrade; Fruit research institute Čačak; Institute for animal husbandry Zemun; Institute for vegetables and crops Smederevska Palanka; Institute for plant protection and environment Belgrade; Institute of pesticides and environment protection Belgrade; Institute of veterinary of Serbia in Belgrade; Institute of land Belgrade; Institute of forage crops Kruševac; Institute for medicinal plants “Dr Josif Pancic” Belgrade; Institute of forestry Belgrade; Institute for meat technology and hygiene Belgrade; Institute for water resources „Jaroslav Cerni“ Belgrade; etc.

Generally, presence of traditionalism in agriculture brings to situation that many potentials and possibilities of science are used insufficiently, while the appliance of knowledge and innovations is on relatively low level. Principles of sustainable agricultural and rural development impose the need for greater willingness of local farmers to adjust their production to economic requirements of GAP, as well as to current EU agricultural legislation [14]. For decades national science has successfully parried on world market by creation of high-yielding sorts and hybrids of crops and fruits. Also, domestic breeders have created numerous high-productive species in livestock breeding production. Although there is no tight functional connection between scientific potentials of faculties and institutes and individual producers, cooperatives and enterprises in agro-complex, there are much more cases of establishment of good cooperation between scientific-research institutions and producers, when successfully are implemented and monitored technological transfers in agriculture. Some good examples are contemporary orchard of company Delta Agrar - Čelarevo (area of 100 ha under world recognized sorts of apple is covered by information system, frost protection, anti-hail network, drop-by-drop irrigation system, Global Gap standards, etc.), as well as modern greenhouse of concern Farmakom M.B. - Debrec (area of 4,2 ha under vegetables is heated by geothermal water of 53^0C, while production process, irrigation and microclimate maintaining is completely computerized). So, modern agricultural business needs to adapt to

[11] In months with low level of activities in agriculture (usually in winter) certain companies through workshops and presentations in rural areas pass to farmers, besides marketing messages, certain level of modern technologies applicability contained in their products and services.

changes on the global market in order to become more competitive. Efforts to increase productivity include knowledge and innovations on policy, institutional, program and household level [17].

Expectations and opportunities

Criticism to higher education comes also into direction that it does not meet expectations in terms of social needs. Elitism is underlined, or even that it causes an outflow of population from rural areas. On the other hand, many believe that the quality of education, not politics, is the biggest cause of unemployment among large number of graduates, as education and organized university research are obsolete in many parameters. Of course, regarding this topic opposite opinions can be said too, but real answer comes from a simple question - What do we want to achieve by education? Efforts to realize the expectations that will go beyond the level of possible, lead to distortions in resources allocation. Therefore, recognition of the realistically assessed boundaries of possible can be the basis for the achievement of positive results within the system of higher education, and consequently within the processes of research, transfer of knowledge, as well as in modernization and development of agricultural activities.

Higher education isn't without limitations, as well as isn't untouchable. It's limited by available resources (material and human), teaching staff quality, administrative and organizational structure of faculties and universities. Mentioned limitations are result of production abilities of the universities (higher education), limited by systemic and measurable values. Approach that leads to potential problems and gaps is pronounced by fact that society has to provide possibilities for human capital improvement. This is additionally potentiated by long-term practice from the socialist period that education (regardless the students quality) is the right, and in lesser extent obligation of the population. Mentioned generally implies the weakness of human nature that selfishly and ambitiously leads the fight for higher education diploma, but not to gain, keep and use the offered knowledge as a scarce (critical) resource. Accordingly, the real question may be reduced to different interpretation of political intervention, i.e. whether educational goals are under political system, or policy became a means of strengthening and redefining of educational goals.

Unfortunately, fundamental (inner science) critique of education policy is often not welcome, although it is considered normal in the developed countries, since it is really important for determination and efficient troubleshooting. In advanced world from higher education is expected to produce reformers (carriers of idea of improvement), and that faculties and universities have to be proactive conductors of this activity. In Serbia, expectations within this segment are also exaggerated, as the reforms can not instill new values in a short period, because they are mostly directed to form, and not to essence. Maybe is not the best parallel, but it is enough picturesque that in period 2000-2012 in Serbia are changed eight ministers of agriculture. In mentioned period is done almost the same number of strategies of agricultural development, which in practice have not brought many positive results, but more often they have created greater confusion. One can concluded that the expectations from reforms were substantially exceeded the ability of involved teams within the official department.

Basic deformations of education in Serbia

Usual estimate is that higher education systems in Serbia perform their function inadequately. Rating goes so far as to significantly differentiate public from private universities, giving priority to the first one (according to quality of teaching and primarily by profit orientation private are considered inappropriate)[12]. Parents are often aware that their children do not receive adequate quality of education, but on this point little can be done. On the other hand, students are primarily focused on obtaining of faculty diploma, giving to gained knowledge minor importance. Faculty marks for students' knowledge assessment are more and more unreliable, given that the average high school score which freshmen bring

[12] It is an open secret that owners of private universities (faculties) are primarily profit-oriented, so that quality of education and level of knowledge that students gain are in the background. In this regard, there is small number of faculties that care about their long-term strategy, as most are more concerned to operative, often significantly affecting the quality of teaching staff activities.

to faculty is little higher than what they are later able to demonstrate through teaching. This is another indicator of decreasing quality of teaching, as by rule during the fight for students they are received in system with different level of previously adopted knowledge[13].

Therefore, the price (value) of schooling does not have to be the main goal of the education system, what at persons oriented to knowledge provokes a desire to study outside the country, creating the phenomenon of *brain drain* that has disastrous consequences for society in developing countries (estimations are that besides aristocratic, more often in use are kakistocratic principles). Criticism addressed to mechanisms established to coordinate the basic elements and goals of education usually touch the system of financing of institutions of higher education. So the funding mechanism, according to number of enrolled students, can manage faculties to turn to quantity and not quality. Furthermore, deficiency of public control of used funds is pointed out too, what also accelerate the deformation processes. On the other hand, relatively scarce financing funds initiate a number of problems to higher education institutions. However, question is whether they, no matter how plenteous they are, will lead to improvement of institutions and employed staff quality.

Fact is that individual can not convey (physically sell) its educational capital to others. Personal fund of human capital is generally unique, and if beside that certain individual posses appropriate skills and if constantly improves and increases existing fund by further education during the lifetime, it can be exchanged for a certain sum of money on the labor market. By comparison of the production and consumable services of the human and physical capital can be concluded that they have many common features. They are in many segments of economic activities complementary, or even substitute each other. It should agree the fact that highly qualified labor is important for performing of working activities. For example, physical capital, expressed through agricultural mechanization reduces the number of needed workers, however their modernization requires more and more skilled labor force. Even more plastic example of their substitution is creation of first computer (ENIAC) at the beginning of last decade, whose enormously rapid development significantly substitute certain intellectual functions of a qualified personnel, but never completely.

As in all high education system main problems that have touched agronomy and agro-economic science are: system does not provide or provide minimum practical skills; educated young experts have limited possibilities to find a job; small number of scientific papers published in recognized international journals; small share of micro-agro economic research in total number of researches in agriculture, etc.

CONCLUSIONS

We are witnesses of negligence of role and importance of constantly increasing man capabilities, as relevant element of progress that is able to compensate and substitute decreasing physical capacities of the natural production factors. In this regard, it is particularly important (especially in developing countries) to make significant investments in creation and strengthening of human capital, how will be avoided a vicious circle of poverty. Investment in population quality (in increase of the level of their knowledge) largely determines future outlook of the national agriculture, or complete economy. Accordingly, agronomic and agro-economic science and profession in Serbia represent important carriers and promoters of quality agricultural development, what means that investment in education and research in agriculture can be definitely considered justified.

Economics of agriculture has its own specificities that are not only caused by dependence on natural conditions, but also from the fact that it occurred in a specific economic circumstances. As the most of agriculturalists live in poor rural areas, development of agro-economics requires good knowing of such an environment that is very different from environments of other economic activities. Therefore, knowing of the agro-economics in Serbian conditions means mastering the economics of poverty. Also, under the influence of widespread opinions and tradition, in national science, and especially in practice, the

[13] If the classes are set up by the best students, others will not be able to follow, therefore, any simplification of criteria and teaching will be the base of education quality (value) decrease.

importance of physical factors of production (before all land) is overestimated, while the human capital is underestimated. Land isn't key factor of poverty, but human capital is for sure. Figuratively speaking, as in infertile areas of Pešter plateau, as well as in fertile areas of Banat farmer is de facto poor.

Human capital in agriculture or at least its elite part is formed within institutions of higher education (agricultural faculties). Unfortunately, more and more often are criticism of higher education in Serbia, where mostly is criticized the form (not content), or the consequences (but not the causes). Without the focus on essence, significance and mission of education, is established a sort of animosity towards the universities, although they represent the bastions of science and research improvement, in other words technology transfer that arises from upgraded knowledge.

Also it has be pointed out relatively low level of financial resources that are invested in public universities, as well as the fact that it is much easier to calculate the costs of higher education than the value that it generates (value should be the decisive factor in the process of resources allocation). Regarding to this, the assessments are that planning of manpower in accordance with market needs during the time is proved to be very unreliable.

Although the competent bodies have significant authorizations, it is notable a certain dose of inertness in the adjustment process of official policy to dynamic and changeable economic conditions. Contrary to expectations, there are frequent attempts of economic conditions adjustment to their own policy what is in conflict with reality. Therefore, in criticism of higher education are usually make mistakes through underestimation of research contribution to agro economic growth (parallel, by this act agro economics as profession is underestimated too).

It can be concluded that higher education has its limits. Limitations are primarily in available physical and financial resources, teaching staff quality, organizational and administrative structure of universities and faculties. The fundamental criticism of higher education policy usually does not come to good response, what makes one think that the value of education is not the main goal of the education system. So, focusing on production and improvement of human capital can not surprise an increased presence of *brain drain* phenomenon, which significantly reduces developmental opportunities of Serbia. So far mentioned problem does not meet adequate long-term strategic solutions.

From the aspect of agriculture, establishment of competitive and innovative agro-sector can not be done without tight connection of public and private institution, as well as without good communication between government, systems of high education and science, agro-consultants, primary agricultural producers and processing industry. As current economic growth is dominantly based on technical-technological development and knowledge economy, that leads to conclusion that only with full application of achieved knowledge and its prompt transfer within the whole reproduction chain in agriculture could be created high-quality, safe and worldwide competitive food-products.

BIBLIOGRAPHY

[1] Cvijanović, D. (2009): System of education, scientific-research and consulting work in agriculture of Serbia, Thematic Proceedings from the 113th seminar of EAAE, December 2009, Belgrade, IAE Belgrade, Serbia, pp. 61-72.

[2] Izveštaj o razvoju Srbije 2010, Ministarstvo finansija Beograd, april 2011, Republika Srbija.

[3] Jeločnik, M., Ivanović, L., Bekić, B. (2007): Timski rad i hijerarhija, Zbornik radova, XII Savetovanje o biotehnologiji, Vol. 12(13), Agronomski fakultet, Čačak, pp. 573-583.

[4] Johnson, D. G. (1977): Food production potentials in Developing Countries: Will They be Realized?, Bureau of Economic Studies - Occasional Paper, No. 1, St. Paul, Minnesota, Macalester Collegge, USA.

[5] Komazec, G., Zivaljevic, A., Trifunovic, D. (2012): in Thematic proceedings: New challenges in changing labour markets, IES, Belgrade, pp. 259-276.

[6] Kothari, N. V. (1970): Disparities in relative earnings among different countries, Economic Journal, No. 80, pp. 605-615.

[7] Njegovan, Z. (1989): Postindustrijsko doba i produktivnost zemljoradničkih gazdinstava, in Proceedings: Kako povećati robnu proizvodnju i produktivnost na individualnim gazdinstvima u poljoprivredi Jugoslavije, Društvo agrarnih ekonomista Jugoslavije, Beograd, pp. 223.

[8] Njegovan, Z. (1992): Makroekonomski aspekti tehnološkog razvoja poljoprivrede, monografija, Institut za ekonomiku poljoprivrede, Beograd.

[9] Opštine i regioni u Republici Srbiji 2011, decembar 2011, Republički zavod za statistiku, Beograd, Republika Srbija

[10] Psacharopoulos, G. (1978): Educational Planning: Past and Present, Prospects 8, No. 2.
[11] Schultz, W. T. (1964): Transforming traditional agriculture, Zale University Press, USA.
[12] Schultz, W. T. (1968): Economic growth and agriculture, McGrow-Hill Book Company, USA.
[13] Srbija 2020: Koncept razvoja Republike Srbije do 2020. godine - nacrt za javnu raspravu**,** www.vojvodinahouse.rs/wp-content/.../srbija_2020_final_18122010.doc *, pristupano jula 2012.*
[14] Subić, J., Jeločnik, M. (2012): Education and professional specialization of citizens' associations in rural areas, in Thematic proceedings: New challenges in changing labour markets, IES, Belgrade, pp. 295-310.
[15] Vucenov, S., Andrejevic, A., Duran, J. (2012): in thematic proceedings: New challenges in changing labour markets, IES, Belgrade, pp. 387-401.
[16] Zubovic, J., Jelocnik, M., Subic, J. (2011): Analiza HR indeksa u finansijskom sektoru Srbije, Industrija, Vol. XXXIX, br. 1/2011, Ekonomski Institut Beograd, pp. 227-242.
[17] Zubović, J., Domazet, I., Stošić, I. (2009): Development of human capitals as a tool for improving productivity of agricultural sector-Case of Serbia, in Thematic proceedings: The role of knowledge, innovation and human capital in multifunctional agriculture and teritorial rural development, IAE, Belgrade, pp.451-457.
[18] http://www.cep.edu.rs/ekonomija-znanja , accesed July 2012.