CHAPTER 24.

POLICY OF SMALL FARMS SUBSIDIZING IN THE FUNCTION OF ECONOMIC AND SOCIAL DEVELOPMENT OF VILLAGES IN SERBIA

Božo Drašković¹

Zoran Rajković²

Duško Bodroža³

Abstract

Before the subsequent process of economic transition from a socialist to a market economy, over 80% of arable agricultural land in Serbia has been in private hands. State and social ownership, before privatization, existed in large agricultural complexes. The right of private ownership of agricultural land was limited to 10 ha in the plains and 20 ha in mountainous areas.

The economic reforms over the past 10 years have led to a process of enlarging properties. Small and medium-sized farms and 10 ha of land present the factor that absorbs a part of rising unemployment caused by privatization and restructuring of social and state-owned enterprises in Serbia. The state economic policy is focused on the subventions of small farms through incentives for the purchase of equipment, seeds, energy, and protection of resources. The increase of economic efficiency of small farms is an important factor of development. The maintaining the level of economic survival of small farms has an important demographic and social function. The demographic is reflected in the sustainable density of population in certain areas of the country. The social function is important from the standpoint of the struggle against poverty and unemployment.

Key words: farms, incentives, economic efficiency, social efficiency, unemployment, the structure of agricultural production in small farms

¹ Božo Drašković, Institute of Economic Sciences Belgrade, Serbia

² Zoran Rajković, Institute of Economic Sciences Belgrade, Serbia

³ Duško Bodroža, Institute of Economic Sciences Belgrade, Serbia

INTRODUCTION

The structure of agricultural land ownership in the former Yugoslavia and Serbia, in the second half of twentieth century, and after the Second World War followed by the agrarian reform, was conditioned on the ideological and political of the ruling social government. In accordance with the ideology of social and economic equity, resources in agriculture were divided between the state and private entities. From the new formed agro-industrial complex, the state possessed about 18%, and private household farms had about 82% of all arable land. Thus, although during this period Serbia was a country of communism, a resource of agricultural land was not nationalized. The legislation from this period limited the concentration of agricultural land property ownership, so the farm household could hold up to 10 hectares of land in plan areas, and 20 of hilly and mountainous areas of the country. The private sector in agriculture was limited to primary production and processing for their needs, while state-owned agricultural industry sector organized after the fifties of the twentieth century in the form of self-management enterprises, kept buying the market surplus. The prices of key primary products were in regime of price control, that is, the state prescribed limited purchase prices of wheat and maize. Regardless the price control regime, in function was also the parallel market of agricultural products where prices were formed based on supply and demand principles. The economic state's incentives before the period of reforms that begun in Serbia in 1990, were primarily focused on large social agricultural enterprises, while the primary production private sector benefited from the depressed energy prices and subsides for agricultural machinery purchase. Between the end of the twentieth century and the firs decade of this one, there was a considerable changes of economic policy, and consequently that created the changes of the economic policy agricultural sector. The agricultural primary and processing industry were subjected to the process of privatization, and the way of pricing was predominantly left to market regulation, particularly in the period after the year 2000. Margins on the agricultural land ownership have been abolished. Due to the implementation and development of agricultural practices, the physical volume of agricultural production has increased manifold in the last 50 years.

AVAILABLE NATURAL CAPACITIES AND PRODUCTIVITY TRENDS

Serbia is geographically placed in the climatic area that provides favorable natural conditions for production of essential crops, corn, wheat, barley, sunflower, sugar beet. There are good prerequisites for fruit growing and livestock development.

Serbia has more than 5 million hectares of agricultural land. The ownership organizational structure manifests that family farms own 82% of agricultural land, and only 18%, or 900 hectares possess companies and cooperatives. Considering the fact that the agricultural enterprises are privatized, one part of the agricultural lend belongs to these companies, and the other is state-owned. State-owned land is leased to enterprises or businesses.

Table 1: Ownership structure of agricultural land in Serbia

	ha	%
Total	5.097	100%
Agricultural enterprises and cooperatives	900	18%
Family households	4.197	82%

Data source: Statistical Yearbook of Serbia 2009

The agricultural population in Serbia in 1953 counted 2.4 million people, or 70.6% of total population. According to the last census in 2002, the population engaged in agriculture amounted 582 thousand or 22% of the total number⁴.

The production of key crops, wheat, and corn has increased manifold, measured by the production growth per hectare in the period from 1947 to 2005. From 1847 to 1947, the average wheat production per hectare was about 1 ton. The production per hectare has been increasing the way that after the year 1977, the outcome per hectare was more than 3 tons, and now the range is 3 to 4 tons. Maize yield per hectare in 1847 was approximately 1 ton, in 1947 it was around 1.5 tons, in 1977, about 4 tons, reaching in 2005 the average 5 tons per hectare. Every year the average corn inoculation is on 1.2 million hectares, and total realized production is in the range 7 to 7 million tons. The average annual area under wheat comprises 500 to 600 thousand hectares, and the realized production is in the range of 1.8 to 2 million tons.

Of total fruit production, plum takes predominant place, in 2006 the production was 556 thousand tons, or 13.3 kg per tree. The apple takes the second place in production, amounting 240 thousand tons, or 16.4 kg per tree.

In animal husbandry in Serbia, based on data from 2006, counting the number of cattle per head, the most frequent is sheep with 1.5 million, then cow with about 622 thousand animals, and at the end are horses with only 20 thousand heads.

_

⁴ Two centuries of Serbian development, Statistical review, Belgrade 2008, p 75.

Number of agricultural holdings in Serbia, at the end of the nineteenth century, and the list formed in 1897, amounted to 242.684. The household was very fragmented. About 99.4% households possessed up to 10 hectares of land, and only 0.06% held more than 10 hectares.

The structure of farm households at the beginning of the twenty first century has changes very little from the noticed more than one century ago.

Table 2:	Ownership a	gricultura	l households s	structure ii	n Serbia, year	2009

Size of the household	Family households	% share in total number	Households without individual farmers	% share in total number	Households with individual farmers	% share in total number
To 0,5 ha	111.356	14%	103.439	13%	7.917	1%
0,5 to 2 ha	248.901	32%	202.531	26%	46.370	6%
2 to 4 ha	182.782	23%	115.956	15%	66.826	9%
4 to 6 ha	103.626	13%	51.378	7%	52.248	7%
6 to 10 ha	89.094	11%	35.131	5%	53.963	7%
10 to 20 ha	36.772	5%	11.993	2%	24.779	3%
More than 20 ha	6.300	1%	1.736	0%	4.564	1%
Total	778.831	100%	522.164	67%	256.667	33%

Data source: Statistical Yearbook of Serbia 2009

Agricultural family farms, possessing the land of 0.5 to 2 ha make up 46% of all farms. Farms having the land from 2 to 10 hectares per farm comprises 48% of total holdings. Thus, about 94% of households dispose of land to 10 hectares.

According data from 2001, the farmers equipped with the basic machinery shows that in Serbia were 404 thousand tractors and over 25 thousand combines, 35 thousand corn pickers and about 4.5 thousand motor threshing machines.

Agricultural production, hunting, forestry and food industry in 2001 in Serbia, participated in the creation of gross domestic product with 32%, and in the year 2008 with 23.7%. Although agricultural production had an average annual growth of 2.3% in the period 2001-2008, the share of agriculture in GDP formation noticed a decrease in the same time.

From 1960 to 2007, the analysis of historical data referring to industrial production in Serbia pointed out two clearly identified periods:

The first period was from 1960 to 1989, and it can be defined as the period of the rise of industrialization. Measured by base index of industrial production of 100 in 1950, the index of industrial production in pre-transitional year- 1989 was approximately 1600 index points.

The second period from 1990 to 2007 was the period of the great decline and fluctuations in industrial production in the range from below 600-650 index points in 1950. So, in relation to pre-transitional period in 1989, the industrial production declined for about 1,000 index points measured base 100 index points from 1950.

After 2001, the decline of industrial production participation in creation of gross domestic product was also evident.

The economic transition in Serbia caused the de-industrialization. From 1989 to 2001, it was noticed the fall of industrial share in BDP creation, from 44.8 in 1988 to 29% in 2001. This fall in BDP creation share was mainly a result of the disintegration of the former Yugoslav market, the introduction of economic sanctions against FRY and the war events that followed the disintegration of Yugoslavia since 1991. After 2000, instead of stopping the negative trend, the further deterioration of the Serbian industry came on, and its contribution to GDP from 29% in 2001 fell to 20.2 in 2007, manifesting the trend of further decline in the years to come, and finally in 2009 the share of industry was about 17%.⁵.

STATE ECONOMIC POLICY AND SUBSIDIES

In the period of the transition process transformation to a market economy in Serbia, there were changes in economic policy in agriculture. It should be noted here that the former Yugoslavia and Serbia as one of the successor states did not have a classic centrally planned socialist economic system. The market was especially expressed in the sector of agricultural production, and property rights over agricultural land were never abrogated. The period of transition and economic sanctions from 1992 to 2000 caused the economic policy in agriculture, which had two goals and aspects. One goal was to provide (in conditions of economic sanctions and isolation of the country) a sufficient quantity of food products at low prices. The second objective was to provide a sufficient quantity of necessary inputs for agricultural production at subsidized prices. Subsidy encompassed petroleum products for agricultural production, seed goods, and mineral fertilizers, as well as protective equipment for agriculture. In the conditions of economic sanctions, the agricultural production has suffered large

⁵ The presented data based on Statistical Reviews of Yugoslavia and Serbia, years 1990, 2004, and 2009.

losses, but in fact, (*de facto*) it accomplished the objectives of the economic policy, and that was to provide sufficient and diversified production for the population in Serbia.

After the economic sanctions, imposed by the international community towards Serbia, starting from 2000, there was a price liberalization of agricultural products, partial liberalization of foreign trade, and a series of incentive measures and subsidies for the development of primary agricultural production and increasing of processing capacity.

For livestock development from budget, the purchase of high-quality breeds of cows for EUR per head, which is just under 8% of the market value of milk cows, is subsidized. To raise the herds of sheep, the subsidy per head is 30 EUR, and for pigs - sows € 30. The total amount of planned budget subsidy for the development of livestock production in Serbia in 2010 amounted about 7 million euros.

The financial budget incentives for the development of fruit growing include the planting of perennial woody plants / plums, apples, pears, peaches... / from 0.6 EUR to 12 EUR per seedling and, to raise plantations of berries from 1,250 EUR to 6,000 EUR per hectare planted area.

In order to take over the part of crop production costs, the government subsidies are implemented for the consumption of diesel fuel, fertilizers, and seeds. The model of these subsidies is based on the fact that it includes only individuals who are holders of registered farms, and who cultivate the land in agricultural production from 0.5 to 100 acres. The subsidies are applied per hectare of planted agricultural land- for the use of mineral fertilizers 50 euros per hectare, for oil products 30 euros per hectare, and for seeds 40 euros per hectare. The total subsidies actually amount 120 euros per hectare.

From 2006 to 2010 the subsidies policy for the raw cow's milk production was aimed at reducing premiums for milk from about 6 euro cents per liter in 2006 to 1.5 euro cents in 2009. The reducing premiums for milk production together with the decline of the purchase price, led to shortages of milk in Serbia in 2010.

Thestate subsidies in the field of agricultural production, also exist in the sector for providing favorable loans for farmers for purchasing machinery and

equipment for the storage of animal food, equipment for milking and milk storage, construction of facilities for silage and barn building. The amount of individual loan funds is limited from 20 to 70 thousand USD per user. Grant public funds for encouraging the procurement of agricultural machinery and irrigation equipment, given to farmers and individuals, are limited to a particular amount from 2.500 to 5.000 euros.

The economic policy incentives measures in agriculture apply the mechanisms of subsidies loans for agricultural production. The short-term loans are granted in the limit of 500 EUR to 9.000 EUR, with an interest rate of 5% to be paid by the borrower, and the difference to the bank interest rate is taken over and paid by the state.

These loans are mainly used for purchasing raw materials for agricultural production. The incentive economic policy also covers the approving of long-term loans, limited to a range of 5 thousand to 300 thousands Euros per beneficiary. The state, through the Ministry of Agriculture provide 40% of loan funds (with no interest rates), and commercial banks provide 60% of the loan funds with interest of 5% and repayment of loans from 5 to 8 years with a grace period of 1 to 3 years. In 2008, the total state subsidies for agriculture in Serbia amounted about 324 million Euros and in 2009 dropped, and amounted ⁶ approximately 186 million euros.

The special problem in Serbia was manifested in the manufacturing and processing of raw cow's milk. For the first time in last several decades, the year 2010 noticed a milk shortage in the market. This phenomenon is interesting from the point of the misguided economic policies created in 2005/2009; both in the sector of permitted concentration of manufacturing capacities in the hands of large processors, and in the sector of drastic subsidies reduction for the production of raw cow's milk.

The privatization led to competition weakening, because due to incorrectly implemented privatization, the milk factories in major Serbian cities like Kragujevac, Nis, Uzice, Pancevo fell in crisis. These negative trends led to the strengthening of market position of dairies owned by foreign investors in Salford investment fund.

Another aspect of the poor economic policy in this sector lies in ignoring the structure of raw material base production in Serbia. Effectively, it was ignored the

_

⁶ Calculated on the basis of data of the Bulletin of Public Finance, Ministry of Finance, Belgrade in July 2010

facts that in the total mass of raw milk in Serbia, the dominant were small and fragmented farms, i.e., small family households. The subsidizing policy kept changing, and in the period from 2005 to 2009, permanently was decreasing the state premium amount paid per liter of produced fresh cow's milk.

From the year 2005 and ending to 2008 the premiums for fresh milk delivered for milk processing industry have declined from 4.5 dinars (about $5.5 \in$ cents) for the production in hilly and mountainous area, to 2.40 dinars, for production in plain areas, from 3.8 to 1.5 dinars (1.6 \in cents) per liter.

The average annual purchase price of raw milk paid to farmers from 2007 to 2009 fell from € cents 44.17 in 2007 to only 23.85 in 2009.

Due to the low purchase price of row cow's milk in the period 2007-2009, the number of milking cows decreased from 648 thousand to 585 thousand, that is for about 63 thousand in only two years.⁷

SIZE OF AGRICULTURAL LANDS AND SUBSIDIES FOR AGRICULTURE IN EU

The average agricultural land within the European Union is very different. The farmers own from the maximum average of 53.9 hectares in Denmark to the minimum of 2.3 hectares in Romania. It is evident that in the more developed EU countries such as Germany and France, the concentration of agricultural lend per user is higher then in the recently associated and less developed EU countries such as Romania and Bulgaria, where the average size of individual agricultural land is 2.3, or 3.9 hectares. Another important feature is that SEE countries notice the fragmentation of individual agricultural land, which in Greece is around 4.7 hectares, while in Serbia amount 6.5 hectares. Fragmented individual lands in these countries are historically conditioned by the fact that these areas were under Ottoman Empire, by mid-nineteen century. After liberation from Turkish rule, the agricultural land was distributed evenly among population, while a concentration of properties has been carrying out very slowly.

The following table represent the data on numbers of agricultural land owners, exploiting agricultural land and the average size of individual agricultural land in several EU countries and Serbia.

_

⁷ B.Drašković, Z. Rajković, Paper published in Ekonomika poljoprivrede, 2010

Table 3: The size of individual agricultural land in EU countries and Serbia

State	Population (1.000) 2008	Number of agricultural land 2003 (1.000)	Used agricultural area 2005 (1.000 ha)	Area per agricultural land (ha)
Greece	11.213	824	3.905	4,7
Netherlands	16.405	85	1.958	23,0
Denmark	5.472	48	2.588	53,9
Germany	82.217	412	16.975	41,2
Austria	8.318	173	2.690	15,5
France	63.983	614	27.490	44,8
Hungary	10.045	773	4.045	5,2
Bulgaria	7.640	665	2.588	3,9
Romania	21.528	4.484	10.337	2,3
Serbia	7.365	787	5.097	6,5
Average area		8.865	77.673	8,8

Source: Eurostat, 2010

Agricultural statistics: Main result - 2006-2007

In Serbia, as well as in the new EU members Bulgaria, Hungary, and Romania in particular, the property is very fragmented. These three EU members record the size of property even below the average in Serbia. Similar property size structure has one of the old EU members, Greece. It is obvious that in the listed countries, including Serbia, the property fragmentation is a result of the way of land inheritance, which has led to such a considerable segmentation. At the same time the sale of agricultural land is of low intensity, consequently, there is no enlargement of the properties, while the individual owners, of which only a small number live exclusively on income derived from agriculture, have a little interest to enlarge the land property. The data available for Serbia show that only 257 thousand properties from the 787 thousand registered, numbered one or more persons whose sole occupation is agriculture. Unlike the five listed countries, in the other analyzed countries, the average property is much higher, ranging from 15 hectares in Austria up to 53.9 in Denmark.

Analyzing the data on subsidies in agriculture for the same group of countries, it was obtained the results given in the table below:

Table 4: Except the subsidies in agriculture (Data for 2009.)

State	Agricultural budget (mil. €)	Subsidies per ha UAA	
Greece	3.047	852	
Netherlands	1.151	505	
Denmark	1.106	434	
Germany	6.904	388	
Austria	1.327	375	
France	9.867	338	
Hungary	1.256	116	
Bulgaria	663	82	
Romania	2.098	76	
Serbia	186	38	

Source: Eurostat, 2010

Ratko Karolić: Poljoprivredne subvencije u EU,

Poljoprivreda info, 2010

The total agricultural budget in EU for 2009 amounted \in 56.7 billion. Serbian agricultural budget for the same year was only \in 186 million. The presented data indicate that the extent of subsidy per hectare of agricultural land in the analyzed EU countries are very different, and varies in a wide range of 76 \in in Romania, up to \in 852 per hectare in Greece. The volume of subsidies in Serbia is only half of the minimum recorded in the EU, in Romania. Concerning the fact that funds for subsidies from the EU budget are retreated in proportion to the share each member has in the budget formation, it could be expected that the Serbian agriculture, after joining the EU (though at this point, it is very distant and uncertain future), would be in a very difficult situation, if the EU policy of agriculture subsidizing remains as it is now.

When the total budget for incentives in the agricultural industry is divided by the total agricultural area in hectares, the obtained results are presented above. Concerning that Serbia has a selective approach to subsidies pay, and that it applies only to individual producers or registered agricultural properties (not to agricultural enterprises and not to registered, yet existing farms) the results are different subsidies values per hectare of agricultural land. When the analysis considered only data on the number of households receiving subsidies, and the land on their disposition, the obtained results are around € 120 per hectare. However, the more realistic is to regard the total arable land, regardless the fact of

their registration as agricultural producers, and that areas compare with the allocated budged incentive funds, then it is only \in 38 per hectare.

The influence effects of subsidies amount for agricultural production can be reviewed from several aspects. The first one is related to productivity. Assuming that the soil natural fertility per area unit is identical among the analyzed countries, it was considered the comparative relationship in maize production between France and Serbia. It is supposed that without the application of scientific farming methods, the corn yield per hectare would be to an average of 2 tons. Furthermore, the other suppositions would be the application of agro-technical practices in production and in land preparation, use of identical amounts of fertilizer per hectare, land protection, and identical seeds. Thus, the total investment cost in maize production per hectare, including cultivation, fertilizer, pesticides, and seed and harvesting costs, should be around € 300. Further, the supposition is that the yield per hectare of maize in two countries is identical, 5 tons per hectare.

If the stock market value per kilogram of corn is $10 \in$ cents, then one ton of corn provide to the farmer the revenue of about $100 \in$, while the total production income per hectare would be $500 \in$. After deducting the production costs, the farmer's net income would be around $200 \in$, excluding other taxes.

Now, it could be introduced into the analysis the financial aspects of budget subsidies for maize production per hectare. In France, the subsidies are $338 \in$, and in Serbia $38 \in$ per hectare. The subsidies cover all supposed material production costs to a French maize producer. Subsidies to corn producers in Serbia cover only 12.66%. Farmer's profit per hectare in France is more than \in 500. Because in Serbia, subsidies cover only 12.5% and due to the lack of necessary investment funds, the farmer must take the bank's credits, his future income is burdened by the financing costs. Accordingly, the total farmer's income in Serbia is less than \in 200 per hectare. Here it should be noted that in calculation of total expenditure are not included the costs of farmers themselves.

Supposing that in our example, the average French farmer all his average 44.8 hectares use for corn production, and that he sell corn with no investments in reproduction, such as cattle fattening, then the total profit, excluding labor costs, would amount the hectare production and hectare income, to an annual revenue of about \in 22,400. Applying the same methods in Serbia, the farmer's annual income out of 6.5 hectares multiplied by \in 200 results \in 1300, or about 17 times less in relation to the French farmer.

The presented model of comparative economic efficiency analysis in different countries indicates the logical conclusion that the more favorable position have farmers in countries where the production subsidies are greater. Competitiveness in agricultural production within the countries with lower subsidies is lower. The data presented in above given table lead to conclusion that in the countries located within the EU, are present great differences in agricultural production subsidies per hectare. In that group of countries with low level of subsidies, are included Hungary, Bulgaria, and Romania, where subsidies do not cover the minimum expenses necessary for the production. At the same time the developed EU countries have a subsidies range from a minimum of $\mathfrak E$ 338 per hectare in France, up to a maximum of $\mathfrak E$ 852 in Greece.

From presented model of comparative analysis of the economic efficiency of agricultural producers in different countries, we can conclude that the farmers in countries where they receive higher subsidies for production , have a more favorable position than in countries where the subsidies are lower. The competitiveness in agricultural production in countries with lower subsidies is low.

From the data presented in the above table it can be concluded that in the countries that are located within the EU there are big differences in the subsidies of agricultural production per hectare. The countries with low levels of subsidies are: Hungary, Bulgaria and Romania, where subsidies do not cover the minimum expenses necessary for the production of maize per hectare. At the same time developed countries within the EU have a range of subsidies from a minimum of \in 338 per hectare in France to a maximum of \in 852 per hectare in Greece.

The high subsidies policy of certain economic areas, such as agriculture within the EU, affect the poor competitiveness of countries that are located within the community, and especially the countries outside the community whose economy depends on imports and exports to EU countries.

CONCLUSION

The farm property in Serbia is fragmented and its size is determined by both historical, geographical factors and the past development , and the inheritance mode , along with the property division. The larger farm complexes of 2 to 5 and more thousands of acres exist in the province of Vojvodina and they are owned by private companies.

The significant tenure consolidation in Central Serbia and its enlargement is limited by economic conditions and cultural characteristics of the population. The economic incentives for agricultural production in Serbia are different, but de

facto insufficient The economic incentives and subsidies and the lack of long-term stable agricultural policy lead to the creation of productive cycles of overproduction of agricultural products with falling prices, which then replace the cycle of production decline in some segments of primary agricultural production, leading to shortages and rising market prices. The system of subsidies in agricultural production in the EU shows the valuable dispersion of incentives from the minimum amount in less developed countries and the new country members to very high in developed countries within the European Union.

The differences in the level of subsidies for agricultural production per hectare between the lowest and highest in the EU amount to 1: 11.21. The ratio between the highest and lowest paid subsidies in the EU countries, and those that are paid out in Serbia is up 22.42: 1, that is, the lowest range of 2:1 as the ratio of subsidies in Romania in relation to subsidies paid in the Serbia. The average size of agricultural holdings is bigger in more developed EU countries, while the concentration of agricultural land in less developed countries is lower, that is, the average agricultural holding is smaller.

References

- [1] Bulletin of Public Finance, Ministry of Finance of Serbia, July 2010
- [2] Post Crisis Model of Economic Growth & Development of Serbia 2011-2020, FREN, Belgrade 2010-1020 www.fren.org.rs
- [3] Statistical Yearbook, Statistical office of the Republic of Serbia, 2009
- [4] Two centuries of Serbian development statistical review, RSZ, Belgrade, 2008
- [5] Agricultural Statistics: Main Result 2006-2007, Eurostat, 2010
- [6] Ratko Karolić: Agricultural Subventions in EU (Poljoprivredne subvencije u EU), Agriculture (Poljoprivreda) info, 2010
- [7] Božo Drašković, Zoran Rajković, « Monopoly, goverment and milk storage in Serbia, Economic of Agriculture
- [8] www.stat.gov.rs
- [9] www.nbs.rs