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Financing of family farms in Serbia and its influence on business results

Abstract: Family farms have the most important role in agricultural production of Republic of Serbia. However, family farms are in very bad economic position and usually make low profits. That is why family farms have problems with financing of current assets as well as fixed assets. Because family farms in Serbia are not able to provide enough money for investments they have to be financed mostly by loans. Nowadays, there are two possibilities for financing of fixed assets and current assets. Farmers may apply for loans provided by Serbian government or take a loan from commercial banks. The goal of this paper is analysis of different possibilities for financing of agricultural production. Different sources of financing of current assets and fixed assets cause changes in interest costs and profit of family farms. Different terms of financing for family farms in Serbia are shown and compared in the paper. As an example, influence of interest costs on profit made in dairy production is analyzed. On the basis of these results appropriate measures of agrarian policy as well as transformations in financial system in Serbia are suggested.

Keywords: interest, costs, profit, family farms

Introduction

Agricultural production in Serbia has permanently been in bad economic position, because development of industry traditionally has been more important for Serbian government than development of agriculture. During last 15 years significant changes in economic system and agricultural production of Republic of Serbia have occurred. Big agricultural enterprises that had been very developed were destroyed due to unfavorable social and political changes and privatization process. Thus, family farms are nowadays the most important for agricultural production of Republic of Serbia. They manage approximately 90% of land,

agricultural mechanization and livestock. Majority of labor force in agriculture is engaged at family farms, as well. However, family farms have many problems in their business operations. Due to low prices of agricultural products and permanent increase of prices of raw material, which is used in agricultural production, family farms continually achieve low profits. In production of some commodities family farms even suffer losses.

Therefore, one of the biggest problems for Serbian family farms is providing of financial means for purchase of fixed and current assets. SWOT analysis that was performed by Vlahovic et al. (2006) showed that one of the biggest weaknesses of Serbian economy was chronic lack of capital, i.e. financial means for agricultural production and processing industry. Insufficiency of financial means might be the most important cause of all other problems of agricultural producers.

Because of lack of money for investments family farms are not capable to increase production capacities (to buy land, to construct buildings, to raise orchards and vineyards, to buy irrigation systems). Family farms are not able to purchase modern technical means and introduce modern production technology, as well. Because of lack of money usage of fertilizers and plant protection means is unsatisfactory, too. Poor equipped by fixed assets follow to low productivity and high production costs per unit of agricultural products. That is why agricultural products from Serbia are not competitive at the international market and why family farms achieve low profits. Lack of convenient loans is reason why many possibilities for development of Serbian agriculture are not exploited.

Such situation is typical not only for Serbia but also for other countries that are in process of transition. According to Vasiljevic and Sevarlic (2005) analyses of experiences of transitional countries shows the same problem. That is lack of capital from domestic sources for realization of transition goals and necessary investments. This factor presents basic disturbance for faster economy growth and development, especially for sector of agricultural production and processing industry. In Serbian agriculture is very hard situation in sector of primary agricultural production. Yet, processing enterprises could a little bit easier provide sources for current assets and investments in development projects.

There are different appraisals on height of investments necessary for development of Serbian agriculture. Parausic and Cvijanovic (2006) estimate that approximately 500,000,000 EUR is necessary to invest up to 2010 only to purchase modern tractors. Popovic and Lukic (2005) emphasize that needs of private sector for long term loans are estimated on 5 – 10,000,000,000 EUR. These authors consider that needs for short term loans are between 500,000,000 and 1,000,000,000 EUR. All authors share an opinion that demand for loans might additionally increase in following years.

Current ways of financing of agriculture

In order to finance fixed and current assets family farms can take a loan from commercial banks or apply for a loan provided by state government (Ministry of Agriculture). The government provides loans for family farms through a Program of Measures for Stimulation of Agricultural Production Development. That program started because of intention of republic government to solve the problem of financing of agricultural production. Ministry of Agriculture has changed its long-term agrarian policy. Ministry wants to stimulate investments at small family farms and not to support farms by different kinds of subsidies, anymore. The idea of whole project is to increase competitiveness of family farms at long term level by investing in appropriate fixed and current assets.

Terms of long term financing provided through this program are very convenient for agricultural producers and processors, as well. During last three years terms of financing have not changed significantly. In 2004 for financing of agriculture 3,767,500,000 dinars were assigned. Interest rate for short-term loans was 5.5% per year. Interest rate for long-term loans was 3% per year and pay-back period was 5 years. There were three models of financing of agricultural producers i.e. three possibilities how farmers can apply for loans:

1. Model of short term financing of family farms through commercial banks.
2. Model of long term financing of family farms and agribusiness enterprises through commercial banks.
3. Model of long term financing of family farms and agribusiness enterprises through Found for Development of Republic of Serbia.

Short-term loans were approved for purchase of seed, fertilizers and plant protection means. Government has given short-term loans according to following principles:

1. If agricultural producer have at his disposal up to one hectare of land, he could get loan up to 10,000 dinars.
2. If agricultural producer have at his disposal between one and five hectares of land, he could get loan up to 40,000 dinars.
3. If agricultural producer have at his disposal more than five hectares of land, he could get loan up to 80,000 dinars.

Long-term loans were approved not only for family farms but also for agricultural enterprises for following purposes:

1. Construction of irrigation systems as well as purchase of irrigation equipment.
2. Acquisition of agricultural mechanization.
3. Acquisition of vineyards and orchards.

4. Construction of glasshouses.

5. Livestock production (livestock, buildings, equipment)

Ministry of Agriculture planed to assign approximately equal amount of money for short term and long term loans in 2004. Some resources were also provided for regular work of the ministry (Table 1). It is important to accent that all short-term loans were assigned to family farms, because it is much easier for agribusiness enterprises to get short-term loan from commercial banks. But, long-term loans were provided mostly for agricultural enterprises (65%). Only 35% of long term loans were assigned to family farms (Table 2). It is obvious that not enough resources were devoted to family farms, because family farms are the most important part of Serbian agriculture.

Table 1. Usage of resources for Program of Measures for Stimulation of Agricultural Production Development in 2004

Purpose	Amount (dinars)	Share in total funds (%)
Short term loans	1,727,500,000	45.85
Long term loans	2,000,000,000	53.08
Resources for Ministry of Agriculture	40,000,000	1.07
Total funds	3,767,500,000	100.00

Source: www.minpolj.sr.gov.yu

For agricultural loans in 2005 government provided 3,500,000,000 dinars from Program of Measures for Stimulation of Agricultural Production Development. So, in this year loan fund decreased for 225.500.000 dinars comparing to 2004 (from 1,727,500,000 to 1,460,000,000 dinars) but this change reflected only short-term loans. Interest rate for short-term loans also decreased from 5.5% to 5% per year. There were no changes in 2005 in sources for long-term loans (Table 3). Besides, the ministry did not use any rules how to divide resources for long term loans between family farms and agricultural enterprises. Regarding long-term loans Ministry of Agriculture decided that the smallest amount of loan that agricultural producers can obtain is 5,000 EUR and the biggest amount 200,000 EUR. In addition, in this year model of financing through Found for Development of Republic of Serbia was not used. Therefore, agricultural producers could apply for governmental loans only through commercial banks.

Table 2. Usage of long-term loans in 2004

Usage of long term loans	Amount (dinars)	Share in long term loans (%)
Loans for family farms	700,000,000	35.00
Loans for agricultural enterprises	1,300,000,000	65.00
Total long term loans	2,000,000,000	100.00

Source: www.minpolj.sr.gov.yu

In 2006 there were some changes regarding terms of financing and assigned amount for agricultural loans. Resources for agricultural loans remained at the same level of 3,500,000,000 but amount assigned for short-term loans decreased again for 60,000,000 dinars. That amount was used to cover additional costs of Ministry of Agriculture (Table 4). In addition, interest rates for short-term loans increased from 5% in 2005 to 6% in 2006. Besides, Ministry of Agriculture announced some more changes regarding amount of short-term loans per hectare:

1. If agricultural producer have at his disposal up to one hectare of lend, he could get loan up to 12,000 dinars.
2. If agricultural producer have at his disposal between one and five hectares of lend, he could get loan up to 60,000 dinars.
3. If agricultural producer have at his disposal more than five hectares of lend, he could get loan up to 240,000 dinars.

Table 3. Usage of resources for Program of Measures for Stimulation of Agricultural Production Development in 2005

Purpose	Amount (dinars)	Share in total funds (%)
Short term loans	1,460,000,000.00	41.71
Long term loans	2,000,000,000.00	57.14
Resources for Ministry of Agriculture	40,000,000.00	1.15
Total funds	3,500,000,000.00	100.00

Source: www.minpolj.sr.gov.yu

It is obvious that amount assigned for short-term loans was lower each year, and that decrease of funds influenced only family farms, not agricultural enterprises. In addition, interest rate for short-term loans was the highest in 2006. In the same year it was possible to get higher amount of loan on the basis of lend that one has in his disposal. Therefore, total number of agricultural producers, which could obtain short-term loans, decreased in 2006. In 2007 nothing has changed regarding short-term loans in compare to 2006. Hence, it is possible to say that terms of financing for short-term loans are worse now that they were

Table 4. Usage of resources for Program of Measures for Stimulation of Agricultural Production Development in 2006

Purpose	Amount (dinars)	Share in total funds (%)
Short term loans	1,400,000,000.00	40.00
Long term loans	2,000,000,000.00	57.14
Resources for Ministry of Agriculture	100,000,000.00	2.86
Total funds	3,500,000,000.00	100.00

Source: www.minpolj.sr.gov.yu

three years ago. Concerning long term loans there were not changes in terms of financing and amount available for farmers. But because prices of inputs for agriculture have increased in last years and funds for long term loans have remained on the same level it is possible to say that possibilities for long term financing are now worst than in recent years.

There are some more problems related to financing of family farms from the Program of Measures for Stimulation of Agricultural Production Development. The most significant are following:

1. Only family farms that are registered with government administration are eligible to apply for loans. But, less than 50% of total number of family farms in Serbia are registered, and have possibility to compete for loans.
2. Second problem regarding convenient governmental loans is very complicated applying procedure. Besides, approval procedure is very slow and could take long period from moment of applying for loan to moment of approval. Many agricultural producers give up applying for such loans due to complicated administrative procedure.
3. Resources assigned for agricultural loans are comparatively small and insufficient to cover needs of all interested farmers.

If farmers cannot get loan from Program of Measures for Stimulation of Agricultural Production Development they can apply for commercial bank loans. Because of above-mentioned problems it is increasingly common situation. At the moment about 20 commercial banks in Serbia deal with loans for family farms. Conditions of financing for agricultural production (height of the interest rate, payback period and other costs related with loan approval) are different, and depend on policy of each bank. Interest rates for short-term loans vary from 10% to more than 20% per year. Interest rates for long-term loans vary from 8% to 15% and more. Obviously, financing by usage of bank loans is much more expensive, although approval procedure is less complicated.

Farmers very often do not take into account all conditions of financing on the occasion of approval of bank loans. There are some special costs that have to be paid to lender. According to Erickson et al. (2002) not only interest but also several other costs affect the net cost of borrowed capital, such as: compensating balance, the way how interest is calculated, restriction on the management prerogatives, influence on taxes etc. Costs related with approval of bank loans in Serbia are often high (between 1% and 2% of total debt) and have to be carefully deliberated.

Influence of financing sources to business results in milk production

Dairy production has been used as an example to show how financial sources influence economic efficiency of agricultural production at family farms. Analy-

sis has been made on the model of dairy production, which presents real condition at family farms in Serbia regarding buildings, equipment, cows and production process. Calculations have been made according to methodology suggested by Gogic (2005). Profit and costs have been calculated for different possibilities of financing of dairy production. To calculate value of different products and costs, market prices for inputs and outputs have been applied. After this, profits that were made in cattle production for different sources of financing have been compared. In that way it is possible to make important conclusions how models of financing influence agricultural production, and what is necessary to do to improve financing of agriculture in Serbia.

In this analysis three possibilities of financing were taken into account:

1. Model A is family farm that use financing of dairy production by loans acquired from the Program of Measures for Stimulation of Agricultural Production Development. Interest rate for loans for fixed assets is 3% per year (payback period is 5 years). Interest rate for loans for current assets 6% per year.
2. Model B is family farm that use financing of dairy production by loans acquired from banks under favorable conditions. Interest rate for loans for fixed assets is 8% per year (payback period is 20 years). Interest rate for loans for current assets 12% per year.
3. Model C is family farm that use financing of dairy production by loans acquired from banks under unfavorable conditions. Interest rate for loans for fixed assets is 14% per year (payback period is 20 years). Interest rate for loans for current assets 20% per year.

In Table 5 it is possible to see how much source of financing i.e. different terms of financing, influence total revenue, total costs and profit. If fixed and current assets are financed from governmental loans, dairy production is profitable. All other financing possibilities lead to inconvenient business results. Even if farmer takes loans from commercial banks under favorable conditions, dairy production is not profitable. The same economic result appears if farm operations are financed by bank loans under unfavorable conditions.

Serbian farmers have to use short term and long-term loans to expend production because they do not have enough own money to invest. On the basis of previous calculations it is obvious that only financing by governmental loans is feasible for family farms. That means that Serbian government has to find ways to expend funds for agricultural loans, and solve problems related with slow and complicated applying procedure. Ministry of Agriculture has to incentive farmers to register and get opportunity to apply for loans provided by Program of Measures for Stimulation of Agricultural Production Development. But, taking into account comparatively small resources which Serbian government possesses, it is hard to expect that funds for agricultural loans will be significantly bigger in next few years. Therefore, it is necessary to find some other ways to solve problem of financing of family farms.

Table 5. Influence of different terms of financing to profit in dairy production (calculation was made per one cow)

Calculation elements	Models		
	Model A	Model B	Model C
Milk	1.350,00	1.350,00	1.350,00
Calf	110,00	110,00	110,00
Manure	39,00	39,00	39,00
Caws weight gain	30,00	30,00	30,00
Total revenue	1.529,00	1.529,00	1.529,00
Animal food	609,00	609,00	609,00
Bedding	32,85	32,85	32,85
Insemination	8,50	8,50	8,50
Accessories (medication, electricity)	5,80	5,80	5,80
Veterinary services	15,43	15,43	15,43
Maintenance of buildings	25,70	25,70	25,70
Maintenance of equipment	17,30	17,30	17,30
Depreciation of buildings	65,00	65,00	65,00
Depreciation of equipment	150,00	150,00	150,00
Depreciation of caw	180,00	180,00	180,00
Labor costs	118,00	118,00	118,00
Interest on (buildings, equipment and caw)	138,60	323,40	565,95
Interest on working capital	36,83	73,65	122,76
Total costs	1.403,01	1.624,63	1.916,29
Profit	125,99	-95,63	-387,29

Source: Author's own calculations

Some other possibilities for financing of family farms

The best solution for problem of financing of family farms is improvement of terms of commercial bank loans, i.e. decrease of interest rates. To achieve that goal it is necessary to increase savings, and reconstructs bank system. According to Vasiljevic (2003) the key for reconstruction of bank system is return of confidence in banks. Ljutic (2003) also explained that it was necessary to make significant innovation in bank sector, to create new institutions as well as cooperate with neighboring countries regarding financing of agricultural production. Ljutic consider that in Serbia is missing one strong and big agricultural bank, which could significantly incentive and support agricultural development. Stojanovic (2005) suggest formation of micro financial institutions in rural areas. These institutions should increase savings and help to expend founds which could be used to finance small project for rural development.

Lately, family farms have often decided to use leasing instead of loans. That possibility is mostly used for purchase of agricultural mechanization. It is possible because of significant increase of number of leasing companies. Agricultural producers in Serbia are not informed enough about possibilities for usage of leasing and not accustomed to this way of procurement of fixed assets. Nevertheless, leasing becomes more and more popular with Serbian farmers. That method of purchase of fixed assets is mostly used in arable farming, for expensive mechanization (tractors and combines). Besides, leasing is used in fruit and grape production for acquiring of modern and expensive equipment. In livestock production leasing is not used, although it might be used for purchase of very expensive milking equipment.

Even in developed western countries leasing in agriculture is still less extensive than it is in other industries such as the trucking, manufacturing, computer and airline industry. According to Barry et al. (2000) in agriculture is especially important leasing of farm land. But, such kind of leasing is not developed in Serbia, at all. In addition, in Serbia is not used leasing of agricultural buildings as well as leasing of breeding livestock. Therefore, there are many possibilities for development of this type of financing of family farms in Serbia. Kay et al. (2004) explains that frequently is cheaper to use leasing or borrowing than to possess fixed assets. Short term leasing provides farmers with possibility to change easily type and worth of assets engaged at the farm each year. However, such kind of running business leads to risk of possessing of fixed assets in future. Leasing also discourages farm owners to make important decisions regarding long-term improvements of business. Farmer's decision to use loan or leasing should be primarily based on net present value of cash outflows.

Conclusion

Family farms in Serbia are not able to develop and became more competitive without usage of loans. Although family farms can take loans from commercial banks, an analysis has provided information that these loans are not convenient and farmers suffer losses. Only one favorable solution for farmers is to apply for loans from the Program of Measures for Stimulation of Agricultural Production Development. Nowadays, the government cannot provide sufficient resources to satisfy needs of all Serbian family farms.

Thus, it is necessary to expand governmental funds for short term and long term loans for farmers. It will be even better to establish one agricultural bank, which could significantly support financing of family farms. The other possibility is decrease of interest rates of bank loans. That is possible only if Serbian citizens return confidence in banks and increase savings. One of possible solution is formation of micro financial institutions, which could support rural development. Besides, family farms could use leasing for purchase of modern and expensive equipment, primarily in plant production.

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