

INVESTIGATION OF THE FARMERS MARKET OF RUSSIAN FEDERATION

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1. Description of economic model

1.1 Target of investigation

This report focuses on the construction of the economic model in order to make a full comprehensive analysis of the current state of the agricultural industry of the Russian Federation, in particular small-scale agriculture, in order to identify its trends and prospects, as well as government or investor's support. In particular, the goal is to determine which variables and in which degree influence on the farmers income mostly.

The work examined the overall condition of small agriculture in Russia, revealed the production parameters, the size of agricultural land and arable land, studied the material base of main economic activity of farmers, as well as discusses on the influence of the state.

During this observation the main attention was aimed at the volume of revenue, prospects of it incensement and mathematical modeling of main economic indicators.

1.3 Overall situation of farmers market

State of Russian agriculture in the period 2000-2010 is characterized by two stages: the first five years of the rise of public funding, the remaining time - recession because of its lack. Funding from the state was not enough and by 2008, when the situation worsened by the world crisis, about 234,000 small farmers were eliminated from the market.

There have been some changes in the structure of agricultural organizations. Thus, the number of large agricultural associations decreased from 73.7% to 45%. But there was a rise in the number of farms from 2% to 7.5% and farms of the population - from 33% to 47.1%. Private household farms have become leaders in the production of agricultural products. As a result, this has led to the fact that about 50% of agricultural products Russia has to import. For now farmers do not play a significant role in providing the country's food supply. However, this is mostly not the fault of farmers.

Manufactured products mainly provides personal farmers needs and small profit received goes on maintaining farms to exist at the farmers market.

And while the government policy on agriculture will not be based on the principle of providing food independence from other countries, concerning massive liquidity injections provided, situation is unlikely to change at all.

1.4 Actuality of a research

Problem of agriculture stays one of the most unsolved problems of Russia since collapse of USSR. During last 20 years the situation is just getting worse. Government uses a lot of subsidies on agricultural sector that in overall don't change the situation, just giving one more year of economical agony. Actuality of the research is also reasoned by the current involvement of Russia in WTO. This means that now Russian products can find consumer abroad, if they are good enough. For now Russia has some limitations on exporting goods, but later they would be overcome. For the period of solving limitation problems Russian agriculture sector should be well prepared to meet foreign consumer demand, and to begin with first of all it should meet the demand of local consumer, bringing in overall situation from import to export.

3.3 Testing the model

During deep econometrics analysis from the model were eliminated several variables. Even though each of elimination can be logically explained by economic laws. Below you can find explanations for their elimination.

Growing anything for farmers is very costly due to several reasons. They are:

High prices for cultivating services, which in overall led to increase in a production costs. This problem includes such services like plowing the land, protecting it from insects or irrigating it. The last one is very important during last trends in weather, which strikes farmers by extremely high temperature that even may cause fires. This problem is also connected with machinery problem. High prices for equipment makes it obviously unaffordable to small framers leading them to be dependent from other ones who has it.

Increase in land provided, that led to either increase in time for planting or for collection of crops.

Also here should be mentioned the problem of high competition between farmers, which is gradually increased by two factors – average size of a land and Russian mentality. It may be really hard to keep eye on each acre of your land, leading your neighbors to damage your crops.

The problems of labor force, quality-quantity problem, problem of land fertilizing, production costs problem and the problem of selection seeds are also were considered. The last one is very important because farmers cannot afford selection seeds for planting and have to plant last year's seeds of its own production. That leads to low harvest level and higher land starvation. That in overall leading to more and more production costs.

Implementing economic theory into current practice was declared that for small farmers is not optional to produce domestic animals on slaughter:

During the tendency of increase in prices for compound animal feed the production costs for its production also increased.

Also the influence of a problem in national markets is very significant leading in overall to the problem to sell meat, problem of finding potential consumer. As a result farmers have to sell meat at local small markets either to wait until consumer will appear spending money on animal keeping.

The last one includes not only feeding animals, but also vaccinating them from viruses, keeping them in safe, warm place all year long and other production costs that reduces overall income from it or increasing price for products which influences negatively on competitiveness of a product.

From the model were eliminated values of amount of horses in farms.

Several reasons were explained during 2st testing, others are:

Horses now are not so important during area cultivation. They are not in comparative advantage with machinery. It also has its maintaining cost, even higher than tractor has.

Also horse meat is not very popular in Russia so farmers cannot use them on slaughter. The only remained usage of this animals is transportation problems in cases, where point of destination cannot be reached by car and going by own is very far.

From the model were eliminated GDP and inflation rate.

The reasons are below:

- Manufactured products mainly provides personal farmers needs and small profit received goes on maintaining farms to exist at the farmers market. This means that farmers are trying to survive, to live their own, not spending money on other services, so the level of inflation does not influence on their activity too much.
- Also farmers were in strong relationships with government until some moment. They were hardly subsidized until 2005-2006 when state decided get rid of this program and increased import, rather than spent more money on farmers.
- Level of export cannot exceed the level of import, farmers reduced to sign government orders for food banks due to their inability to cover the declared levels of output.

From the model were eliminated values of amount of cows and birds in farms. Several reasons were explained during 1st testing, others are:

Such type of animals is kept for the products they give. Also there is no need to count them if we have statistics for products they give, considering milk, eggs, meat.

3.5 Specification of the estimated econometric model

Results obtained from the linear regression provide us with the coefficients a_t for our equation of the relationship between the dependent and independent variables:

$$Y_t = 50367.775 - 103.42 \cdot X_1 + 0.358 \cdot X_2 - 569.28 \cdot X_3 + 368.947 \cdot X_4 + 0.92 \cdot X_5 - 132.55 \cdot X_6 + 180.56 \cdot X_7 + 6.73 \cdot X_8 - 121.95 \cdot X_9 - 3.139 \cdot X_{10} + \varepsilon_t$$

(3233.7878) (4.98) (0.018) (31.37) (57.9) (0.14) (15.8) (13.94) (0.93) (13.44) (0.26)

$$R^2 = 0.999$$

$$F = 2236.581$$

3. Crisis influence on the model

During a crisis period a lot of farmers stopped their activity due to inability to pay the bills even more to make ends meet. During the years 2000-2005 government granted for farmers a lot of subsidies, but after 2005 it stopped doing a charity for farmers, as a result many of them have to take a loan from bank in order to survive in a farmers market. Obviously, during crisis farmers couldn't pay the bills in time, in most cases they don't have any money to cover their debts, as a result a lot of them have to sell their farms to pay off debts. On the other 30.1 thousand small farmers appeared to be prepared to crisis times, and to their fortune have overcame their income in particular by almost 2 times. This strange on the first glance situation can be simply explained by lack of market competition an awareness of consumers to spent more. Farmers that stayed in the market during crisis period had lowered or stabled the prices for their agricultural goods, leading consumers to buy products of their production. They gradually increased the amount of meat produced, may be animals were kept during several years to be sold, and during crisis period of time they crossed the demand of consumers. Also farmers on overall produced more, due to lack of competitors, production costs also failed. Post crisis periods of recovering the farmers market is characterized by huge rise in products they had produce and slight increase in the amount of farmers which means that many businessmen tried to overcome this market again. So in my opinion, in the newest future the situation will stabilize and will turn to the situation of pre-crisis periods.

4. Ways to solve economic problem of Russian farmers

In order to come to a logical solution we should define most threat full economic conditions by which small farmers suffer mostly.

Here we should mention such problems like lack of independence from market situation, dependence from machinery, inability to find consumer for products, inefficiency of growing goods, plants in particular case, lack of distribution channels, low money supply.

All this in overall leading farmers business to be unprofitable, in case of Russia leading small farmers to sell their areas, or being takeovered by agricultural giants like BEJKOM, parmalat, or president.

The solution that can be given for small farmers is to unite under a several fund. Government or investors should create a special fund where each member of it (particularly small farmer) will grand several bonuses. For example free or with huge discount service of area cultivating, sectioned grain for planting, or animal food. Also fund either can provide locally places in towns to sell their products, or to repurchase manufactured goods and remake them on funds factories. Also one of possible solution is to create a specialized market, like selling from cars of the fund in district areas like country houses. As a result farmers will have long benefiting relationships and fund will have cheap raw material and profit. This would lead farmers, fund and consumer to create a specialized market, where cheap but good foods are provided in each town.

5. Conclusion

In compliance with our expectations at the beginning of this work, certain independent variables had to be eliminated from the initial dataset during the process of model construction. This allows us to make conclusion that among various factors only 10 indicators have the strongest influence on the Farmers income during the time period 1995-2011.

Also during the work was examined forecasting, crisis influence on the model, which in all gave us several prospects of development of farmers market.

Further prospects of analysis may be caused by deeply investigation of farmers market, more information provided and studies of their relation with medium sized agricultural organizations. Also model can be added with weather influence, which involves deep analysis, also structural separation of data, variables and model into seasoned work like grain collecting in summer, or collection of winter crops or lowering the demand for milk in winter. May be it would be optional to make 4 models of farmers income in order to estimate their activity in full manner. The research of farmers market is very dependent from reliable data, meaning that further investigation cannot be provided before reliable data is given.