

Structural changes in Russian agriculture and its impact on the economy

Topic: Classical IO applications: Industrial economics, Productivity and Efficiency

Author: Dmitry Polzikov

In 2000-2015 Russian agriculture grew, adding an average of 2.3% per year (+ 40% over the entire period). This growth was driven by socio-economic development of the country and government support of agriculture. It was accompanied by the following large-scale structural changes.

Firstly, the structure of domestic final demand for food was changing. As incomes of the population in Russia grew, domestic consumption of more expensive products (such as meat, vegetables, fruits, eggs) increased.

Secondly, due to government support of agriculture, imported food was being replaced. In particular, the share of imports in domestic consumption of meat decreased from 31% in 2000 to 13% in 2015, the share of imports of sugar decreased from 67% to 20%.

Thirdly, as a result of the technological modernization of Russian livestock, its productivity has sharply increased. For example, in pork production, feed consumption per animal unit decreased by 3 times over the period 2000-2015. Intermediate consumption of grains for feed purposes increased by a quarter, while output in livestock increased by 40%.

Fourthly, the technological level in Russian crop production has increased. The yield of grains and oilseeds increased 1.5 times. The average grain harvest in 5 years increased 1.4 times, oilseeds - 3.3 times. Due to this, against the background of stable domestic demand, the volume of grain exports increased during the period 2000-2015 from 1 million tons to 31 million tons (up to 30% of domestic production). Exports of oilseeds (including exports of vegetable oils) increased 3.5 times up to 45-50% of domestic production. Thus, the growth of exports has become an important direction for the development of Russian agriculture.

These shifts led to changes in the agricultural production structure (the share of meat, grain and oilseeds increased, while the share of milk, feed crops and potatoes decreased), and in the proportions between final and intermediate consumption of agricultural products. Exports increased significantly and imports of food and agricultural raw materials decreased.

The development of agriculture had a significant impact on the growth dynamics of the Russian economy. The contribution of agriculture to GDP growth for the period 2000-2015 amounted to 6%. The same contribution was made by food production. The use of Input-Output approach allows us to take into account not only direct, but also indirect effects of agriculture development. On the basis of the Input-Output tables for Russia developed by the Institute of economic forecasting of the Russian academy of sciences, output multipliers were calculated, which show how gross output grows due to initial increase in output of the sector under consideration. When calculating them, both indirect effects (output growth in related sectors) and induced effects (additional growth in final demand from households, government, and business due to generation of additional income) were taken into account. The results of calculations obtained using these multipliers show that the impact of the increase in the output of agriculture and food production was about 2 times greater than the estimates of the direct contribution to the increase in gross output. This means that the collective contribution of agriculture and food production to GDP growth in 2000-2015 can be estimated at about 25-30%.

(1) The study is aimed to describe the development processes of the Russian agriculture with a focus on structural shifts (including shifts in the production structure, technologies, foreign trade and final demand) during the period 2000-2015. Using national Input-Output tables developed by the Institute of economic forecasting of the Russian academy of sciences, we assess the macroeconomic impact of these structural shifts on the Russian economy.

(2) To assess the impact of Russian agriculture development on the economic dynamics, an Input-Output approach is used.

- (3) The national Input-Output tables developed by the Institute of economic forecasting of the Russian academy of sciences are used.
- (4) The novelty of the research is in applying an Input-Output approach to assess the impact of retrospective agriculture development on the Russian economy.