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## **Outcomes of agrarian reform in Russia**

by

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## 3.2 Outcomes of agrarian reform in Russia

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### Abstract

In this chapter, we evaluate and analyze the outcomes of agrarian reform in post-Soviet Russia. The evaluations are not unambiguous and often contradictory. The reform has led to a clear change of the agrarian system in Russia, but not the entire population, and especially not all rural people, have come out as winners. The observed increase in agricultural labor productivity has been accompanied by shedding of labor in agriculture and increasing rural unemployment; the higher productivity of livestock has been accompanied by herd contraction; improved input efficiency has been accompanied by reduction of input use; improved financial stability of agricultural producers has been accompanied by higher frequency of bankruptcies; and increase of total support to agriculture has been accompanied by reduction of support efficiency. So far, Russia has not recovered to the pre-reform production volumes, the level of food self-sufficiency is below 90%, and imports exceed exports. A new middle class has not emerged in rural areas: most rural people are the new “proletariat” – they earn their livelihoods as hired workers and many of them have lost their land. We observe increasing concentration of agricultural production in large vertically integrated structures with a multiplicity of agricultural subsidiaries, structures that are without analogues in developed economies. The evaluation of Russia’s reform requires a multi-faceted analysis of the entire range of outcomes, allowing for all pluses and minuses. It is only in this way that we can draw valid conclusions from experience and develop recommendations for the future.

**Keywords:** agricultural reform, land reform, transition from plan to market, rural development, agricultural productivity, Russia

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How to assess the outcomes and effects of agrarian reform in Russia? This question has held the attention of agricultural economists during the last two decades. The debates predate the start of reforms, but they became particularly acute during the first years of reform, and continue to rage to this very day.

The Russian literature often paints a negative view of reform outcomes. This opinion is vigorously upheld by Shut'kov (2012) and by Miloserdov and Miloserdov (2012), who mainly examine time series of agricultural output, areas of used (and unused) agricultural land, number of tractors, combines, and other farm machinery, and application of fertilizers. Comparing the pre-reform and post-reform series, the authors reach an unambiguous conclusion that the reform has negatively affected the development of agriculture: production declined, a large proportion of agricultural land was abandoned, cropped areas decreased, livestock headcount shrank, as did the machinery park and fertilizer application.

These conclusions regarding agriculture's decline, based as they are on statistical data, are indisputable. Yet such analysis is strictly one-sided: it ignores the causes that have led to decline of production and resource use. More precisely, the reform is regarded as the only factor that can be blamed for these negative outcomes. The analysis ignores efficiency indicators, although efficiency improvement was one of the main aims of reform.

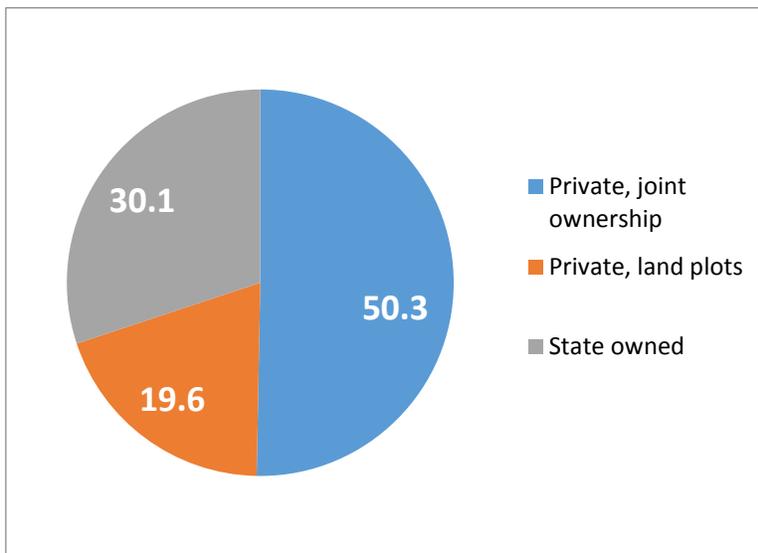
Serova (2010) also analyzed the outcomes of reform, focusing in particular on the reasons for production decline in the early years of reform (price disparity, fall of family incomes and the resulting fall of food demand, low competitiveness of domestic producers in the local market, etc.). Serova also attempted to analyze the efficiency indicators before and after reform, but only crop and livestock yields were examined as measures of agricultural efficiency.

In this article, we assess the reform outcomes primarily through the lens of efficiency, although we also consider absolute levels. The agrarian reform in Russia in the 1990s was a huge endeavor that radically changed property rights and economic mechanisms, leading to multifaceted outcomes. The country essentially shifted to an entirely new agrarian system. The process affected millions of people. Everybody gained something or lost something through the reform. The reform outcomes are contradictory. On the one hand, the reform has led to huge increases in yields, productivity, and efficiency such that agricultural economist in the pre-reform era could have hardly imagined possible. On the other hand, agriculture in many regions contracted dramatically and abandonment became widespread.

In this chapter, we consider twelve major outcomes of reform. The evaluations are not single-valued: each of the outcomes receives both a positive and a negative evaluation, which is already clear from the wording we use for most outcomes.

### **1. Land privatization, high transaction costs, latifundialization**

Privatization of agricultural land was the key element of Yeltsin's agrarian reform in the early 1990s. Land privatization was carried out according to the rules set in the Law of Land Reform (1990) and the Land Code (1991). Yeltsin's reform transferred 70% of agricultural land to private ownership, and only 30% remained state owned (down from 100% in the Soviet period) (**Figure 3.2.1**).



**Figure 3.2.1.** Ownership structure of agricultural land in use by agricultural producers as of 1.1.2013 (in percent). Source: Rosreestr (2013).

The bulk of privatized land was (and still remains after 25 years) in joint shared ownership, i.e., peasants did not receive demarcated land plots. Many beneficiaries of the privatization process were pensioners, rural teachers and doctors, and other individuals who could not farm independently. It was thought at that point that low transaction costs would allow land to flow from these passive landowners to efficient users. Yet in reality, transaction costs often exceed the market price of land.

The Yeltsin agrarian reform created landless peasants, large latifundia and agrohholdings, and spurred oligarchic development of Russia’s agriculture. In the early 2000s, large investors exploited legal options for land concentration and based their farms primarily on hired labor, although these trends contradicted the established mode of agricultural development in market economies. The land concentration option clearly set the Yeltsin reform apart from the Stolypin agrarian reform of the early 1900s, which prohibited concentration of more than 12-18 hectares<sup>2</sup> within one administrative district in the hands of one owner (either by purchase or by free gifts). The Stolypin reform aimed to create a large “middle class” (to use modern terminology), and this required prohibition of land concentration in the hands of a small number of large estate owners. This restriction on land ownership in no way limited the allowed size of a single farm: farmers could increase their holdings by leasing land up to the limit of their “managerial” capacity.

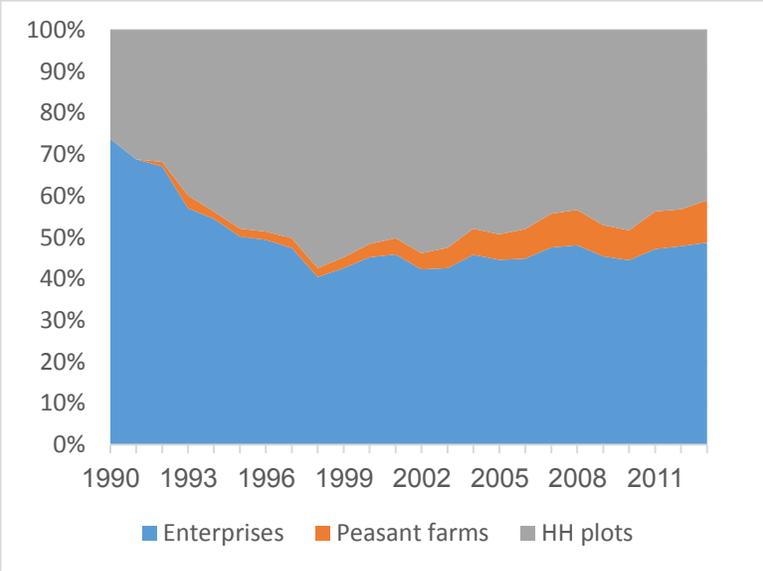
## 2. Development of heterogeneous (multiform) agriculture

Yeltsin’s reform produced a heterogeneous agriculture with three categories of producers: corporate farms of various organizational forms (“agricultural enterprises”), peasant farms and individual entrepreneurships, and household plots. A different farming structure emerged in each province.

Prior to the 1990 reform, the bulk of gross agricultural output (74% of GAO) was produced in large agricultural enterprises (collective farms – kolkhozes, state farms – sovkhozes, agrofirms). Household plots produced the remaining 26% of GAO (there were no peasant farms at that time). Russia’s agrarian structure radically changed during the reform. The share of agricultural enterprises in GAO dropped to 40% (1998), subsequently rising to 49% (2013). Family farms (this category

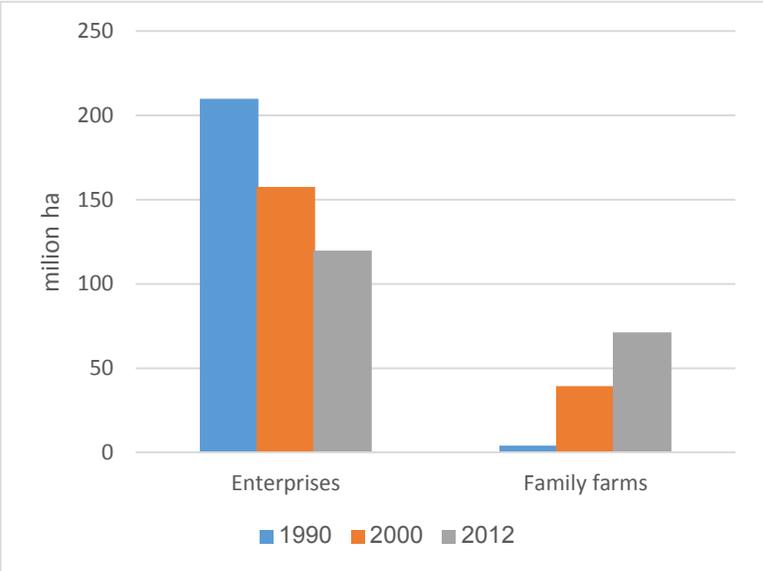
<sup>2</sup> This is the size of six “upper per capita allotments” (*vyshii dushevoi nadel* in Russian) as determined in the 1861 reform. The exact area of six allotments varied across provinces. See Stolypin reform [<http://www.abc-people.com/typework/history/doch-14.htm>].

aggregates peasant farms, individual entrepreneurships, and household plots) produced 51% of GAO in 2013 and achieved an even higher share of gross value added (60% in 2011), as they use less purchased inputs than agricultural enterprises (National Accounts 2012). Peasant farms that began to emerge in the early 1990s gradually grew and developed, reaching 10% of GAO in 2013 (**Figure 3.2.2**).



**Figure 3.2.2.** Structure of GAO by type of producer 1990-2013 (in percent). Source: Authors’ calculations from Rosstat (2014).

Changes in GAO were the result of a significant redistribution of agricultural land between different categories of producers (**Figure 3.2.3**). Agricultural land in enterprises decreased by 90 million ha between 1990 and 2012 (a drop of more than 40% of the 1990 holdings), while family farms gained nearly 70 million ha. The remaining 20 million ha, or more than 10% of agricultural land in all farms in 1990, is no longer used for agricultural production.



**Figure 3.2.3.** Use of agricultural land by different types of producers 1990-2012 (million ha). Source: Rosreestr (2013).

In the pre-reform era, the agrarian structure was virtually the same in all regions across Russia. The reform has led to a sharp differentiation of regions by agrarian structure. Some regions preserved a corporate structure with predominance of agricultural enterprises (>50% of GAO). On the other hand, many regions markedly reduced the share of agricultural enterprises in GAO, while family farms (household plots and peasant farms combined) began to contribute more than 70% of GAO, i.e., individual or family agriculture emerged to the forefront. In the remaining regions, we observe a mixed farming structure with agricultural enterprises producing more than 30% and less than 50% of GAO, while family farms produce more than 50% but less than 70% of GAO.

**Table 3.2.1.** Grouping of Russia's regions by farming structure 2000 and 2010

Indicators	Russia total	Farming structure		
		Corporate	Mixed	Family
		2000		
Share of regions (% of 77 regions)	100	23.4	54.5	22.1
GAO in farms of all types (% of 742 billion current rubles)	100	35.3	54.5	10.2
Structure of GAO by farm type (%)				
Enterprises	45.2	56.1	42.3	23.2
Family farms	54.8	43.9	57.7	76.8
		2010		
Share of regions (% of 78 regions)	100	29.5	42.3	28.2
GAO in farms of all types (% of 2,618 billion current rubles)	100	36.1	44.2	19.7
Structure of GAO by farm type (%)				
Enterprises	44.5	60.5	41.9	21.1
Family farms	55.5	39.5	58.1	78.9

Source: Uzun et al. (2014), based on Rosstat (2014).

In 2000, the corporate farming structure dominated 23% of Russia's regions and 22% of the regions were characterized by a family farming structure (**Table 3.2.1**). Thus, 55% of the regions had a mixed farming structure in 2000. By 2010, the share of regions with mixed farming structure had dropped to 42%, while both corporate farming and family farming spread to more regions (30% of regions with corporate farming and 28% of regions with family farming). In regions with corporate farming structure about 60% of GAO is produced by agricultural enterprises and in regions with family farming structure about 80% is produced by peasant farms and household plots (**Table 3.2.1**).

Family farming is observed mainly in eastern and northern regions of Russia, and also in non-chernozem regions suffering from depopulation. Corporate farming, on the other hand, is observed in regions where the natural and economic conditions are the best (Belgorod, Lipetsk, Moscow, and Leningrad oblasts, Krasnodar and Stavropol' territories).

Family farming also dominates in ethnic republics and is strongly influenced by regional agrarian policies. In Astrakhan, Saratov, and Samara oblasts as well as in the ethnic republics of Tatarstan and Bashkirostan, regional policies support small business and it indeed flourishes. In Moscow and Leningrad oblasts, small business is not supported by regional authorities and its share in GAO is very low.

In parallel with these changes, we observe continuous concentration of production in very large agricultural enterprises, agrofirms, and agroholdings. Concentration also occurs in peasant farms. The average area of a peasant farm increased from about 40 ha in the early 1990s to about 100 ha in

2010. In 2006, there were 285,000 peasant farms and individual entrepreneurs in Russia and the 5,000 largest among these accounted for almost half the sales revenue (Uzun et al. 2010).

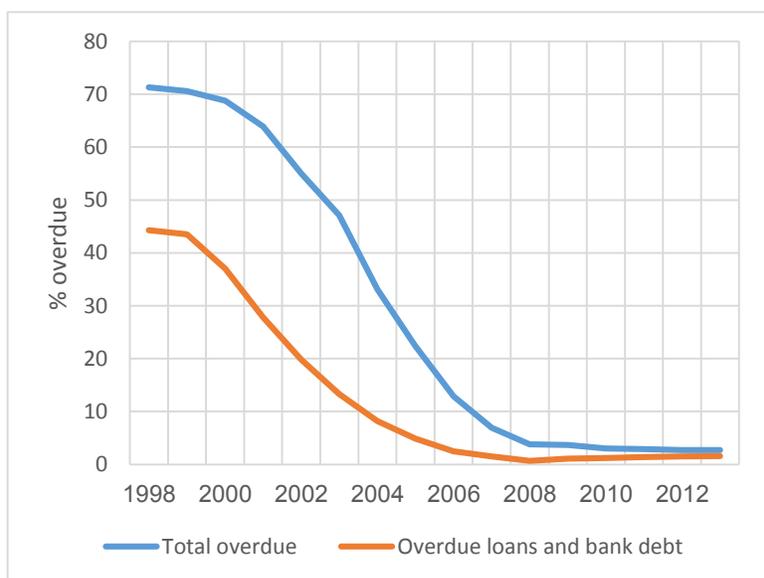
### 3. Adaptation of agricultural producers to market conditions

Agricultural producers have learned to respond to market signals and adjust their production structure accordingly. The bulk of production now is in farms that show a profit. Farms of different types and in different sectors react differently to market signals. Farms have become much more specialized, and there has been a noticeable decrease in the number of more traditional farms that produce a wide variety of commodities. Unprofitable producers eventually drop out.

The location of agricultural production also has changed dramatically. Instead of farm location oriented toward regional self-sufficiency, we begin to observe location based on economic efficiency. The production of each commodity has shifted to regions where it is most profitable.

### 4. Improved financial stability vs. increased bankruptcies

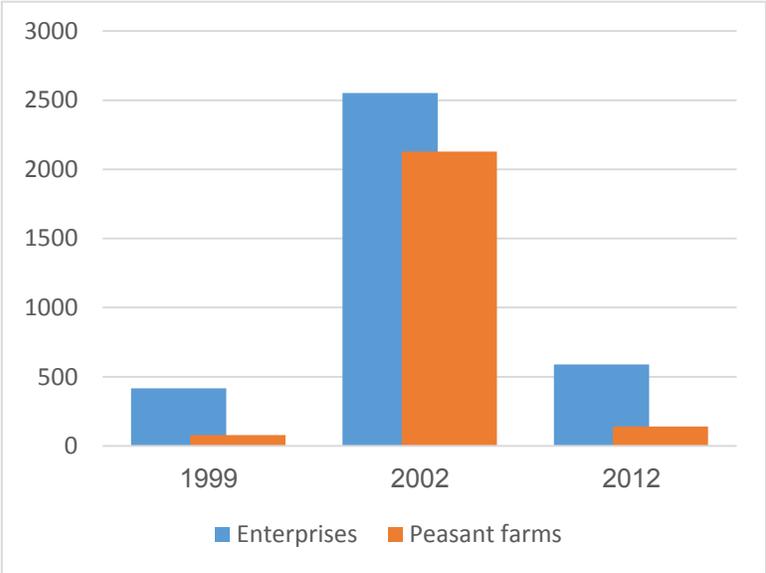
The reform has improved the financial stability of agricultural producers: the proportion of overdue debt in agricultural enterprises dropped from 71% in 1998 to less than 3% in 2013. The Law on Financial Rehabilitation (2002) has had a decisive influence on the financial health of Russia's agriculture: although the total debt of agricultural enterprises (in current prices) markedly increased between 1998 and 2013, overdue debt has been systematically decreasing since 2002 in both absolute and relative terms. In absolute terms, agricultural debt peaked in 2002 at 177.1 billion current rubles. By 2013 it had shrunk to 43 billion current rubles, i.e., to less than one-quarter of the 2001 level (the decrease in constant prices is even more impressive). **Figure 3.2.4** shows that the share of overdue loans and bank debt in agricultural enterprises dropped from 44% in 1998 to less than 2% in 2013. The reduction of overdue debt was facilitated by the advent of an attractive debt restructuring mechanism, imposition of harder budget constraints, and a stricter evaluation of creditworthiness.



**Figure 3.2.4.** Percent of overdue debt in agricultural enterprises 1998-2013. Source: Statistical Yearbook (various years); Agricultural Statistics (2013).

The proportions of profitable and loss-making producers provide another indicator of financial stability. In 1997-1998 more than 80% of agricultural enterprises were unprofitable, whereas by 2013 the number of loss-making enterprises had dropped to 22%. In 1997-1998 loss-making producers accounted for a little over 60% of total revenue in agriculture, whereas by 2008 this proportion had dropped to 9%. Both indicators provide evidence of improved financial health.

The financial discipline has improved not only among agricultural producers, but also among their business partners: overdue accounts receivable in agricultural enterprises also decreased (from 57% in 1998 to less than 4% in 2013).



**Figure 3.2.5.** Number of bankruptcies filed by agricultural producers 1999-2012. Source: Arbitration Court (various years).

Financial rehabilitation did not proceed painlessly. A substantial number of enterprises and peasant farms went bankrupt in the process. **Figure 3.2.5** shows that the number of bankruptcies was particularly high in the first years of the financial rehabilitation program (around 2002). In recent years, the frequency of bankruptcies has sharply decreased. The absolute number of bankruptcies among peasant farms is smaller than among enterprises. Since there are more than 200,000 peasant farms and less than 20,000 enterprises, the gap in relative terms is much greater: the share of bankruptcies among peasant farms is much smaller than among agricultural enterprises.

**5. Improved labor productivity vs. reduced employment**

The transition to market encouraged efficient use of labor resources. In early years of reform (up to 1995), the annual average number of employed in agriculture was increasing. In the subsequent period it markedly contracted, dropping from 9.7 million agriculturally employed in 1990 to 6.5 million in 2012. The productivity of agricultural labor decreased until 1998, and then started increasing. By 2012 it had reached 127% of the labor productivity in 1990 (**Table 3.2.2**).

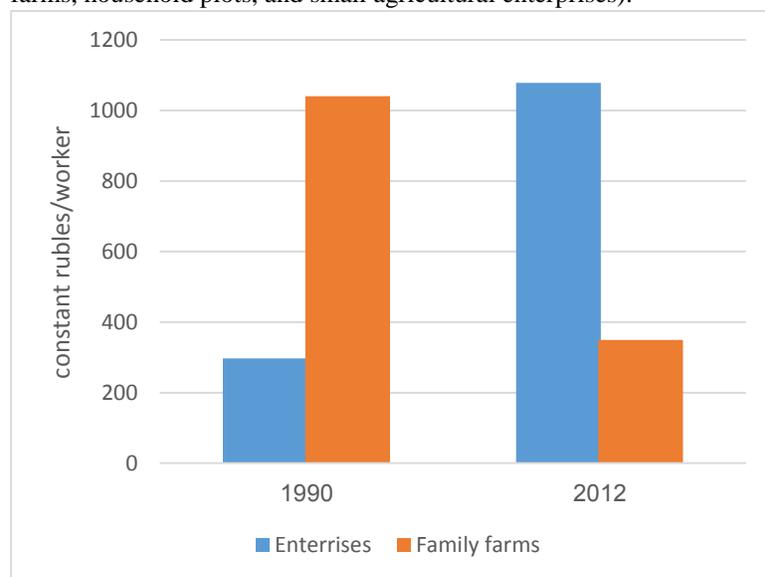
GAO in agricultural enterprises had dropped by 1998 to 35% of the 1990 level (in constant prices). In subsequent years agricultural production almost doubled, but even so it had reached by 2012 only 65% of the 1990 level. The number of employed in agricultural enterprises contracted by an astonishing 82% between 1990 and 2012. In their attempt to remain competitive in the new market economy, agricultural enterprises kept shedding surplus labor. Up to 1998, production volumes (GAO in constant prices) decreased faster than the number of employed and the productivity of

labor correspondingly had fallen by 1998 to 55% of the productivity in 1990. Starting in 1998, production volumes in enterprises increased while the labor force continued to contract. Increasing production and decreasing labor combined to produce a robust increase in labor productivity, which had risen by 2012 to 363% of the 1990 productivity.

**Table 3.2.2.** GAO, number of employed, and labor productivity in agriculture 1990-2012

	GAO in constant 2012 prices, billion rubles	GAO index 1990=100	Employed in agriculture, millions*	GAO per employed, '000 rubles	GAO per employed, 1990=100
All farms					
1990	3952.5	100.0	9.7	406	100.0
1998	2177.1	55.1	8.7	250	61.4
2005	2690.5	68.1	7.4	365	89.7
2012	3340.5	84.5	6.5	517	127.1
Agricultural enterprises					
1990	2467.1	100.0	8.3	297	100.0
1998	866.5	35.1	5.3	163	55.0
2005	1142.3	46.3	2.5	457	153.7
2012	1600.9	64.9	1.5	1079	363.0
Family farms					
1990	1485.4	100.0	1.4	1041	100.0
1998	1310.6	88.2	3.4	383	36.8
2005	1548.2	104.2	4.9	317	30.5
2012	1739.6	117.1	5.0	349	33.5

\* Number of employed in agricultural enterprises is given for large and mid-sized farms (up to 2008, data from Statistical Yearbooks (various years); for 2008-2012, data from the consolidated annual reports of agricultural enterprises). Number of employed in family farms is the number of people engaged in commercial production (including peasant farms, household plots, and small agricultural enterprises).



**Figure 3.2.6.** Comparison of agricultural labor productivity in enterprises and family farms, 1990 and 2012 (constant 2012 rubles per worker). Source: Authors' calculations from Rosstat (2014).

In family farms, GAO increased by 17% between 1990 and 2012, while the number of employed increased from 1.4 million to 5 million, i.e., an increase by a factor of 3.6. As a result, GAO per worker in family farms decreased to one-third of the 1990 level. Rapid growth of the labor force combined with relatively slow growth of agricultural production in family farms let to a stabilization of labor productivity in this sector at 30%-33% of the 1990 productivity. Comparing the performance of enterprises and family farms in 1990 and 2012, we see that, in absolute figures,

GAO per worker in family farms was a factor of 3.7 higher than in enterprises in 1990 and a factor of 3 lower than in enterprises in 2012 (**Figure 3.2.6**).

Data on direct labor inputs per unit output also reveal robust productivity increases in agricultural enterprises in recent years. For all main agricultural products, except beef, direct labor inputs in 2013 were substantially less than in 1990. For sugar beet and pork weight gains, direct labor inputs in 2013 were a factor of 8-10 lower than in 1990; for potatoes, vegetables, and poultry weight gains direct labor inputs in 2013 were a factor of 3.3-4.5 lower than in 1990. Labor productivity for the production of milk, grain, sunflower, and eggs in agricultural enterprises increased by a factor of 1.6-2 during the same period.

## 6. Improved land productivity vs. contraction of land use

The last decade has witnessed a steady growth of agricultural production in Russia, with GAO in constant prices increasing 39% between 2000 and 2012. This growth, however, does not encompass the entire country: it is concentrated only in some farms, districts, and provinces. The main share of growth in commercial output is accounted for by a relatively small group of the largest farms. Russia's agriculture no longer exhibits widespread universal coverage: it flourishes in discrete foci across the country. According to the 2006 Agricultural Census, 94 million ha (43% of all agricultural land in Russia) is abandoned. These unused lands are primarily in regions with a low bioclimatic potential and depopulated villages. They are basically registered to defunct agricultural enterprises and inactive family farms. They are no longer used because of unacceptably low returns, as well as administrative difficulties with demarcation and titling.

**Table 3.2.3.** Productivity of land by farm type 1990-2012

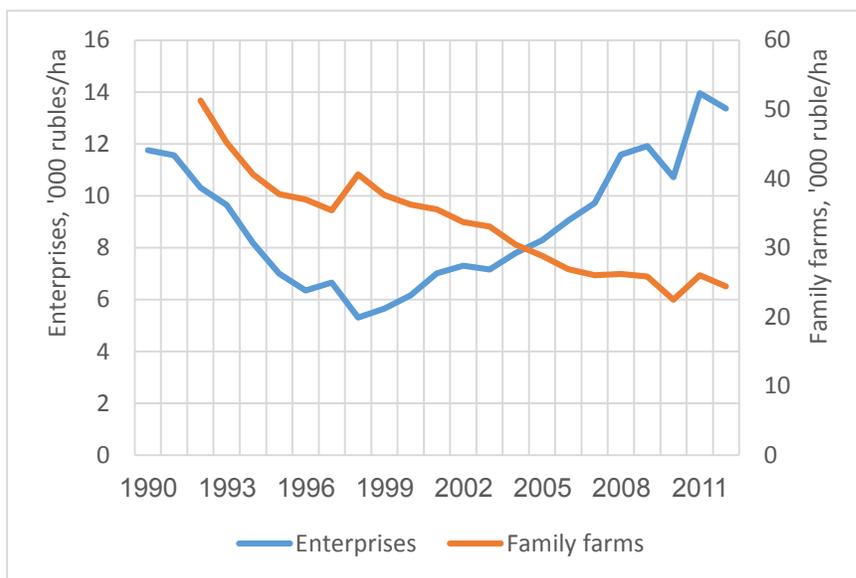
	GAO in constant 2012 prices, ruble/ha		
	All farms	Enterprises	Family farms
1990	18487	11759	371351
1995	12628	6997	37733
1998	11119	5300	40576
2000	12182	6166	36248
2005	14035	8284	28830
2010	14952	10718	22476
2012	17480	13363	24398

Source: Authors' calculations from Rosstat (2014) and Rosreestr (2013).

The productivity of agricultural land aggregated over all farm types was falling between 1990 and 1998. Then came a turnaround and land productivity in all farms began to increase after 1998 (**Table 3.2.3**). This process, however, followed different trends in agricultural enterprises and in family farms. In agricultural enterprises, the contraction of agricultural land was accompanied by increase of GAO, resulting in increasing land productivity: the return to land in 2012 (in constant rubles per ha) was more than double the return in 1998, and by 2011-2012 it had exceeded the pre-reform level (**Table 3.2.3, Figure 3.2.7**). In family farms, on the other hand, the efficiency of land use rapidly dropped in the early years of reform as GAO could not catch up with the rapid expansion of family holdings (in both household plots and peasant farms). It is only in recent years that the land productivity of family farms has stabilized (**Table 3.2.3, Figure 3.2.7**).

Despite the different trends in the returns to land, family farms use land much more efficiently than agricultural enterprises. Over the entire period 1990-2012 the land productivity of family farms was consistently higher than that of agricultural enterprises, and in recent years the production of family farms per hectare of land was double that in agricultural enterprises (**Table 3.2.3**).

The productivity gap is only partially attributable to the better land quality in family farms. Family farms produce more intensive crops (fruits, vegetables, potatoes) and keep more animals per hectare of land. The calculated productivity is also upward biased because rural residents actually use some of the land registered to enterprises, without any formal contracts, and also have access to animal feed which is distributed in kind as lease payments for land shares leased by the enterprises.



**Figure 3.2.7.** Land productivity of agricultural enterprises and family farms 1990-2012 (constant 2012 rubles per ha). Source: Authors' calculations from Rosstat (2014) and Rosreestr (2013).

## 7. Increasing crop yields vs. contraction of sown area

Direct evidence of increasing land productivity is provided by the changes in crop yields over time. The yields of all main crops in 2013 were substantially higher than in 1990, the increase ranging from a low of 12% for grain and legumes to 180% for fruit orchards (**Table 3.2.4**). The yields continue to fluctuate over time, as is evident from the fairly high coefficients of variation in **Table 3.2.4** (last row).

**Table 3.2.4.** Crop yields 1990-2012 (all farms, centners per harvested hectare)

	Grain and legumes	Sugar beet (industrial)	Sunflower	Soy	Potatoes	Vegetables (open ground)	Fruit orchards
1990	19.5	240.1	13.7	11.1	104.2	166.6	27.5
1995	13.1	188.3	10.6	7.5	117.7	147.8	23.5
2000	15.6	188.3	9.0	10.1	104.7	143.3	35.1
2005	18.5	282.3	11.9	10.5	123.8	170.0	40.2
2010	18.3	240.7	9.6	11.8	100.2	180.3	41.5
2013	21.9	431.8	15.6	13.8	144.6	213.9	77.1
2013/1990, %	112.3	179.8	113.9	124.3	138.8	128.4	280.4
Coefficient of variation	16.2	33.9	19.1	19.2	13.4	14.9	35.7

Source: Rosstat (2014).

## 8. Increasing livestock yields vs. contraction of animal headcount

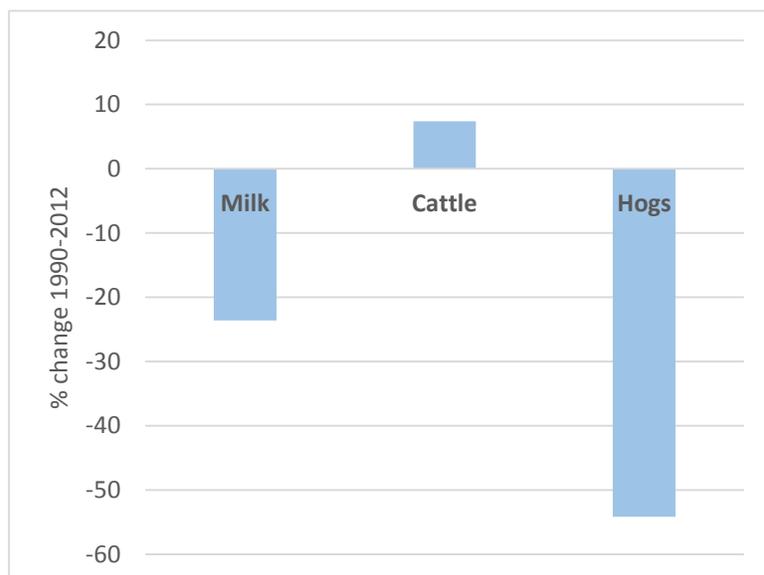
Productivity increases are observed during the reform years for all animal and poultry species. **Table 3.2.5** presents the changes in livestock productivity between 1990 and 2013. Contrary to crop yields, livestock yields do not fluctuate much from year to year. The time series show an initial decrease in the early years of reform, followed by turnaround in 1996-1998 and rapid growth in recent years (except for wool yields). Milk yields in 2013 had reached 143% of the 1990 level, whereas broiler weight gains had nearly trebled by 2013 (**Table 3.2.5**).

**Table 3.2.5.** Livestock yields 1990-2013

	Cattle weight gain, kg/year	Swine weight gain, kg/year	Broiler weight gain, g/day	Milk yield, kg/cow/year	Wool yield, kg/sheep/year	Laying capacity, eggs/layer/year (in enterprises)
1990	119	91	7.5	2731	3.9	236
1995	123	82	5.6	2153	2.9	212
2000	128	100	6.2	2502	3.1	264
2005	149	114	10.6	3176	3	301
2010	155	135	17.4	3776	2.6	307
2013	150	147	21.3	3893	2.4	305
2013/1990, %	126.1	161.5	284.0	142.5	61.5	129.2

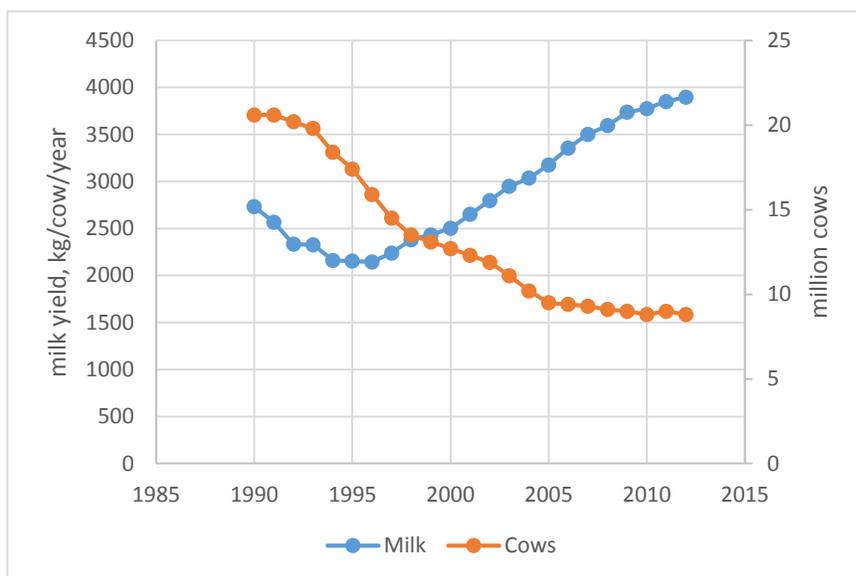
Source: Rosstat (2014).

Direct evidence of livestock efficiency improvements is provided by the reduction of feed consumption per unit output between 1990 and 2012 (**Figure 3.2.8**). Feed use for hogs dropped from 8.3 kg of feed units per kg of weight gain in 1990 to less than half in 2012 (3.8 kg of feed units per kg of weight gain) – a decrease of more than 50% per kg of weight gain. Feed use per kg of milk decreased by nearly 25%. Only beef production continued to use the same high levels of feed per kg of weight gain as in the Soviet times.



**Figure 3.2.8.** Change in feed utilization in feed units per kg of livestock production 1990-2012 (in percent). Source: Consolidated annual reports of agricultural enterprises.

Livestock productivity improvements and increasing feed utilization efficiency were accompanied by substantial reduction of the animal and poultry inventories. **Figure 3.2.9** shows how the rapid increase in milk yields (after 1996) went hand in hand with steep decrease in the number of cows, which dropped by 60% between 1990 and 2012. The cattle herd shrank to almost one-third in the same period, the number of sheep also dropped by 60%, and the number of pigs halved. The sheep, swine, and poultry inventories appear to have bottomed out and began increasing in recent years; the cattle herd, on the other hand, continues its decline, with no clear resolution in the near future.



**Figure 3.2.9.** Increasing milk yields and decreasing cow headcount 1990-2012. Source: Rosstat (2014).

## 9. Higher input efficiency vs. lower input use

In the pre-reform years, Russia's agricultural producers purchased inputs at prices that were fixed by the state below world market prices. Transition from plan to market led to substantial increases in input prices, which rose at a faster rate than the prices of agricultural commodities. To survive, farms had to increase the cost efficiency of input use and to achieve higher returns per unit of inputs.

**Table 3.2.6.** Cost structure in agricultural enterprises (in %)

	Crops		Livestock	
	1990	2012	1990	2012
Total costs	100	100	100	100
Labor (including social contributions)	28.1	18.1	28	16.3
Seeds and seedling	17.6	12.6	0	0.0
Feed	0	0	48.6	50.5
Fertilizers	9.9	10.8	0	0.0
Electric power	0.7	1.5	1.1	3.0
Fuel and oil	4.7	13.3	1.8	3.5
Spare parts and other materials	3.7	7.8	2.4	3.0
Services from external suppliers	6.5	9.8	3.3	8.4
Depreciation	14.5	10.7	9.3	7.7
Other costs	14.5	15.4	5.5	7.5

Source: Consolidated annual reports of agricultural enterprises.

Non-uniform input price increases led to a substantial change of the cost structure in agricultural enterprises. Thus, the share of fuel and oil in crop production increased from 4.7% in 1990 to 13.3%

in 2012 and in livestock production from 1.8% to 3.5% (**Table 3.2.6**). The share of spare parts, purchased services, and electric power also increased.

The increase of input prices was basically offset by reducing the share of labor costs and depreciation expenses. In many farms, however, even the reduced depreciation deductions could not be used for fixed asset renewal: they went to cover the losses in unprofitable enterprises. Inability to renew the asset base has led to a loss of previously accumulated productive potential.

Agricultural enterprises did not immediately realize the urgent need for strict cost efficiency. In the early years of reform we even observe an increase in power consumption, which more than doubled per 100 rubles of GAO between 1990 and 1996. By 2012, power costs had been sharply reduced, both in absolute terms (to 25% of the 1990 level) and per 100 rubles of GAO (to 40% of the 1990 level).

### 10. Increase of state support vs. reduced returns to state support<sup>3</sup>

Total support to agriculture is composed of three components: support to agricultural producers (PSE – producer support estimate), general support to the sector through government funding of infrastructure and services (such as extension, research, sanitary and phyto-sanitary inspection, and other services), and budget support to consumers (through food price measures). **Table 3.2.7** shows the total agricultural support (in US\$) in Russia, the European Union, and USA over time (1995-2010).

**Table 3.2.7.** Total agricultural support in different regions, 1995-2010 (US dollars)

	1995	2000	2005	2010
Russia	6.5	2	7.8	18.3
EU	137.8	97.5	144.3	116.2
USA	64.9	92.4	101	133.4

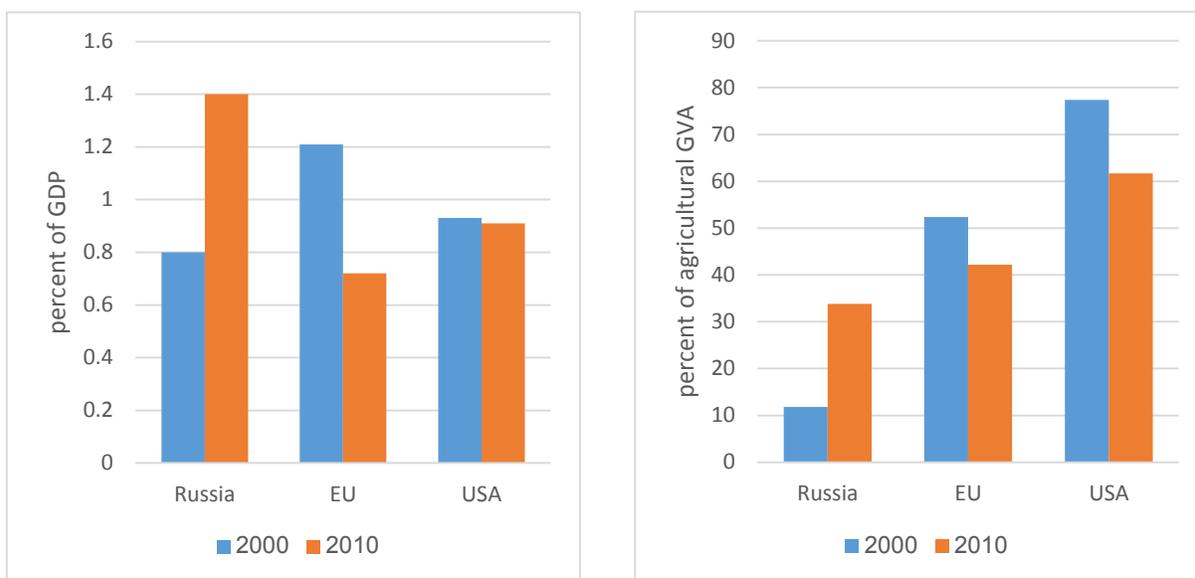
Source: OECD (various years).

Nominal support of Russia’s agriculture (in US\$) increased by a factor of 9 between 2000 and 2010. The level of total support measured in percent of GDP ranged between 0.8% and 1.4%. On the other hand, the share of total support in percent of agricultural gross value added increased from 11.8% in 2000 to 33.8% in 2010. In 2010, the level of support as a percent of GDP was substantially lower in the EU and USA than in Russia, whereas the level of support measured in percent of agricultural GVA was substantially higher in the EU or the USA (**Figure 3.2.10**).

In Russia, agricultural support policies give clear preferences to producer support, which accounted for almost 85% of total support in 2010. The remainder was channeled to general services support. There has been virtually no consumer support in Russia since 1995, although during the Soviet era consumers enjoyed generous budget transfers. At that time, consumer support accounted for 20%-25% of total budget support to agriculture (30-50 billion Soviet rubles annually between 1986 and 1990).

The support structure in USA in 2010 was totally different. More than 50% of total support went to general services support and less than 20% to producer support. In the EU, on the other hand, the support structure was similar to that in Russia: the bulk of support went to producers (87%), general services support received 12% of the total, and consumer support just 1%.

<sup>3</sup> The analysis in this section is based on OECD data for corresponding years. For more details, see Uzun (2012).



**Figure 3.2.10.** Total agricultural support in Russia, the EU, and USA in percent of GDP (left panel) and in percent of agricultural GVA (right panel), 2000 and 2010. Source: OECD (various years).

The structure of support sources varies depending on agricultural policies. In Russia, consumers of agricultural products were the main source of total support during the last decade. Transfers from consumers through price mechanisms represent 69% of total support and the budget contributed only 31% (**Table 3.2.8**). Contrary to Russia, the share of the budget in total support is 98% in USA and 87% in the EU.

The high share of the budget in the total support in USA and the EU indicates that the burden falls on the high-income segments of the population, reducing the share of food expenditure for low-income families. The taxes paid by high-income segments and corporations (even with flat tax rates) generally exceed in total the payments from the low-income segments. Directing part of the taxes to agricultural support, the state lowers food costs and thus reduces the share of food expenditure in the family budget, mainly for the poor families where the share of food expenditure is highest.

**Table 3.2.8.** Sources of total agricultural support (2010)

	Russia	EU	USA
Transfers from consumers, billion €	9.5	11.6	2.7
In % of total support	68.7	13.2	2
Budget transfers, billion €	4.3	76.2	130.8
In % of GDP	0.44	0.62	0.89

Source: OECD (2010).

Total agricultural support in Russia increased much faster than GAO between 2000 and 2010. The total support rose ten-fold, whereas GAO increased by a factor of 3.5 (in nominal rubles). As a result, the support efficiency decreased from 7.4 rubles of GAO per ruble of total support in 2000 to 2.6 rubles of GAO per ruble of total support in 2010. Economists and government officials in Russia focus primarily on the relatively small budget component of total support to assess the effectiveness of government policies. The much larger transfers from consumers – the lion’s share of total agricultural support – are largely ignored and remain hidden from the public eye. This lack of

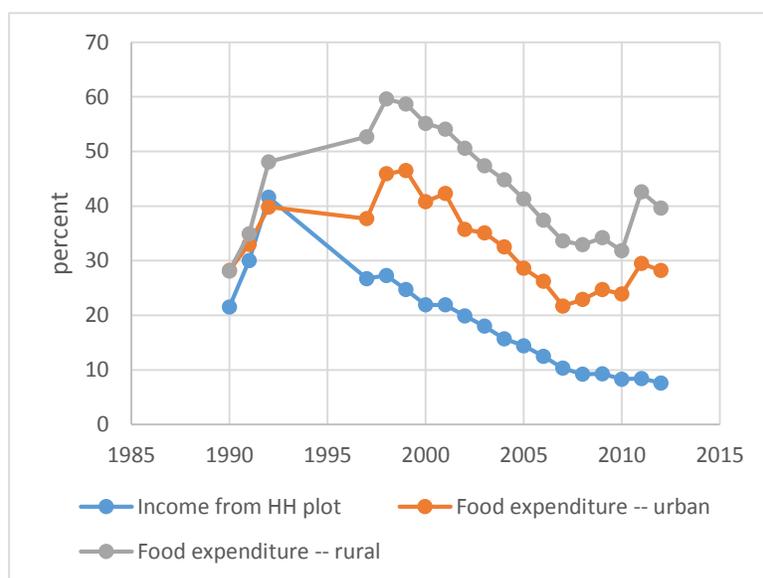
monitoring of a major component of support may be responsible for the observed decrease of support efficiency.

### 11. Changing import-export strategy

In the last decades of the Soviet planned economy (1960-1990), the USSR imported concentrated feed and sustained livestock sector development by encouraging high levels of consumption of domestically produced meat and milk. The transition to a market economy precipitated a diametrical change in foreign trade strategy: Russia sharply reduced wheat utilization for animal feed and boosted grain exports to volumes that roughly matched Soviet-era imports (about 20 million tons). At the same time, meat and milk imports markedly increased. Money invested in purchase and resale of meat and milk generated huge margins for traders due to large differences between import prices and domestic sale prices. This stimulated the flow of capital primarily into food imports and domestic production received the leftovers after the import quotas had been exhausted.

### 12. Decreasing share of food expenditure vs. decreasing share of income from household plots

The share of food expenditure in the family budget is an important indicator of the standard of living. One of the goals of agrarian reform was to improve the standard of living (especially of the rural population), and we accordingly expect to see the share of food expenditure decrease over time.



**Figure 3.2.11.** The share of food expenditure and the share of income from the household plot in per capita income 1990-2012. Source: see **Table 3.2.9**.

During the entire Soviet period after World War II, the share of food expenditure in family income indeed decreased steadily, bottoming out in 1990 at 28% for both urban and rural population. All through the 1980s the share of food expenditure was practically the same for urban and rural people, which suggests equality of living standards in towns and villages during the late Soviet era. In the first decade of reform (the 1990s), the share of food expenditure increased markedly for both urban and rural families as a result of initial economic disruptions (**Figure 3.2.11**). It peaked in 1998-1999 and began to decrease thereafter as the cumulative reforms began to take effect. The share of food expenditure for urban families was consistently lower than for rural families after 1992, an indication of lower standard of living in villages during the reform. In recent years (after 2007) the

share of food expenditure for urban families dropped below the 1990 level to less than 30%, whereas for rural families it approached 30% but remains above the 1990 level.

The reform aimed to close the rural-urban income gap. This goal remains unachieved. In the Soviet era, up to 1990, the ratio of rural to urban per capita incomes increased from about 40% in the 1940s to nearly 90% in the end of the 1980s, approaching the goal of per capita income equality (**Table 3.2.9**). The post-Soviet reforms produced a steady deterioration of rural incomes: the ratio of rural to urban income dropped from 90% in 1990 to less than 60% in 2008 and recovered slightly to 65% in 2012. The relatively low rural incomes, reinforced by a number of other factors (poor roads, inadequate medical care, lower quality of education, etc.), have led to accelerated out-migration from rural area, which in turn reduced agricultural production and other productive activities and ultimately resulted in abandonment of large territories.

**Table 3.2.9.** Composition of household income, rural-urban gap, and share of food expenditure (in percent per family member)

	Urban income in kind (1)	Rural population		Rural-to-urban income ratio (4)	Share of food expenditure	
		Income from enterprise (2)	Income from household plot (3)		Urban (5)	Rural (6)
<i>Pre-reform years</i>						
1940	9.0	39.7	48.3	43.3	53.0	67.3
1960	1.5	34.7	42.1	48.5	36.9	52.3
1970	1.3	39.3	31.4	69.7	34.7	39.7
1980	2.5	53.5	25.1	79.2	35	35.4
1985	2.3	57.3	21.8	87.0	32.8	32.5
1990	2.3	57.6	21.5	88.4	28.2	28.1
<i>Reform years</i>						
1991	4.3	45.3	30.0	86.0	33.0	34.9
1992	5.7	37.0	41.6	77.5	39.8	48.1
1997	5.3	15.4	26.7	68.9	37.7	52.7
1998	5.6	14.3	27.3	68.9	45.9	59.6
1999	5.2	12.0	24.7	70.0	46.5	58.7
2000	4.5	12.4	21.9	65.4	40.8	55.1
2001	4.7	12.9	21.9	65.3	42.3	54.1
2002	4.1	12.6	19.9	63.3	35.7	50.6
2003	3.1	11.2	18	60.4	35.1	47.4
2004	2.9	10.6	15.7	56.8	32.5	44.8
2005	2.4	9.2	14.4	55.2	28.6	41.3
2006	2.1	8.4	12.5	56.3	26.2	37.4
2007	1.8	7.8	10.3	56.7	21.7	33.6
2008	1.6	7.5	9.2	57.8	22.9	32.9
2009	1.7	7.5	9.3	60.7	24.7	34.2
2010	1.7	7.2	8.3	62.3	23.9	31.8
2011	2.4	6.4	8.4	64.2	29.5	42.6
2012	2.2	6.1	7.6	65.3	28.2	39.6

Sources: Authors' calculations based on Statistical Yearbook (1993), pp. 160-163; Social situation in Russia (various years); data for 1940-1970 for the entire Soviet Union from Narkhoz SSSR (1987), pp. 441-445/

The food self-sufficiency paradigm underwent a radical change during the reform, especially for the rural population. In the pre-reform and early reform years, even the urban population tried to increase food self-sufficiency: the share of income in kind among urban families (**Table 3.2.9**, column 1) increased from 1%-2% pre-reform to 5%-6% in the 1990s (reverting to 2% after 2005). Among the rural population, income from the household plot (sales revenue plus the value of

consumption of own food products) decreased steadily during the Soviet period, from about 40% of total per capita income in the 1960s to 20% in 1990 (**Table 3.2.9**, column 3). In the early 1990s, when economic difficulties were the greatest, the share of income from the household plot rebounded to 30%-40% (**Table 3.2.9**, column 3; **Figure 3.2.11**, blue curve). It then resumed its decline to 20% in the late 1990s-early 2000s and eventually dropped to less than 10% after 2007. The goal of Soviet policy – total replacement of traditional household plots with income from “socially productive” activities – that had not been attained during 70 years of Soviet rule was swiftly achieved in one decade of reform. Rural livelihoods have changed: rural people devote much less attention to their household plot as a safety net.

Not only the household plot lost its traditional importance during the transition to market. The agricultural enterprise is no longer the main source of rural livelihoods. In 1990, cash and in-kind income from the agricultural enterprises represented 58% of total per capita income in rural families. By 2010, per capita income from the agricultural enterprise had dropped to a mere 7% for rural families (**Table 3.2.9**, column 2).

Another significant change during the reform period is the decreased reliance of the rural population on the local agricultural enterprise as the main employer. In the Soviet times wages from the agricultural enterprise was the main source of income for the rural workers. With the onset of reform, the share of labor costs in gross value added of enterprises started to decrease, dropping from 36% in 1993 to 24% in 2010. The share of labor costs in total production costs of enterprises also decreased markedly after 1990 (see **Table 3.2.6**). In an effort to improve their cost efficiency, corporate agricultural producers diverted resources from labor to other uses, such as corporate profits, taxes and deductions to the state budget, etc.

## **Conclusion**

The Yeltsin agrarian reform fueled the transition from plan to market in agriculture. In the new market economy, agricultural business is the driver of efficiency improvements. Judging by the results presented in this chapter, business has achieved considerable success in increasing the competitiveness of agricultural producers and improving returns on resource use. However, business success has often created major problems that the state failed to tackle and resolve. For instance, attempting to increase competitiveness, agricultural enterprises increased the average productivity of labor by a factor of 3.6, but this was achieved by shedding 6.8 million workers. Attention to rural employment is not really the responsibility of corporations: it is a major task for the government, which has grossly failed its responsibility. No special social programs to preserve the rural population have been adopted during the years of reform. As a result, we witness increase of rural poverty, massive depopulation of villages, and abandonment of more than 90 million hectares of agricultural land.

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