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**Diversification of Rural Incomes and Non-Farm
Rural Employment:
Evidence from Russia**

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DIVERSIFICATION OF RURAL INCOMES AND NON-FARM RURAL EMPLOYMENT: EVIDENCE FROM RUSSIA *

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1. INTRODUCTION

The traditional conception of rural development viewed strong agriculture as a prerequisite for a strong rural economy. Today, however, non-farm rural employment (NFRE) is the key concept for both researchers and policy makers in promoting and implementing rural development strategies (LANJOUW, SHARIFF 2001; DAVIS 2001). NFRE can help reduce poverty by generating alternative income sources; NFRE can stimulate agricultural growth, because reduction of agricultural labor increases productivity and thus indirectly family incomes. Policies stimulating NFRE can also diminish rural-to-urban migration, which is a serious problem in many transition economies (NEFEDOVA 2003; KNERR, WINNICKI 2003).

NFRE is a major issue for the future development of rural Russia, because redundant agricultural labor is generally regarded as the main obstacle to productivity growth in Russian agriculture. It is argued that excess agricultural labor characterizes both employment in farm enterprises and informal buffer employment on the individual house plot – the “family farm” (SEROVA, ZVYAGINTSEV 2006). Since the local farm enterprise, rather than the family farm, is the primary employer for many rural residents, NFRE in the Russian context should be approached as employment “outside the farm enterprise” rather than employment “outside the family farm” (which is the usual approach in the Western context; see LANJOUW, FEDER 2001; CHAPLIN, DAVIDOVA, GORTON 2003; BUCHENRIEDER 2003).

Our article focuses on diversification of rural incomes, on factors that determine diversification, and specifically on NFRE activities and their relation to social and demographic features of rural families. The article is based on a survey of some 800 families conducted by the Analytical Centre of Agri-Food Economics in the fall of 2006 in two Russian regions (Perm and Ivanovo Oblast).

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2. RURAL EMPLOYMENT: THE NATIONAL PICTURE

Any analysis of rural employment in Russia inevitably unfolds against the backdrop of harsh demographic reality: the rural population in Russia (and other countries in the European CIS) is getting older over time. During the two decades from 1980 to 2000 the share of rural population described as being “above working age” increased from 20% to 23% in Russia, from 24% to 28% in Ukraine, from 25% to 33% in Belarus, and from 15% to 18% in Moldova. It is only the Central Asian countries in CIS that avoided a similar fate, as their exceptionally high population growth rates kept the age structure relatively young (CIS 2006).

In addition to the aging of the rural population, national statistics also point to marked changes in the structure of rural employment. During 1999-2003, when rural employment remained fairly constant at around 16 million people, the share of agriculture decreased from 46% to 36% of rural employed and the labor shed by agriculture was absorbed by other sectors of the rural economy – manufacturing, trade and consumer services, social services (Table 1).

Table 1: Rural employment by sectors of the economy 1999-2003

	1999	2000	2001	2002	2003	2003 in percent of 1999
Total rural employed, millions	15.89	16.16	15.25	15.9	15.57	98.0
Total rural employed, %	100.0	100.0	100.0	100.0	100.0	
Agriculture, %	45.8	44.5	39.9	38.0	36.5	78.3
Industrial sectors, %	19.9	19.7	21.2	21.9	22.2	109.1
Trade and consumer services, %	8.0	8.5	11.5	12.6	13.0	159.1
Social services, %	26.3	27.2	27.3	27.5	28.3	105.3

Source: BOGDANOVSKII (2008).

The structure of employment in agriculture proper has changed dramatically. In 1990, farm enterprises (i.e., traditional collective and state farms) were the dominant agricultural employer, accounting for 86% of employed in agriculture (8.3 million workers out of total 9.7 million). Between 1990 and 2002 farm enterprises (or more precisely the corporate farms that succeeded the former kolkhozes and sovkhoses) lost 4.5 million workers, or 55% of their 1990 workforce. More than half the workers leaving the corporate farms (2.5 million out of 4.5 million) shifted to the individual sector – household plots and peasant farms combined, and in 2002 individual agricultural employment practically matched that in corporate farms, with each sector employing 3.8-3.9 million people (Figure 1). Despite its robust growth, the individual sector did not absorb the entire slack created by the exit of labor from farm enterprises: 2 million people appear to have left agriculture altogether. They may have moved to other non-agricultural occupations or become inactive. Another possibility is that at

least some of them simply dropped out from official statistics because they had moved to the blind area of individual employment where people are not covered by labor surveys (i.e., people whose sole occupation is the subsistence-oriented household plot).

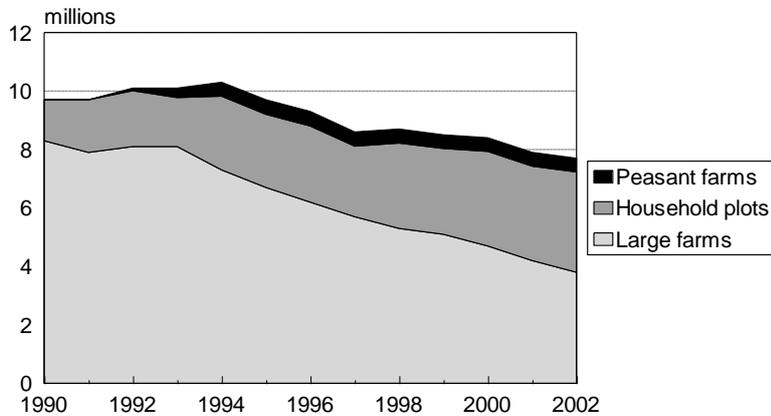


Figure 1: Agricultural employment by farm type 1990-2002. Source: Bogdanovskii (2008).

3. STRUCTURE OF RURAL FAMILY INCOME

Additional insights into patterns of rural employment in Russia are provided by the 2006 survey of rural households in two oblasts (Ivanovo and Perm). Two sets of survey instruments were used: the “family” questionnaire filled by heads of some 800 households; and the “individual” questionnaire filled by 1,200 members of the same households who indicated that they had salaried jobs. The micro-level information from this survey supplements and extends the national-level data obtained from official statistics.

Consistently with the employment picture from national statistics, according to which only one-third of the rural population is employed in agriculture (Table 1), the survey shows that agriculture is definitely not the main source of income for rural families. Agriculture-related income comprises only 34% of the total family income in the families surveyed (Table 2). This consists of 17% in the form of agricultural salaries earned from the local corporate farm and another 17% in the form of farm income from the household plot (a self-employment activity that includes revenue from sales of farm products and value of own farm products consumed by the household). Fully 41% of family income is derived from non-agricultural salaries, and another 7% is earned from self-employment activities off the family farm (mainly picking and selling of wild mushrooms and berries, but also some fishing, hunting, commerce, and provision of services). Pensions and other social transfers make up the remaining 18% of family income and are reported by two-thirds of families surveyed, the high frequency of recipients reflecting the high proportion of seniors among the rural population. Although farm and off-farm sales contribute

relatively little to total family income, a relatively large number of families engage in these self-employment activities. “Other income”, a totally marginal source including lease payments for land and farm assets, is reported by as many as 42% of families, because large segments of the rural population in Russia continue to lease their land and asset shares for a pittance to the local corporate farm or other agricultural producers.

Table 1: Structure of family income in the 2006 survey

Income sources	Share of total family income, %	Frequency in the sample, % of families
Salaries	58	90
from agricultural employment	17	
from non-agricultural employment	41	
Farm income from household plot	17	91
sale of farm products	5	26
value of products consumed by family	12	91
Income from off-farm self-employment	2	18
Transfers	18	66
Other income	5	42
Total family income, rubles per year	104,135	
Per capita income, rubles per year	40,603	

Source: 2006 AFE survey.

4. INCOME DIVERSIFICATION OF RURAL HOUSEHOLDS

We approach diversification from two positions: number of income sources and sector of primary employment. For most households, family income is quite diversified. “Non-diversifiers”, i.e. the families with only one source of income, comprise less than 2% of all rural families. The main employment activity for diversification is self-employment of family members on the household plot. Besides self-employment on the household plot – a farming activity, non-salaried diversification is present in the incomes of many rural households. In spite of small share of these income activities in family income (only 7%), fully 20% of households have this type of income. This includes sale of wild berries and mushrooms, fish and hunting, sale of services, etc.

Table 2: Main family income sources

Income sources	% of families reporting this source
Salary	90
Self-employment in agriculture – household plot	91
including sale of farm products	26
Non-farm self-employment	18
Transfers	66
Other	42

Source: 2006 AFE survey.

About 90% of rural families have both salaried income and farm income. Only 18% of families receive income from non-farm self-employment activities.

Transfers are very important, as 66% of rural families receive pensions, unemployment benefits, and other social benefits (Table 3).

The data on income structure reveals that a typical rural family in Perm or Ivanovo receives income from 3-4 different sources and types of activities (including transfers). Diversification is positively correlated with family income: when a family is engaged in more activities, its income increases (Figure 2).

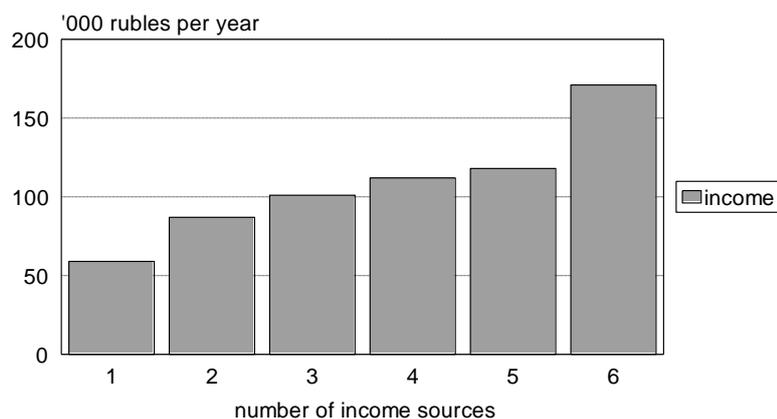


Figure 2: Effect of diversification on mean family income. Source: 2006 AFE survey.

To assess the incidence of salary diversification, i.e. diversification by the sector of primary employment, we classified the respondents into five categories: agricultural families (with both members employed in agriculture); public sector families (with both members employed in public sector); non-farm families (both members are employed in non-farm jobs outside the public sector); mixed agricultural families (one member works in agriculture and the other in non-farm or public sector); mixed non-farm families (one member works in the public sector and the other works in non-farm sector).

Table 3: Classification of rural families by sector's salaried primary employment

	Share of families ($n = 700$)	Annual average salary, rubles
Agriculture	23	58,000
Public sector	21	61,300
Non-farm sector	26	63,500
Mixed, agriculture	15	85,600 [^]
Mixed, non-farm sector	14	97,700 [^]

[^]Average pay in two mixed categories is statistically significantly higher than in pure categories at $p = 0,05$.

Source: 2006 AFE survey.

In the pure categories (where family members are employed in the same sector) the difference between salaries received is not statistically significant. The salary in all three cases is about 60,000 rubles per year (Table 4). But mixture of

employment sectors gives to families much higher income. In two mixed family types we find salary about 90,000 rubles per year. Families that diversify their sector of employment earn more. This is similar to what was observed earlier: as diversification increases, family income grows (Figure 2).

5. NON-FARM SELF-EMPLOYMENT ACTIVITIES

Less than 20% of families receive non-farm income not related to salaried employment (142 out of 791 rural household surveyed). The main share of non-farm self-employment income is generated from the sale of wild berries and mushrooms. It is 60% of all non-farm self-employment income. From the standpoint of the sector of salaried employment of members of these households, about 50% of households have one or more members employed in agriculture and the rest 50% do not have any employed in agriculture.

For families with non-farm self-employment income, family income is a bit higher than for families without it (107,400 rubles and 103,400 rubles respectively, but the difference is not statistically significant). The main difference between these two types of families can be found when we compare the share of salary in family income. Salaries received for families with non-farm self-employment income are only 49,400 rubles per year. For contrast, salaries received for families without non-farm self-employment income are 65,600 rubles. Looking at this difference it would seem that rural families search for non-farm self-employment to compensate for smaller salaries. If that is the case, non-farm self-employment income should be considered not as a discretionary source of additional income, but as a necessary source to cover family needs not covered by salaries. In this sense, we possibly observe distress-push behavior among rural people in Russia (BUCHENRIEDER 2003).

Further analysis of income structure for families with non-farm self-employment income reveals another fact. These families receive farm income (both sales and consumption of farm products produced on the household plot) that is higher by 10,000 rubles than families without non-farm self-employment income. Non-farm self-employment itself brings an additional 12,000 rubles per year. Again, we suggest that the financial deficit in the rural family budget resulting from smaller salaries is covered by income both from non-farm self-employment activities and from greater farm production on the household plot (Table 5).

For families with non-farm self-employment income (Table 5), two-thirds of this income comes from sale of wild berries and mushrooms. To a lesser extent this is sale of fish and income from hunting. The remainder is equally divided between income from sale of services to local rural residents and other non-farm activities, such as transportation or wood working. In other words, non-farm self-employment income can be divided into two components: “natural”, comprising income from sale of wild berries and mushrooms, wood products,

fishing and hunting (about 7% of family income); and “entrepreneurial”, comprising income from sale of services and individual business (4% of family income).

Table 4: Family income structure for families with and without income from non-farm self-employment activities

	Rubles per year		Percent	
	Families without non-farm income	Families with non-farm income	Families without non-farm income	Families with non-farm income
Salary	65,457*	49,408*	63	46
Farm income (household plot)	18,238*	28,277*	18	26
Sale of farm products	5,780*	10,600*	6	10
Own consumption	12,458*	17,677*	12	16
Non-farm non-salaried income	0*	12,122*	0	11
Wild berries and mushrooms	0	8,001	0	7
Services and business	0	4,121	0	4
Transfers	16,030	13,126	15	12
Other income (from property)	3,689	4,469	4	4
Family income	103,414	107,402	100	100

*Differences are statistically significant at $p = 0.05$.

Source: 2006 AFE survey.

To further our analysis let us hypothesize that the possibility to earn non-farm self-employment income is a function of the structure and quality of the family’s human capital. For example, it is recognized that better education is related to non-farm employment of family members, i.e., family members with higher education tend to be employed in the non-farm sector (CHAPLIN, DAVIDOVA, GORTON 2003). In addition, large family size can stimulate family members to search for more income sources; the presence of unemployed in rural families may stimulate these members to find non-farm self-employment to support their family; the presence of pensioners in the family is an indication of an aging family that might not be interested in diversification. Table 6 presents basic information on the human capital of two types of rural families: those with and without non-farm self-employment income.

As we expected, the family size and the number of unemployed are higher in families with incomes from non-farm self-employment activities. The share of pensioners in this type of households is lower. As for the hypothesis of higher education as the driving force for non-farm income diversification, it failed to be true. It turns out that families with lower salaries tend to diversify into non-farm self-employment activities, while lower salaries signify lower educational attainment (see Table 5).

We have also found one regional feature: about 28% of Ivanovo rural families have non-farm self-employment income, while for Perm it is only 7%. This

effect is the result of difference in the regional economic situation. On the one hand we have the dynamic Perm rich in natural resources, while on the other we have the less developed Ivanovo with its limited resource base. Thus, the share of population with income above the subsistence level is much higher in Perm than in Ivanovo, whereas the average per capita income in Perm is twice that in Ivanovo.

Table 5: Families with and without non-farm self-employment income

	All sample (n = 791)		Ivanovo (n= 401)		Perm (n = 390)	
	Families with nonfarm income	Families without nonfarm income	Families with nonfarm income	Families without nonfarm income	Families with nonfarm income	Families without nonfarm income
Share of families	18%	82%	28%	72%	7%	93%
Family size	3.0	2.7	2.89	2.3	3.3	3.0
Pensioners	0.25	0.42	0.26	0.41	0.21	0.43
Unemployed	0.43	0.16	0.40	0.14	0.52	0.18
Level of education*	3.6	4.3	3.5	3.9	3.9	4.5

Note: all pair wise differences between families are statistically significant, t-test ($p = 0,01$). The frequency of families with non-farm income sources significantly higher in Ivanovo than in Perm, chi-square test ($p = 0,01$).

*The index is the sum of educational levels for each family member, the scale ranges from 1 to 4, where 1 primary education, 2 secondary education, 3 technical college, 4 university. Average index in the sample is 3,5. For 99% of rural families index ranges from 1 to 8 and only 1% of families had index from 9 to 14.

Source: 2006 AFE survey.

In order to advance our analysis, we made an attempt to model the motivation of rural households to engage in non-farm self-employment activities. The probability of involvement in non-farm self-employment activities was regressed on the human capital variables from Table 6 (logistic regression was used because of the binary yes/no nature of the dependent variable). Given that we are facing some regional differences, we added a regional dummy to the model (Ivanovo-Perm). The logistic regression results are presented in Table 7.

What factors influence the decision of rural households to get involved in non-farm self-employment activities? *Family size*: as the family becomes bigger, there is a higher probability that some of family members will be earning some income from non-farm self-employment activities. *Number of pensioners*: the more pensioners in the family, the lower the probability that family will be earning non-farm self-employment income, because pensioners are economically less active and in some cases their pension is higher than alternative income options. *Number of unemployed*: the presence of unemployed in the family increases the probability of earning some non-farm self-employment income, because unemployed members will be actively looking for additional income and non-farm self-employment activity provides the best

option for short-term. *Educational attainment* has a negative effect on the likelihood to engage in non-farm activities in our sample: better educated people will tend to follow the demand-pull process (BUCHENRIEDER 2003) and look for more remunerative occupations than the menial opportunities of non-farm self-employment in rural Russia. *Region*: we have already noted that non-farm self-employment is more widespread in Ivanovo than in Perm; this effect is confirmed by the positive coefficient of the region dummy variable (Ivanovo vs. Perm) in the logistic regression model.

Table 7: The presence of non-farm self-employment income as function of human capital and regional characteristics (logistic regression)

	Coefficients	Odds ratio*	Significance level, <i>p</i>
Family size	+0.357	1.429	0.000
Number of pensioners	-0.407	0.666	0.072
Number of unemployed	+0.523	1.688	0.014
Level of education	-0.183	0.833	0.007
Region (Ivanovo-Perm)	+0.903	6.084	0.000
Intercept	-2.066		

*Odds ratio is estimated as $\exp(\text{coefficient})$. This is the factor by which the odds of engaging in non-farm self-employment activity change when the corresponding independent (explanatory) variable is increased by 1. Odds ratio greater than 1 implies that the probability of engaging in non-farm self-employment activity increases when the independent variable is increased, while odds ratio less than 1 implies that the probability decreases.

Source: 2006 AFE survey.

7. CONCLUSION

Agriculture is no longer the main source of income for rural families in Russia. Non-farm activities develop through both salaried employment outside agriculture and non-farm self-employment activities. The rural population is risk-averse: they prefer working as salaried employees; do not think of changing their job; and yet fear losing the current position. This factor and the volatility of non-farm self-employment activities, which primarily depend on weather conditions, put high priority on policies that support non-farm activities.

In order to increase family income, rural households follow two strategies. First, they increase the number of income sources, primarily from self-employment activities. Second, family members can increase family income if they work in different sectors of the rural economy. Self-employment is mainly represented by work on the household plot, but about 20% of households are engaged in non-farm self-employment activities, such as picking and sale of wild berries and mushrooms.

The development of the non-farm rural sector in Russia is taking place under distress-push conditions (BUCHENRIEDER 2003). These conditions push family

members to find additional income sources, which are not regarded as a potential for future primary employment but rather as a stopgap.

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