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Diversification of rural incomes and non-farm rural employment: evidence from Russia.

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**„What was expected, what we observed,
the lessons learned."**

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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 (Bertini et al 2006, Lanjouw and 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 2002, Knerr and Winnicki, 2003).

Although NFRE is studied in both developed and developing economies (Johnson 1991, pp. 65-67, Ruttan 1958, Lanjouw and Feder 2001), it is particularly relevant for transition countries (Mollers and Heidhues 2003, Davis and Gaburici 2001, Hare 2003, Chaplin, Davidova and Gorton 2003), where the economy is experiencing profound structural changes, including changes of agrarian structure, increases of rural unemployment and rural poverty, and at the same time dynamic growth of urban economies and the services sector (Knerr and Winnicki 2003, Davis 2001).

NFRE is also a major issue for 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 employment in farm enterprises as well as 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 and Feder 2001, Chaplin, Davidova, and Gorton 2003, Buchenrieder 2003).

The Russian literature on rural development and rural employment provides a detailed picture of the structure of rural incomes, but pays little attention to various types of NFRE activities, such as small business, picking and selling of wild mushrooms and berries, hunting, fishing, sale of handicrafts, provision of services (Kopach 2002, Shirokalova 2002, 2005, VNIIESKh 2005, Bogdanovskii 2005). Our article, on the other hand, 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 Center of Agri-Food Economics in the fall of 2006 in two Russian regions (Perm and Ivanovo Oblast).

The main conclusions of the article are the following: already today agriculture is not the main source of income in rural families; non-farm sector develops both ways through non-farm primary employment and non-farm self-employment activities. Rural population is risk-averse, they would like to work as employees, do not think of changing job, but are afraid to lose current job, with highest percentage of those employed by non-farm sector. This factor and volatility of non-farm self employment activities which primarily depend on weather conditions puts high rank importance for policies that support non-farm activities. Those policies must not only address current problems of rural economy, but the needs of potential labor force, i.e. Russian youth.

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. Unfortunately, data on sectoral employment shares are available only for 1999-2003, but even during this relatively short period, when rural employment remained fairly constant at around 16 million people, the share of agriculture decreased sharply 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). A particularly sharp increase was observed for trade and consumer services, which grew from 8% to 14% of rural employment between 1999 and 2003.

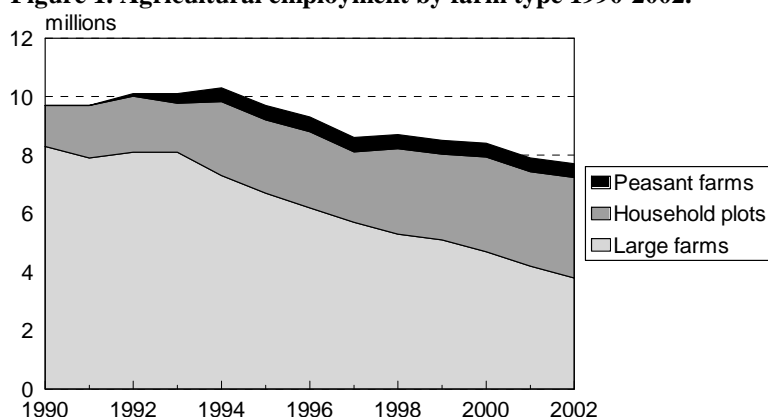
Таблица 1. Rural employment by sectors of the economy 1999-2003

	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	98.0
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 (2007).

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 sovkhozes) 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 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 (2007).

Similar shifts from agriculture to other sectors and from farm enterprises to individual employment is observed in Ukraine. A survey conducted in 2005 by FAO in a representative sample of rural households across Ukraine shows that today the corporate farm is the main employer for only 20% of adults, down from 67% in 1996 (Lerman et al., 2007). All the rest work on the family farm (i.e., are individually employed) or have non-agricultural jobs (salaried or self-employed).

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 2. 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.

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 at the individual household plot. Besides self-employment at individual household plot, non-salaried diversification is presented in the incomes of many rural households. In spite of small share of these income activities in family income (only 7%), 20% of households have this type of income. This includes sale of wild berries and mushrooms, fish, services and etc.

About 90% of rural families have both salaried income and farm income. Only 18% of families receive income from non-farm activities. Transfers are very important for many rural families: 66% of families receive transfers (transfers are pensions, unemployment benefits, other social benefits) (Table 3).

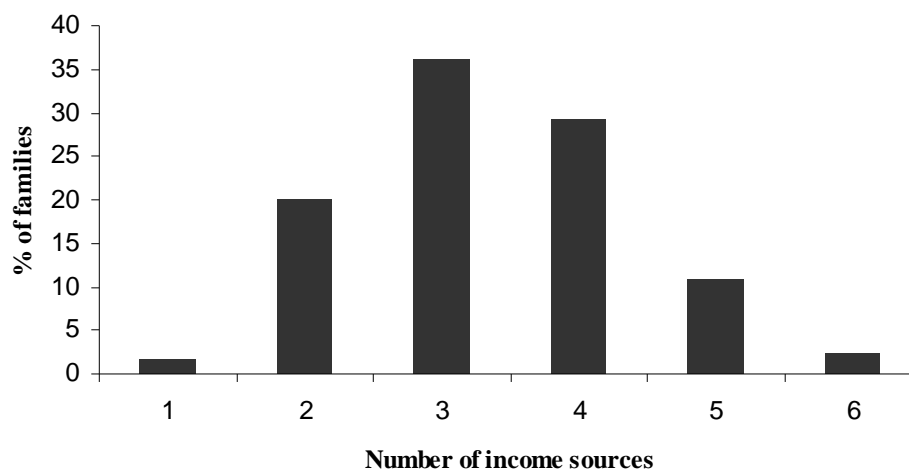
Table 3. Main family income sources

Income sources	% of families who have this income source
Salary	90
Self-employment in agriculture (LPKha)	91
including sale of farm products	26
Non-farm self-employment	18
Transfers	66
Other	42

Source: 2006 AFE survey.

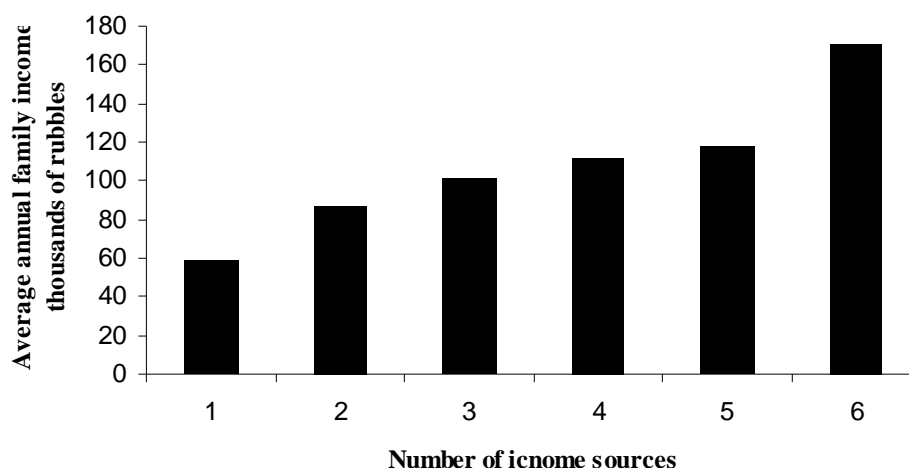
The data on income structure reveals that typical rural family in Perm or Ivanovo receives income from 3 to 4 different sources and types of activities (including transfers, Figure 2). Diversification is positively correlated to family income: when family gets more income sources its family income increases. We present distribution of rural families by income sources in Figure 3 (Here the level of diversification is just the sum of income sources including transfers. It ranges from 1 to 6).

Figure 2. Distribution of families by the number of family income sources



Source: 2006 AFE survey.

Figure 3. Family income and the number of family income sources



Source: 2006 AFE survey.

To assess the incidence of salary diversification, i.e. diversification by the sector of primary employment we offer following classification that might help us to understand some diversification patterns of rural families:

- Agricultural families (both members are employed in agriculture);
- Public sector families (both members are employed in public sector);
- Non-farm families (both members are employed in non-farm sector)
- Mixed agricultural families (one member works in agriculture and other in non-farm or public sector)
- Mixed non-farm families (one member works in public sector and the other works in non-farm sector).

The pure categories are the categories where family members are employed in the same sector. For them, difference between salaries received is not statistically significant. The salary in all three cases is about 60000 rubbles per year (Table 4). But the mixture of employment patterns gives to families much higher income. In two mixed family types we find salary about 90000 rubbles per year. Families that diversify their sector employment activities earn more. This is similar to what was discovered earlier: as diversification proceeds, family income increases (Figure 4).

Table 4. Classification of rural families by sector's salaried primary employment

	Share of families (<i>n</i> = 700)	Annual average salary, rubbles в год
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 significant higher than in pure categories at $p = 0,05$.

Source: 2006 AFE survey.

Non-farm self-employment income activities¹

Less than 20% of families receive non-farm income (or, 142 out of 791 rural household). The main share of non-farm income is generated from sale of wild berries and mushrooms. It is 60% of all non-farm income. From the stand point of sector employment of members for those 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 who have non-farm self-employment income, family income is a bit higher than for families without it (107400 rubbles and 103400 rubbles respectively, difference is statistically insignificant).

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 sources are only 49400 rubbles per year. For contrast, “salaries received” for families without non-farm self-employment income sources are 65600 rubbles. Looking at this difference we think that rural families search for non-farm self-employment to compensate smaller salary. If that be the case, non-farm income should be considered not as additional income source, but necessary source to cover family needs (that salary failed to do).

Further analysis of income structure for non-farm self employment families reveals another fact. These families receive farm income (both sale and self consumption of farm products produced on the individual household plot) that is higher by 10000 rubbles to families without non-farm income. Plus, non-farm self-employment itself brings additional 12000 rubbles per year. Again, we suggest that financial budgetary deficit of rural families that is the result of smaller salaries is covered by income both from non-farm self-employment activities and farm production on the individual household plot (Table 5).

Table 5. Family income structure for families with and without income from non-farm self-employment activities

	Rubbles per year		%	
	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 (individual household plot), including	18,238*	28,277*	18	26
sale of farm products	5,780*	10,600*	6	10
self-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 $p = 0.05$.

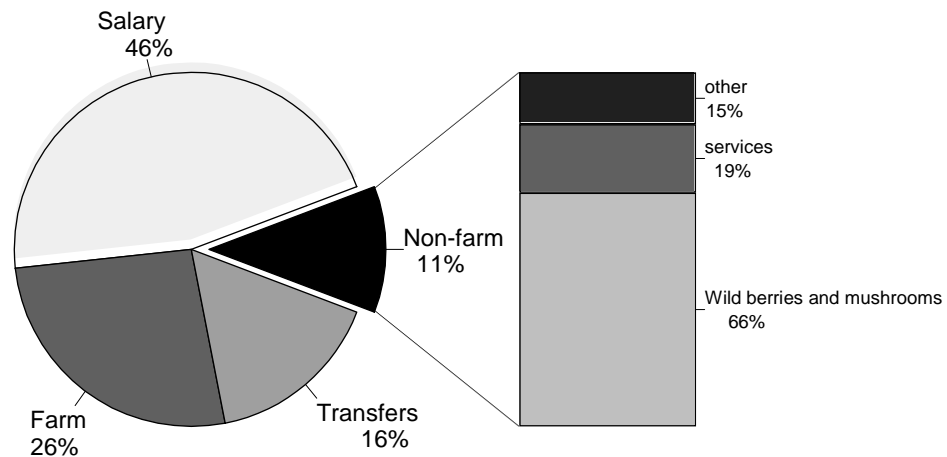
Source: 2006 AFE survey.

For better understanding we present the figure with family income structure for families with non-farm self employment income sources (Figure 4). Two thirds of non-farm income comes from sale of wild berries and mushrooms. To lesser extent this is sale of fish and income from hunting. What is left is equally divided between income from sale services (to local rural residents) and other non-farm activities such as transportation, processing of wood products. In other words, our non-farm income can be divided into two components: “natural”, that comprises

¹ In this part of our article we deal with diversification in non-farm activities that are not related to salary employment. We exclude salaried employment in non-farm sector, i.e. trade, construction, services, public sector

income from sale of wild berries and mushrooms, wood products, fisheries and hunting (about 7% of family income) and “entrepreneurial” that comprises from incomes of offering different services and individual business (4% of family income) (Table 5).

Figure 4. Family income structure for families with non-farm self employment income sources



Source: 2006 AFE survey.

To further our analysis let us hypothesize that possibility to receive non-farm income is a function of structure and quality of 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 non-farm sector (Chaplin, Davidova, Gorton 2003). In addition, bigger family size can stimulate family members to search more income sources. Or, the persistence of unemployed in rural families may stimulate those members to find non-farm self-employment activities to support their family. Or, persistence of pensioners in the family is the indication of aging family that might not be interested in diversification because of age. For this reason we constructed a table with family structure for two types of rural families: with and without non-farm self-employment sources. The results are presented in Table 6.

Table 6. Families with and without non-farm self-employment income

	All sample (<i>n</i> = 791)		Ivanovo (<i>n</i> = 401)		Perm (<i>n</i> = 390)	
	Families with non-farm income	Families without non-farm income	Families with non-farm income	Families without non-farm income	Families with non-farm income	Families without non-farm 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.

As we expected family size and 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 driving force for non-farm income diversification, it failed to be true. In our analysis, families with smaller salaries diversify in non-farm activities. And lower salaries can be related to lower level of education (Table 8).

We have also found one regional feature: about 28% Ivanovo rural families have non-farm self employment income sources, whilst for Perm it is only 7%. This effect is the result of different situation of the regional economies. From one side we have dynamic and natural resources abundant Perm and from the other side we have less developed and natural resources limited Ivanovo (Table 7).

Table 7. Regional economic development

	Ivanovo	Perm
Registered unemployment, %	2,3	1,5
Per capita income, rubbles per month	3468	8134,2
Wage, rubbles per month	5143,7	7748,9
Share of population with incomes below subsistence level,%	42,7	17,7
Investments in capital stock, bln. rubbles	11183	52869
Per capita gross regional product, rubbles (year 2004)	38582	96380

Source: Russian statistical yearbook, 2006, Rosstat

For example, the share of population with income higher the subsistence level is much higher in Perm than in Ivanovo. As for per capita gross regional product or average income, they are two times higher in Perm than in Ivanovo.

In order to proceed with analysis, we made an attempt of modeling motivation of rural households, i.e. the probability, of their involvement in non-farm self-employment activities as a function of variables from Table 6 in logistic regression. Understanding that we are dealing with some regional differences we added regional dummy (Ivanovo-Perm). The results of logistic regression are presented in Table 8.

Table 8. The presence of non-farm self-employment income as function of some regional and demographic characteristics

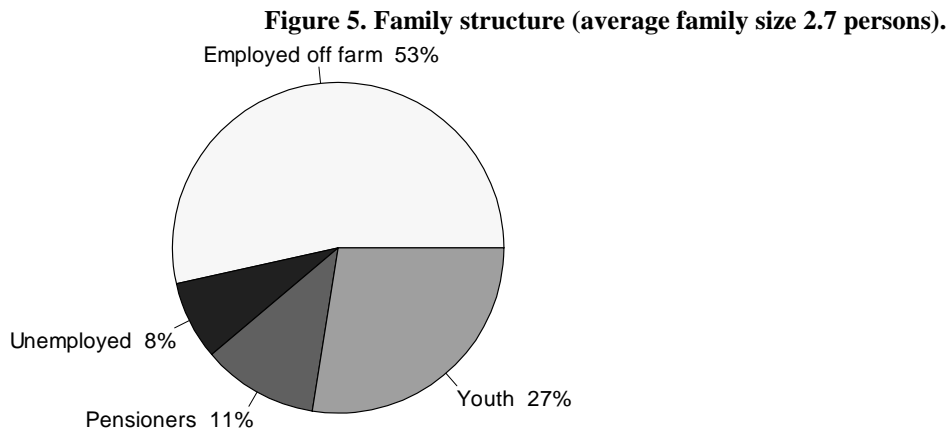
	Coefficients	Probability*	Significance level, p
Family size	+0,357	1,429	0,000
Number of pensioners	-0,407	0,666	0,072
Number of unemployed	+0,523	1,688	0,014
Level of education	-0,183	0,833	0,007
Region (Ivanovo-Perm)	+0,903	6,084	0,000
Intercept	-2,066		

Source: 2006 AFE survey.

So, what are the factors that might influence decision of rural households to be involved in non-farm self-employment activities? *Family size*: as family becomes bigger, there is a higher probability that some of family members will be earning some income from non-farm activities. *Number of pensioners*: the more pensioners in the family, the lower probability that family will be receiving some non-farm income. This is because pensioners are less economically active and in some cases, their pension is higher than salary in agriculture and it is much stable. *Number of unemployed*: the persistence of unemployed in the family increases the probability for family to receive some non-farm income, because this member will be looking for some additional income to family income and no-farm activity is the best option for short-term. *Region*: we have already mentioned that non-farm self employment is more widespread in Ivanovo than in Perm (as mentioned above, 28% Ivanovo rural families have non-farm self employment income sources, whilst for Perm it is only 7%).

Who can work for NFRE sector?

There is no large pool of rural unemployed that can be tapped by new non-farm sector employers entering the rural scene. Figure 5 shows the average family structure in our survey. More than half the people already have salaried jobs. Nearly 40% are pensioners and youngsters, who cannot be regarded as prospective workers for modern employers. Finally 8% are “unemployed” in the sense that the only occupation of these working-age people is farming the household plot. This small segment of the rural population may be ripe for recruitment by new employers, but only if the offered salary exceeds the opportunity cost of reducing the time input in the family farm.



Source: 2006 AFE survey.

Those, who have salaried employment (1,200 individual family members) indicated that they would like to be able to earn more money. However, they did not show much entrepreneurial flair or readiness for mobility – two main prerequisites for achieving higher incomes. Thus, 88% of the respondents said that they wanted to earn more while continuing as hired workers, and only 12% expressed willingness to engage in entrepreneurial activities through self-employment. Fully 82% of the respondents said that they did not have plans to change their present job, and only 18% were planning to move on in pursuit of higher income. These highly conservative risk-averse attitudes of the rural population are reinforced by strong feelings of job insecurity: two-thirds of the respondents said they were afraid they would lose their primary job in the future. In this case, we see some constraints for development of non-farm sector.

Now let us look at youth as part of potential labor force for rural economy. 2006 AFE Survey included analysis of 1385 students from regional universities of five regions (Perm, Ivanovo, Astrahan, Kostroma, Voronezh) (Table 9). 11% of all students expressed their willingness to work in rural area. Only 14% of them are urban students. About 30% of them are married and 8% have children. The majority of students have agricultural profession. This can be a problem with taking or even considering non-agricultural job.

Таблица 9. Some characteristics of students willing to work in rural area.

		%
Would like to work in rural area, students	148	X
Urban students	20	13,5
Rural students	128	86,5
Those who have a family	44	29,7
Those who have children	12	8,1

Source: 2006 AFE survey.

High salary and acceptable working conditions are the main factors that are very important for students in their motivation to work in rural area (Table 10). More than half say that career

advancement opportunities will motivate them to work in rural area. For more than 60% of students possibility to receive a place to live (one of agricultural state support measures) is a strong factor to find rural employment. Earlier we saw that these students come married and that is why it is important for them that spouse also finds a job. And without any doubt, for future rural families, as well those who is already having children, sustainable social infrastructure (education, healthcare, culture) is very important issue in choosing place of employment.

Table 10. The conditions under which students would like to come are the following.

		%
High salary	135	91,2
Good labor conditions	129	87,1
Career	78	52,7
Provision of place to live	31	20,9
Perspective to receive own place to live	99	66,9
Developed social infrastructure	93	62,8
Good transport connection with regional center	70	47,3
Possibility of spouse employment	58	39,5
Possibility to live in town and work in rural area	12	8,1
Provision of telecommunication services	3	2
Access to Internet	7	4,7
Good ecology	25	16,9
Other	3	2

Source: 2006 AFE survey.

More than half consider work in rural economy as hard (Table 11). We think, they relate this to work in agriculture. Among the positive answers we see independence, close relations with villagers (this is reflection of high share of village students in this sample), healthy way of life, fast career growth. But, they also point to low income, unacceptable living conditions in rural area, boring life and informational isolation.

Table 11. And how these students describe lifestyle in rural area?

		%
Hard work	75	50,7
Independence	53	35,8
Low income	37	25
Unacceptable living conditions	38	25,7
Fast career growth	49	33,1
Boring	27	18,2
Close relations with villagers	72	48,6
Information isolation	17	11,5
Healthy way of life	76	51,4
Other	6	4

Source: 2006 AFE survey.

Conclusion.

We discovered that non-farm sector is a part of rural economy in Russia today and it is a significant income contributor for many rural households. Agricultural sector is not the leading employment sector anymore. Sector employment in rural economy is quite diversified too. In order to increase family income, rural households follow two strategies, in some cases this is a mixture of both. First, they increase number of income sources, primarily from the self-employment activities. Second, family members can increase family income more if they work in different sectors of rural economy. Self-employment in majority is presented by work at

individual household plot, and for about 20% of households it is non-farm self employment (picking and sale of wild berries and mushrooms).

The development of non-farm rural sector is taking place under conditions of demand-push factors (Buchenrieder 2003). These factors push family members to find additional income source and never consider it as future potential for primary employment activity. These results are similar to findings (Serova, Zvyagintsev 2006) where authors based on survey of rural households from Perm region discovered that pro non-farm sector families have more unemployed members and those who are employed from time to time. These families consider themselves less well-off than other village families and less reluctant to receive credit.

Rural population is inert and risk-averse: they are afraid to loose job, or would like to earn more but being employed, not self-employed.

Potential labor force that will be the bulk of labor force in the midterm in rural economy, is considering life in rural area as hard working, associate with low income and unacceptable living conditions. At the same time they see career opportunities, enjoy close relations with villagers, prefer healthy way of life and independence. In majority, these are rural students who come from urban university. Only a few urban students would like to consider living in rural area. For most students, salary, good employment conditions, acceptable infrastructure and perspective to receive place to live are strong motivators to live in rural area.

After consideration of our results we see following strategies for new non-farm employers:

- competitive salary,
- search of new employees from school and contractation of students from universities,
- social guarantees in security and sustainability of employment,
- on-job training,
- in the case of lack of state support self-development and support of current infrastructure, i.e. education, health care, culture, public utilities –gas, water, energy; transportation and telecommunications,
- support for adequate social conditions (in order to secure friendly working and co-living with other villagers environment).

We find most measures to be highly costly for individual entrepreneurs and that is why state support is very urgent in prevent of marginalization and achievement of sustainable development of Russian rural economy.

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