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New Generation of Russian Economic Studies

Edited by

Kazuhiro Kumo and Fumikazu Sugiura

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New Generation of Russian Economic Studies

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The Institute of Economic Research
Hitotsubashi University
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Preface

After more than ten years of transformational processes, the economic structure of Russia changed drastically. During the Soviet era, many phenomena in the Soviet economy could not be analyzed from a traditional economic point of view because of its peculiar centralized organization and the extraordinary administrative power of the government. Under the socialist regime, corporate governance problems could not be discussed because many of the firms were controlled by the sectoral ministries directly. Banking system was completely different in the Soviet Union from that in western countries; that is, Soviet-type banks did not play any roles in financial intermediation. A large part of interregional labor distribution was controlled by somewhat strict internal passport system introduced during the Soviet period.

The situation has, however, changed since the collapse of the Soviet Union. Corporate governance, the banking sector and the regional economy turned into most discussed issues in the study of the Russian economy, among others. In accordance with the systemic change in the Russian economy, stylized analytical methods have begun to be applied in investigating the Russian economy. It is against this background that we organized an international workshop entitled "New generation of Russian economic studies" supported by the Institute of Economic Research at Hitotsubashi University on December 6, 2005. This book represents one of outcomes from the collaboration between Russian and Japanese young scholars. We hope this volume could be beneficial to the readers of Russian economic studies and make a contribution to the further development of the field of so-called ‘Economics of Transition’ as a whole.

Kazuhiro Kumo and Fumikazu Sugiura

January 2006

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I. Imitations and Innovations in a Transition Economy

Konstantin Kozlov and Ksenia Yudaeva

Imitations and Innovations in a Transition Economy

Konstantin Kozlov and Ksenia Yudaeva

Introduction

It is widely believed that Russian firms do not innovate. This belief is based on the conjecture that Russian firms should conduct R&D and introduce absolutely new products with the same intensity as do firms from the developed countries. At the same time, "distance to frontier" theory suggests that firms from countries, located far from the technological frontier, can grow quite fast not by introducing absolutely new technologies, but by copying technologies and products, developed in other countries (Acemoglu et. al 2002a,b). In many cases such development by imitation strategy can produce faster growth rates than attempts to grow by doing innovations.

By using two different statistical sources, this paper shows that the overall innovation and imitation rate in Russia is not that low. Russian statistical office Goskomstat reports that about 9% of all enterprisers innovate every year. The small enterprise level survey, which we conducted together with the Institute of Economies in Transition, produces a slightly higher number: more than 40% of enterprisers report being involved in innovative activities in the last tree years. In line with distance to frontier theory, more than half of Russian enterprisers, which report doing innovations, in fact simply imitate foreign or other firms products, or introduce well-known technologies.

Competition with either domestic or foreign products is the main factor, which stimulates both innovations and imitations. At the same time, credit constraints are the major obstacles to innovations. Interestingly, those firms, which innovate, in comparison to those, which imitate, pay special attention to relaxing credit constraints. Such firms are usually better in terms of corporate governance. They also more often complain about unavailability of external financing, but these complains can rather be explained by the fact that such firms look for external finance more often than imitating firms.

When asked directly, firms rarely complain that quality of their personnel and

management is an obstacle to innovations and imitations. At the same time the probability to imitate is positively correlated with presence of managers, which received some training abroad. It appears that imitating firms follow “westernization” strategy: they copy both western technologies and managerial techniques. Education of managers is less important in the case of firms, which report introducing only absolutely new products or technologies. This finding is a bit at odds with the theory, which claims that managing innovations is more complicated than managing imitations. At the beginning of transition, in countries such as Russia there was shortage of good management, while good personnel, which was able to conduct R&D, was available. It is possible that Russian management is better in managing innovations, produced by domestic human capital, than in managing imitations of products, developed by foreign human capital. Therefore, imitating firms pay special attention to education of managers.

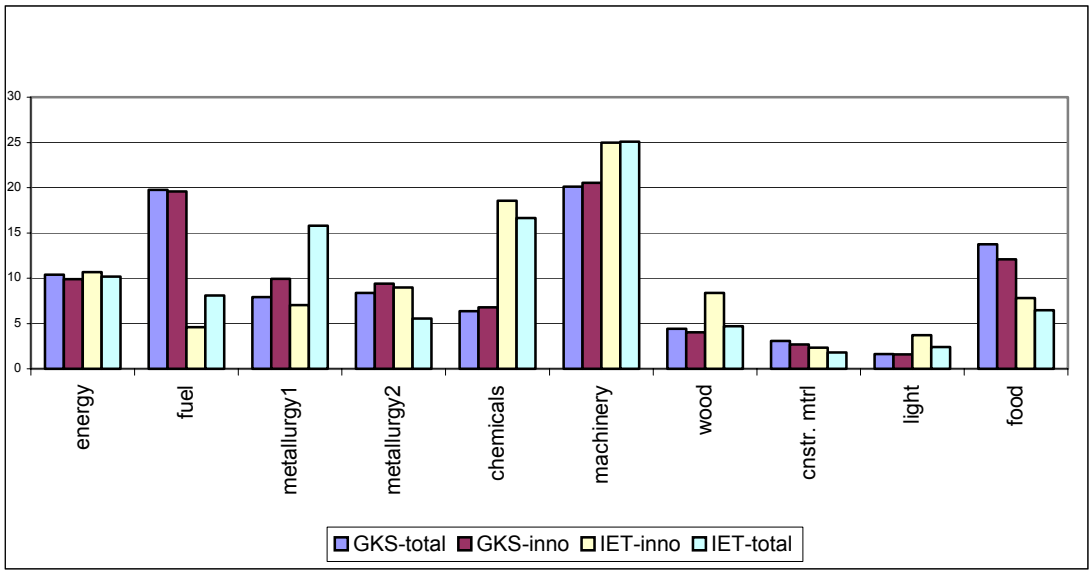
We should notice that, as it often happens in transition economies, the quality of our data is far from perfect, and our fundings can be at best considered as suggestive. Nonetheless, they allow making several conclusions. There are two factors, which can help to increase innovation and imitation rates in Russia. These factors are: building better financial system, which require improvements in corporate governance, and improving education of managers. It is often believed that quality of management is more important for innovation-based strategy than for imitation-based strategy. In reality the situation is probably even more complicated. Quality of management is so poor in countries, located far from the technological frontier, that even imitation-based strategy requires substantial investment in education of management. Preserving relatively strong competition, particularly with imported products, is one more factor, which will help to stimulate innovations.

The paper is organized as follows. In the next section we provide some descriptive information on innovative activities of Russian firms. Section 3 describes theoretical basis for regression analysis and results, obtained in other studies. Section 4 briefly describes data sources, and construction of variables. Section 5 analyses the results of regression analysis, and Section 6 concludes.

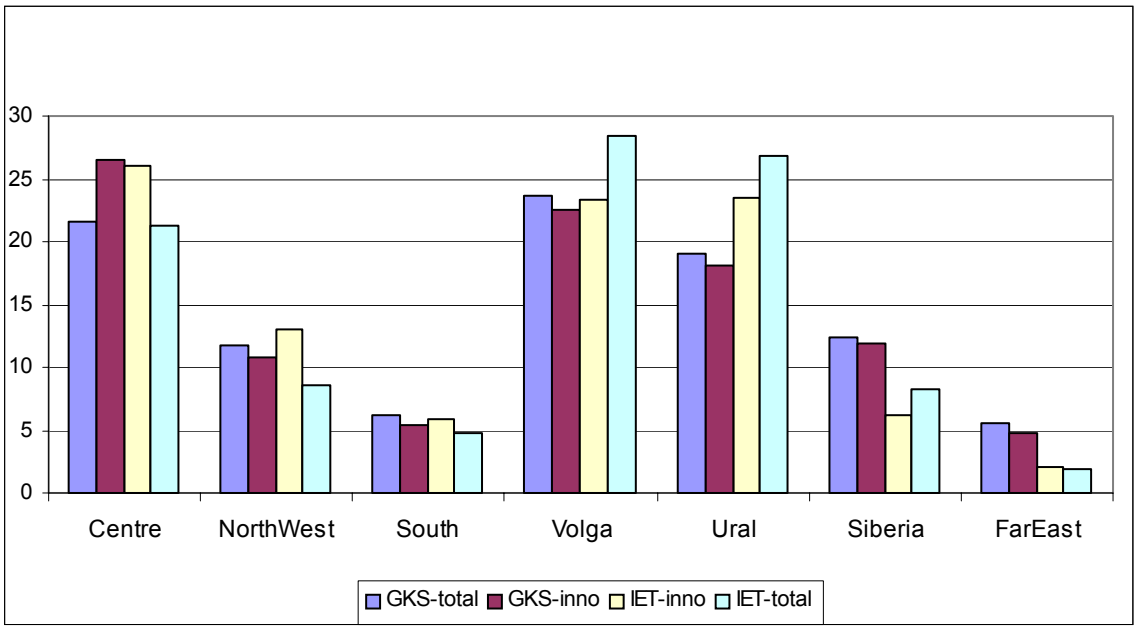
Basic Facts about Innovative Activities of Russian Firms.

The data on innovations, which we use in this study, are coming from two different sources. The first one is the enterprise survey, conducted specially for this paper by S. Tsukhlo from the Institute of Economics of Transition (IET). The innovation questioner was sent by mail to the sample of 1200 firms, which usually participate in the monthly surveys conducted by S. Tsukhlo, and 724 responded to the questioner. Most of firms, included in the sample, existed in pre-transition period. The sample is slightly biased toward machinery and chemicals in expense of fuel industry. The original sample of firms, to which the questioner was sent, is also biased toward metallurgy, but these firms had low response rate. Graph 1 compares the industrial breakdown of this dataset with the industrial composition of the Russian industry, reported in the official statistics. The GKS-total variable corresponds to the industrial breakdown, reported in the standard Goskomstat industrial statistics for 2001. The IET-total variable is the breakdown of industrial production of firms, to which the IET questioner was sent. The questioner does not have questions on output, so production data are obtained by merging the IET dataset and the Russian firms' registry. The IET-innovations variable reports breakdown of production of firms, which responded to the innovation questioner. As in the case of the total IET sample, production was obtained by merging IET sample with the firm registry.
Graph 2 reports regional breakdown of the IET sample and its comparison to the Goskomstat data. Again, both samples are more or less representative, with slight bias toward Ural region, in expense of Siberia and Far East. Such geographical bias is a natural result of the bias of the industrial breakdown toward machine building sector, because a large percentage of Russian machine building is located in Volga and Ural regions.

Graph 1 industrial composition of the datasets



Graph 2 Regional composition of the datasets



The IET questioner contains questions about types of innovative activities, goals of innovative activities, sources of funding, and obstacles to innovations. The survey shows that about 87% of firms are involved in innovative activities in the last three years. This number looks too high, particularly in comparison to the official statistics (see below). It seems to be consistent with other non-official survey data. Krasnochtchekova (2000)

provides data from The Russian Economic Barometer (REB) survey of innovative activities of firms in 1993-96. According to REB, the percentage of firms, which were involved into either product or process innovation in these years, was fluctuating between 58-63 percent. The REB sample is similar in nature to our sample, and the hypothesis that in the early 2000s the percentage of firms, involved in innovations, increased by about 25% in comparison with 1990s sounds reasonable. Nonetheless, the statistics on the number of firms that innovate in this dataset can be biased upward. It can happen because firms, which are not involved in innovation activities, may have lower incentives to respond than the firms, which are involved in innovative activities. If we assume that all firms, which have not replied to the survey questioner, are not involved into innovative activities, then the resulting percentage of innovative firms will be equal to 41%. As we will show below, this number is still higher than the one in the Goskomstat data.

Another characteristic of innovation activities, used in this survey, is difference in innovation rate with 1980s. Enterprisers were asked whether they think that today they innovate more or less than in 1980s. About 36% of enterprises responded that their innovation rate increased since the Soviet times.

The second data set was constructed using Russian Statistical Agency "Goskomstat" publications on innovation activities of Russian firms in 2001 and 2000. These publications summarize the results of innovation surveys, which Goskomstat conducts on the annual basis. The publication does not give a lot of details on the sample, but it appears that the original database covers about 25000 Russian firms. The sample of firms is representative for the Russian industry, and closely follows the industrial and regional breakdown of the overall Russian industry (see Graphs 1 and 2, variable GKS-innovations). The publication divides all firms on those with innovations, and others, and provides summary tables for the two groups of firms. Most information is either by industry, or by region, or both. At the end of the 2001 publication there is a list of firms, which were involved into innovative activities in the last three years. This list includes brief descriptions of innovations. The publication contains a lot of other information on firms, involved in innovative activities, such as sources of finance, total spending on innovation activities, etc. This data, however, are available only in summary tables, and

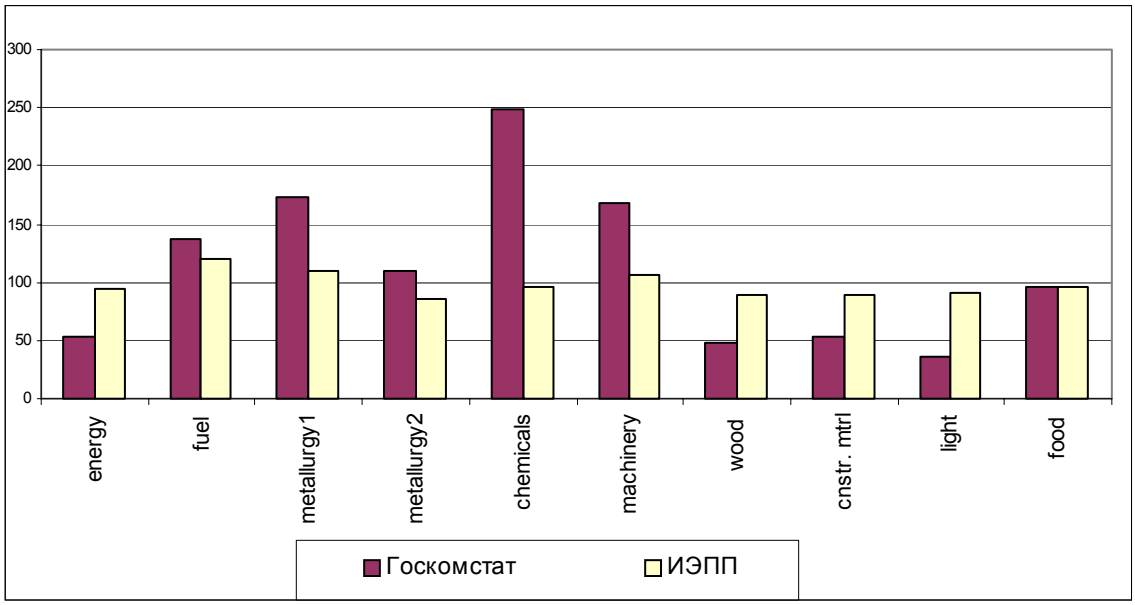
not available on the firm level.

The percentage of firms, involved into innovative activities in this dataset is 8.5% in 2000 and 8.7% in 2001. Since these numbers correspond to innovation activities during one year, they are not highly inconsistent with the findings of the IET survey. Assuming that each enterprise introduce innovation once every tree years, Goskomstat data suggests that about 25-30% of firms innovated in the period 1991-2001. This number is below than the number, obtained in the IET questioner. However, the IET questioner referrers to a slightly later period (the questioner was sent out in September 2003). The time period, considered in the IET dataset, is characterized by higher and more stable growth rate, then the period, considered in the Goskomstat survey. Such better economic situation can explain why IET innovation rate is higher than the Goskomstat one. We also can not exclude the hypothesis that Goskomstat's number is biased downward because of underreporting. While in the case of the first dataset, firms, which have no innovations, had little incentives to respond to the questioner, in the case of the Goskomstat dataset, firms, which had innovations, but did not fill in the form can be mixed with the firms, which did not have innovations. This type of underreporting is very common in the Russian statistics. Goskomstat's questioner is much larger than the IET questioner, and includes not only qualitative questions about presence of innovations, types of innovations, problems with innovations, and so on, but also rather detailed questions about the percentage of funds spent on innovation activities. Russian firms can be more reluctant to answer the questions about finance than to qualitative questions. As a result, the percentage of positive answers to the Goskomstat questioner can be smaller than for to the IET one. In addition, Goskomstat seems to first ask whether enterprises innovate, and then asks to choose proper innovation activity from the list. IET questioner go directly to the list of innovations. It is possible that due to this difference in methodology, some minor innovations are not taken care of in the Goskomstat survey, but appear in the IET survey.

Graph 3 presents the ratios of the share of firms, which innovate in each industry over the average share of innovative firms in overall sample. So, this graph compares innovation rates across industries. The variables were constructed in such a way, which allowed comparison between the two datasets. Surprisingly, in the IET dataset innovations are

relatively equally distributed across industries. In the Goscomstat innovation sample, firms in chemicals, machinery and metallurgy innovate more often than enterprisers from other industries.

Graph 3



Types of innovation activities

As far as forms of innovative activities are concerned, there are important similarities in both datasets (see Table 1). Both datasets report that among innovative activities, major role belongs to purchases of new machines and equipment: 62% of all firms, which do innovations, in the Goskomstat survey, and 64% of corresponding firms in the IET sample are involved in this type of activities. In the IET questioner, we also asked for the introduction of new products, and 61% of firms, which do innovations, reported that they have done it in the last three years. In-house R&D are doing 33% of innovating firms from the IET sample, and additional 16% of enterprisers outsource R&D. Goskomstat divides research and development into two separate activities, and reports that about 33% of innovative firms are involved in research, while 37% develop new products or technologies. Almost twice as many firms, which do R&D, are doing it in house. The median spending on R&D (among firms, which do R&D) is 2% of total sales

in the IET dataset, and less than 1% in the Goskomstat dataset. Education of personnel was done on 24% of innovating firms in the Goskomstat study, and 31% of innovating firms in the IET study. About 8% of innovative firms in the Goskomstat sample, and 7% in the IET sample purchase licenses. Introduction of new technologies varies a lot: if in Goskomstat data 16% of firms are buying new technologies, in the other sample this number goes up to 36%.

Table 1 Percent of firms, involved in innovative activities, in breakdown by activity.

Goskomstat		IET	
marketing studies	19%	marketing studies	31%
Innovation related education of personnel	24%	education of personnel	45%
Purchasing of new technologies	16%	introduction of new technology	36%
Of which: patents, licenses, prototypes	8%	purchases of licenses or patents	7%
Innovation-related purchasing of machines and equipment	62%	purchase of new machines and equipment	64%
Research and development of new products and technologies	33%	in-house R&D	33%
		outsourced R&D	16%
Purchasing of IT products	27%		
Development of new products, and preparation for production of new goods and services	37%		
		introduction of new products	61%

Both surveys contain question about marketing studies. About 19% of Goskomstat firms, and 31% of IET firms do it. Goskomstat asks about purchases of new computer programs, and 27% of innovating firms did it. The question about education of personnel is formulated differently in two datasets. Goskomstat specifically asks about innovation-related education of personnel, while IET treats all education activities as innovations. This difference in formulations may explain difference in responses: only 24% of the GKS sample in comparison to 45% of the IET sample reported that they educated their personnel.

The IET questioner tries to separate development of absolutely new products and copying of already existing ones (see Table 2). Surprisingly high percentage of firms claim that

they introduced absolutely new product or technology (27% and 13% respectively). About one third of all firms report that the new product they introduced is a small improvement to the one, which existed before.

Table 2: Characterization of new products/technologies.

	new products	New technologies
this is an absolutely new product/technology developed on our firm	27%	13%
this is an absolutely new product/technology developed by Russian specialists	12%	8%
This is a small improvement of the technology/product, which we already have on our firm	34%	29%
this is a technology/product, widely used abroad, on which we bought a license	5%	5%
This is a widely used technology/product for which we bought an equipment	23%	22%
this a copy of a foreign technology/product, which was developed at our firm (or by other Russian specialists)	15%	8%

Note: the numbers do not sum up to 100%, because firms were allowed to mark more than one answer.

Notice, that in Table 2 percentages do not sum up to 100%. This is related to the fact that firms were given the opportunity to give several answers to this question. It is possible that firms introduced several innovations during the period in question, and these innovations were of different types. Among 727 firms, which replied to the questioner, 226 firms either do not make innovations, or did not specify their type, 196 firms only conducted imitating innovations (raw 3 to 6 in Table 2), 148 firms introduced only absolutely new products or technologies (raw 1 and 2 in Table 2), and the remaining 157 firms have innovations of both types (marked more than one answer in Table 2). Table 3 provides cross tabulation of answers to the questions about activity types and characteristics of activities. In this Table and other tables, which use the same classification of firms, we call positive answers to questions 1 and 2 in Table 2 “innovations”, and answeres to questions 3-6 “imitations”. This table allows checking whether firms give reasonable and consistent answers to similar questions. Interestingly, those firms, which introduced both absolutely new innovations and imitations, are

involved in innovations of all types more often. Quite reasonably, these firms, and firms, which introduce absolutely new products and technologies, are doing R&D themselves or outsource R&D more often than firms, which are involved into imitations. In contrast, the latter firms purchase machinery and equipment more often. They also educate their personnel slightly more often than the firms, which introduce absolutely new innovations. Conducting innovations may be self-educationary, so those firms, which do innovations themselves, do not need to spend time and resources on educating their personnel to use equipment, developed by other firms. However, education of new personnel is even more popular in the case of firms, which do both absolutely new innovations and imitations. Interestingly, imitating firms conduct marketing studies less often than innovating ones. The highest rate of doing marketing studies is among those enterprisers, which do both innovations and imitations.

Table 3. Per cent of firms doing specific types of innovations.

	Firms with imitations	Firms with innovations	Firms with both
in-house R&D	23%	41%	53%
outsourced R&D	8%	22%	31%
introduction of new products	63%	63%	79%
introduction of new technology	34%	32%	55%
purchase of new machines and equipment	77%	39%	75%
education of personnel	44%	38%	64%
marketing studies	26%	32%	48%
purchases of licenses or patents	6%	7%	11%

Note: Firms, which did not answer to the questions regarding innovative or imitative types of activities, are omitted.

Reasons for innovation activities:

The IET survey asks firms why they like to be involved in innovative activities. About 73% of firms, which replied to this question, do it in order to improve financial situation. It appears that they often achieve this goal through decrease of the costs of production (64%). Increase (or preservation) of the market share (66%) or accessing new markets (59%) are also among the major reasons of doing innovations. The percentage of

firms, which consider getting access to the international market as an important goal of innovation activities, is fairly large – 31%, but most of the firms still consider domestic market as the major market for their output. At the same time, only 7% of firms would like to become suppliers for the foreign firms working in Russia. Only 14% consider innovations as a way to improve capitalization of the company. This last number is consistent with the finding of Guriev et al (2003), who used similar dataset to study corporate governance of Russian firms. Guriev et al (2003) argue that most of the firms in the IET sample do not care about market capitalization, because are not traded openly on the market. Finally, about 11% of firms answered that they consider innovations as a way of decreasing dependence on suppliers, meaning that these firms would like to replace foreign-produced or outsourced inputs with inputs, outsourced to domestic suppliers or produced in-house. Such behavior can be a part of cost-decreasing strategy.

Table 3. Per cent of firms from each category, which mentioned the corresponding reason for innovation activities

Reason mentioned	Firms with innovations	Firms with imitations	Firms with both
better serve demand	53%	52%	66%
increase market share	71%	69%	83%
access new markets	68%	65%	75%
access new international markets	36%	34%	42%
decrease costs	66%	68%	73%
diversify products	23%	24%	38%
increase capitalization	16%	11%	26%
improve financial situation	72%	73%	76%
become supplier for foreigners	4%	7%	11%
decrease depandance from suppliers	11%	12%	17%
else	1%	2%	1%

Note: Firms, which did not answer to the questions regarding innovative or imitative types of activities, are omitted.

In Table 3 we compare motivation for innovation activities for firms, which conduct innovations, imitations, or both. There seem to be not that many differences in motivations across different groups of firms. The group, which conducts both innovations and imitations, is slightly different from the other two groups. Firms, which belong to this

group, mention each goal more often than other firms. The difference is particularly large when they answer the question about increase in market share and product diversification. In addition, these firms more often than others care about market capitalization – this result is very interesting in light with the results about corporate governance, which we will show later. Finally, this firms care the most about becoming suppliers for foreign firms. Naturally, those firms, which conduct innovations, are the ones, which consider the possibility to become suppliers for foreign firms as the least important.

Financing innovations

Both data sources contain information about sources of funding for innovations, but they report it differently. In the IET dataset, firms report percentage of funds, used to finance innovations, which was raised from a particular source. Therefore, summary statistics, which we report in this paper, correspond to the average number across firms. In the case of Goskomstat data, we do not have firm level information on financing sources, and report the break down of sources of finance, summed up across all firms.

Not surprisingly, both datasets show that retained earnings compose the largest share of innovation finance. In the Goskomstat data, the retail earnings share is equal to 87%. The corresponding number in the IET sample is 71%. Only 5% of all firms did not use retained earnings in the period of consideration. The share of government subsidies is almost negligible in both datasets: 3.6% in the Goskomstat data, of which the shares of federal and local governments are almost equal, and 2.4% in the IET data. About 91% of firms in the IET data did not have any government finance at all, although there are firms, which completely financed their innovations with the government funds. On a median firm, which received government funding, the share of such finance amounted to 15%. The share of foreign funding differs across datasets, and across years in the Goskomstat dataset. If in the 2000 Goskomstat book this share amounts to 6.5%, in 2001 it drops to 1.5%. In comparison, the average firm in the IET dataset finance only 0.5% of its spending on innovations with foreign investments. The maximum share of foreign finance reaches 63%, though, and the median firm, which receives foreign finance, covers 24% of

its innovation spending from foreign investments. The IET dataset also provides information on banking credits: the share of banking finance in total funds, used for innovations, is 12% on average, but 43% among firms, which use banking finance. There are firms, which finance 100% of their innovation spending with banking finance. A small percentage of firms actively use credit from consumers of their products, or shareholders, to finance innovations. There are firms, which finance 100% of their innovation spending from these sources. The median firm, which receives credit from shareholders to finance innovations, gets 50% of its innovation spending financed from this source, and the median firm, which have access to credit from its consumers, covers 18% of its innovation expenditure from this source. Only two percent of firms in the sample ever used bond finance or issued new equity. Those, who did it, financed on average 24% of innovation expenditure from this source.

Obstacles to innovations

Both questioners have a section, which asks respondents to evaluate the problems, which they face in conducting innovation activities. The list of suggested problems includes financial problems, problems with finding managers, workers and other personnel with required qualifications, and problems with access to information and infrastructure. Most of firms in both datasets consider financial problems, particularly lack of retained earnings followed by insufficient state support, as the highest barrier to innovations (see Table 3). In the IET questioners respondents ranked problems with finding experienced management and/or other personnel as secondary order problems, while infrastructure problems, lack of information, and problems with hiring foreign specialists are viewed as even less important than problems with personnel. Interestingly, firms, which conduct absolutely new innovations, appear to be slightly more liquidity constraint than imitating enterprises, and enterprises, which introduce both types of innovations. While complains about lack of retained earnings are similarly frequent across all three types of enterprises, more of those enterprises, which are involved into absolutely new innovations, rank lack of external finance as a significant barrier.

Goscomstat questioner pays a lot of attention to such factors as economic risks. Enterprises were asked about economic risk directly, and about those characteristics of innovations, which may become a problem in the presence of high economic risk. The list of such factors consists of the length of the period, which is needed to return the money, invested in innovations, and the costs of innovation activities. The latter factor can be related not only to the risk of innovation process, but also to the problem that firms are credit constraint. Respondents ranked such problems quite high, i.e. higher than the problems with personnel and infrastructure. Interestingly, when enterprisers are asked about lack of personnel, they rank this problem quite low, but rank quite high the problem "enterprise has a low innovation potential". Infrastructure problems are ranked higher than problems with personnel. This result may have some relation to the credit constraints problem, though, because Goscomstat ask general question about infrastructure, and not the specific question about infrastructure directly needed to perform innovative activities. Respondents to Goskomstat questioner also rank quite high the question about lack of legislation, regulating innovation activities.

Factors, which influence innovations: theory and evidence from other studies

The description of the innovation data, provided in the previous section, allows to make several conclusions. In the last three years about 40% of Russian firms introduced absolutely new or imitated products and/or technologies. The percentage of imitations or incremental changes was slightly higher than the percentage of innovations. Most of innovations are financed by retained earnings, and enterprisers consider lack of retained earnings as major obstacle to innovations. Only small number of firms uses banking finance, although those, who use it, finance almost half of their innovation expenditure out of this source. Often, firms do not use banking credits not because it is not available, but because of habit, or because they are reluctant to do so. As a result, the percentage of firms, complaining that external finance is unavailable is smaller than the percentage of firms, complaining about lack of retained earnings. Soviet-times nostalgia explains the fact that a large percentage of firms in both samples complains that government do not participate in

Table 4 Barriers to innovation activities.

Numbers correspond to the percentages of those enterprises, which answered to this question. In both sample both firms, which conduct innovations, and which do not do innovations are included. In the IET case numbers do not sum up to 100% in those cases, where some respondents chose "difficult to answer" option.

Goskomstat				IET				
	unimportant barrier	important barrier	main barrier		not a problem	small barrier	barrier	significant barrier
Lack of retained earnings	9	35	56	Lack of retain earnings	1.5	2	10	85
High costs of innovations	23	50	27	No access to external finance	11	9	19	42
				You find conditions, at which external finance is available, non acceptable	12	11	16	19
				Too high interest rates on loans	5	8	21	59
Lack of state support	26	39	35	Lack of state support of innovation activities (subsidies, tax credits, etc.)	5	6	15	60
low innovation potential	61	28	11	Lack of skilled technical personnel at the firm	12	20	31	24
lack of skilled personnel	65	30	6	Lack of managers, experienced in managing innovative activities	12	23	29	23
				Lack of skilled labor	17	23	26	21
Lack of infrastructure	58	34	8	Lack of technological infrastructure (research institutes or firms, whom you can contract out development of an innovation for your firm)	15	24	23	16
Underdeveloped market for technologies	55	37	8					
Lack of information about new technologies	73	27	0	Lack of information about new projects and technologies	16	29	23	13
Low demand for new goods	*46*	*40*	*14*	*Bureaucratic problems with hiring foreign skilled personnel*	*38*	*10*	*7*	*4*
High economic risk	*50*	*40*	*10*					
Long period of return of investments in innovations	*45*	*43*	*12*					
Lack of information about the market demand	*68*	*27*	*5*					
The enterprise is poorly suited to introduce innovations	*85*	*13*	*2*					
Lack of opportunities to cooperate with other enterprisers and research institutes	*73*	*24*	*4*					
Low consumer demand for new products	*60*	*30*	*10*					
Lack of legal infrastructure for innovation activities	*48*	*39*	*13*					
Uncertainty about the length of innovation process	*70*	*27*	*3*					

financing their innovations. Problems with quality of infrastructure, personnel or general uncertainty are considered as much less important than financial problems, and ranking of these problems can differ from one source of data to another.

The problem with such self-evaluation of barriers to innovations by enterprises is that it misses the effect of some factors, which stimulate innovations, but maybe perceived by managers as obstacle to innovations. Among such factors, competition has, probably, attracted most of attention in the literature. Clearly, by reducing profits competition can have negative effect on innovations. The growth literature until recently was dominated by such Shumpeterian ideas (Dasgupta-Stiglitz (1980), Aghion-Howitt (1992), Caballero-Jaffe (1993)). This theory was not supported by empirical findings, which demonstrated positive correlation between product market competition and innovative output (Geroski (1995), Nickel (1996), Blundell, Griffith and Van Reenen (1999)). Positive relation between competition and innovations can be generated in the model, where competition increases incentives to innovate for satisfying managers, who minimize their effort subject to staying in business (Aghion-Dewatripont-Rey, 1999). Recently, various theoretical justifications of an inverse U-shape relationship were proposed (Aghion, Harris and Vickers (1997), Aghion, Harris, Howitt and Vickers (2001), Aghion and Howitt (2002), Aghion, Bloom, Blundell, Griffith, Howitt (2002)). In these models firms innovate in order to increase the post-innovation rent in comparison to the pre-innovation rent in the neck-to neck competition environment. The difference of this model from the traditional Shumpeterian models is that incumbent firms are also allowed to innovate.

Empirical literature from the developed countries supports the hypothesis of an inverted U-shape relationship between product market competition and innovations. Aghion, Bloom, Blundell, Griffith, Howitt (2002)). Blundell, Griffith, and Van Reenen (1995, 1999) find positive association between the number of innovations and patents, and increase in domestic competition and trade openness. Evidence from Central and Eastern European (CEES) transition countries is mixed. Grosfeld-Tressel (2001) reports positive association between competition and TFP growth, Carlin, Fries, Schaffer, and Seabright (2001) report negative relation between domestic competition and new product innovation,

and positive relation between foreign competition and innovation, and, finally, Aghion, Carlin and Schaffer (2002) find an inverse U-shape relationship between competition and new product innovation. The latter result is supported in the Jefferson et al. (2002b) study of the R&D performance of Chinese firms.

Aghion, Carlin and Schaffer (2002) study interaction between competition and firm leverage or corporate governance, hard budget constraints or credit rationing. The theoretical part of the paper shows that in the Aghion-Dewatripont-Rey (1999) model (ADR), where managers do not maximize profit, but care about their own survival, the effect of competition on innovation decreases with increase in managerial claims on monetary profit or higher debt pressure, because these factors work as substitutes to competition in their effect on managerial incentives. In step-by step innovation model of the type of Aghion, Harris, Howitt and Vickers (2001) model (AHHV), competition and managerial claims on profit or hard budget constraints are complements. The interaction between competition and credit rationing in AHHV model is nonlinear. When competition is not too strong, and, therefore, financial constraints are not binding, increase in competition enhances innovation. However, when competition increases, Shumpeterian-type effects start to work, i.e. competition starts to exert negative influence on innovations through the negative effect on profit. The empirical part of the paper demonstrates dramatic differences between the effect of competition on new and old firms. While new firms innovate more than the old ones, competitive pressure boosts innovations on both types of firms. Foreign competition is particularly important for the old firms. Soft budget constraints are detrimental to innovations. Similar finding, although using the same dataset, was obtained in Carlin et al (2001). New firms are significantly less likely to innovate when they face more than one competitor. Since new firms are usually considered as more budget-constrained, this finding is consistent with the hypothesis that ADR model is more relevant for the old firms, while AHHV model is more relevant for the new firms.

Several papers study the effects of ownership structure on firms restructuring and innovation performance in more details. Carlin et al (2001) show that state-owned firms innovate less than the privatized and new firms, although fails to find differences in

introduction of new products by privatized and new firms. Jefferson et al (2002a) show that introduction of new product on Chinese firms is more or less the same for all ownership categories, with the exception of overseas and foreign firms. Among these two groups of firms, the proportion of firms, which is involved into introduction of new products, is rather small. In fact, such firms also spend less on R&D, which may suggest that they rely on headquarters in their innovative activates. Importantly, those overseas and foreign firms, which introduce new products, do it with significantly higher intensity, than average Chinese firms. It is also interesting to report the results of Grossfeld and Tressel (2001) paper, although they are not directly related to innovative activities. This paper finds non-linearity in performance of Polish listed firms with ownership concentration: firms with dispersed ownership and with the concentrated one are more productive than the firms with intermediate concentration of ownership.

Two other factors, effect of which on innovations is interesting to study in a transition economy, are corporate governance and quality of management. Throughout 1990s Russian companies were famous for bad quality of corporate governance. The major goal of managers and some groups of outside owners was to get control over companies, and they used all possible means to fulfill this goal. At the beginning of the 2000s, this process of ownership consolidation was finished, and owners started to pay more attention to capitalization of their companies. As a way of influencing capitalization, the companies started to pay more attention to improving relationship with minority shareholders. Many companies adopted new codes of corporate governance, started to produce accounting reports prepared using international rules, introduced independent directors into their board, and so on. This process started on some of the large companies, but it quickly spread into a number of smaller companies (Guriev et al, 2003). There are at least two reasons why owners of Russian companies started to behave in this way. The first one is that they decided to cash in the results of privatization, and attempted to increase capitalization of their companies in order to increase the price of these companies in their future sales. The second reason is that they needed to rise funds for investments, and they had to improve corporate governance in order to decrease the costs of such funds. These two different hypothesis map themselves into two different strategies regarding

innovations. Clearly, in the second case, when good corporate governance is a way to attract investments, corporate governance should be positively correlated with innovations. Owners of firms, which follow such strategy, care about current and future profitability of their firms, and make investments to increase profitability. Most likely, such increase in investments results in innovations or at least in imitations. In the first case scenario, the sign of the correlation coefficient between the quality of corporate governance and innovation activities is not so easy to predict. If innovations are expensive, and owners would like to sell of their firms quickly, firms are unlikely to conduct innovations. On the other hand, some cheap incremental innovations can still be undertaken, because they can also lead to improvement of capitalization of the firm and increase in its current profit.

Apart from other factors, quality of management can have substantial influence on incidence and form of innovation activities of enterprisers. Soviet managers were not used to changing production profile in order to suite the interests of consumers and to maximize profit. Instead, their major goal was fulfilling production plans. There is a substantial literature on economics of planned economies, which argue that this goal was inconsistent with renovation of enterprisers and introduction of new technologies and products on old firms. Renovations and other changes took time, thus not allowing firms to produce more goods to fulfill plans. This lead to problems in commercialization of R&D results, which were widespread in the Soviet Union. Most of innovations were installed on absolutely new plants, while the old ones continue to produce outdated output. Because of resource constraint, rate of innovations in such economy was quite low. In addition to this improper alignment of incentives, Soviet managers had no marketing skills. Soviet firms did not have to care whether consumers like their products or not. The wholesale and retail trade sectors were separated from production, and producers did not get enough signals from consumers. Producers did not care whether the good is sold to the final consumers; they only cared about fulfilling production plan.

Although transition from plan to the market economy has clearly changed the incentives of producers; managers' skills have not automatically changed. Therefore, one can imagine that firms innovate too little because their managers do not know how to find or design the product, which will be popular among consumers, and how to advertise it

and more generally how to sell it to consumers in the most efficient way. Innovations may appear to be too expensive, and too risky process for such managers, and they will under-innovate as a result. In addition to decrease in the overall innovation rate, poor quality of management can result in bias toward imitations, which may look as a safer bet for under-qualified managers.

Data and Methodology of Regression Analysis

To analyze, whether factors, discussed in the previous section, have any effect on innovation activities of Russian firms, we use probit regressions techniques. We estimate whether probability of a firm to be involved into innovation activities depends on competition with domestic and foreign firms, credit constraints, ownership structure, state interventions in the regional economic activities, quality of corporate governance, and quality of managers. In the case of Goscomstat data, the dependent variable takes the value of 1 if the enterprise belongs to the list of firms, which conducted innovative activities in the last three years according to the 2001 publication. The remaining firms are the rest of the firms, included in the Registry of Russian Firms. We should note that this approach can suffer from mis-classification basis. It can happen in those cases, when a firm, which is included in the registry, and is being involved into innovating activities, did not participate in the Goskomstat innovation survey. However, since the survey is quite large, we don't think that the number of firms misclassified in this way is large. A similar specification can be estimated using IET survey data.

IET questioner allows us to estimate several other specifications. We can use the answer to the question about change in the rate of innovative activities since 1980s as a dependent variable. Additionally, we can test whether there are any differences in factors, which influence firms with imitating and innovating development strategies.

Methodology of constructing dependent variables also differs slightly in the case of Goskomstat and IET data. In the case of Goskomstat data we have to rely on other sources, usually also produced by Goskomstat, to construct most of the variables. In the case of IET some of the variables can be obtained from other IET surveys, conducted

using the same original sample of firms.

In addition to survey data and data from various Goskomstat publications, we use the so called Russian firms registry. This dataset contains firm level balance sheet statistics, and other statistical information, which Russian firms have to submit to statistical agencies. This dataset was constructed using information from GNOZIS, ALBA, Registry, and other datasets. These datasets are a traditional source of information on Russian firm, which was used in a number of other studies, among which are Yudaeva et al. (2003), Guriev and Rachinsky (2004), Brown and Earle (2001), etc.

Variables construction in the case of Goskomstat survey

There are two competition measures, which are included in the regression separately. Foreign competition is measured as a log of the ratio of import to total output of the firm's 5-digit OKONH industry. Domestic competition is proxied by Herfindahl-Hirschmann concentration index in the 5-digit industry. Theory predicts that competition should have an inverted U-shape effect on innovations. To capture non-linearity of the effect, we also included in the regression the mean-subtracted square of the log of the import-output ratio. To measure domestic competition, we computed Herfindahl-Hirschman index for 5-digit OKONH industries and its square (also mean-subtracted). The index was constructed using data on firms' production from the Registry of Russian firms. To escape reversed-causality interpretation, both measures of domestic and foreign competition were constructed for 1999.

Several firms' characteristics are used as explanatory variables – availability of own funds to finance innovations (sum of four dummies that equal one if the firm has positive profit in 1995-1998), size of the firm (log of average employment in 1996-1998), dummies for firms with foreign-ownership of more than 10% and firms with federal government ownership. All these variables are constructed using registry of Russian firms.

The corporate governance index, which we use, was constructed by Guriev et al (2003) on the basis of the survey, which was also conducted by S. Tsukhlo. The survey included questions on relationships with minority shareholders, presence of external

directors, producing reports using international accounting standards and so on. The corporate governance index is the first principle component of all these measures.

Variables construction in the case of the IET survey

Instead of using Herfindahl-Hirschman index or import share as a measure of competition, in this model we are able to include as a right-hand side variable firms' own assessment of the degree of competition it faces. Information on competition is a part of the regular IET surveys. The firms are asked to evaluate the level of competition using the four-score scale ranging from very strong (1 point) to none (4 points) for three groups of producers: domestic producers, producers from CIS countries, and producers from abroad. The index of competition intensity is constructed as the standardized inverted first principal component of firms' assessment of competition with all three groups of competitors. That is, the higher is the size of the variable, the tougher is competition.

Other firms' characteristics are the same as in the regressions, which use Goskomstat data. In some specifications we also use indicator of those firms, whose managers studied abroad. This indicator is obtained from another survey, which we conducted together with the IET. That survey contained the question about firm having managers with foreign MBA, and the question about presence of managers, who took short management courses and/or internships abroad. Positive answer to one of these questions was coded as presence of managers, which studied abroad. Of course, we can not control for the quality of education, which such managers received, so this variable gives only an imprecise measure of the quality of managers. Nonetheless it turns out that inclusion of this variable in the regression equation provides interesting information about behavior of firms.

Appendix 2 provides further details about construction of each variable, and some summary statistics.

Results

Tables 4 and 5 report the results of regression estimation in Goscomstat and IET datasets respectively. As can be seen from the regression tables, major results are in line with the theory. Profitability is highly significant in all specifications, estimated using Goskomstat sample. In the case of IET sample, this variable is also always positive, but it gets less significant or even insignificant in the specifications, where we control for quality of corporate governance, and quality of managers. Profitability here is a predetermined variable, and we interpret profitability as a measure of credit constraints. Our results suggest that credit constraints is an important obstacles to innovations. Better corporate governance can relax credit constraints. Ability of a firm to attract managers, educated abroad, or send managers abroad, can be a signal of firm profitability, so, again, it is not surprising that inclusion of this variable in the regression decreases significance of profitability itself. We should notice also that the size of the sample is smaller in all these two cases, which can be an alternative explanation for insignificance of profitability.

In both datasets, when we compare firms, which innovate, with those, which do not innovate, size of the enterprise enters equations positively and significantly. This finding can have several explanations. Size of the firm can be another proxy for its credit constraints. Usually larger firms have better relationships with banks, which allows them to get credit. Large firms can also economize on scale, while doing R&D. Since we count not only large, but also small innovations, a technical explanation is also possible. Large enterprisers usually produce goods, which go through more stages of production, than the goods produced at smaller firms. Even if innovation rate in each stage of production is the same, the innovation rate on the large enterprise will be higher than on a small one.

Interestingly, size of the enterprise does not matter when we look at the changes in innovation rate since 1980s. In a sense this regression controls for size fixed effect, which becomes unimportant. Imagine, however, that firms, which innovate more often, grow faster. Than the positive relationship between the firm size and change in innovation rate should be positive. Since we do not find such relationships, our results tend to suggest that innovation activities of Russian firms affect size distribution of firms very little, i.e.

that it is not necessarily true that firms with high innovation rate tend to increase their size, and slow innovators decrease their size. Absence of this effect can be explained either by the small size of most of innovations, or by ineffectiveness of most of innovations. It is also possible, that during most of the 1990s firms rarely innovated at all, and they only started to innovate recently. If this is the case, the size distribution of firms should change according to the intensiveness of innovation activities in the near future.

The regressions on the IET dataset show that competition has an inverted U-shape effect on innovations. This means that if competition is not severe, it actually forces firms to innovate. This effect is observed both in the comparison between different firms, and in the regressions, which looks on changes in innovation rate since 1980s. When we compare innovation rate across firms, the effect of competition gets insignificant in the specifications, where we control for the corporate governance quality, and for presence of managers, which received some training of education abroad. In both cases, when we include the quality of corporate governance, and education of managers, sample size is smaller than in the original specification. We estimated basic specifications on these smaller samples. Competition was insignificant already in this basic specification, so sample size explains most of the differences in the results.

Goscomstat sample is much larger than the IET one, so we can control separately for the effect of domestic and foreign competition on innovations. Foreign competition we measure as competition with imports. The effects of both of them have a U-shape form. It means that there is a threshold in the intensity of competition, after which innovative activities become less intense. Since linear coefficient is positive and significant, and all measures of competition, which we use, are standardized variables, we can say that maximum of the parabola is to the right from the median firm, and majority of firms are on the upward-sloping part of parabola. In the smaller samples, where we control for quality of corporate governance, domestic competition, measures by Herfindahl index, becomes insignificant.

On the Goscomstat dataset we can compare innovation rates of firms in different ownership. In the case of IET dataset this is impossible, because it contains almost no firms with high ownership stake, which belong either to the government or to the foreign

firms. Most of firms in this dataset are privately owned, and not traded on the stock exchange. In the Goskomstat, both enterprisers in foreign ownership and in federal government ownership turned out to innovate with higher probability than other enterprisers. The former result differs from finding of Jefferson et al (2002a,b) regarding Chinese firms. That paper showed that foreign firms usually innovate less than the domestic ones. If they do innovate, though, they do it much more actively than the domestic firms. The Chinese paper concentrated more on R&D than on imitations. It interprets the finding regarding the foreign firms as if they rely more on innovations, made by the foreign investor.

Controlling for the quality of corporate governance and foreign education of managers produced positive, but insignificant results in all specifications in the IET samples. We did not run the regression with managers education on the Goskomstat sample, because this variable describes situation in 2003, while the information in the sample is relevant for 2001.

As we will see, though, these variables have different effects on different types of innovation activities. Therefore, it is not surprising that their effect becomes insignificant, is we treat all innovation activities equally.

Difference between innovations and imitations

Table 6 reports probit estimates of determinants of innovations and imitations. In this specification, the dependent variable is equal to 1 if the firm is involved in corresponding innovation activities, and equal to zero if it does not do innovations, or if it does innovations of another type. In Table 7 we report the results of multinominal logit estimation, where we divide all firms in three groups: those, which only innovate, those, which both innovate and imitate, and those, which only imitate. The qualitative results of both estimation techniques are quite similar. They demonstrate substantial differences in behavior of firms, involved in innovations and imitations. Both groups of firms innovate or imitate more often if they are larger. Other characteristics are correlated with imitations and innovations in a different way.

Introduction of absolutely new products or technologies (innovations) is insensitive to profitability of the enterprise. The stimulating positive effect of competition is positive in this case, unless we control for corporate governance or foreign education of managers. Another variable, which is correlated with innovations is good corporate governance, while managerial education is insignificant.

The factors, which determine imitations, are slightly different. Imitations strongly positively and significantly depend on profitability of firms. Stimulating effect of competition on imitations is very strong in all specifications, while negative effect of very high competition gets insignificant in some specifications. Imitations are insensitive to quality of corporate governance. At the same time, the probability to imitate is strongly and positively correlated with the probability to have managers, educated abroad.

Probability to do both innovations and imitations is less dependent on profitability than probability to only imitate, and depends on competition stronger than both probabilities to only innovate or only imitate. This probability is strongly correlated with both education of managers and good corporate governance.

Columns 6 and 7 of Table XXXXX report results of the estimations, which relate probabilities to innovate, imitate, or to do both with probability to train personnel or conduct market studies. All three groups of firms rely on these two other activities significantly more often, than firms, which do not do product or technological innovations, or did not mark the answer about the type of innovation. The size of the coefficients at both variables is somewhat larger in the case of firms, which do both innovation and imitations. This latter finding can simply reflect the fact that such firms do more innovations. Imitating firms seem to conduct marketing studies slightly less often. Since many of them simply copy projects, which face high demand on the market, such studies may be unnecessary.

The finding that profitability is much stronger correlated with imitations than with innovations is a bit at odds with the theory. Usually, firms, which introduce absolutely new products are considered as more liquidity constraint than firms, which implement existing technologies. There are two possible explanations why the situation is different in the Russian case. The group of firms, which innovate, may include two types

of firms. The first type is “surviving” firms, which are not profitable. Such firms try to use their own resources to implement changes in technology and product range. Firms view these changes as introduction of absolutely new products or technologies, but the major goal of these innovations is simply to allow the firm to survive. These firms can’t afford sending their managers for training abroad or attract foreign educated managers, so this variable is insignificant in corresponding regressions. The second type is the enterprisers, which do innovations in the theoretical sense of the word. Since innovations require domestic human capital, which is cheaper than foreign human capital, this activity requires less investment than buying foreign technologies. Additionally, these are usually the firms with good corporate governance, which allows them to make credit constraint less strong, and to depend less on profitability. Interestingly, in Section 2, when we described firms’ answers to the question of obstacles to innovations, we noticed that firms, which introduced absolutely new products or technologies, complain about lack of external finance more often. In light of the regression results, this finding can be interpreted slightly differently. Firms, which introduce absolutely new products and technologies, pay more attention to relaxing credit constraints, and as a result care a lot about improvements in corporate governance. We suspect that a number of such firms conduct both innovations and imitations. This later group of firms also pays special attention to education of their managers and personnel. Presence of “surviving” firms in the group of firms, which only conduct innovations, makes coefficient at the managerial education variable less significant.

The group of firms, which are involved only in imitations, follows “westernization strategy”. They upgrade their technological level and introduce product range, which is common to other firms and other countries. At the same time they attempt to improve their management, and with higher managers with western education, or, more often, educate their managers abroad on various training programs. Such strategy requires more resources than upgrading of production using domestic human capital, and innovation activities of such firms depend heavily on profitability. Competition seems to be the major driving force behind this process, although the effect of competition seems to be even stronger in the case of firms, which do both innovations and imitations.

Conclusions

This paper reveals that Russian enterprisers follow two development strategies. “Westernization” strategy involves using retained earnings to implement products and technologies, which are actively used by other firms. Usually firms, which follow this strategy, pay special attention to educating their managers, or attracting managers, educated abroad. The second strategy involves relying on innovations, either developed by personnel of the firm, or outsourced to other organization. Such firms pay less attention to educating managers abroad. Instead they try to relax their budget constraints, and improve corporate governance. These two strategies are not mutually exclusive: there is a group of firms, which do both innovations and imitations.

Which of these two strategies produces better results in terms of increasing firms’ productivity, and reaching other goals, which firms try to achieve by getting involved in innovative activities is an open question. We will try to answer it in further research.

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Appendix 1

Table 4. PROBIT regressions for Goskomstat sample

	[1]	[2]	[3]	[4]	[5]
Profit	1.81***	1.79***	1.79***	1.89***	1.89***
	[13]	[13]	[13]	[3.72]	[3.70]
Employment	0.38***	0.37***	0.38***	0.52***	0.50***
	[26]	[25]	[26]	[7.71]	[7.01]
Import share	0.67***	0.68***	0.66***	0.89***	0.90***
	[9.7]	[9.8]	[9.6]	[3.38]	[3.41]
Import share squared	-0.85***	-0.85***	-0.84***	-0.87*	-0.87*
	[6.2]	[6.2]	[6.1]	[1.71]	[1.71]
Herfindahl index	0.45***	0.43**	0.44***	0.21	0.25
	[2.66]	[2.52]	[2.58]	[0.34]	[0.41]
Herfindahl index squared	-1.74***	-1.70***	-1.78***	-2.75	-2.57
	[2.80]	[2.74]	[2.86]	[1.28]	[1.22]
Foreign ownership		0.26**			
		[2.55]			
State ownership			0.10**		
			[2.08]		
Oligarch-controlled					
Corporate governance index					0.05
					[0.85]
Observations	10816	10816	10816	505	505

Absolute value of z statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. PROBIT regressions for IET sample

	[1]	[2]	[3]	[4]	[5]	[6]
	All innovations			Changes in innovations		
Profit	1.19	6.23	0.88	0.80	0.96	0.73
	[2.8]***	[1.81]*	[1.6]	[2.1]**	[0.82]	[1.6]
Employment	0.28	0.37	0.43	0	-0.26	0
	[4.1]***	[1.09]	[4.6]***	[0.1]	[1.50]	[0.3]
Competition	0.17	0.03	0.18	0.13	0.14	0.09
	[2.4]***	[0.05]	[2.2]**	[2.0]**	[0.60]	[1.2]
Competition^2	-0.18	-0.3	-0.20	-0.18	-0.05	-0.11
	[3.1]***	[0.65]	[2.8]***	[2.2]**	[0.25]	[1.8]*
Corporate governance index		**0.11**			**0.05**	
		[1.48]			**[0.82]**	
Managers studied abroad			0.08			0.22
			[0.4]			[1.4]
Observations	456	299	346	456	299	346

Absolute value of z statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6:

Differences between innovations and imitations in the IET sample. Simple PROBIT.

	[1]	[2]	[3]	[4]	[5]	[6]
	Innovations			Imitations		
Profit	-0.33	0.27	-0.91	1.27	2.5	1.63
	[0.9]	[0.24]	[2.0]*	[3.2]***	[1.85]*	[3.1]***
Employment	0.22	0.34	0.24	0.10	0.32	0.17
	[3.9]***	[1.98]**	[3.5]***	[1.8]**	[1.71]*	[2.5]**
Competition	0.17	0.34	0.12	0.22	0.05	0.19
	[2.7]***	[1.40]	[1.7]	[3.4]***	[0.20]	[2.5]**
Competition^2	-0.06	0.13	-0.05	-0.10	-0.34	-0.07
	[1.1]	[0.61]	[0.7]	[1.8]**	[1.61]	[1.1]
Corporate governance index		**0.2**			**0.02**	
		[3.18]* **			**[0.39]**	
Managers studied abroad +			0.14			0.35
			[0.9]			[2.1]**
Observations	456	299	346	456	299	346

Absolute value of z statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Differences between innovations and imitations in the IET sample. Multinomial LOGIT regressions.

No innovations or imitations as base category.

	[1]			[2]			[3]		
	Inno-vations	both	Imita-tions	Inno-vations	both	Imita-tions	Inno-vations	both	Imita-tions
Profit	-0.75	1.65	1.93	-1.9	1.3	2.26	-1.08	0.99	0.86
	[0.95]	[1.69]*	[2.33]**	[1.92]*	[1.02]	[1.99]**	[0.99]	[0.81]	[0.88]
Employme	0.43	0.52	0.22	0.52	0.69	0.39	0.35	0.49	0.16
	[3.32]***	[3.90]***	[1.91]*	[3.12]***	[4.08]***	[2.58]***	[1.85]*	[2.63]***	[1.03]
Competi-tion	0.31	0.62	0.37	0.24	0.5	0.33	0.32	0.46	0.45
	[2.17]**	[3.89]***	[2.88]***	[1.47]	[2.70]***	[2.21]**	[1.57]	[2.20]**	[2.65]***
Competi-tion^2	-0.13	-0.24	-0.19	-0.07	-0.2	-0.11	-0.08	-0.28	-0.09
	[1.07]	[1.80]*	[1.66]*	[0.50]	[1.26]	[0.84]	[0.43]	[1.45]	[0.57]
Managers educated abroad				0.56	0.85	0.83			
				[1.40]	[2.20]**	[2.36]**			
Corporate governance index							0.46	0.37	0.13
							[2.85]***	[2.35]**	[1.04]
Observa-tions	456	456	456	346	346	346	275	275	275

	[4]			[5]		
	Inno-vations	both	Imita-tions	Inno-vations	both	Imita-tions
Profit	-0.86	1.17	1.73	-0.86	1.35	1.9
	[1.06]	[1.20]	[2.02]**	[1.08]	[1.35]	[2.27]**
Employment	0.36	0.39	0.15	0.4	0.5	0.2
	[2.72]***	[2.80]***	[1.31]	[3.12]***	[3.60]***	[1.76]*
Competition	0.25	0.52	0.33	0.27	0.54	0.35
	[1.75]*	[3.16]***	[2.48]**	[1.87]*	[3.30]***	[2.71]***
Competition^	-0.14	-0.26	-0.2	-0.1	-0.17	-0.17
	[1.15]	[1.87]*	[1.76]*	[0.80]	[1.23]	[1.51]
Personnel training	1.26	2.08	1.19			
	[3.83]***	[6.21]***	[3.92]***			
Marketing studies				1.11	1.82	0.69
				[3.14]***	[5.28]***	[2.05]**
Observations	456	456	456	456	456	456

Absolute value of z statistics in brackets

significant at 10%; ** significant at 5%; *** significant at 1%

Appendix 2

Variable construction:

IET dataset, dependent variables:

- *Innovations* – indicator of a firm answering positively on any question of types of innovations
- *Change in innovations* – indicator of a firm answering positively on question of whether innovation activity on the enterprise is higher than in Soviet times (pre 1980)
- *New innovations* - indicator of a firm answering positively on whether innovations are absolutely new
- *Imitations* - indicator of a firm answering positively on whether innovations are copies of existing technologies
- *Type of innovations (multinomial)* – 4 categories: no innovations, only new, only imitations, both kinds

IET dataset, independent variables:

- *Competition* – principal component of average of firms estimate of intensity of competition they are facing across three categories: competition with home producers, competition with CIS producers, and competition with foreign producers.
- *Profitability* – % of profit in sales, averaged through 1998-2001
- *Employment* – log employment in 2001

Goskomstat dataset, dependent variable:

- *Innovation* - indicator of a firm being in the list of innovators, with the name of innovation given

Goskomstat dataset, independent variables:

- *Concentration* – Herfindahl-Hirschmann index for 5-digit OKONH industries
- *Import penetration* – share of imported commodities on the market for firm's output. Constructed from GNOZIS data about real commodity output of Russian enterprises, and database on Russian international trade.
- *Profitability* – % of profit in sales, averaged through 1996-1999.
- *Employment* – log employment in 1999

Common independent variables:

- *orporate governance index* – constructed in Guriev, Rachinsky(2004) as an average of several indicators of good corporate governance practices
- *Managers studied abroad* – indicator of positive answer to questions about whever some of enterprise managers got an MBA or had training abroad

Table 8. Sample summary statistics

	IET sample								Goskomstat sample	
Dependant variable	All innovations		Change in innovations		Absolutely new		Buy or copy		All innovations	
	0	1	0	1	0	1	0	1	0	1
Firms	91	395	305	181	297	189	250	236	9748	1062
Mean avg. profit/sales	-0.1%	7.1%	4.4%	7.9%	5.8%	5.6%	2.9%	8.7%	2.6%	10.1%
Median avg. profit/sales	2.3%	7.2%	5.4%	8.5%	6.4%	6.5%	4.7%	8.4%	5.1%	10.5%
Mean employment	734	1471	1357	1292	1031	1808	1149	1528	431	1806
Median employment	349	704	559	702	521	757	503	688	170	635

Table 9. Description of the samples of firms, where there is information on oligarchs ownership.

	Innovators (IET)		Innovators (Goskomstat)	
	No	Yes	No	Yes
Oligarch-controlled	47	35	260	118
No oligarch	34	23	227	75

II. Competitiveness of Small Enterprises: Evidence from Empirical Survey in Two Russian Regions

Victoria Golikova and Galina Ermilova

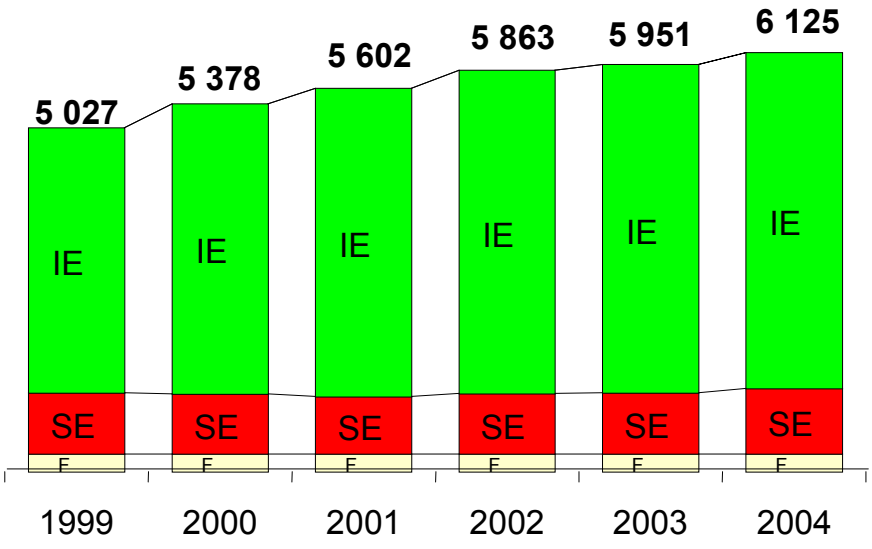
Competitiveness of Small Enterprises: Evidence from Empirical Survey in Two Russian Regions

Victoria Golikova and Galina Ermilova

During the last decade a number of extensive research on SME development was implemented in Russia by the research and analytical centers, different international funds and institutions. Some of them were focused on the monitoring of the business climate for the development of the SME sector1. As usual, they covered more or less similar topics of institutional environment and evaluation of its impact on the strategies of behavior of SE or its particular segments – start-ups, innovative firms, etc.

Small business development, number of entities

Official Rosstat statistics



IE – individual entrepreneurs; SE –small enterprises – legal entities; F- farmers

[1] See, for example, the 2001 OECD survey of small business – OECD Economic Surveys. Russian Federation – Volume 2002/5 – February, pp. 73-105; T.Afanasieva, V.Buev, T.Pudenko. Analysis of the Institutional Environment for Small Business Entrepreneurship - Moscow, Business-Thezaurus, 2005, 198 pages (in Russian).

Both official statistics and survey data provide some evidence about very few positive changes in the development of Russian SE sector: Small business sector since revival after 1998 financial crisis is growing very slow, number of SE in R&D is decreasing, share of informal activities is still very high.

Barriers and obstacles, inhospitable climate for entrepreneurship prevent the successful SEs to grow and strengthen positions in the competition on the Russian and international markets. High disparity between regions in terms of SE development still remains ranging from capital regions (Moscow and St-Petersburg where the level of SE development is comparable with EU countries) to regions with very modest and less significant impact of SE sector to the regional economy. These facts provide clear evidence of unfavorable tendencies in the development of Russia SE sector as a whole. Without any doubt, we can establish a fact that state policy on SE development, including quantity and allocation of financial resources, still didn't create enough incentives for transforming existing trajectory of small business development to more intensive one.

The aim of this survey*[2]*was to evaluate climate for SEs development and assess key factors of SE competitiveness, formulate recommendations on the state economic policy measures that can contribute to strengthening the incentives for its development and competitiveness on the domestic and global markets.

Background and methodology. As the survey of SEs was a part of the project including medium and large firms in manufacturing industry empirical data on SEs should provide an opportunity for proper benchmarking with the enterprises of larger size groups and include the same types of economic activities and a set of similar questions for evaluation of climate, performance and markets. Besides, specifics of small entrepreneurship, which depends on the regional and local environment more than the enterprises of larger size, shouldn't be forgotten and taken into consideration[3]. Specific

*Survey was implemented in Autumn 2005 within the framework of State University – Higher School of Economics (Russia, Moscow) Project with the participation of the World Bank.

[2] We didn't include start-up firms as a subject of research as this group has specific problems during first two years

[3] See the results of large World bank survey (sample – 3, 500 respondents of large, medium and small enterprises) in 7 regions of Russia in 2003-2004 - http://www.worldbank.org.ru).

character of the subject of the research imposes the limitations on the survey tools. First of all, share of informal activities in small business and lack of respondent' desire to provide true information about performance (sales, profits, salaries). It's a well known fact that more or less reliable information collected in the surveys of small business sector in the transitional economies is number of employees. Keeping in mind a possibility to obtain a lot of refuses to answer performance data we included in the questionnaire different qualitative questions that gave an opportunity to research the financial position of the firm from different points of view.

Respondent in this survey – is a general manager or owner f the firm as the most informed persons. The surveying company conducted face-to-face interviews with the questionnaire tested beforehand on the limited number of firms. The questionnaire was sufficiently improved after piloting.

The questionnaire included mainly qualitative estimations of market segment, demand, business climate, competition, strategy of market behavior, evaluation of state policy for SEs and a limited number of quantitative questions about firm performance in 2003-2004. It covered following general topics:

- General information about the firm and business of the owner, including incentives to work as a SE entrepreneur;
- Markets where the firm is operating, relations with suppliers and clients
- Financing and investment
- Business environment for small entrepreneurship on the municipal, regional (oblast) and federal level
- Evaluation of state policy on SE development, relations between businesses and authorities
- Participation in business associations
- Labor relations and employment

Research methods used in the analysis of survey data include comparison of means in grouped data, cross-tabulation analysis for the whole and regional samples and data grouped by types of economic activity and other grouping criteria, main components' and regression analysis.

Main research hypothesis tested in the survey:

1. Initial incentives to become a small business entrepreneur are of particular importance for future success in small business. Firms organized by active, risky and innovative persons have in general more chances to become sustainable and grow than the firms organized by people who had no other opportunities for employment.

2. High transaction costs prevent SE to grow. As a result a sufficient number of small firms operate as a network of firms of one owner. Such practice is a compensatory mechanism in unfavorable business environment. We expect that the subjective evaluations of business climate will depend on status of small firm – either autonomous (out of network) or network firm. Being more protected by inside mechanism of redistribution of resources and risks network firms will demonstrate better evaluations of business climate than the autonomous firms.

3. Main problems of SE development are similar to the problems of medium and large enterprises but they are more sensitive to small business entrepreneurs. We expect that evaluations of business climate in small business will be in general more critical.

4. Despite the fact that the number of administrative barriers in small business is decreasing their level is still rather high. As a result high transaction costs have a negative impact on the competitiveness of SEs. Rent of premises, obtaining and registration of lots and permits for construction are treated are expected to be the most serious problems for small business entrepreneurs.

5. Corruption and extorting money could be found in every sphere of small business. They provoke shadow activities as a financial resource to deal with the state bureaucrats. Small firms are less protected from extorting and aggression and have to carry more safety costs (measured as % to sales) in comparison with medium and large enterprises.

6. Attitude of small businesses towards state policy on support of SEs depends on the practice of every day communications with state officials. Negative practice of relations between state and small business entrepreneurs causes negative evaluation of state policy on SEs.

7. Access to finance is one of the main factors with a negative impact on current

competitiveness of small firms and an obstacle for their potential to grow and compete in future.

8. Access of SEs to the market of state contracts is hampered due to lack of regulations in this area oriented on SEs. Market of state contracts has no sufficient impact on the competitiveness of SEs.

9. Cooperation of SEs with large Russian enterprises, foreign and international companies has a positive impact on their competitiveness due to higher standards of production, delivery, services, etc.

10. SEs in niche segments are more competitive than the producers of standard products and services.

Sample design:

The survey of SEs was designed as a pilot one. Due to the financial constraints of the research it was a priori decided that the sample of SE couldn't be more than 300 firms as the main focus of the whole project was on the competitiveness of medium and large enterprises. This sample size, of course, is too limited to be representative for the whole Russia economy where 953,1 thousand of SEs operate (Official statistics data on the 1st of January, 2005). As usual, SME surveys in Russia have significant regional sub samples providing an opportunity to examine regional differences in the economic environment and its influence on firm's performance. The only way out was to implement survey in a very limited number of regions, taking one from the capital regions (Moscow or St.Petersburg) and one from less developed. The criteria for the selection of regions were SE intensity. So, three subjects of Federation were chosen for this survey - St.-Petersburg, Leningradskaya and Sverdlovskaya oblast.

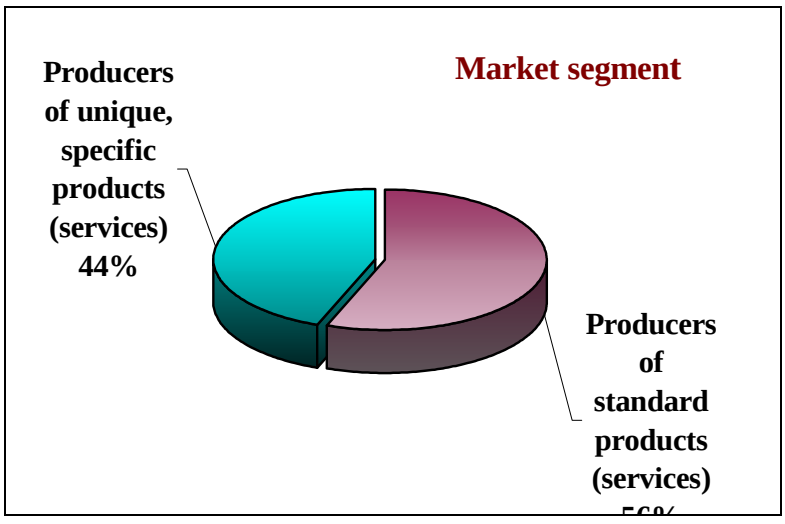
For the purpose of this research two main types of economic activity were selected – manufacturing and services. The whole sample was divided into two equal sub samples for manufacturing and services (150 firms) with equal strata for each OKVED subsection (30 firms).

To provide the comparability with the survey results of medium and large firms in manufacturing the following types of economic activities were selected: food processing, excluding tobacco; textile and apparel; wood processing; chemicals production; metal and metal ware production; machinery, excluding arms and ammunition production; electrical, electronic and optical equipment; vehicle and parts. In services we included different types of activities - both for population and business in order to examine their growth potential: firms operating with real property, dealing with computer equipment and information technologies, R & D, B2B (law, accounting and audit, business and management) and personal services (laundering, dry-cleaning, dyeing, hairdressing, fitness, beauty activities, etc). According to Russian official statistics' criteria of SEs the manufacturing firms are the firms with less than 100 employees, in R&D – less than 60 employees and in services – less than 50 employees.

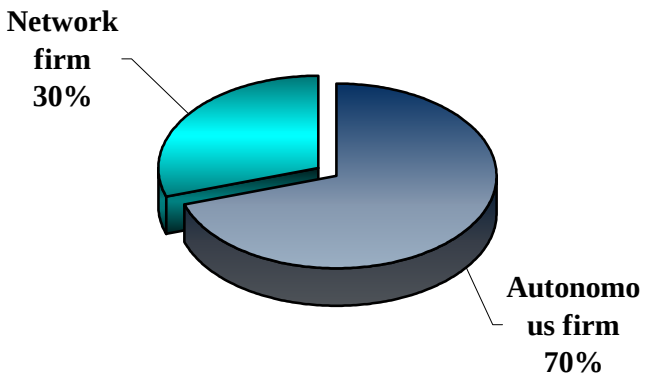
The sample is representative for the selected regions with probability 0, 683 for salaries and number of employees and is not representative for sales due to heterogeneity and misrepresentation of data. The sample is representative for each region with probability 0,954 for qualitative evaluations of financial position of the firm and profitability.

The main characteristics of the sample are on the pictures below:

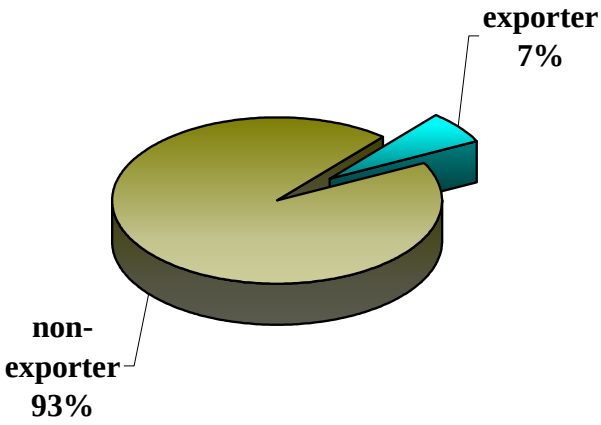
Sample frame



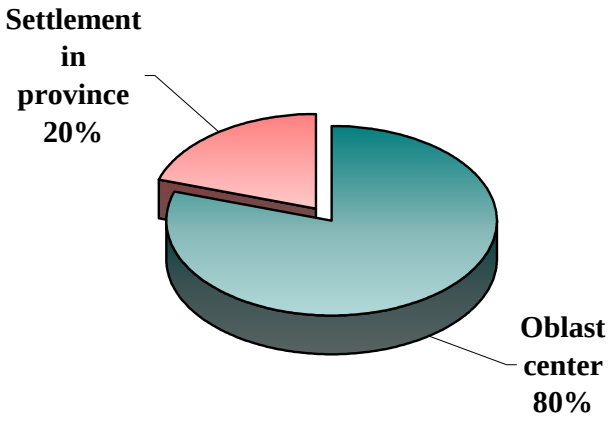
Involvement in network firms of the owner



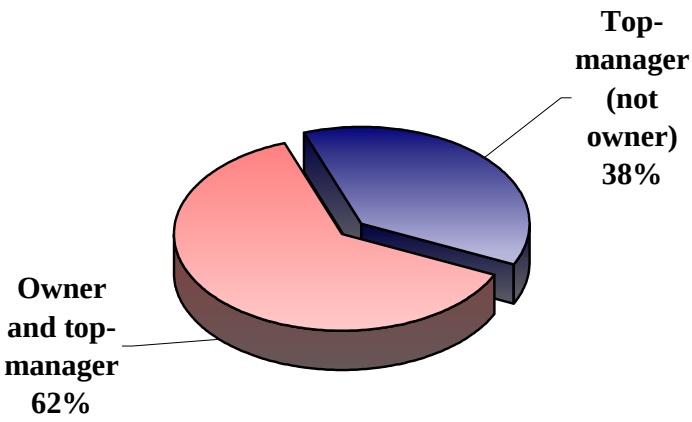
Share of exporters in 2004 in the sample, %

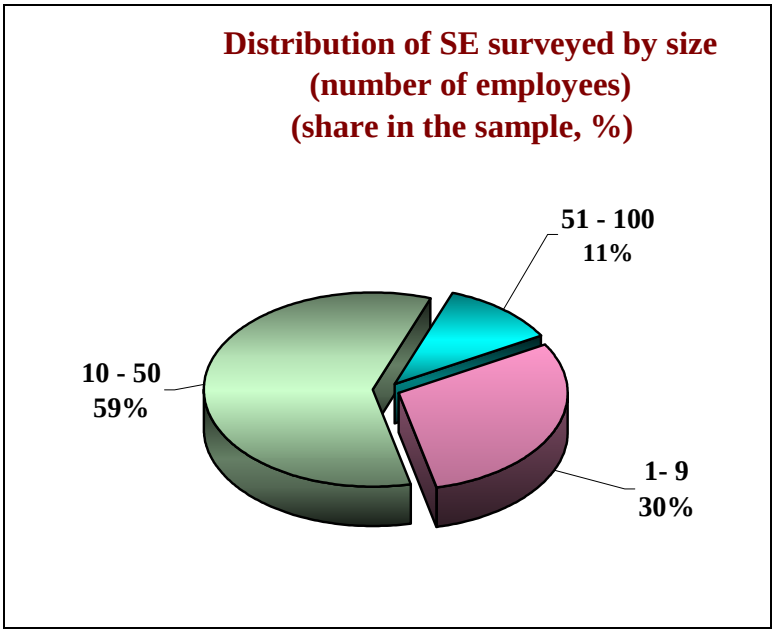


Distribution of SE surveyed by type of settlement (share in the sample, %)



Distribution of SE surveyed by status of the respondent (share in the sample, %)

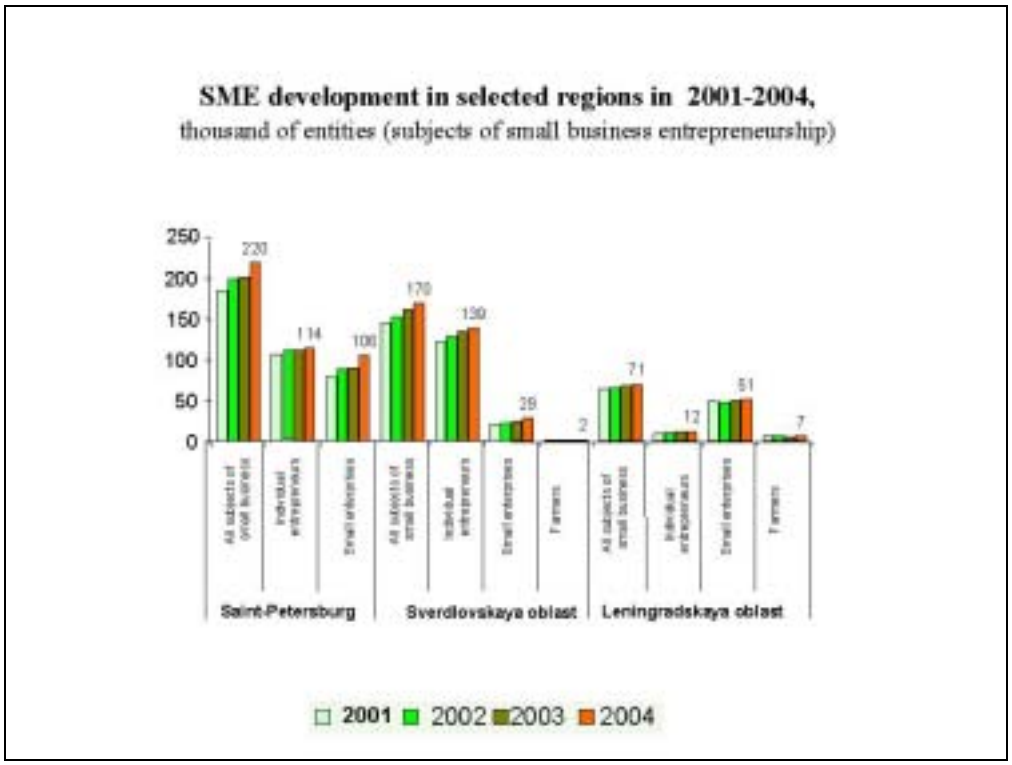


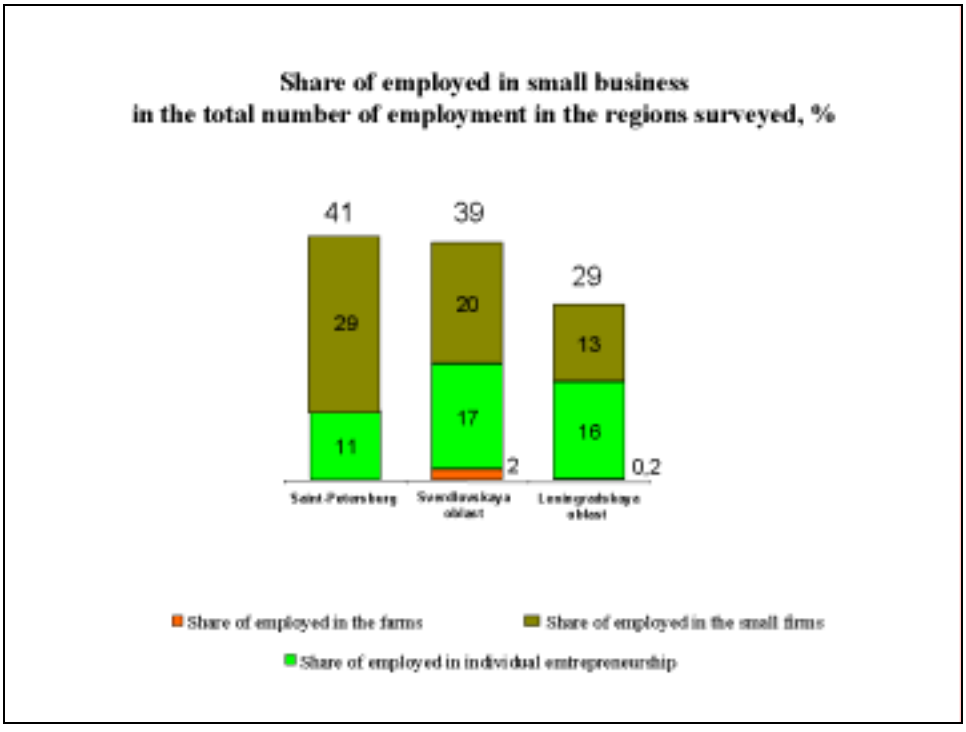


Trends of SE development in selected regions (by official data):

Selected regions represent clusters with different level of SE development in terms of SE intensity by 1000 persons of active population, share of SEs in sales and share in total employment in the region. In the framework of these indicators Saint-Petersburg (together with Moscow as capital cities) represents regions-leaders, Leningradskaya oblast is a member of the largest (49 regions) cluster with rather high level of indicators and Sverdlovskaya oblast represents a cluster with a medium level of SE input in regional economy.

Among the regions surveyed the largest number of SEs is in Saint Petersburg. It is typical for this city (often called as a second capital of Russia) that the number SEs is comparable to the number of individual entrepreneurs, who are a part of small business sector. In Sverdlovskaya oblast small business sector mainly consists of the individual entrepreneurs. Different structure of small business sector is connected with the level of regional socio-economic development: the higher level of living and employment the more share of SEs (as a larger form of entity) in the structure of the sector. Segment of individual entrepreneurship as usual provides mainly self-employment and is a tool to gain a modest family income.

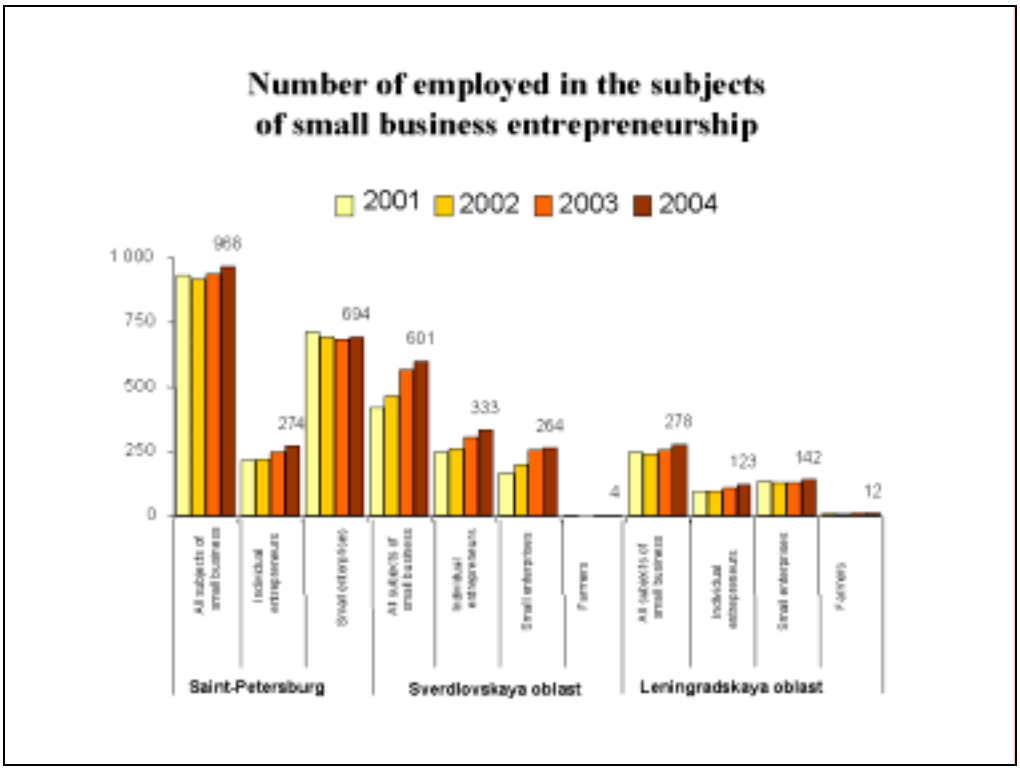




In 2001-2004 small business sector grew. All the regions are comparable in terms of SE intensity with more or less equal intensity of subjects of small business

entrepreneurship per 1000 of population. High intensity of the analyzed indicator in Leningradskaya and Sverdlovskaya oblast were caused by the broad development of individual entrepreneurship.

Employment in small business also tended to grow: at the end of 2004 968, 000 jobs in Saint-Petersburg were in small business sector (41% as a share in total employment), in Sverdlovskaya oblast – 601, 000 jobs (29%), in Leningradskaya oblast – 278, 000 jobs (39%). Share of small business sector in employment in the selected regions:



Main survey results:

How we can evaluate firm performance and competitiveness in small business? The main indicator to estimate performance and competitiveness in small business is annual sales. We need this indicator to calculate value added, profits, productivity as value added per one employee. Unfortunately, about 30% of respondent refused to answer the question about their sales in 2003 and 2004. Those who gave this information often distorted the data[4]. For analytical purposes we can use the performance information only from 65% of

[4] For instance checked the reliability of data by the estimating of annual salaries. Often they are higher than

respondents (and the quality of this information is not very reliable).

Subjective (qualitative) information on the financial position of the firm was given by the whole sample of respondents. In order to assess the possibility to use qualitative evaluations instead of objective (or so-called objective) data we estimate the statistical significance of means (growth of sales[5], profitability, productivity as sales per one employee and value added per one employee).

Evidence from the survey proves that the correlation between qualitative evaluations and growth of sales and profitability is rather high, so we used these evaluations as more or less reliable and adequate indicators of small firms' competitiveness.

Financial position of SEs:

In general financial position of SEs surveyed in 2004 and 2005 was the same – 1/3 of firms consider it "good" or "very good", a little bit more than 50% - "satisfactory" and less than 10% as "bad" or "very bad". About ¼ of SE could be treated as sustainable in good position, half of the firms are sustainable in satisfactory position. About 20% of firms firm are in unstable position. Almost half of them demonstrate positive dynamics and the same number – negative, 3% of SEs are almost bankrupts. These performance results are not surprising as small firms development follows the market demand.

Increasing demand is followed in 2005 by the increasing share of firms in good financial position: the ratio of firms in good and satisfactory position rises from 0, 64 to 0,86.

As for 2004 the distribution of firms by the financial position was the same in the regions surveyed. According to the respondents' responses in 2005 small businesses in Sverdlovskaya oblast felt better than in Leningradskaya oblast: share of firms in good position was 14,2 points higher than in Leningradskaya oblast (statistical significance 0,018). Accordingly, the share of firms in bad position was in Leningradskaya oblast 4,5 points higher. These different evaluations in the regions were caused mainly by worsened

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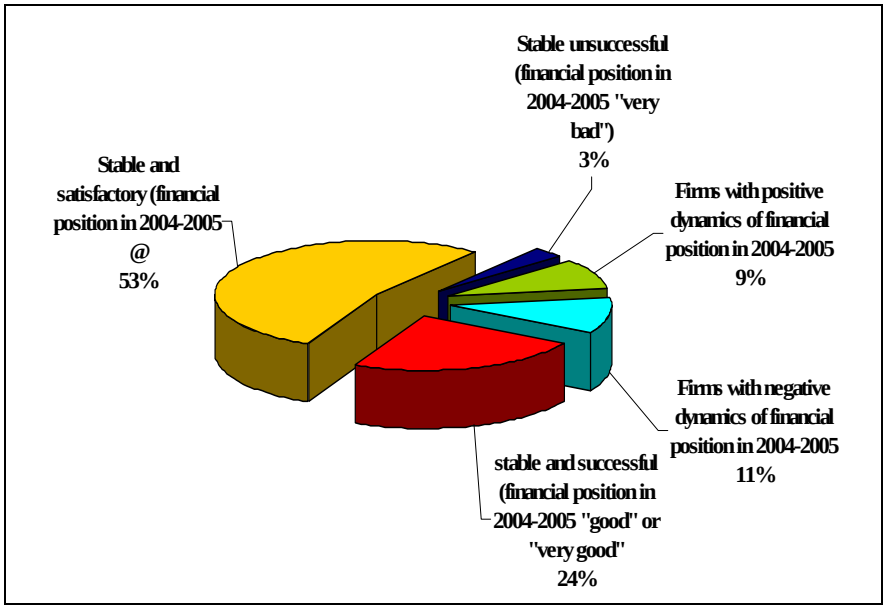
sales.

[5] Deflator GDP for production and services.

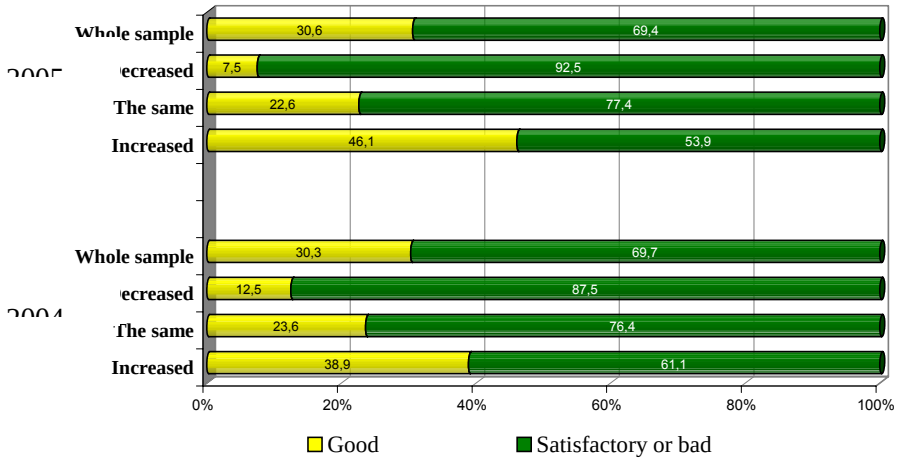
positions of small firms in Saint Petersburg, where the level of competition is much more higher.

Evaluation of the financial position of the firm

(% of the respondents, whole sample)



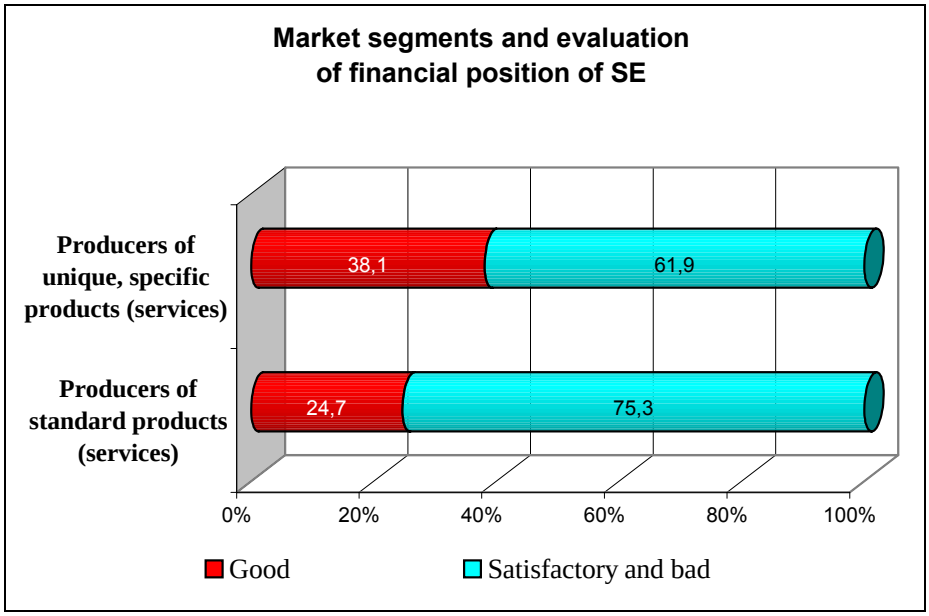
Cross-tabulation of market demand evaluations and financial position of the firm (2004,2005) (% of respondents)



In 2004-2005 SEs in services in general feel better than firms in production (the share of successful firms is 1/3 and ¼, accordingly). The sustainability of firms in services

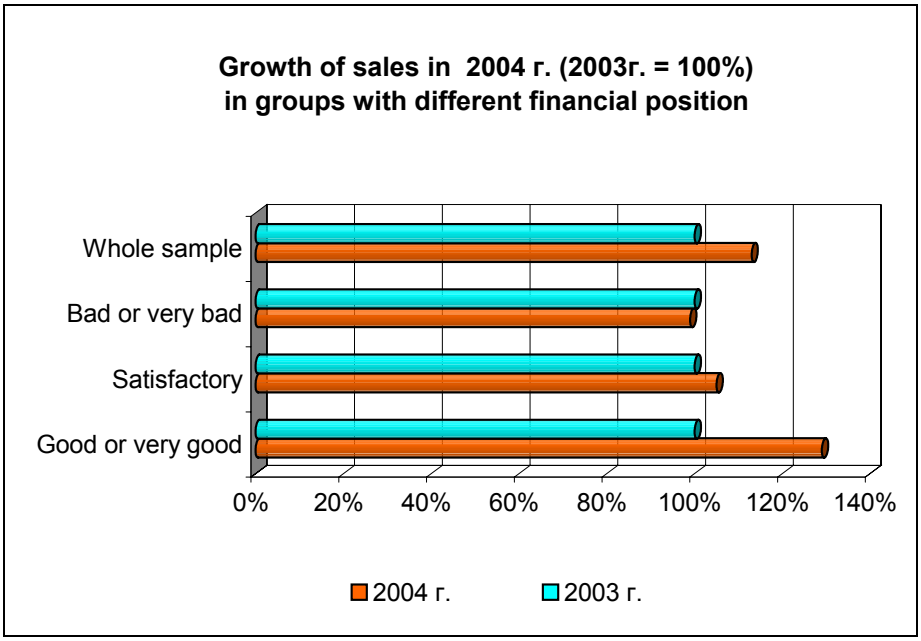
is also better than in production (the statistical significance of differences is 0,023- 0,039).

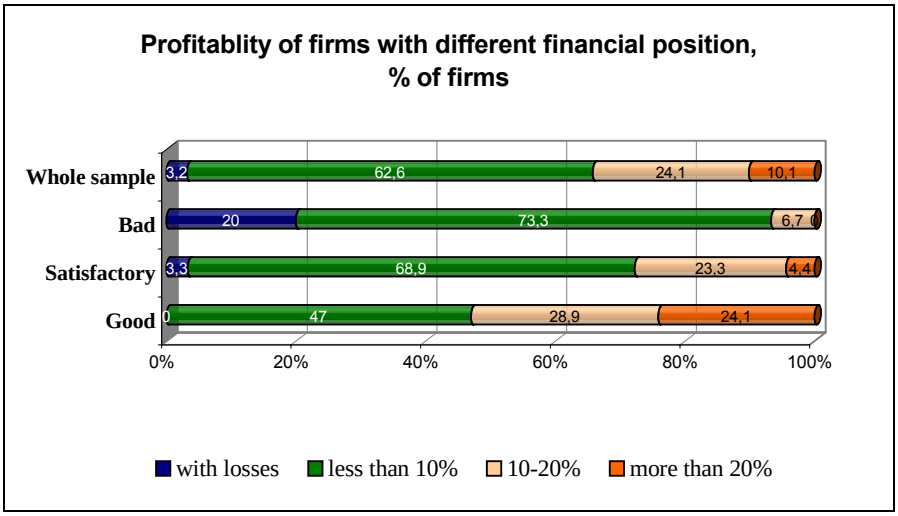
Good and sustainable performance correlated with the specialization of SEs on the niche products. This business strategy in small business appears to be much more successful than production of standard products and services that requires low costs and scaly economy. The share of “good” performers in niche segment is 13,4 points higher than in the other group (statistical significance 0, 012). Competitive advantages of small firms in niche segments are based mainly on in unique capabilities of employees being very difficult to copy, so the producer has an opportunity to obtain rent from it.



How could be the competitiveness of SEs evaluated? We consider that stable good position of the firm on the market may be considered as an indirect indicator of its competitiveness. Comparison of consistency of objective and subjective criteria gave good results and proved the possibility to use survey data instead of reported official statistics.

Grouping the firms by their competitiveness was made using the following procedure: two groups were excluded from the initial sample: first, firms in unstable position (both worsening and improving) during last two years and, second, the group with very bad financial position due to the small size of this group for analysis (9 firms).





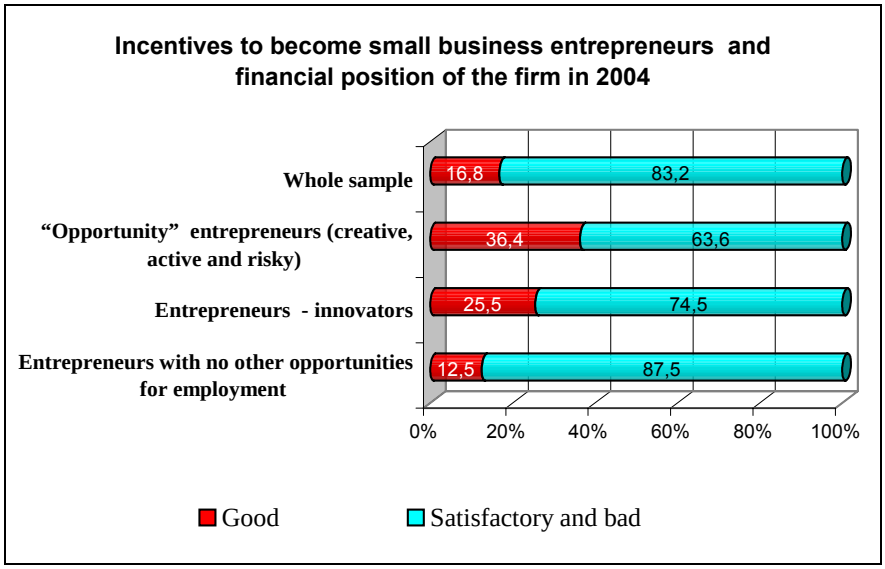
What kind of firms is in general more competitive? Share of competitive SEs differs in production and services. Regional differences are also important. Besides, the following factors have a significant role in the distribution of shares of "competitive" and "less competitive" firms:

- State contracts (statistical significance 0,022)[6]
- Contracts with foreign (international) companies (0,029)

[6] Initial hypothesis was insignificant role of state contracts. The empirical results didn't prove it.

- Training costs per employee (0,059)[7].

No difference was found testing groups by size of SEs (measured by number of employees); export activities (fact of export), contracts with large Russian enterprises, and investment per employee.



Analysis of survey data provides evidence about the significance of the ***incentives to become small business entrepreneur*** and correlation of the incentives and probability to create a successful and sustainable business. We found out that the share of "good" performers and more competitive firms is higher in the groups of creative, active entrepreneurs ("opportunity") and innovators. The group that had chosen small business entrepreneurship without any other possibilities for employment was less successful in their career as an owner and manager of small firm (the difference between the share of competitive firms in these groups was statistically significant in 2004 (0,026), and the same tendency was demonstrated in 2005). The "innovators" and "opportunity" entrepreneurs more often were the contractors of foreign companies, implemented state contracts. They were more active in exporting (share of exporters was 23, 9%- two times higher than for

[7] To compare the means non-parametric test to compare is used. The open question is the direction of this correlation – probably, firms in good financial position have a possibility to invest in training and bad performers – not.

the whole sample and 3-4 times higher than was typical for another group). They had more investment in R&D too.

Access to finance was another significant factor with a negative impact on the competitiveness of SEs. Limited market of financial services for small business both available from traditional banking sector and non-banking institutions is an obstacle to grow. The majority of entrepreneurs used to invest only their own capital and consider not realistic and risky to attract external financial resources for the growth of business. This was one of the reasons why in 2004 about half of the firms surveyed complained about complicated access to finance and only ¼ of them applied for bank credit. Besides this paradox the collateral, insurance and evaluation of real estate as a collateral are still problematic for small firms. In case of financial difficulties and the necessity to obtain outside finance the most popular solution for half of SEs was partner's credit or loans from other entrepreneurs. During last years the situation with availability of bank credit began to improve: banks are looking for new markets and clients, trying to diversify their portfolio and micro-finance institutions became more active in some regions.

We have made an attempt to develop a model of competitiveness of SEs using the indicator of productivity (sales per employee) as a dependant variable and for predictors - gross regional product evaluated per active population in the region (indicator of regional economic development) and number of all credit institutions in the region.

The model looks like

C = 1751, 6*N + 22.3GRP + 523480,7

Where

C - Competitiveness of SE, estimated as productivity (sales per employee)

N - Number of credit institutions in the region

GRP - Gross regional product, evaluated per active population

Evaluation of business environment for SEs

Business climate in the regions is one of key factors of SE competitiveness on the market. Costs for doing business should allow the economic agents to grow and develop.

Correlations between respondents' estimations of business climate and their performance data proved this statement.

From last 90-s state authorities declared the policy of decreasing administrative burden on businesses. Both official statistics and results of surveys' data provide evidence about some positive changes in the implementation of this policy[8]. But still remain a lot of problems to be resolved. In our survey only 1/3 of the respondents considered business climate to be favorable for doing business. By the opinion of more than half of the entrepreneurs during last two years the situation didn't change to the best. We should stress the fact that half of the firms with good financial position and growing demand, i.e. quite competitive firms, evaluated the business climate negatively.

We found out very weak correlation, practically lack of difference between the business climate evaluations in the regions surveyed. These results demonstrate that the problem of better conditions for SEs is more general problem of the Russia economy than the regional one[9].

A quarter of differences in the evaluation of business climate could be explained by the respondents' estimations of corruption, state policy for small business entrepreneurship and consistency of reforms, i.e. by macroeconomic factors. But this result doesn't mean at all that the problems of SEs could and should be resolved on the federal level. Keeping in mind local markets where most of the SEs operate, the local specifics of their problems, poor lobbying opportunities due to very low participation in the business associations most of the problems of small firms are in competence of municipal authorities[10]

In our survey the respondents evaluated each of the 19 components of business climate that in sum explain half of the differences in the general evaluation of business climate.[11]

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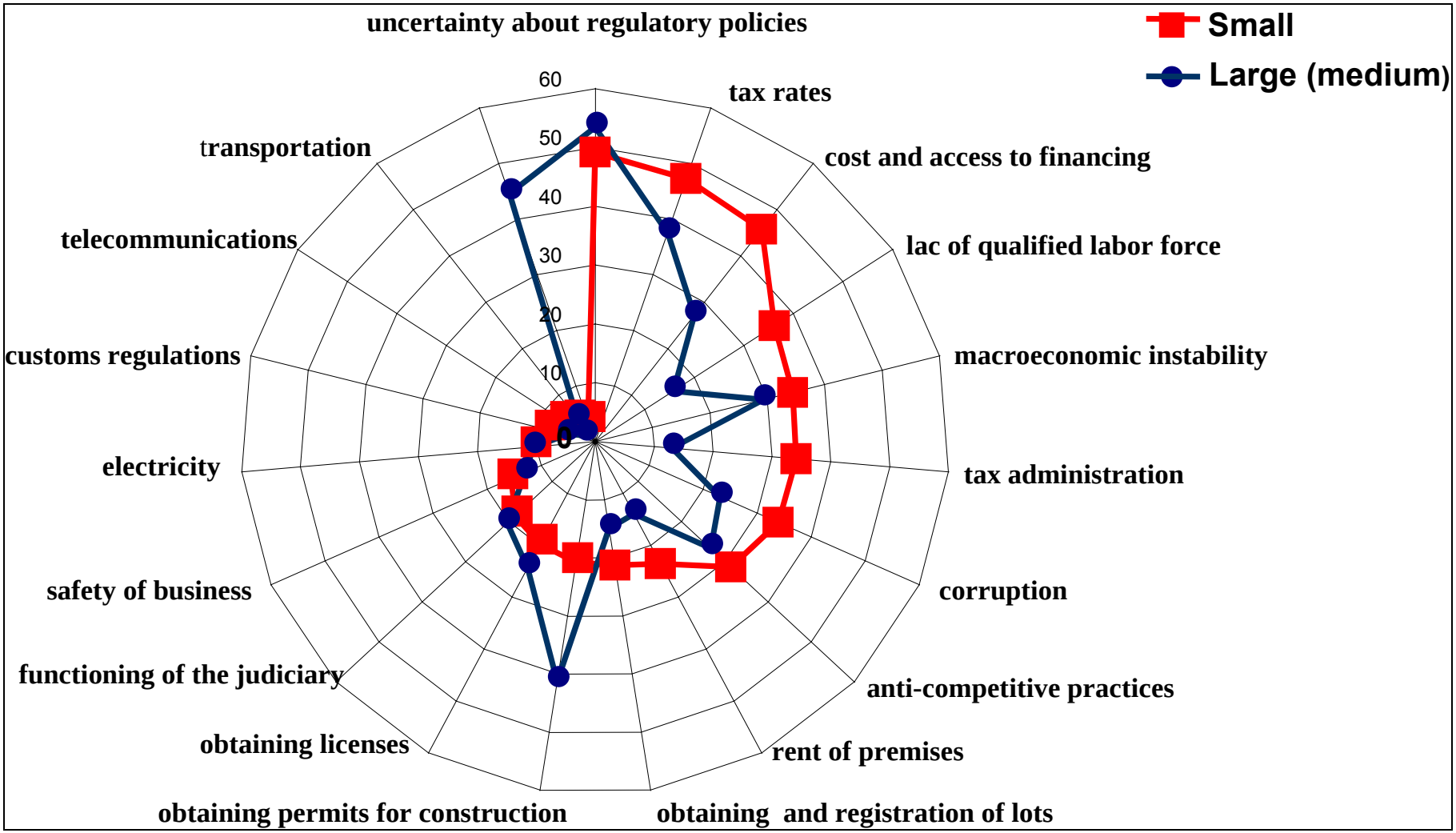
[8] Positive changes in decreasing of administrative procedures are mainly connected with simplified procedure of registration, reducing number of activities with obligatory licenses, the procedure of obligatory certification is abolished, inspections and control procedures were more strictly regulated.

[9] Regional differences also were not revealed in one of the most recent surveys in 6 Russia regions.

[10] 24% of respondents participate in business associations.

[11] Determination coefficient – 47%.

Business climate evaluation by the respondents in small and large (medium) business



Uncertainty of state regulation was considered to be a serious problem by half of the respondents in both regions. Besides lack of understandable policy for the development of small entrepreneurship a lot of complaints was about level of taxes and tax administration, availability of credits, lack of qualified workers and corruption. Neither type of economic activity and firm size, no firm' age on the market, location in the oblast center or in province were significant for evaluations of business climate components.

According to the results of main components' analysis better macroeconomic conditions could change the opinion of quarter entrepreneurs about business climate; 10% of differences in the evaluation could be explained by infrastructure factor and 8% - by the problems in the regulations of lots. The input of other factors (labor relations, access to finance, region) contributes to the explanation of only 17% of differences.

One of the sharpest problems of business climate is corruption. . In general, corruption was the main factor in explanation of the general evaluation of business climate. Survey data analysis proved that presence of corruption influenced all the evaluations of business climate. The input of corruption factor was stronger in the evaluation of tax administration and safety of business, competition, and consistency in state policy, quality of law enforcement[12]. Problems in law enforcement also correlated with evidence of informal relations in small business. It's worth to stress that:

- There was no difference in evaluation of corruption between SEs grouped by different criteria used in this survey, so, we could suggest that it was a common burden for all types of small businesses;
- informal payments became a common practice of doing business (only 10% of respondents managed to avoid informal payments dealing with administrative procedures). Business community considers such behavior as "normal» and the only possible practice. That is why corruption itself as a serious problem was chosen in ranking of the gravest problems only by 4% of SEs.

The evidence of corruption was stronger in the procedures of obtaining lots and

[12] Correlations between corruption and evaluation of business climate components are in Annex 1.

permits for construction (about 70% of respondents mentioned it)[13]. These results are understandable due to the fact these procedures are the most complicated and less clear in terms of regulation.

Being pressed to carry serious burdens on safety of business corruption is becoming a factor of sufficient negative impact on the firms' competitiveness (not only in the small business). Half of the firms responded that they had extracted about $1400 from their turnover to provide safety of work. The more size of firm - the more costs for securing safety of business measured not only in terms of average sum extracted from business but as a share in sales too.[14]

Networks[15] in small business – a tool to deal with institutional problems of small entrepreneurship

Since the end of 90s - beginning of 2000s we monitor in empirical surveys of Sees an interesting phenomena in the business strategy of small businesses: about 30% entrepreneurs prefer to create a network of small firms instead of growing and becoming a medium size business. First time we revealed the scale of network development in small business in OECD survey implemented in 2001 in three Russian regions where 33,4% of respondents told that they managed more than one small firm [16]. Practically the same results were obtained in our survey in 2005.

Quantitative estimations of networking firms are the same in both regions, in the oblast center and in province. So, we could propose that this type of business strategy is common for Russian small business entrepreneurship as a whole.

Basic characteristics of network firms were the following. First, they were larger than autonomous ones (the share of micro- firms is 2 times less, the share of companies with 11-50 employees is 12,8 points higher and the share of firms with more than 50

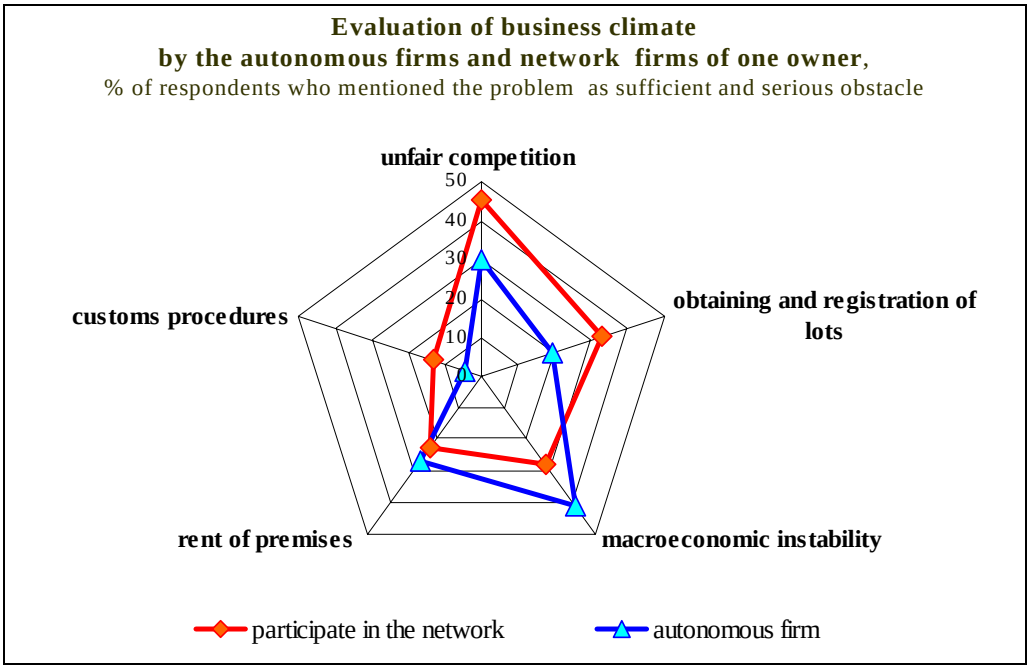
[13] We considers the respondents' answer on the question about existence of informal payments "difficult to say" to be very similar to answer "yes".
[14] Correlation coefficient between number of employees and costs to secure safety is 0,228 (statistical significance 0, 01).
[15] Network of SEs here is a number of small firms managed by one owner.
[16] The sample was 303 firms in Irkutskaya, Tulskaya oblast and Udmurtia.

employees is 4 points higher in the network firms, statistical difference – 0,067). Second, network firms were more profitable. Profitability of 10-20% in 2004 had 28,6% of network firms (23, 5% of autonomous); profitability more than 20% had 14,3% network firms and 6,7 of autonomous. The share of exporters in network firms was higher (20,4% and 7,6%, correspondingly, statistical significance 0,026). Among them the share of companies gaining from export more than 5% of sales was also higher (12,2% and 4,3%, correspondingly, statistical significance 0,08).

Network companies were more active in investment and innovations. For example, R&D investment in 2004 was done by half (51,9%) of network firms and by 29,0% of autonomous firms (statistical significance 0,004). They more often obtained bank credits and invested in training.

So, we have enough reasons to consider that network firms are at the moment the most successful companies with a good growth potential to become a medium business. They prefer to develop as network firms due to unfavorable institutional environment. To be larger now means to be more noticeable and to carry additional costs, first of all – for securing safety.

We tested the hypothesis that networking in small business was a compensatory mechanism to deal with institutional problems and found out that among networking firms about 30% were satisfied with business climate (compared to 20% of autonomous firms), correspondingly, the share of firms with negative estimations was 12,7 points less (statistical significance - 0,091). So, In general, they were less sensitive to macroeconomic instability. In turn, they evaluated more negatively the possibility of obtaining and registration of lots, customs procedures and unfair competition (statistical significance of difference was 0.047-0,068).



Conclusions:

1. Due to lack or reliable statistical information about financial performance of small firms substitute indicators were used in the analysis of SE performance. The survey provides evidence that subjective evaluations of financial position could be used instead of performance data as they reflect correctly profitability of business and growth of sales.
2. In general, the amount of competitive firms (assessed as a share of firms with stable good position on the market during last two years) was approximately 25%.
3. In 2005 regional differences in the competitiveness of small firms become significant. They follow the growth of demand and reflect the level of competition on the markets.
4. Small firms in services were, in general, more competitive than in production. The position of firms in production was worsening; the share of firms with grave financial problems was growing.
5. The business climate for small entrepreneurship is still unfavorable. One of the most serious problems is the burden of corruption, which became a business routine and is treated by the entrepreneurs as a common practice.
6. In the framework of unfavorable conditions a noticeable part of entrepreneurs (about 30% respondents in the whole sample) choose network artificial duplicating of small

firms instead of legal growing to medium business. Being more innovative, active in investment and training these firms could contribute to the growth of Russian economy. More active and targeted state policy towards medium enterprises is needed.

7. Among internal factors with a significant influence on differentiation of firms by the level of their competitiveness are:
    - Positioning on the market (more successful business strategy for SEs was specialization on niche markets)
    - State contracts.
    - Contracts with international companies, including located in Russia
    - Training costs per employee.
8. The survey proved hypothesis about the correlation between the incentives to be a small business entrepreneur and probability to create an effective business: the chances of innovative entrepreneurs and «opportunity" entrepreneurs were higher than the chances of entrepreneurs without any other possibility to find a job.

III. Recent Development of Corporate Finance in the Russian Federation

Fumikazu Sugiura

Recent Development of Corporate Finance in the Russian Federation†

Fumikazu Sugiura

Introduction

In this paper, we will try to throw light upon corporate finance mechanisms in transition economies, with particular emphasis being paid to Russia. To this effect, it would be indispensable to have access to micro-financial data of a particular company. However, this is not necessarily easy to obtain. We will therefore approach the issue using data already currently available.

Research on corporate finance is broadly done in the western market economy. The main method used for such research is quantitative research based on the accounting reports of individual firms. Company accounting reports offer, in a comparable form, an objective view of corporate activities. Furthermore, they reflect the most fundamental state of a company at any given time. Generally speaking, a company manufactures and sells goods and services. Corporate finance analysis hence deals mainly with the financial side of the sale of goods and services. If we consider the financial flow corresponding to the process of supply and transformation of raw materials, and the sale of goods, we see that there are a number of processes involved. These include the financing and mobilization of funds, and the distribution of what is obtained from the sale of products. It is necessary for us to analyze these processes.

A company's situation varies greatly depending on the scale of its activities and the business areas in which it works. However, we can uncover certain features of corporate finance when this is evaluated on a macro-level. Such macro-features can be regarded as being the corporate finance mechanisms of any given country. A company's

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activities are conditioned by various factors and contexts. Therefore, corporate finance mechanisms vary from country to country. The ultimate aim of our research here is to compare these mechanisms in transition economies, and to obtain a deeper understanding of the overall process of transformation.

We would like to consider here numerous factors which affect the formation of corporate finance mechanisms. These are all factors which regulate corporate activities. Of particular importance are the fiscal and financial systems in use (including taxation systems) and the development of the financial sector (banks, the regulating environment of capital markets etc.). Furthermore, macroeconomic conditions, financial policies, dividend policies, insolvency regimes and the situation of creditors' protection should also be considered. With regard to transition economies, these points are very important. In the early stages of transition, they are in general affected by huge macroeconomic disparities, experiencing high inflation and a remarkable decline in production. Furthermore, the transformation to a market economy begins with neither a pre-existing capital market, nor the support of a consolidated class of capitalists. Moreover, since banks in the old regime played only a passive role in supplying necessary funds to enterprises, it was not possible to regard them as playing a decisive role in examining the profitability of certain investment projects, or in governing corporate activities in accordance with market conditions. The conditions with which companies were confronted were thus unstable and ambiguous. At the same time, the role played by state budgets in financing investment projects in the socialist system was in sharp contrast to that observed in the process of transition. In other words, there has been a drastic change in fiscal policy. It will hence be necessary for us to take these changes into consideration.

There are also other, more complex matters that we should take into account, such as the growth strategies of individual companies and the problem of corporate governance, since these are also factors which go to make up corporation finance mechanisms. For example, the "main banking system," which was well-known as a corporate finance mechanism in Japan after the Second World War, was a reflection of the stage of economic development at the time, and an indication of the course of development the country was to follow in the future. In this sense, Japan's corporate finance mechanisms can be considered

as having been formed by a number of internal and external factors.

This is precisely the reason we have for studying corporation finance mechanisms in transition economies, since they themselves are also, by definition, transitional. Mechanisms which reflect internal and external factors are of great importance. Furthermore, comparing these mechanisms will help us to forecast possible future developments in these economies. In addition to this, it will also help us to deepen our understanding of the process of economic transition.

In the present day 21st century, numerous transition economies of the former Soviet Union and Central and Eastern Europe, especially that of Russia, are beginning to record a comparatively high rate of economic growth. It would seem that the period of rapid economic growth observed ever since the overcoming of a certain "transition depression", has taken root in a similar way to the reconstruction process after World War II. However, if we closely analyze the growth mechanisms in these regions, what we come across is a growth in consumption, or the reflection of export activities based mainly on natural resources and primary processed goods, or the benefits of capricious direct foreign investment. This means that current economic growth is not necessarily the result of robust investment in the equipment of domestic industries, and we cannot be sure if it is sustainable or not. Since transition economies have suffered from huge differences in technological know-how when compared with western industrialized markets, and still depend upon a number of obsolete production facilities, immense investment in equipment would be needed if these countries are to acquire international competitiveness. However, since the financial sector in these countries is also underdeveloped, and there is a lack of domestic capital, the demand for funds cannot be properly satisfied.

For this reason, the ratio of self-financing in these countries is very high. This is because the financial system, which undoubtedly contributes to dynamic economic growth, is not necessarily developed enough to respond to the actual demand private enterprises have of financial resources.

1. Preceding Study on Corporate Finance

A lot of research has been done on corporate finance. Comparative studies of various different countries are also very popular (Iwata, 2003, Hoshino, 2003, Delbrei et al., 2000). Some studies have asserted that there is a certain difference between models used in different continents, such as the Japanese model, the Anglo-Saxon one, and that in continental European, while others have compared particular European countries. This is very interesting, because these studies closely correspond to the typology of corporate governance systems. However, there have been much fewer studies on corporate finance in transition economies, due to difficulties in the availability of statistical data and the different accounting systems used. In the case of Russia, mainstream analyses have been made of some major companies that are listed on the western securities markets and that have reported their performances in accordance with international accounting standards. Although such analyses are important, there has been no macro-analysis for companies on a whole. Perotti et al. have clarified the actual condition of financial issues within company groups, through an approach that pays special attention to the composition of Financial Industrial Groups (FIGs) (Perotti, E.and S. Gelfer, 2001).

In contrast, the object of this paper is to shed light upon the actual situation of corporate finance in Russia at a macroeconomic level. Firstly, we will look, in an orthodox manner, at asset structures in Russian companies. Secondly, we will examine the question of company liabilities. We will then consider the problem of company finances, dividing it into three dimensions, namely: the banking sector, securities markets and overseas markets as sources of finance for Russian companies.

In the case of Russia, there are even more interesting issues to be considered. As is widely known, non-monetary transactions, such as barter and non-payment, became widespread in Russia in the 1990s. However, normal cash transactions have been revitalized ever since the financial crisis of 1998. The reasons behind this change lie in the fact that the liquidity of Russian companies has improved, and they do not want to use non-money as a means of survival, owing to the effects of substitutable imports, and a significant depreciation of the rouble. Now that a lot of factors that improved the

situation immediately after 1998 are gradually being used up, is there any danger of non-monetary transactions reappearing in Russia? If this is not the case, then it will be necessary for us to explain what kinds of mechanisms are helping to prevent it from happening.

Issues of particular importance include the relations between industrial structures and corporate finance mechanisms. Although the financial sector in Russia was underdeveloped, financial industrial groups (FIG's) saw the light of day, with the support of large Moscow-based commercial banks, before the crisis of 1998. An FIG is a kind of conglomerate, or the unified group of big commercial banks and non-financial enterprises. They were obliged to change dramatically after the crisis of 1998. Some of them, consisting of export-oriented resource industries, such as those of oil and natural gas, have more means of finding financing within the group, and thus have a fairly high level of growth viability. However, some bank-led FIG's are in the process of going bankrupt. The current business environment in Russia is inadequate, in that creditors' rights are not properly protected, and commercial banks face difficulties claiming the reimbursement of loans when their clients go bankrupt. For this reason, commercial banks are no longer eager to give credit. However, such a risk is avoidable if a loan is contracted within the same group. This can be regarded as being one of the newly-formed mechanisms of corporate finance in Russia.

It is true that ever since 1998, outstanding reimbursements in the banking sector have been increasing sharply. Various factors, including a high economic growth rate, diminishing non-money transactions and a revision of the bankruptcy law strengthening creditors' rights, could explain this change. Also, we cannot overlook the change in behaviour of Russia's largest bank, Sberbank. After the 1998 crisis Sberbank, formerly a savings bank, substantially increased the number of loans it granted companies. This happened at the same time as the breakdown of other formerly specialized banks, such as Promstroibank, which the government considers as being an institution mainly used for providing liquidity to industries. These changes lead us to believe that there may have been a certain turning point in the government's economic policy. Sberbank, which had attracted more than 70 percent of the population's deposits, increased its assets by giving

large credits to major companies which at the time were going through a period of crisis. Since the Central Bank of Russia owns more than half of the shares of Sberbank, it has often been harshly criticized, on the grounds of a possible conflict of interests, being both a regulatory body and an owner of the bank. While the introduction of a deposit insurance system had been delayed for a long time because of political reasons, the population's deposits at Sberbank were guaranteed by the state17. Such situations have distorted the nature of competition in the deposit-account market. In spite of such criticism, reform, including the dismantling of Sberbank, has not been carried out until recently. This shows that the government wants to keep Sberbank intact. When considering corporate finance mechanisms in Russia, it is also true that from this perspective, the intentions of the government must not be disregarded. In addition, Sberbank is not a special bank found only in Russia. Lots of banks have developed on the foundations of the former savings banks of the socialist system, such as OTP in Hungary, Czeska sporitelna in the Czech Republic, and Halyk in Kazakhstan18, all of which play an important role in their respective economies. However, no other bank has been able to dominate the banking sector for such a long period of time as has Sberbank in Russia. From the viewpoint of a comparison of reforms in the banking sector in transitional economies, this is a very interesting case.

2. Asset Structures of Enterprises in Transition Economies: the case of Russia

When analyzing corporate finance mechanisms, three perspectives are of particular importance, namely: the source of funds, management, and the distribution of products. However, the statistical information released in Russia is altogether inadequate for the study of all of these points. We will therefore try to analyze the fund flow of Russian companies at a macroeconomic level, approaching the problem from the perspective of the composition of assets and liabilities.

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[17] In 2004, the law of deposit insurance was approved and took into effect.

[18] Halyk bank was completely privatized in 2001. Those banks have also enjoyed foreign capital participation.

(1) Some important facts about Russian statistics on corporate finance

In the statistics released by the Russian Statistical Agency, the composition of assets and the structures of capital and liabilities are not shown in an aggregated form. It is therefore necessary to reconstruct them from various indices. First of all, the accounts receivable are not contained in the statistics of enterprises entitled "assets structure". Therefore, this data should be brought in from the statistics showing the settlement situation of companies. On the other hand, if we look at the structure of capital and liabilities, equity capital and its breakdown are unknown. Furthermore, data concerning the distribution of the outcome of corporate activities, such as capital surpluses and earned surpluses, are not presented, either. Moreover, we must also refer to statistics which show the settlement situation of companies, in order to estimate the data concerning accounts payable and borrowing from financial institutions. It is also impossible to decompose current and fixed liabilities.

If such a point is taken into consideration, in order to analyze the asset structures of Russian companies, it is necessary to indirectly complement the actual conditions with available data. In particular, since the data on financing is completely inadequate, we need to indirectly supplement it with information on the source of investment funds, the accounting reports of deposit acceptance banks published by the Russian central bank, and various securities issuances in securities markets.

(2) Characteristics of Asset Structures in Russian companies

Here the characteristics of company organization can be clarified using available statistics. Tangible fixed assets represented 69.2% of the assets of Russian companies in 1996, gradually falling to 40.3% in 2003. On the other hand, the portion of long-term investment in fixed assets increased sharply from only 1.0% in 1996 to 11.5% in 2003. This data coincides with a tendency in Russia, since the 1998 crisis, of increasing amounts of fixed capital. The ratio of liquid assets has largely remained in the 6 - 9% mark. The ratio of short-term investment grew from 0.3% in 1996 to 4.0% in 2003. Monetary assets (cash and deposit) also grew from 0.5% to 2.3% in the same period, which can be regarded as being a good result for the vibrant Russian economy. Finally, accounts receivable more

than doubled, from 7.0% in 1996 to 16.6% in 2003, a point which needs to be analyzed more precisely, and which we will take into account further on.

We will now look at the question of liabilities. Since the only data we have available is of accounts payable and debts owed to the banking sector, as has already been stated above, we feel that it would be best to compute the ratio of those components, dividing them by the total amount of overall assets. As for accounts payable, we see that there was a large increase from 9.9% in 1996 to 21.2% in 2003. Similarly, bank borrowing also drastically increased, from 1.5% to 14.1%. It would thus seem that both inter-enterprise credit and bank borrowing have increased rapidly in the corporate finances of Russian enterprises.

In this regard, it is necessary for us to take into account the question of mutual credit within large groups. It is well known that in Russian FIG's and vertically-integrated corporate groups, financing is carried out by fund transfers, and through bookkeeping manoeuvres in mutual procurement agreements regarding materials and equipment. The increasing role of inter-enterprise credit may therefore, to a certain extent, reflect such a tendency. However, the scope of the present paper does not include an in-depth study of this issue.

(3) Sources of financing for investment projects

We will now analyze the sources of funding for investment activities. Firstly, it would appear that the ratio of self-financing is gradually falling. Secondly, in what concerns borrowed financial resources, the proportion occupied by budget funds is also decreasing. Thirdly, although the ratio of bank credits in general has been negligible and has changed little until recently, signs of an increase were evident in the statistics for 2003.

When we consider the mechanisms of corporate finance in transition economies, the following four viewpoints are very important, namely: (a) the underdeveloped financial sector; (b) the inward-focused tendency of corporate governance, or the tendency that enterprises have of forming coalition groups for fear of hostile takeover bids, and so as not to depend on external financing; (c) the dependence on budgetary funds, and (d) the dependence on direct foreign investment or on parent companies based abroad. We will

therefore analyze the current situation of corporate finance mechanisms by verifying these points institutionally and empirically. This hypothesis, along with the above-mentioned accounting report data, would seem to suggest that the tendency towards a certain "marketisation" of the economy is becoming increasingly apparent in Russia. In other words, companies are mainly dependent upon inter-enterprise credit and short-term bank loans for the purpose of imminent transactions. In contrast, in order to finance investment projects which fix financial resources on a longer-term basis, they have to rely upon internal sources of funding, and when these are not sufficient, they tend to look for the support of the government. There is now a shifting tendency towards a certain dependence on external funds. What's more, although still relatively small, the increasing tendency of borrowing from banks in 2003 can also be regarded as being a positive change. I would now like to analyze this new tendency, by focusing on the latest developments in the financing of Russian enterprises.

3. Active Financing Activities by Major Companies

As already stated, direct numerical analysis is somewhat difficult, due to the shortage of available data on financing. We will therefore review material from various mass-media, so as to comprehend the actual situation of company financing activities.

(1) The Banking Sector

First of all, there has been a sharp increase in the number of loans granted by the Russian banking sector. Some of the government-related banks, such as Sberbank and VTB (Foreign Trade Bank), have significantly increased the number of loans given to companies.

A large number of major companies, for instance, borrow from Sberbank. On the other hand, these companies are the same ones that can also borrow directly from overseas capital markets, as we will see below. Sberbank will sooner or later be exposed to harsh competition from its overseas counterparts and should re-examine, from a standpoint of profitability, its course of action in the near future. Loans to small- to medium-sized

businesses, or credit to consumers, should be regarded as the main possible alternatives.

(2) Securities markets

Domestic capital markets in Russia have at last been revitalized, following the severe damage caused by the Russian crisis of 1998. One of these, the MICEX (Moscow Interbank Currency Exchange) now accounts for a big share of the Russian securities market. The RTS (Russian Trading System), a state-of-the-art over-the-counter transaction system, also plays an important role. In particular, the securities market is a place where Russian companies can raise money from the stock market, including the bond and commercial paper markets.

(3) Overseas sector

We will now look at the situation of financing from abroad. First of all, major companies have been very active in successively issuing Eurobonds. Although this was once suspended following the crisis of 1998, it started again in 2000. Though financial institutions are excluded, companies in resource-extraction industries, such as oil and gas, justifiably play a leading role in this respect. In addition, new companies relating to mass-consumption, such as cell phone services and food processing, have recently succeeded in issuing Eurobonds, a situation that can be regarded as being a reflection of the considerable expansion in consumer-related industries in Russia.

Apart from the issuing of Eurobonds, the IPO (Initial Public Offering) is also attracting the attention of foreign investors in overseas securities markets. It has gone public in the securities exchanges in New York and London. ADR transactions are also somewhat popular.

Since both methods of financing are expensive for ordinary Russian companies, due to the high requirements of information-disclosure, syndicated loans which can avoid such costs are also very popular in Russia. Here we also look at the data of the Bank for International Settlements (BIS). This shows how much the financial institutions of the BIS member states lend out to companies and financial institutions in any given country, and how much they borrow. The BIS member states' lending means that Russian companies

and financial institutions do in fact borrow from overseas.

On the whole, ever since the second half of 2000, Russia has been a net borrower of overseas capital. However, if we divide this capital flow into companies and banks, we find, to our surprise, that banks in Russia are lending out money to the BIS member banks, while companies are consistently taking out loans from the BIS. This reflects a severe distortion in the situation of money flow in Russia. In other words, banks in Russia have been lending money to foreign banks rather than to domestic companies. On the other hand, foreign banks lend capital to companies in Russia. This means that there is a kind of "detour loan" in Russia, which is very abnormal.

From these three paths we can conclude that Russian companies have finally begun to start their financial activities in accordance with the principles of the market economy. That is to say, they are doing business in a more constructive way than before the 1998 crisis19. They finance their activities, especially short-term ones, by means of inter-enterprise and bank- credits, and not through inter-enterprise arrears. However, the funds fixed for longer-term activities are still insufficient, and although some leading companies deal with this problem in a positive manner by external financing, including that from overseas markets, others have to resort to retained earnings or need to call for budgetary funds.

Conclusion

Corporate finance mechanisms in Russia are changing quickly, reflecting the favourable trends of the Russian economy as a whole in recent years. However, due to restrictions in the availability of statistical data, a lot of aspects can at present only be inferred. This is an excellent reason for continuing to explore these issues.

[19] In an extremely uncertain economic condition, all the economic subjects would have very short-sighted interests. They would no longer think about long term prospect, but only a day-to-to concern, or survival of their own.

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Fig. 1 A Model of Corporate Finance and its Operation

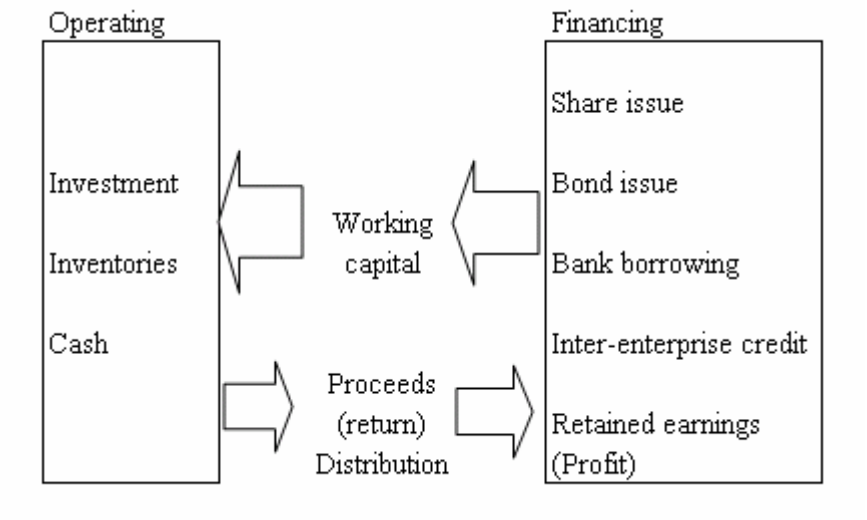


Fig. 2 A symplified balance sheet

ASSETS	EQUITIES & LIABILITIES
I. Non-Current Assets	**I. Equities and Reserves**
Tangible fixed assets	Charter capital
Construction in progress	Legal reserves
Long-term financial investmen	**II. Liabilities**
II. Current Assets	Non-current liabilities
Monetary assets	Bond
Accounts receivable	Current liabilities
Inventories	Loans and borrowings
Short-term financial investmen	Accounts payable
TOTAL	TOTAL

Note: The data of red covered are completely not available in Russia. The yellow part is indirectly accessible.

Table 1a. Assets structure of Russian Enterprises (% of Total assets)

Sector	Total

Data	Year							
Items	1996	1997	1998	1999	2000	2001	2002	2003
Non-current assets	**78.2**	**71.2**	**64.4**	**60.0**	**62.6**	**63.5**	**62.6**	**60.9**
Tangible fixed assets	69.2	61.4	55.2	48.5	48.3	48.2	46.3	40.3
Construction in progress	7.8	7.2	6.0	6.1	7.7	8.1	8.1	8.1
Long-term financial investments	1.0	2.3	2.9	5.0	6.2	6.8	7.8	11.5
Current assets	**18.5**	**23.4**	**26.9**	**30.5**	**37.3**	**36.5**	**37.4**	**39.1**
Inventories	6.2	7.0	5.8	7.1	9.3	9.7	9.4	9.1
Accounts receivable	7.0	8.1	12.2	14.0	15.7	17.1	17.0	16.6
Short-term financial investments	0.3	0.6	1.4	2.1	3.1	3.5	3.2	4.0
Monetary assets	0.5	0.7	1.2	1.6	2.0	2.2	2.9	2.3

Table 1b. Assets structure of Russian Enterprises in Mining and Industry Sector (% of Total assets)

Sector	Mining and Industry

Data	Year							
Items	1996	1997	1998	1999	2000	2001	2002	2003
Non-current assets	**74.1**	**66.1**	**55.5**	**50.2**	**55.4**	**55.9**	**59.1**	**60.1**
Tangible fixed assets	60.9	52.8	43.4	35.4	37.2	36.5	40.2	36.1
Construction in progress	11.6	10.6	8.9	8.8	10.9	11.1	9.5	8.8
Long-term financial investments	1.4	2.4	3.1	5.6	6.8	7.8	8.6	13.9
Current assets	**21.7**	**26.4**	**32.4**	**36.4**	**44.6**	**44.1**	**40.9**	**39.9**
Inventories	8.1	8.6	8.6	10.4	14.1	14.5	13.4	12.5
Accounts receivable	10.6	13.9	17.4	18.3	21.4	19.2	17.3	16.6
Short-term financial investments	0.4	0.6	2.2	3.1	4.4	4.8	2.8	3.8
Monetary assets	0.4	0.5	0.8	1.4	1.7	2.0	2.8	1.9

Fig. 3 Assets structure of Russian Enterprises

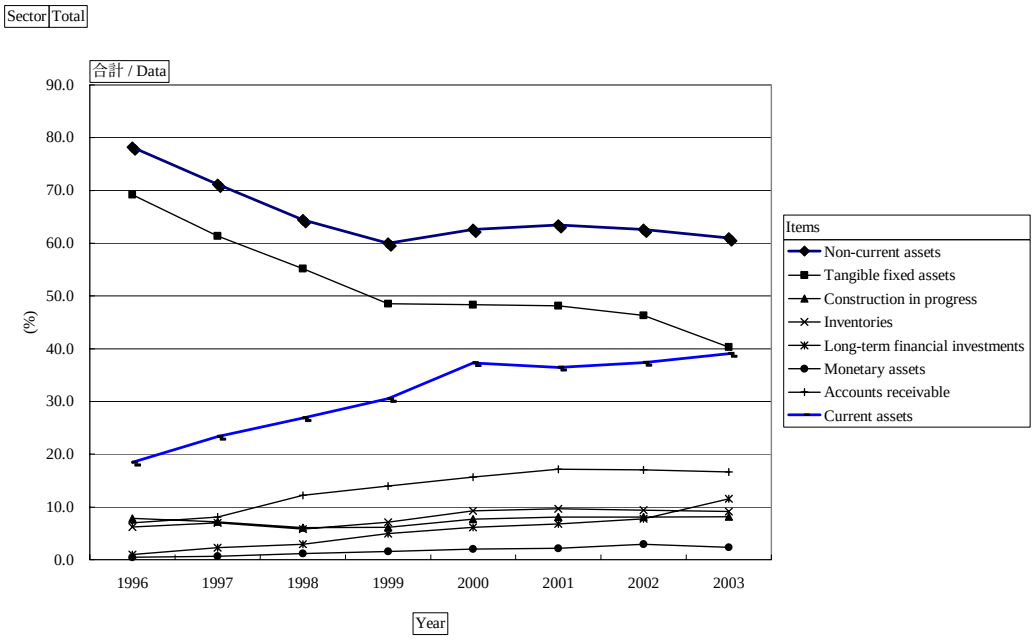


Fig. 4 Non-current assets and non-current liabilities structure of Russian enterprises

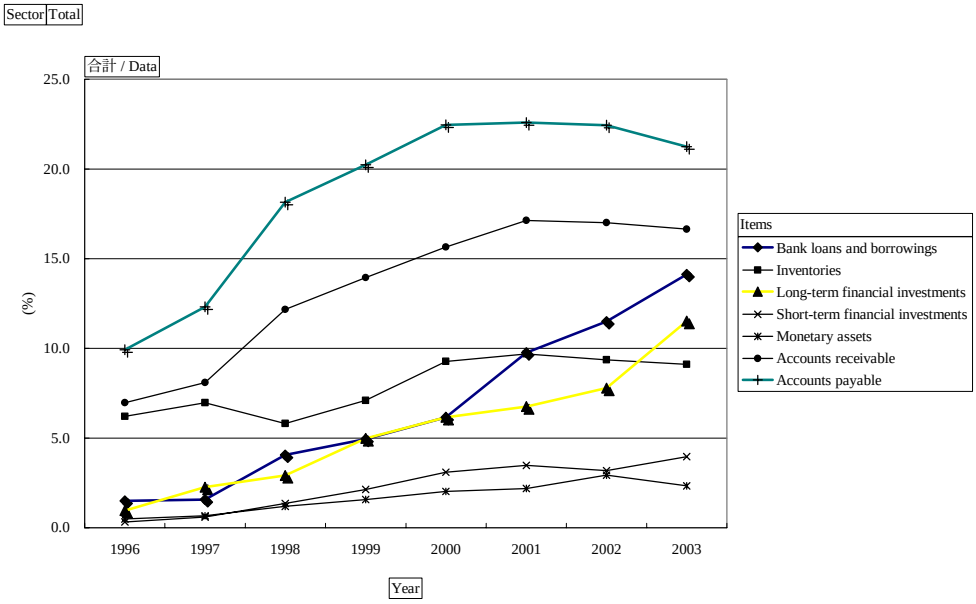


Fig. 5 Situation of non-payment has improved

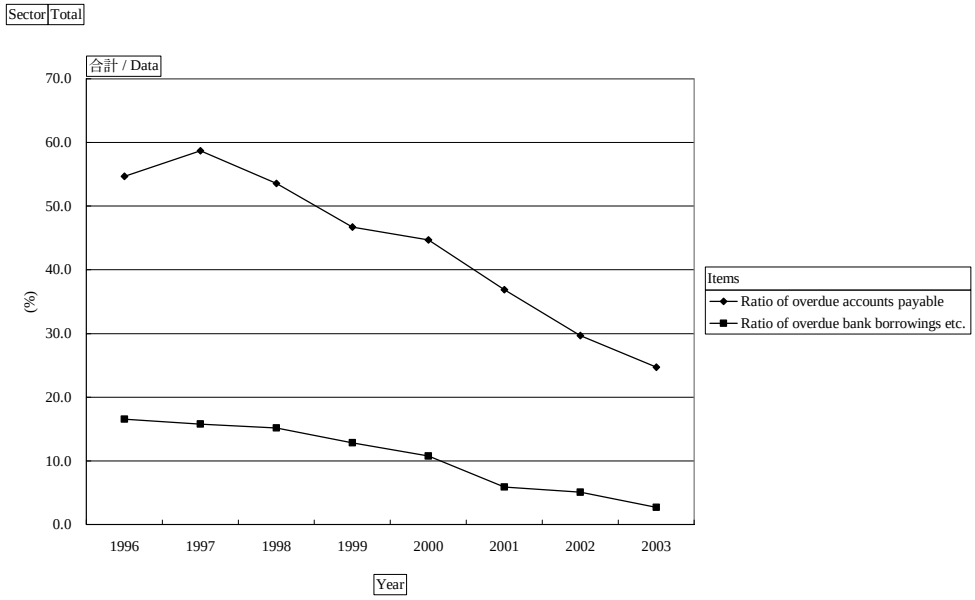
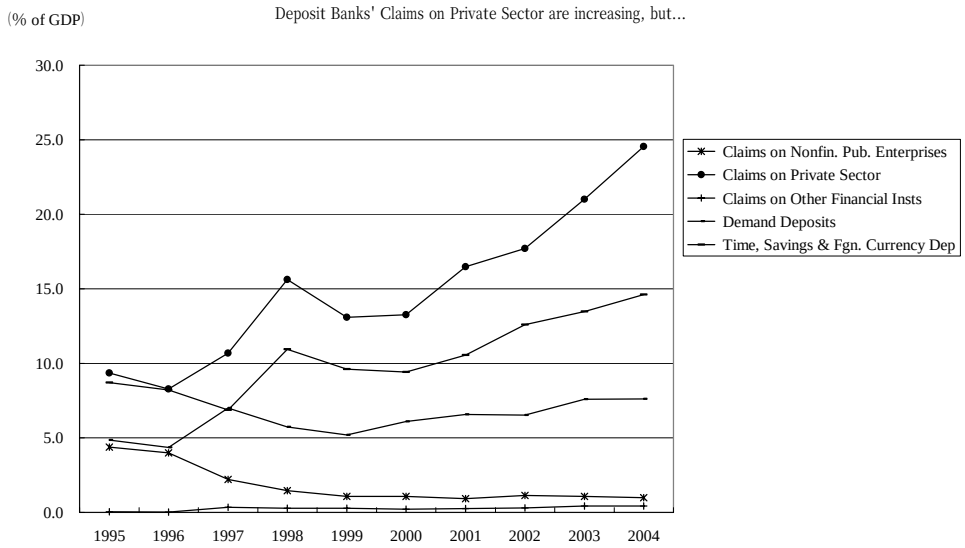


Table 2 Source of Investment Financing (% of Total Investment)

	1992	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Internal Fund	**69.3**	**49.0**	**52.3**	**60.8**	**53.2**	**52.4**	**47.5**	**49.4**	**45.0**	**45.2**	**46.8**
of which											
Profit	…	20.9	15.0	13.2	13.2	15.9	23.4	24.0	19.1	17.8	18.3
Depletion	…	22.6	27.6	26.5	…	…	18.1	18.5	21.9	24.2	24.4
Borrowed Capital	**30.7**	**51.0**	**47.7**	**39.2**	**46.8**	**47.6**	**52.5**	**50.6**	**55.0**	**54.8**	**53.2**
of which											
Bank Borrowings	…	…	…	…	4.8	4.2	2.9	4.4	4.8	6.4	7.3
of which from foreign banks	…	…	…	…	…	…	0.6	0.9	0.5	1.2	1.3
Other Loans	…	…	…	…	4.3	5.6	7.2	4.9	6.0	6.8	7.0
Official fund (a)+(b)	29.8	31.9	32.3	25.3	29.8	25.6	26.8	23.0	22.5	20.5	18.2
Budget fund (a)	26.9	21.8	20.1	20.7	19.1	17.0	22.0	20.4	19.9	19.6	17.4
of which											
Federal budget	16.6	10.1	9.9	10.2	6.5	6.4	6.0	5.8	6.1	6.7	5.1
Local budgets	10.3	10.3	10.2	10.5	12.6	10.6	14.3	14.6	13.6	12.1	11.3
Non-budget fund (b)	2.9	11.5	12.2	4.6	10.7	8.6	4.8	2.6	2.6	0.9	0.8
Other	…	…	…	…	7.8	12.2	15.6	18.3	19.0	21.1	20.7

Source: Goskomstat RF, Finansy Rossii, 2004., Rossii v Tsifrakh, 2004.

Fig. 6 Development of Deposit Banks' Accounting reports



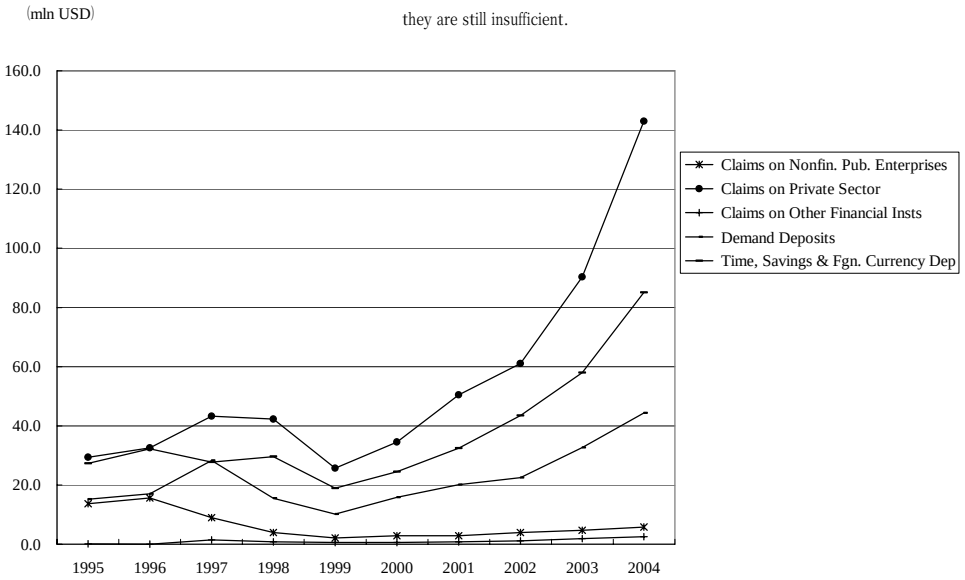


Table 3. 20 Biggest Russian Companies by Capitalization for 2004

Company	Industry	Capitalization at the end of 2004 (mln USD)	Change from a year ago, %
Gazprom*	Gaz	65.51	114.8
Surgutneftegaz	Oil	30.86	30.0
Lukoil	Oil	26.01	31.5
Sibneft	Oil	14.22	5.3
Mobile TeleSystems	Telecom	13.80	67.3
Unified Energy System	Energy	12.17	1.6
Norilsk Nickel	Nonferrous	11.87	-14.8
Sberbank	Bank	9.57	86.7
Vimpelcom	Telecom	5.83	47.5
Mosenergo	Energy	4.10	115.1
Severstal	Ferrous Me	3.82	41.8
Tatneft	Oil	2.84	14.8
Mechel Steel Group**	Ferrous Me	2.68	NA
Novatek**	Oil	2.46	NA
Slavneft-Megionneftegaz	Oil	2.37	61.6
Rosneft-Purneftegaz	Oil	2.29	319.4
Orenburgneft	Oil	2.20	40.0
Baltika Brewery	Food	2.14	39.4
Yukos	Oil	1.45	-94.9
Aerofloat	Transport	1.44	88.4
Total Top 20 companies		217.64	

Note* Gazprom capitalization calculated at domestic share price;

**At end of 2003 company was not traded on organized market.

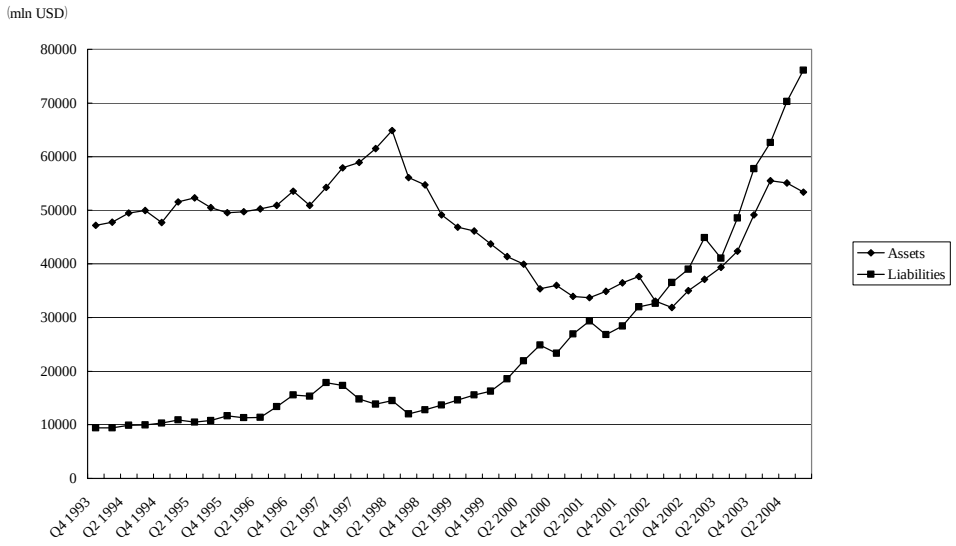
Source: Interfax Russia & CIS Banking and Finance Weekly, Vol.XIII, No.3, p.14

Table 4 IPO Rush of Russian Companies to International Markets

Company	Industry	Ammount (mln USD)	Date of Issue
YevrazHolding	Steel	600	Jun-06
Pyaterochka	Retail	598	May-05
Sistema	IT	1560	Feb-05
Mechel	Steel	335	Oct-04
Efes brewery	Beer	178	Oct-04

Source: BusinessWeek online, 2005/5/30, "The Coming out of Corporate Russia"

Fig. 7a External Positions and Deposits of Reporting Banks Vis-à-vis Russia



Source: BIS

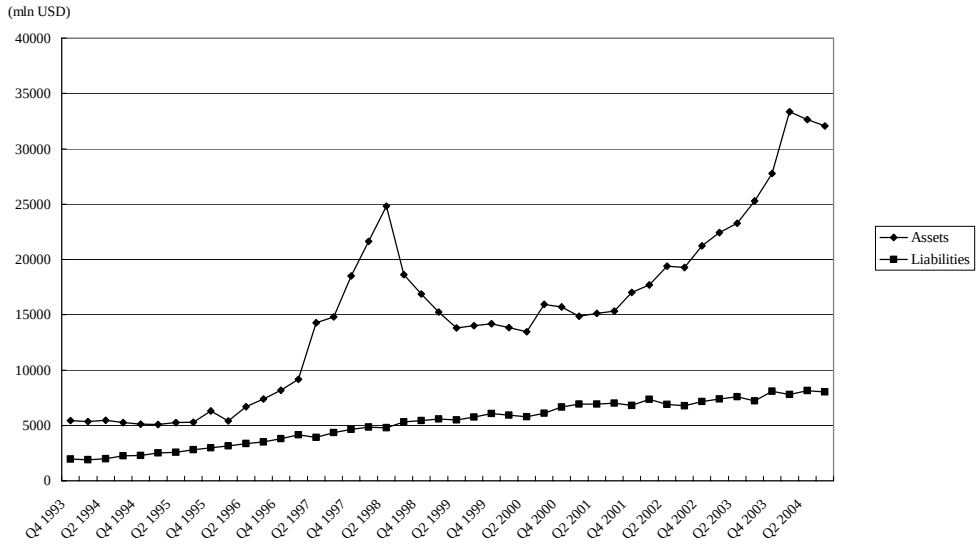
Table 5 Eurobonds of Russian Non-bank Companies in Circulation (As on May 2005)

Issue	Amount (mln USD)	Period (years)
2005		
Vimpelcom－2010	300	5
Mobile TeleSystems－2012	400	7
sub total	**700**	
2004		
Avtovaz－2005	150	1
AFK Sistema－2011	350	7
AFK Sistema－2008	350	4
Vimpelcom－2009	450	5
Vimpelcom－2011	300	7
Gazprom－2034	1200	30
Gazprom－2020	1250	16
YevrazHolding－2009, 1 transhe	150	5
YevrazHolding－2009, 2 transhe	150	5
Megafon－2009	375	5
Novatek－2005	100	1
Novatek－2006	200	2
Norilsk Nickel－2009	500	5
Russian Standard－2007	300	3
Russian Standard－2007	300	3
Severalmaz－2006	150	2
Severstal－2009	325	5
Severstal－2014	375	10
Severstaltrans－2006	110	2
TNK－2007	700	3
sub total	**7785**	

Issue	Amount (mln USD)	Period (years)
2003		
Alrosa－2008	500	5
Wimm-Bill-Dan Food Products－2008	150	5
Gazprom－2013	1750	10
YevrazHolding－2006	175	3
Magnitogorsk Metal Combine－2008	300	5
Mobile TeleSystems－2008	400	5
Mobile TeleSystems－2010	400	7
Sibneft－2009	500	6
UralSib－2006	140	3
sub total	**4315**	
2002		
Vimpelcom－2005	250	3
Gazprom－2007	500	5
Gazprom－2009	700	7
Lukoil－2007	350	5
Sibneft－2007	400	5
sub total	**2200**	
2001		
Rosneft－2006	150	5
sub total	**150**	
Total	**15150**	

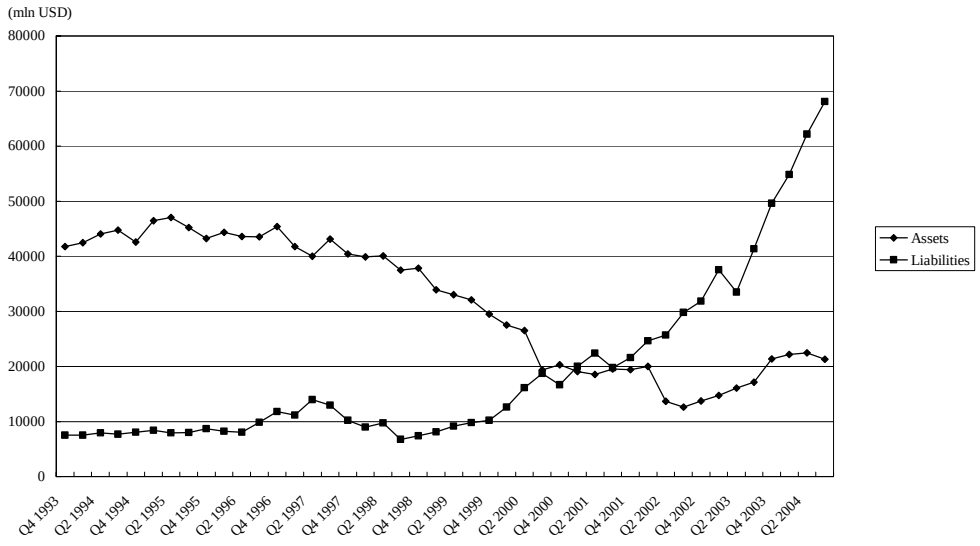
Source: Interfax Russia & CIS Banking and Finance Weekly, Vol.XIII, No.7. pp.17-18.

Fig. 7b Vis-à-vis Russian Non-bank sector



Source: BIS

Fig. 7c Vis-à-vis Russian Banking sector



Source: BIS

IV. Population Migration in Post-Soviet Russia: An Economic Perspective

Kazuhiro KUMO

Population Migration in Post-Soviet Russia: An Economic Perspective*

Kazuhiro KUMO

1. Introduction

The objectives of this paper are (1) to overview interregional migration patterns in Russia after the collapse of the Soviet Union and (2) to examine the interrelationship between regional economic conditions and population migration. Although sociologic/geographical studies are full of fruitful results, studies based on stylized statistical analysis on interregional migration in Russia have started only recently. However, some have presented impressive results. Among them, based on gravity models, Andrienko *et al*. (2002) showed that migration decisions in Russia were strongly affected by regional economic conditions. This paper specializes in economic analysis on interregional population migration, as in our earlier study (Kumo, 2003) or Andrienko *et al*. (2002).

This paper is organized as follows. First, an overview on interregional migration patterns in Russia from 1990s to 2000 and changes in their tendency are presented in brief. Migration factors are examined in Section 3, with the use of recent Goskomstat/Rosstat data. Changes in migration patterns, especially an extremely large out-migration from the Far North regions, are theoretically explained. Concluding remarks are presented in the final section.

* An earlier version of this paper was presented at the conference entitled "Russian Studies Dialogue: A Korea-Japan Perspective" held at Slavic Research Center, Hokkaido University, Japan on May 16, 2005 and the 37th annual convention of the American Association for the Advancement of Slavic Studies held in Salt Lake City, the United States on November 5, 2005. The author acknowledges a debt of gratitude to Dr. P. A. Baklanov, Dr. Masaaki Kuboniwa, Dr. Ichiro Iwasaki, Dr. Kang Yoonhee, Dr. Philip Hanson and Dr. Paul Gregory for their valuable comments. The author is also indebted to Dr. Shin-ichiro Tabata for his continuous encouragement and help. This study was financially supported by a Grant-in-aid for Young Scientists B from the Ministry of Education, Science, Sports and Culture in Japan (#16730147, 2004-06), a Grant-in-Aid for Scientific Research A from the Ministry of Education, Science, Sports and Culture in Japan (#17203019, 2005-08), the Inamori Foundation (20004-06) and the Suntory Foundation (2005-06), which are gratefully acknowledged.

2. Migration Patterns in Russia under Transition: an Overview

The collapse of the Soviet Union had critical effects on interregional population migration patterns in Russia, as is well known. Many studies have described their realities in detail, but some of them are reviewed briefly here for convenience.

2.1 Previous Studies on Interregional Migration in the Former Soviet Union

Population migration in the USSR has been studied by not a few scholars such as Perevedentsev (1966) and Vorob'yev (1977). However, at the beginning of his work, Perevedentsev (1966, p.9) stated that "there is no evidence of non-organized migration in the USSR as voluntary or contrary to planned and organized population migration." If it is so, investigation of migration patterns in the centrally-planned Soviet Union was thought to be meaningless. However, as Ohtsu (1988, p.18) referred, many papers pointed out that the labor-balance sheet (one of the centralized plans made up to attain the equilibrium between demand and supply of labor) played only a minimal role.

Indeed, population redistribution by the government had critical effects on population geography in Russia until the end of World War II. Particularly in the regional development of Siberia and the Far East, the induced population redistribution must have played an important role.

After the 1950s, the government prompted people to move toward the frontier by offering higher wages and providing jobs to newly graduated university students. These were the main policies used by the Soviet Union government to fill the regional labor demand gap (Perevedentsev, 1996; Kuprienko, 1972).

Although large population inflows were observed until the late 1980s, Dienes (1972) showed that investment in Siberia and Kazakhstan was inefficient during the 1960s, when economic efficiency was not the prime objective of the Soviet government. However, in spite of the government's policies, due to the high costs of laborers resettling in developing areas labor turnover ratio was rather high. According to Dienes (1972), these facts led the government to change investment priority and the central administration started to give

heavy investment on resource-abundant peripheral areas and on European parts of Russia, the most advanced area (TsSU SSSR, annual data books).

Table 2-1. Previous Studies on Migration Patterns in the Former Soviet Union and Russia

Authors	Rowland (1982,1989,1990)		Mitchneck (1991)		Cole *et al.* (1992)	Zaytsev (1973)	Andrienko *et al.* (2002)
Factors/Period	1959 -1979	1979 -1989	1968	1985	1989	1969	1992-1999
Growth in Employment			><	><		*	*
Industrial Growth		O				><	
Population Scale	O		O	O			O
Distance			*	*	*		O
Governmental Investment	*	O	O	><		O	
Growth in Governmental Investment	O						
Racial Factors	O			*			
Per Capita Income	O					O	*
Housing Conditions						O	
Climate Conditions						O	

O: Statistically significant; ><: not significant; *: ambiguous

Mitchneck (1991) analyzed population migration in the USSR from the viewpoint of regional science. She showed that compared to distance, investment affected migration decision more significantly. Her analysis indicates the effect of central planning on population redistribution. It should be noted, however, that in Siberia and the Far East regions not only inflows but also large outflows were observed in the 1970s.

2.2 Recent Research on Russian Regional Economies and Population Migration

After the collapse of the Soviet Union in 1991, the Russian economy seriously stagnated until the end of 1990s. However, this stagnation presents different aspects from region to region, and this phenomenon is frequently cited as a research objective.

TACIS (1996a, 1996b) classified each region from the following points of view: (1)

living conditions (income); (2) population dynamics (natural increases or migration rates); (3) labor market conditions (unemployment rates); (4) financial indicators (financial situations of regional governments); (5) structural changes (marketization or land reforms); (6) regional policy; and (7) reforms on banking systems. Their analysis was based on descriptive statistics, and their classification was very subjective.

After TACIS (1996a, 1996b), Russian regions were studied by many, especially by researchers in European states. Based on some quantitative analyses, Sutherland and Hanson (1996) clarified that the factors that characterized regional labor market conditions in 1992-1993 in Russia were (1) regional exports, (2) existence of military industries, and (3) real income. In an earlier paper (Kumo, 1997), interregional migration was examined, and the following factors were identified as the main ones determining interregional population migration patterns in Russia: (1) quality of life (residence or transportation conditions), (2) labor-market conditions, and (3) climate conditions. In addition, in yet another paper (Kumo, 2001, 2003), it was demonstrated that regional population/market size may stimulate in-migration in some regions.

However, when conducting econometric analyses, Russia still present numerous difficulties. In a 1997 paper (Kumo, 1997), income variables were found to be negatively related to in-migration, which is not typical of other developing countries. These phenomena could be attributed to the coexistence of high wages in Siberia or in the Far East regions, which were used as an enticement because of the severe climate and large out-migration occurring in these areas. The effects of economic factors themselves, however, may not be stable. Therefore, the results of the quantitative analyses are deemed questionable by some researchers.

Hanson (2000) examined the effects on regional real income of saving rates, inflows of foreign currency, and income transferred by the central government. Although some significant effects were obtained, the results indicated that abnormal values must have critically distorted the analysis. Changing the explained variable from real income to net migration rates did not improve the results.

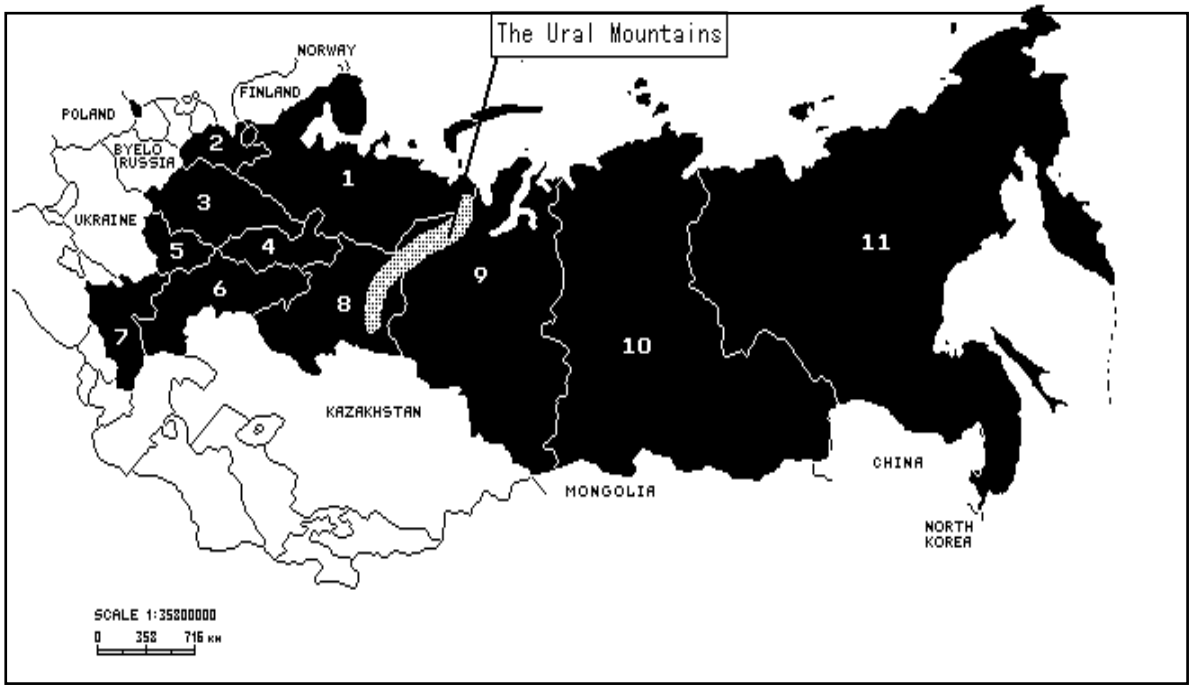
Some researchers investigated individual regions in detail, not on the basis of quantitative analyses. The methods adopted by Ohtsu (2000), which focus on the

examination of labor-market conditions in the Far East, or those by Gimpelson and Monusova (2000), which focus only on public employment and income reallocation policies, appear to be effective.

Such microscopic analyses, however, must be based on individual surveys. These are typical methods in area studies; however, this study examines the possibility of using easily obtainable data from macroeconomics to explain interregional migration.

A pioneering study undertaken by Andrienko *et al*. (2002) uses in- and out-migration matrices by region (*oblast'*) and applies simultaneous gravity models. Although some of the results are ambiguous, analyzing by income strata demonstrates that income variables and regional economic conditions significantly affect migration decisions. The results make it possible to easily grasp the effects of economic factors on migration patterns in Russia.

Figure 2-1. The Russian Federation and Its Regions



1: North; 2: North-West; 3: Central; 4: Volga-Vyatka; 5: Central Black Earth; 6: Volga; 7: North Caucasus; 8: Ural; 9: Western Siberia; 10: Eastern Siberia; 11: Far East

(Source: Goskomstat RF, *Avista ver.1.3*, 1995.)

2.3 Interregional Migration in Russia

The most critical differences that become evident when comparing Russian migration

patterns before and after the Soviet era are (1) the emergence of large out-migration from the Far North regions and (2) the increases in in-migration rates into advanced/ industrialized areas and into warm farming regions.

After the middle 1970s into the 1980s, when the Soviet society was recovering from exuberant government development strategies, great importance was placed on further development of already-advanced European regions and resource-mining regions. On the other hand, it was very difficult to entice laborers to settle in frontier areas. Higher wages in these areas were insufficient to offset the deficiencies in the infrastructure. In addition, it was quite expensive to develop the frontier because of the severe environmental conditions. Big projects, such as constructing new industrial zones in peripheral regions, were discontinued in this period. Rather, seasonal or day workers were used in underdeveloped areas, but these workers were only provided with barracks (Milovanov, 1994). In order to avoid maintaining the infrastructure and to promote short-term efficiency, the government intended to entice day workers into the Far North by using wage incentives.

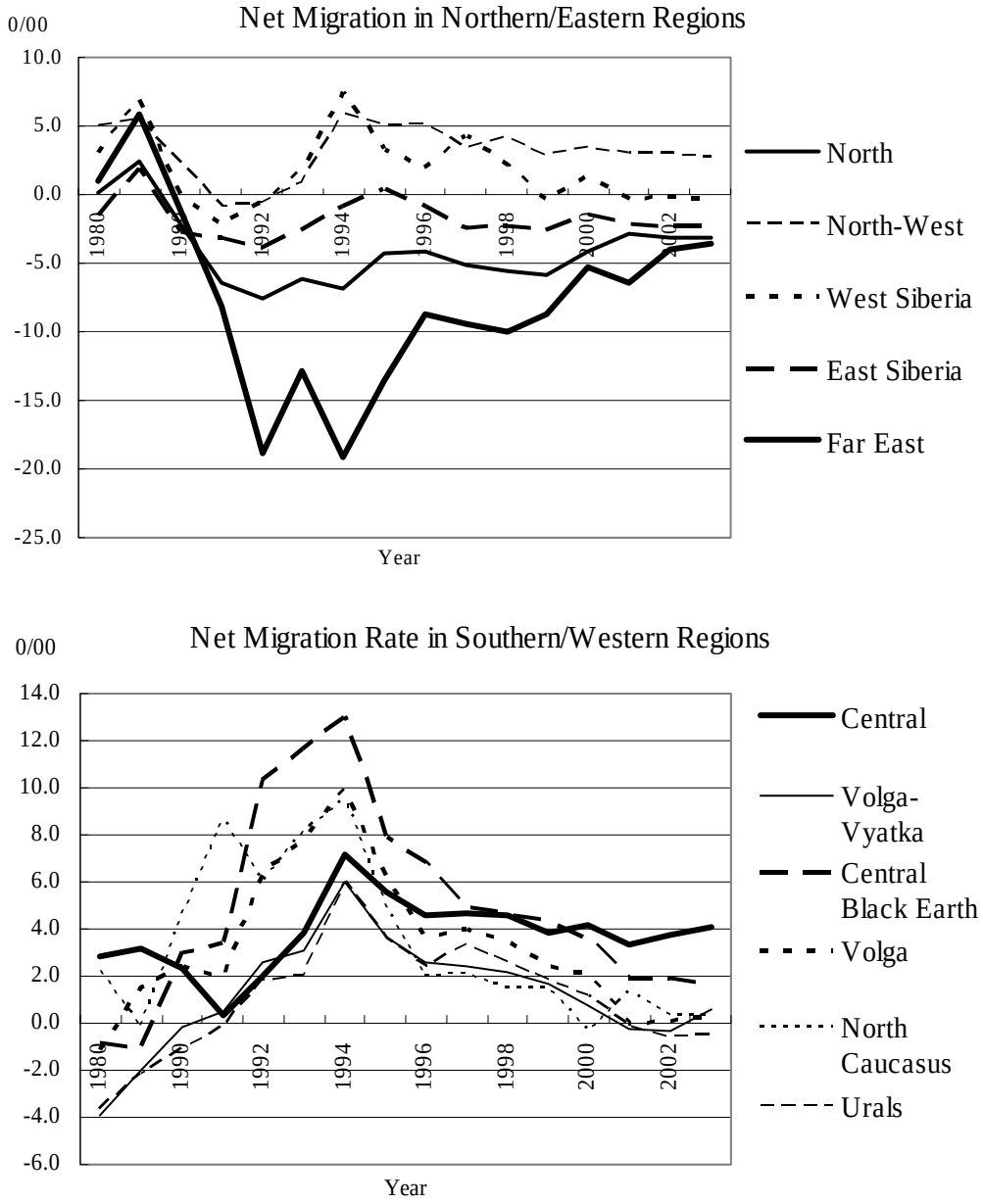
However, in the Far North, which has very large natural resources, development incentives were provided by the central administration with clearly positive results. Thus, large in-migration into such areas as Siberia or the Far East was observed until the end of the 1980s (Figure 2-2. As for regional division, see Figure 2-1).

The collapse of the Soviet Union caused drastic changes in the patterns. As pointed out earlier, in-migration into already-advanced areas and out-migration from the north emerged in 1990s (Figure 2-2). This can be clarified when plotting net migration as geographical information. After the 1990s, in many regions in Siberia or in the Far East, percentage-scale out-migration flows were observed, excluding Chumen', which included large mining bases. Comparing net-migration by region in 2000 and in 1985 may help understand the changes (Figure 2-3).

Numerous causes can be cited for this phenomenon. Especially significant are the racial/political factors (Chechen, North Osetiya, Ingush) and return migration (from Central Asia and the Baltic states) (Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii, 1999). It would, however, be impossible and beyond the scope of this study to consider every possibility. Based on the author's interest, this study is limited to

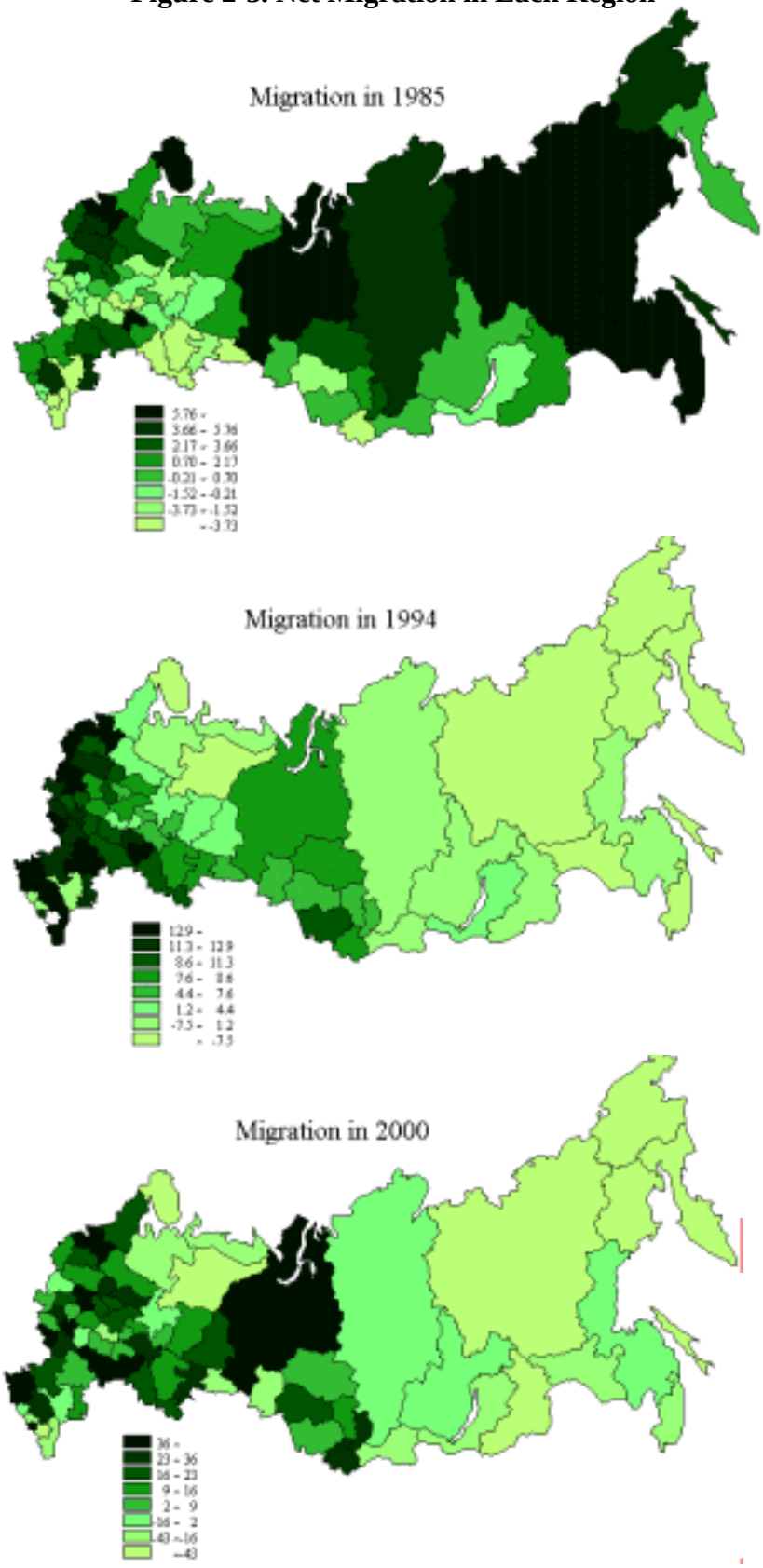
the analysis of economic factors.

Figure 2-2. Net Migration in Each Economic Region*, 1980, 1985, 1990-2003



(*Sources:* TsSU RSFSR, 1980; TsSU RSFSR, 1981; Goskomstat Rossii, 1993; Goskomstat Rossii, 1999; Goskomstat Rossii, 2001; Rosstat, 2005. *All regions [oblast, kray and so on] are divided into the former *Economicheskiy Raion*.)

Figure 2-3. Net Migration in Each Region



(*Sources:* Goskomstat Rossii, 1999; Goskomstat Rossii, 2001. The criterion of regional division is 12.5 %tile.)

3. Analysis of Economic Factors of Interregional Migration in Russia

3.1 Empirical Analysis

Official statistics are used to analyze migration factors in this section. Net migration rates in each region for 1994-2003 are regarded as explained variables. Migration in 1980 and in 1985 will be examined also for comparison. Although census-based gross population flow data is usually utilized in detailed migration analysis, official population census was not conducted through the 1990s in Russia. Matrices of gross population flows among regions were reported in official data, but they were described based on eleven Russian "Economic Regions" or seven "Federal Districts"; thus, the net migration rate is taken as a dependent variable in this study.

The existence of larger markets may attract people and firms to a certain location through economies of scale. Therefore market scale can be regarded as an explaining variable. Better equipment of social infrastructure and urbanization economies may positively affect on population flows also. Intensive economic development and better employment situations are supposed to affect positive migration flows. On the other hand, the central government strongly induced regional development in the former Soviet Union; hence, governmental incentives on regional development during the Soviet era might have attracted people in peripheral areas. Climate conditions must play critical roles in areas with very severe weather especially in the Far North regions which locate in the Arctic areas.

The population size (POP_i, in thousand) is regarded as a proxy for economic size in each region i. Gross regional products or gross outputs of the industrial sector are not utilized because (1) the price index varies from region to region and (2) the amount of output is recorded not at the production nodes but in regions where the headquarters locate. Urbanization is measured directly by the percentage share of urban population ($URBAN_i$, in per cent).

As for the indicators of social infrastructure development, housing space per capita ($DWELL_i$, in meter square), and surfaced road per area ($ROAD_i$, in kilometers/kilometers

square) were taken as a benchmark. These measures have been often utilized in this kind of analyses in Soviet economic studies.

Economic conditions in regions will be represented by the percentage share of firms in debt ($LOSS_i$). Per capita income and wages are not utilized because of the great differences in price indices by region. Unemployment rates is not taken because of unreliability in data in transitional period and we cannot analyze the effects of the unemployment variable on migration patterns during the Soviet era because of lack of data.

Governmental incentives to develop specific regions will be considered by introducing per capita governmental investment in regions ($INVEST_i$, in thousand rubles). To grasp how this factor affected on migration decision during the Soviet period, the same variable is introduced in analyzing population flows in transitional period also.

The effects of climate conditions is examined by using the dummy variable ($COLD_i$, unity for regions in Far North and zero for others) for Far North regions, which locate in the Arctic Circle and given special treatment by the central government in the Soviet Union and the Russian Federation[20].

Thus, the equation to be estimated takes the following form:

$$Mi = \alpha_0 + \beta_1 POPi + \beta_2 URBANi + \beta_3 DWELLi + \beta_4 ROADi + \beta_5 LOSSi + \beta_6 GOVINVESTi + \beta_7 COLDi$$

where M_i is net migration rate in region i ($^{o}/_{oo}$).

All variables are for each region (*oblast' , respublik, kray and chkotka autonomous okrug*) are given a one-year lag in comparison with the explained variable. Autonomic Regions (*Avtonomniy okrug*) except Chkotka are included in the respective *oblast'*. The Chechen, North Ocetia and Ingush republics are excluded from the analysis because of their extraordinary environment. The number of samples fluctuates in some years because of lack of data. All data were obtained from Goskomstat Rossii, *Regiony Rossii ****godu*,

[20] The Far North Regions in this study are composed of the followings: Kareliya republic, Komi republic, Arkhangel' oblast', Murman oblast', Sakha republic, Kamchatka oblast', Magadan oblast', Sakhalin oblast' and Chkotka autonomous district.

Table 3-1

Simple OLS: Estimation Results

Variables/Year	1980	1985	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Population	0.45	0.13	15.00	9.65	18.71	16.02	8.28	8.82	7.72	7.66	4.31	3.24	3.21	4.40
(in thousand)	(0.25)	(0.07)	(3.10)*	(3.15)*	(3.42)*	(3.20)*	(3.06)*	(3.36)*	(3.69)*	(3.68)*	(2.20)*	(1.82)	(2.08)*	(2.98)*
Urban Population	3.43	16.37	-49.03	-32.58	-46.13	-18.43	-17.02	-10.53	-11.62	-14.32	-8.13	4.95	5.43	-0.44
(in percent)	(2.73)*	(2.05)*	(2.60)*	(2.85)*	(2.50)*	(1.00)	(1.88)	(1.13)	(1.48)	(1.72)	(1.12)	0.71	(0.88)	(0.07)
Per Capita Housing Space	2.05	-6.42	128.82	59.60	-50.12	-48.84	-14.47	4.21	2.78	-23.33	-19.96	-4.59	-2.33	-2.66
(sq.m)	(0.17)	(0.55)	(3.86)*	(2.72)*	(1.21)	(1.39)	(0.85)	(0.23)	(0.21)	(1.34)	(1.24)	(0.31)	(0.19)	(0.22)
Surfaced Road	0.40	0.33	-0.59	5.42	17.86	12.31	7.31	6.80	6.12	7.08	4.13	3.88	3.28	2.83
(km/sq. km)	(0.22)	(0.15)	(0.13)	(2.30)*	(5.96)*	(3.43)*	(3.93)*	(3.31)*	(3.73)*	(3.98)*	(2.60)*	(2.62)*	(2.36)*	(2.20)*
Percentage of Firms in Debt	-7.28	-3.63	-5.36	-2.28	-6.52	1.16	-10.88	1.92	-0.77	-14.53	-17.38	-8.68	-7.15	-10.50
(in percent)	(0.50)	(1.15)	(1.23)	(0.48)	(0.63)	(0.09)	(1.33)	(0.15)	(0.09)	(1.47)	(2.25)*	(1.32)	(1.20)	(1.69)
Per Capita Governmental Investment	29.70	30.43	8.25	2.39	6.82	1.57	1.49	1.40	-1.09	-2.66	0.89	2.04	0.37	-2.41
(in rubles)	(6.37)*	(6.49)*	(0.69)	(0.44)	(0.81)	(0.22)	(0.45)	(0.47)	(0.58)	(1.05)	(0.70)	(0.92)	(0.21)	(1.55)
Dummy for Far North regions	-0.32	-1.99	-7.02	-13.98	-13.33	-14.33	-6.89	-9.32	-8.63	-5.50	-5.71	-2.47	-2.67	-3.02
(unity for regions in the Arctic Circle	(0.17)	(0.97)	(1.37)	(4.25)*	(2.41)*	(2.74)*	(2.59)*	(3.31)*	(3.60)*	(2.08)*	(2.46)*	(1.15)	(1.40)	(1.59)
Constant	-86.24	79.28	-234.24	-119.30	-43.56	-14.87	-9.27	-52.92	-12.60	50.97	45.63	-13.8	-13.50	9.81
	(4.67)*	(3.65)*	(4.19)*	(4.04)*	(0.61)	(0.28)	(0.27)	(1.42)	(0.51)	(1.58)	(1.64)	(0.59)	(0.67)	(0.51)
Adj. R-squared	0.68	0.55	0.45	0.68	0.75	0.52	0.72	0.67	0.63	0.71	0.60	0.43	0.46	0.56
D.F.	61	61	68	68	68	70	70	70	70	70	70	70	70	70

T-values are given in the parenthesis below the respective coefficients. All explaining variables except the dummy for Far North Regions take the logarithmic

*: Significant at 5% level.

Goskomstat Rossii, Moscow, ****+1. A simple ordinary least squares analysis was conducted. All explaining variables except the dummy variable were transformed into logarithm. The results are shown in Table 3-1.

Interpretation of the results follows. As for the analysis on migration patterns in 1992-1993, we reserve any comments because of the social disorders and unreliability of data during this period.

In the 1980s the amount of per capita governmental investment clearly showed positive and significant effects on migration. The critical role of development incentives during the Soviet era was presented. On the other hand, coefficients of this variable turned out to be insignificant, which can be accepted as a matter of course after the collapse of the centralized government of the Soviet Union.

It is at a glance strange that the percentage share of urban population and per capita housing space obtained insignificant coefficients. This phenomenon can be interpreted by the followings: (1) regions with the highest percentage share of urban population are observed in the Far North Regions (there may be no farmers and no areas are classified as farm ones in such regions) and (2) per capita housing areas in such scarcely populated areas are large in comparison to the national average. It may be a supporting evidence of this interpretation that these variables obtained positive coefficients during the 1980s.

The percentage share of firms in debt showed ambiguous results. When investigating regions individually, one can see that people flowed out from *Primorskiy Kray* with high percentage share of deficit firms, but on the other hand a large amount of population inflows is observed in south-western regions of Russia, where manufacturing industries are in severe conditions but good living environment can be enjoyed. These complicated phenomena might have affected on this result.

Surfaced road density, which is a condition of regional infrastructure, showed positive and significant coefficients throughout the 1990s, which indicates that maintenance of social infrastructure in regions positively affects on population migration. If interpreting this result connected with above one, one can think that people do not flow into regions in Far North, where the percentage share of urban population is high but social infrastructure is poorly equipped.

Population size in each region obtained insignificant coefficients during the 1980s and affected positively in the 1990s and after on migration flows, except in 2001. The critical effects of political incentives given to peripheral areas during the Soviet era and contribution of market effects on population flows in the transformational period show clear contrast.

All of these results clearly show that economic factors critically affect migration decisions in Russia in an intuitively understandable way. Thus, the application of stylized theories on the examination of interregional population migration in transformational Russia or on the analysis of Russian regional economies seems reasonable.[21]

A striking result is obtained for the dummy variable, which is given to the regions of the Far North. It was strongly significant for all years and the regression coefficient was the largest during the 1990s, although after 2000 the coefficients turned to be insignificant, which may show exhaustion of possible out-migrants in these areas. The term dummy variable is defined as the same as that used in this author's 1997 and 2003 papers (Kumo, 1997, 2003).

As repeated, large-scale out-migration from the Far North is well recognized and is pointed out by many previous studies (Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii, 1999; Mikheeva, 2001). In this author's papers from 1997 and 2003 (Kumo, 1997, 2003), this phenomenon was shown to be a counteraction against Soviet-era development policies that were inefficient; the same was found by Mikheeva (2001). Mikheeva (2001), however, asserts the necessity for supporting individual regional economies. On the contrarily, numerous studies were recently conducted on depopulation in Far North regions and they assert that rather larger scale outmigration from the North is desirable from an economic point of view (Heleniak, 1999; Hill and Gaddy, 2003; Thompson, 2004; CEM, 2005). Indeed, from an economic point of view, it is questionable that Mikheeva's (2001) view would be acceptable.

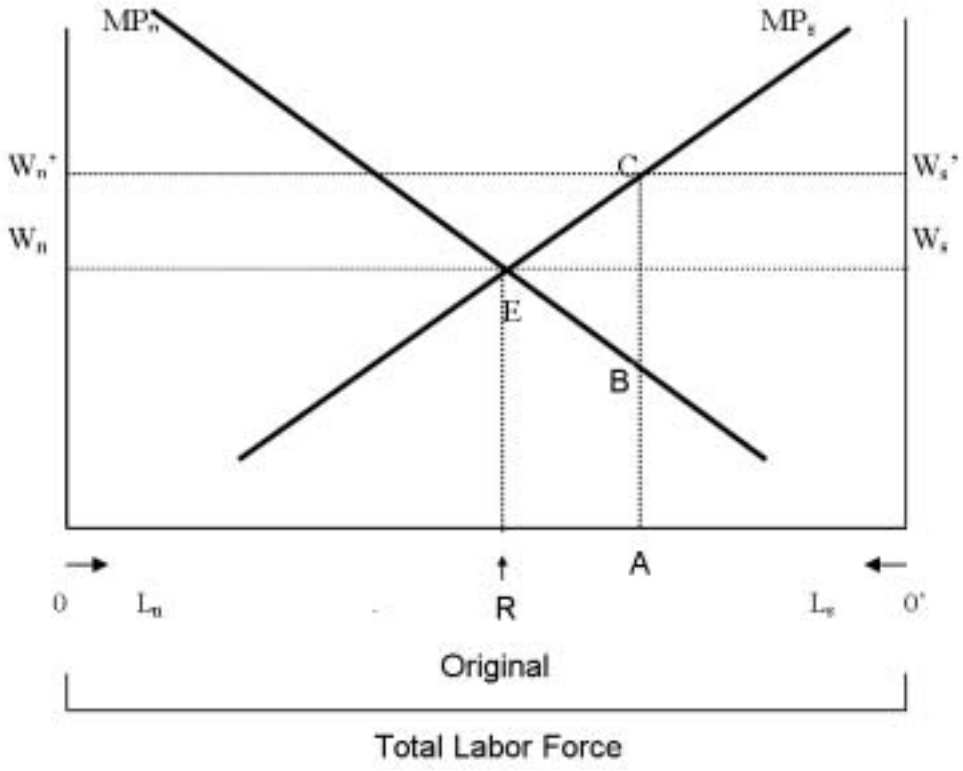
[21] Concerning econometric analysis comparing before and after the Soviet era, see Kumo (1997) and Kumo (2003). Some variables show peculiar results during the Soviet period.

3.2 Interpretation

The scale of out-migration from the Far North is quite large and has been regarded as a problematic phenomenon in previous studies (Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii, 1999; Mikheeva, 2001). The emergence of out-migration from these northern areas is, however, an adjustment process caused by inefficient Soviet development strategies. It should be regarded as an economically rational phenomenon. This is explained as follows. The logic is the same as that in the two-sector analysis presented by Todaro (1969).

Figure 3-1.

Effects of South-to-North Migration Caused by the Government on Social Welfare



In Figure 3-1, MP_n and MP_s denote the marginal productivity of labor in the north and the south, respectively. The sum of L_n (labor force in the north) and L_s (labor force in the south) is the total labor force, which is assumed to be constant and is distributed at the equilibrium point E. Here, real wage rates are equalized between the north and the south.

The social surplus shown assumes that the military requests that a large city be built in the north with a labor force of 0A.

First, in the north, the central government would set the wage rate W_n' higher than the equilibrium level in order to attract laborers in the south. This wage rate would be determined by politics rather than economics. Laborers in the south would respond to the wage differential and move to the north. The population flow would continue until the labor supply in the north was 0A. The wage rate in the south would also increase to W_s'. Although wage rates were determined by the government in the USSR, the central government would have to increase the wage rate in the south in order to interrupt the excess population inflow into the north. If the wage rates in the south had been set lower than W_s', a restriction would have to have been placed on population migration. However, this could have led to social conflict. In addition, the wage rates in the south would have no influence on the total social surplus. Regardless of the wage rates in the south, only a transfer of welfare would have occurred.

When the north attained the target population size 0A, this economy would have attained an equilibrium. The excess cost $W_n'W_nW_sW_s'$ to hire 0A laborers in the north would only be transferred between the government and laborers. If workers were distributed at E, RA workers would bring the nation products of ERAC. However, RA workers would now be in the north, yielding only ERAB. Therefore, the nation as a whole would lose (the triangle) EBC.

If the number of people migrating into the north were not so large (in other words, if the RA were small enough), this inefficiency would not be so meaningful. However, population in the Far North exceeded 12 million (Goskomstat Rossii, 1999). Furthermore, the population in the northern areas (Far East, East Siberia, West Siberia, and Northern regions) was above 38 million in 1991 (Goskomstat Rossii, 1999). The high out-migration rates of the northern regions during the 1990s (in Figure 2-2) were not attributed to the small population of these areas. The impact of the surplus population in the northern regions on the efficiency of the national economy may not have been as light as initially thought.

In addition, if the central government had set the wage rate in the south lower than

W_S', this would have then allowed people in the south to move to the north in spite of restrictions on free migration. Non-organized migration has contributed to the inefficient use of labor (e.g., Perevedentsev, 1975).

This economic inefficiency required a change in investment policy in the 1970s (Dienes, 1972). The large population outflows from the Far North (depicted by the absolute value of the dummy variable in Table 3-1) may denote the correction of the distortion that had accumulated during the Soviet era. From these points of view, the evident out-migration from the Far North after the collapse of the Soviet Union was inevitable. Such a phenomenon can be regarded as natural or as a necessary evil when considering the necessity of increases in economic efficiency in transformational Russia, as many have pointed aout..

4. Concluding Remarks

This study investigated migration patterns in Russia after the collapse of the Soviet Union. The migration factors in 1980, 1985, and 1994-2003 were examined, and the significant effects of economic factors on migration decisions were analyzed. Finally, the theoretical logic behind the large-scale out-migration from the Far North was presented in brief.

As widely recognized, migration patterns in Russia drastically changed after the collapse of the Soviet Union. The most striking phenomenon is the large-scale out-migration from regions located in the Arctic Circle. It should be regarded, however, as an outgrowth of the distortion accumulated during the Soviet era and as an inevitable event. The Far North did not have any foundation for supporting a large population, and the out-migration seemed to be quite natural. Possibly, a change in the economic system was indispensable because the Soviet government could not afford the cost of the development strategy it had implemented in the peripheral regions.

Passport system, which had been applied in the Soviet Union was eliminated, and this relieved the migration process. Figure 2-2 shows some of these changes, including the low migration rates during the Soviet era and increases in migration after the 1990s. The

elimination of limitations on the flow of interregional population undoubtedly had an effect on this phenomenon. Although one can observe that the scale of out-migration flows from the Far North is decreasing from Figure 2-2, this may only indicate the exhaustion of possible out-migrants in these areas. Rather, policy implementation to induce outflows from the North may be required in order to support resettlement of underfunded residents (Thompson, 2004).

Of course, the population outflows from the Far East could result in a shortage of labor resources, worsening of the public order, or other social unrests in the region. However, out-migration itself may be able to be justified from the point of view of economic efficiency.[22]

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[22] Are high land prices in central business districts are problematic because some people cannot afford to buy houses? The answer is clearly 'NO'. Land prices in city centers are understandably high; if they were not, optimal land use patterns could not be maintained. A one-million square-meter one-story private home in a downtown area is clearly a misuse of public space. The problem that the ability to purchase housing is inequitable is concerned with income allocation. High land prices in densely inhabited districts are not problematic in this sense.

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