



International Institute for
Applied Systems Analysis
Schlossplatz 1
A-2361 Laxenburg, Austria

Tel: +43 2236 807 342
Fax: +43 2236 71313
E-mail: publications@iiasa.ac.at
Web: www.iiasa.ac.at

Interim Report

IR-06-048

**Is the Russian Virtual Economy Coming
to an End? Institutional Change in the
Arkhangelsk Forest Sector**

Mats-Olov Olsson (mats-olov.olsson@cerum.umu.se)

Approved by

Sten Nilsson
Deputy Director and Leader, Forestry Program

15 December 2006

Interim Reports on work of the International Institute for Applied Systems Analysis receive only limited review. Views or opinions expressed herein do not necessarily represent those of the Institute, its National Member Organizations, or other organizations supporting the work.

Contents

1	INTRODUCTION	1
1.1	The Nature of the Problem	1
1.2	Previous Research	2
1.3	Objectives and Approach	3
2	MAIN CHARACTERISTICS OF THE VIRTUAL ECONOMY	4
2.1	The Importance of Initial Conditions	6
2.2	The Institutional Set-up Defining the Virtual Economy	8
2.3	What Determines the Future of the Russian Virtual Economy?	11
3	ANALYZING RECENT DEVELOPMENTS OF THE VIRTUAL ECONOMY—IDENTIFYING SUITABLE INDICATORS	13
3.1	Methods of Investigation	14
3.2	Selection of Indicators for the Assessment	15
3.2.1	Indicators Depicting Change in the Economic Structure	15
3.2.2	Indicators Depicting Change in the Behavior of Economic Actors	16
3.3	A Note on Data Collection and Quality	18
4	THE RUSSIAN VIRTUAL ECONOMY—RECENT DEVELOPMENT TRENDS	19
4.1	The Arkhangelsk Forest Sector in the Regional and National Economy	19
4.2	Structural Indicators	21
4.2.1	People—A Basic Economic Resource	21
4.2.2	Education—Investments in Human Capital	22
4.2.3	Enterprises—Ownership—Entrepreneurship	24
4.2.4	Inflation and Demonetization of the Economy	29
4.2.5	Banks and Credit Supply	31
4.3	Behavioral Indicators	33
4.3.1	Output and Capacity Utilization	33
4.3.2	Investments	35
4.3.3	Employment, Income, and Productivity	37
4.3.4	Barter Trade, Wage and Payment Arrears	41
4.3.5	Bankruptcies	43

5	ASSESSING THE MARKET ADAPTATION OF FIFTEEN FOREST ENTERPRISES IN ARKHANGELSK OBLAST	48
5.1	Investment Behavior Among Fifteen Forest Enterprises in Arkhangelsk	49
5.2	Characterizing Enterprises Displaying a Strong vs. Enterprises Displaying a Weak Market Adaptation in the Period 1998–2005	53
5.3	The Forest Enterprises in Our Survey Illustrate Recent Tendencies in the Development of Russia’s Market Economy	54
5.4	Managers’ Attitudes to and Understanding of the Emerging Russian Market System	59
5.5	Arkhangelsk Forest Enterprises and Civil Society	60
5.6	How to Improve Enterprises’ Market Efficiency	61
6	ASSESSMENT AND CONCLUDING REMARKS	61
6.1	Result of the Assessment	61
6.1.1	Indications of Increased Market Adaptation	62
6.1.2	Some Observed Tendencies That Are Difficult to Interpret	64
6.1.3	Remaining Problems	66
6.2	Conclusion and Policy Implications	67
	REFERENCES	70
	APPENDICES	78
Appendix A:	Questionnaire Form Used in the Survey of 15 Forest Enterprises in Arkhangelsk Oblast, April–June 2005	78
Appendix B:	List of Publications from IIASA’s Study “Institutions and the Emergence of Markets—Transition in the Russian Forest Sector”	83

Abstract

Since the spring of 1997, the Forestry Program at IIASA has been engaged in a study called “Institutions and the Emergence of Markets—Transition in the Russian Forest Sector”. The IIASA research group has looked at problems related to the institutions governing the Russian forest sector. In its first phase (1998–2001) the study sought to identify institutional problems hampering the further development of the Russian forest sector. Case studies were performed in eight Russian regions. In its second phase (2000–2002), so-called policy exercise workshops were held in four of the eight case study regions. In these workshops the findings of the case studies were presented to the stakeholders in the respective regions and a discussion was initiated about future regional forest policies. In a third phase, starting in 2003, after the in-house research activity was over, the study has been continued outside the institute by a member of the previous IIASA team. A follow-up study of the behavior of forest sector enterprises in one of the previous case study regions (Arkhangelsk Oblast) has been conducted with the purpose of assessing the recent development of the institutional set-up characterizing the so-called virtual economy. The present report presents the findings of this assessment.

The report should be possible to read independently of earlier published reports from IIASA’s study of Russian forest institutions. All reports from the study published so far are listed in Appendix B.

On behalf of Professor Sten Nilsson, Deputy Director and Leader of IIASA’s Forestry Program, I would like to express our gratitude to Dr. Mikhail Y. Varakin, Arkhangelsk State Technical University, Arkhangelsk. Without his dedicated work this report would not have been possible.

Acknowledgments

Funding for the research reported in this paper was provided by Formas, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning. The Centre for Regional Science of Umeå University also contributed financially to the finalization of this report. The generous support of both institutions is hereby gratefully acknowledged.

About the Authors

Mats-Olov Olsson was a research scholar in IIASA's Forestry Program between 1997 and 2001. He was a member of a small core group of IIASA scholars engaged in the study "Institutions and the Emergence of Markets—Transition in the Russian Forest Sector". All in all the study engaged some 25 researchers and Ph.D. students from Sweden, Finland, Norway, Russia, Germany, USA, and Estonia. Since January 2002, Mr. Olsson returned as a research scholar to his home institute, the Centre for Regional Science at Umeå University, Sweden.

Is the Russian Virtual Economy Coming to an End? Institutional Change in the Arkhangelsk Forest Sector

Mats-Olov Olsson

1 Introduction

1.1 The Nature of the Problem

The dramatic developments in Russia and other east European countries during the last 10–15 years have attracted intense attention from many scholars all over the world. There are many good reasons for this interest. The period saw the fall of one of the dominating world powers of the 20th century. The disintegration of the Soviet Union triggered a whole chain of events also in other east European countries. In fact, the overthrow of the communist governments came earlier in some of these countries than it did in the Soviet Union. However, it can be argued that ultimately it was the political changes in the Soviet Union that allowed *transition* to unfold in the so-called communist satellite states. The significance of these changes could hardly be overestimated. Through the disintegration of the Soviet Union the entire existing geo-political situation, with its specific cleavage of the world in two main adversary powers, was radically altered. In this perspective the east European transformation could be seen as an integral part of the broader transition movement through which authoritarian governments were replaced by governments of a more democratic inclination and where the previously existing all-encompassing state control of economic life gave way to a system in which the market mechanism was allowed to guide actors' economic operations.

In the spectacular change process that unfolded in the years following the disintegration of the Soviet Union, it soon became evident that severe rigidities hampered the profound reorganization of society necessary to make it comply with the kind of institutional order that a modern market economy needs. Not only had the entire legislation governing the behavior of all Russian citizens and organizations to be reconstructed, but much of people's internalized informal norms and rules of conduct also had to change radically. In short, the Russian society was forced to enter a fundamental institutional reconfiguration.

The formal dismantling of the Soviet command economy produced a drastic reduction in production volumes, while simultaneously demonstrating the great difficulties that had to be overcome in order to change the economic mechanism hitherto in operation, replacing the “visible hand” of the central planning system with a system of rules that would allow the economy to self-organize to become capable of making use of the benefits that might follow from market based resource allocation. Clearly, the country's rich resource endowments—Russia possesses both ample natural resources and a well-educated workforce—open great prospects for a positive economic development. The provision is that an institutional framework conducive to an efficient market based economy can be established.

Thus, it is hardly surprising that the situation staged in Russia and other east European countries by the unfolding transition process would attract the interest of social scientists engaged in the study of institutional change. The institutional change processes displayed here were of a previously unknown character both in terms of depth and speed. And, in contrast to the closed Soviet system, the new Russian government was not opposed to scientists (domestic as well as foreign) engaging in advanced studies of the often strange phenomena emerging in the course of the transition. Developments in Eastern Europe offered a unique chance of gaining a better understanding of social change, of its prerequisites as well as its unfolding and ensuing results. Consequently, these last few years have seen a rapidly growing volume of publications discussing the results of various transition oriented research endeavors. And still the process of rapid change is far from over, it might even go on for decades yet. This should caution us that all results of “transition research” produced to this day must in fact be regarded as highly preliminary. Much of what might seem to be solid knowledge today regarding the transition phenomena may actually have to be radically reconsidered in the light of future events and analyses.

This is the rather distressing context in which we now have to frame some issues that seem highly relevant given our (preliminary) approach to the study of Russian regional forest sector institutions. The topic of this paper is highly dependent upon the results of previous research conducted with the purpose of identifying the most serious institutional problems hampering the development of the regional forest sector in the emerging Russian market economy. A brief outline of this research is thus necessary.

1.2 Previous Research

In a four-year study of the rules governing actors’ behavior in the forest sector of eight Russian regions it was found that, despite the quite varying prerequisites in the respective regions in terms of raw materials, climatic conditions, economic structure, etc., very similar institutional problems hampered the development of their respective forest sector operations (cf. Carlsson *et al.*, 2001).¹ The design of the study was informed by the so-called *Institutional Analysis and Development* (IAD) framework developed by Professor Elinor Ostrom and her colleagues (cf., for instance, Ostrom, 2005). The study focused on the “timber procurement arena” in the eight regions and, in accordance with the IAD framework, emphasis was laid on an analysis of the characteristics of the resource, the society and the rules-in-use (or institutions) governing actors’ behavior in the forest sector. Interviews with representatives (mostly CEOs) of 25–35 forest enterprises in each of the eight regions were also made in the course of the study. The interviews captured company management’s attitudes to enterprise restructuring to become better able to meet the demands raised by the emerging Russian market economy.

It turned out that the behavior displayed by many of the forest enterprises in the eight studied regions largely conformed to what could be anticipated on the basis of the *virtual economy* theory launched and popularized in the late 1990s by the American scholars Clifford G.

¹ The study “Institutions and the Emergence of Markets—Transition in the Russian Forest Sector” was mainly conducted in the period 1997–2001 by a small team of researchers at the International Institute for Applied Systems Analysis (IIASA) in Austria. The results of the study were published in a series of IIASA Interim Reports and various journal articles. (See <http://www.didaktekon.se/mats/ii-publ.htm> for a complete listing of publications from the study.) Information about IIASA can be obtained from the institute’s website at <http://www.iiasa.ac.at>.

Gaddy and Barry W. Ickes (cf., for instance, Gaddy and Ickes, 2002). This is a theory explaining why it has been so difficult to make Russian enterprises modify their behavior to better suit the demands of the emerging market economy.² A largely outmoded production capital and a serious lack of market economic competence were the main ingredients of the legacy of the Soviet era that the system change in Russia was supposed to overcome. The problems were of a magnitude that threatened many (if not most) Russian enterprises with bankruptcy if they were suddenly forced to cover their factor costs by product sales at prices established on truly competitive markets. The situation that emerged in Russia as a consequence of the far-reaching economic reforms that were mainly introduced in the first half of the 1990s—the privatization of state owned enterprises being perhaps the most important individual measure taken—did not entirely correspond with the outcome expected by the reformers. A large share of the newly privatized enterprises chose to withdraw from market based exchange and revert to barter trade at negotiated prices. Their behavior also displayed a number of other characteristics that would seem odd in a market context, such as seeking to obtain privileges from public authorities (like tax exemption or so-called tax offsets) rather than making investments in modern technology and competence to improve their competitive capacity. With large numbers of enterprises adopting a similar behavior, a special enclave—a virtual economy with its very specific institutions—was established in the emerging Russian market system. More about this will be said below.

1.3 Objectives and Approach

The data on which the previous IIASA study was based were mainly compiled during 1998–1999. There is evidence (see, e.g., Hanson, 2002, 2003a; Gaddy and Ickes, 2001, 2005) indicating that many of the characteristic traits of the virtual economy survived the 1998 financial crisis (when the devaluation of the ruble improved the conditions for domestic production) and that it is too early to dismiss the influence that this large special enclave has on Russia’s economic performance. On the other hand, there is also some evidence (see, e.g., Hanson, 2003a; Åslund and Jenish, 2006) indicating that developments in Russia these last 6–7 years have opened up opportunities and created positive incentives for many enterprises to move over from operating in the virtual economy to face the competition from firms operating in the emerging Russian market economy. Given the opportunity, it was therefore decided to go back to (a selection of) the enterprises that took part in the survey performed in the previous case study of institutional problems hampering developments in the Arkhangelsk forest sector (reported in Carlsson *et al.*, 1999) in order to obtain information that would allow an analysis of the current behavior and performance of the regional forest enterprises.

The purpose of this report is to assess the degree to which actors’ behavior in the Arkhangelsk forest sector is still guided by the specific institutional set-up that characterizes the virtual economy. It is hypothesized that, since the end of the 1990s, forest enterprises in Arkhangelsk Oblast tend to leave the virtual economy and increasingly act in accordance with rules governing business behavior in a market economy. If the current tendency can be maintained, this would in fact mean that the Russian virtual economy will eventually vanish.

² If indeed the emerging system can be characterized as a market economy. Ericson (2002), for instance, points to a number of factors affecting economic behavior in Russia that are badly adapted to the needs of a normally functioning market economy. In fact, Ericson (2000; 2002) argues that Russia under Yeltsin was actually “feudal” in character rather than based on institutions governing market behavior.

The assessment is based on a review of recent studies of the on-going institutional change process in Russia and, in particular, the effects of these changes on the regional forest sector. In addition to the information obtained through recent studies, the assessment will also use indicators describing the development of several *structural features* of the economy as well as indicators describing the *behavior* of economic actors (enterprises and managers). Structural changes in the economy are important in that they condition the behavior of economic actors. Thus, such changes might either facilitate or impede enterprises' efforts to improve their market efficiency.³

To the degree possible, the changes depicted through these indicators of economic structure and the behavior of economic actors will be specified for three levels of aggregation, the national, the regional and the enterprise level. The indicators will be constructed on the basis of data obtainable in official statistical sources as well as through a recent survey among managers of fifteen forest sector enterprises in Arkhangelsk Oblast.

More about the selection of indicators to be used in the assessment of the development of the Russian virtual economy will be said in Section 3. But first it is necessary to give an overview of the characteristics of the virtual economy, as conceived by Gaddy and Ickes (2002) and interpreted in our previous studies. Subsequent sections of the report are devoted to a review of official data depicting the development of the specific aspects of the Russian transition described through the selected indicators (Section 4) and an analysis of the data obtained through the two surveys of fifteen forest sector enterprises in Arkhangelsk Oblast (Section 5). Finally (in Section 6), based on the review of the selected indicators and the results of the analysis of the enterprise survey, an assessment is attempted of the recent development of the Russian virtual economy. The section ends with some tentative conclusions and policy implications.

2 Main Characteristics of the Virtual Economy

In a series of articles and research memoranda mainly issued between 1998 and 2001, the two American scholars Clifford G. Gaddy and Barry W. Ickes launched a theory explaining the failure of Russian enterprises to restructure their activities to become market viable. Gaddy and Ickes eventually summarized their theory in a book called *Russia's Virtual Economy* published in 2002.⁴ In one of their first articles on the subject (1998b)⁵ the authors listed a number of observable features of the Russian economy that would be considered quite abnormal should they be encountered in a well-developed market economy. Several of these features will be further discussed below. Gaddy and Ickes have been credited for labeling the peculiar kind of economic system found in the new Russia the "virtual economy." However, their inspiration came from the conclusions of a Russian government commission (the so-

³ In the longer term the opposite is also true of course; actors' behavior can modify the economic structure. These change processes are in fact interdependent, with the purpose to increase the functional compatibility between the economic structure and the behavior of economic actors.

⁴ However, the book was preceded by a number of papers and research memoranda by the same authors (cf., for instance, Gaddy and Ickes (1998a, 1998b, 1998c, 1999a, 1999b, 1999c, 2001) and other authors discussing their theory (see, e.g., Phillips, 1999; Åslund, 1999; Ericson 1999; Slay, 1999; Chang, 1999; Tompson, 1999; Woodruff, 1999; Gaddy *et al.*, 2000; Carlsson *et al.*, 2001).

⁵ Gaddy and Ickes' unpublished article "Beyond a Bailout" (June 1998) is used here. A slightly edited version of this article appeared in the September/October 1998 issue of the journal *Foreign Affairs* (Vol. 77, Issue 5).

called Karpov commission), where the functioning of the economy was characterized in the following way (as cited in Gaddy and Ickes, 1998b:3⁶):

An economy is emerging where prices are charged which no one pays in cash; where no one pays anything on time; where huge mutual debts are created that also can't be paid off in reasonable periods of time; where wages are declared and not paid; and so on. [...] [This creates] illusory, or virtual earnings, which in turn lead to unpaid, or virtual fiscal obligations, [with business conducted at] nonmarket, or virtual prices.

In two often cited paragraphs, Gaddy and Ickes (1998b:1) state their main conclusion concerning the emerging Russian economic system right at the outset of their article:

In fact, most of the Russian economy has not been making progress toward the market, nor even marking time. It is actively moving away from the market. Over the past six years of "radical reform," Russian companies, especially those in the core manufacturing sectors, have indeed changed the way they operate. Only, they have not done so in order to join the market but rather to protect themselves against it. What has emerged in Russia is something that arguably qualifies as a new type of economic system with its own rules of behavior and criteria for success and failure.

We call the new system Russia's "Virtual Economy," because it is based on illusion, or pretense, about almost every important parameter of the economy: prices, sales, wages, taxes, and budgets. At its heart is the ultimate pretense that the Russian economy is larger than it really is. It is this pretense that allows for larger government, and larger expenditures, than Russia can afford. It is the cause of the web of non-payments and fiscal crisis from which Russia seemingly cannot emerge.

The authors also distinguish what they see as the fundamental cause of the Russian Virtual Economy (Gaddy and Ickes, 1998b:3):

The roots of the Virtual Economy lay in the largely unreformed industrial sector inherited from the Soviet period. At the heart of the phenomenon are the large number of enterprises that still produce goods but destroy value. This is a sector of the economy that has survived six years of market reform. The reasons are complex, but the most important is that in Russia today enterprises can operate without paying their bills. This is possible because value is redistributed to them from other sectors of the economy. One way this is done is through tax arrears, which are in effect the continuation of budget subsidies in a different form. More important, however, is direct redistribution of value to value-subtractors from the value-producing sectors of the economy, primarily the resources sector.

The theory seeks to explain how so many inefficient old Soviet firms have managed to survive privatization and avoid subsequent reform measures designed to stimulate enterprise restructuring. In a way it seems that the Soviet command economy was never really properly dismantled—somehow many Soviet enterprises with their old leaders managed to survive the disintegration of the Soviet Union without significantly changing their behavior.

The rapid privatization of state enterprises, which was mainly achieved in the first half of the 1990s, could perhaps be seen as a revolutionary change—a great historical discontinuity—in that it immediately removed formal ownership of the means of production from the hands of the state. On the other hand, state control over the use of these means of production had largely vanished already long before that.⁷ In reality, central economic planning hardly

⁶ Gaddy and Ickes give the source of the citation as "Report of the Inter-Agency Balance-Sheet Commission, P.A. Karpov, Chairman, Moscow, December 1997".

⁷ Desai and Goldberg (2000) note that property rights over enterprises had already been allocated de facto during the Soviet era. (See, e.g., Cox (1996) for a more detailed description of how property rights gradually changed during the Gorbachev period.) With federal state power weakened regional governments were able to strengthen their grip over enterprises: "The regional governments, knowing that the taxable revenue of the firm will have been reduced as a result of cash-flow diversion, respond by collecting revenues in kind and enacting policies that force firms to maintain employment levels. These regional governments, then, are as "vested" in maintaining the status quo as are enterprise insiders, and will willingly shield insiders from takeover attempts, obstruct the

functioned at all in the late 1980s (cf., for instance, Braguinsky and Yavlinsky, 2000). Instead a parallel “informal” economy had emerged that interacted with the officially recognized economy and solved many of its rigidity problems. Thus, the changes in enterprise behavior that were introduced as a consequence of the overthrow of the Soviet system were not, after all, particularly dramatic. In terms of enterprise managers’ behavior, at least initially, the new privatized economy largely meant continued business as usual.

It is impossible to understand Gaddy and Ickes’ notion of a virtual economy without fully appreciating the social and economic consequences of the command economy system that ruled Russia for more than 70 years until the disintegration of the Soviet Union at the beginning of the 1990s.

2.1 The Importance of Initial Conditions

In their writings, Gaddy and Ickes (cf., for instance, the citations at the beginning of this section) have emphasized two spectacular consequences of the workings of the virtual economy: (a) the impression created by the workings of the system (the “pretense” in the parlance of Gaddy and Ickes) that the Russian economy is larger than it actually is, and (b) the odd fact that enterprises operating in the Russian virtual economy “produce goods but destroy value”. Here we will not look very closely at these issues, since they are not central for our present investigation. However, understanding these two issues has one important merit in that it emphasizes the importance of initial conditions, i.e., the production structure that had emerged as a result of Soviet central economic planning. It is when the virtual economy is compared to a functioning market system that the size pretense and value destruction are observed to be substantial. This is simply an indication of the degree to which the structure and the functioning of the Soviet economy had come to deviate from that of a market system after over seventy years of central economic planning.

By basing all decisions concerning production and investments in society (the issues of what, how, and where to produce) on the goals expressed in the long-term economic plans—plans that were, furthermore, elaborated in a highly non-transparent and undemocratic way without much consideration of supply and demand relations that are of decisive importance for such decisions in a market economy—the Soviet Union developed a huge integrated economic system with highly interdependent production units dispersed over the country’s large territory. Regarded in a market economic perspective, the Soviet system evolved into an extremely inefficient production structure characterized by overly large and rigid production units often located in remote and climatically harsh areas with prohibitively long distances to suppliers as well as final users.⁸ With the disintegration of the Soviet Union the entire economic system with its well-established delivery networks encompassing all fifteen Soviet republics suddenly ceased to exist with nothing to take its place.⁹

enforcement of outsider’s property rights, and perpetuate the enterprise as a source of private benefits for the manager, and as a source of social and political benefits for the region” (Desai and Goldberg, 2000:2f.).

⁸ A recent analysis of the post-war development of the Soviet economy has been published by Philip Hanson (2003b). The functioning of the Soviet command economy was thoroughly analyzed by the late Alec Nove in recurring updates of his book “The Soviet Economic System” (latest edition 1986)

⁹ The significance of this shock has been emphasized by, for instance, Alexander Granberg (2000), a former economic advisor to Boris Yeltsin.

The economic structure that the Russian Federation inherited from the Soviet Union in 1991 turned out to be highly inefficient in the new emerging market economic environment (cf. for instance, Ericson, 2002). The system was not able to produce what customers demanded and, when it did, product quality was often greatly inferior to the imported consumer goods that were increasingly becoming available on the Russian market. One could distinguish several reasons for this inability to swiftly restructure the system. The specific production orientation (what was produced), the location and organization of the often very large enterprises inherited from the Soviet Union made it impossible to accomplish a fast reorientation and reorganization (restructuring) of production that would be required to avoid bankruptcy, should existing enterprises have to expose their products to uninhibited market competition. Moving into the virtual economy could be seen as the means for a market inefficient Russian enterprise to secure a continued existence in the emerging market economic context. Major reorganizations entailing massive labor lay-offs and enterprise close-downs would otherwise be an unavoidable consequence of the transition to a market system. Ideally, such a development would be part of the “creative destruction” out of which new and more efficient production might subsequently emerge.

As it turned out the rapid restructuring that many (foreign) economic advisors had expected as a consequence of the transitional reform measures in Russia did not materialize. Instead a kind of self-organizing process intervened, a process whereby enterprises were shielded off from being directly exposed to a market competition that would have immediately exposed their inefficiency. How could this happen? Why would enterprises want to avoid restructuring? Obviously, a successful restructuring would be beneficial for the whole Russian economy. Conspiratory explanations assuming malevolent intent on the part of enterprise directors are close at hand.

One merit of Gaddy and Ickes’ virtual economy theory is that it advances a rational explanation of this development. Given the circumstances, managers and owners of inefficient enterprises display a perfectly rational, if not always a socially optimal, behavior. First of all, at the level of the individual, it is not realistic to expect that enterprise managers and owners would opt for societal benefits at the expense of the survival of their own companies. Second, at the societal/political level, the economic structure inherited from Soviet times provides a prominent reason for avoiding company close-downs. Many cities and towns all over Russia were established to cater for the needs of the employees of a single large company often exploiting a natural resource found in a location where population centers would not otherwise have been constructed. These locations were once found to meet many essential requirements and the construction of towns and factories was therefore decided by the Soviet central planning machinery. In principle, the rationale of such a location could only be assessed within the context of the entire Soviet economic system.

Today, however, after the disintegration of the Soviet Union, products are increasingly being supplied in competitive markets. There should be no surprise then that economic activities in many locations of the inherited production system should prove unprofitable and thereby threaten enterprises with immediate bankruptcy should they be exposed to market competition. But, and this is the fundamental structural reason for the emergence of the virtual economy, under these circumstances bankruptcy and company close-downs were non-feasible solutions. In the existing Russian economy such a development would not automatically bring about any of the positive effects that might follow from a “creative destruction” taking place in a developed capitalist system. Instead, numerous bankruptcies would create massive unemployment and in practice ruin the economic foundation of entire communities. In fact,

the close-down of a “town-forming” factory would be a veritable catastrophe for the whole community and might provoke social unrest of unknown proportions.

To determine whether the Russian virtual economy is gaining increasing dominance or whether it is (slowly) giving way to rules of behavior that are typical of a market economy we need to know a bit more about the behavior constituting the system. In the following section we ask ourselves how so many Russian enterprises could manage to insulate themselves from market competition and how they could maintain this behavior.

2.2 The Institutional Set-up Defining the Virtual Economy

The privatization of state owned enterprises in Russia often meant a (more or less legal) take-over by company managers, in many cases supported by the company’s employees. Such *insider privatization* became widespread because it was *de facto* favored by the rules governing the privatization process (cf., for instance, Boycko *et al.*, 1995). The speed of the process contributed to the outcome. We can assume that company managers were aware of the unfavorable competitive situation in their firms, but since they already commanded a fair share of so-called *relational capital*—that is, well-established relations with other business actors and people in the political-administrative system—and wanted to capitalize on their assets, the possibility to do so required them to stay in control of their companies and keep them alive for a sufficiently long time to allow either the stripping of their assets or the conversion of their activities to make them more market competitive (Gaddy and Ickes, 2002:57 ff.).

Since managers, and especially the directors of large “town-forming” enterprises, in practice also belonged to the local/regional political-administrative elite, it might perhaps also be assumed that their determination to keep their companies alive could be regarded as a contribution to the preservation of the local community simply by avoiding for the time being the extreme social pressure that would be the unavoidable consequence of company close-downs.

By resorting to the specific behavior characterizing the virtual economy company directors managed to preserve many Russian enterprises despite their obvious market insufficiency. Gaddy and Ickes (2002:65 ff.) have characterized the institutional set-up constituting the virtual economy by deducting what they call “Igor’s Rules”. Igor is said to be “the director of a large (approximately 10,000 employees) enterprise in the Urals”. Gaddy and Ickes’ summary of these by-now famous rules (institutions) that are assumed to govern the behavior of company managers in the Russian virtual economy are worth quoting in full:

Rule 1: “Sell something to the federal government so you can offset your federal taxes”.

The point of this rule is to use the federal government’s debt to the enterprise that results from these sales as a way to offset the enterprise’s federal tax bill. The smart enterprise manager does not even expect to be paid for his government contracts; he counts on the offset possibility. That means, however, that it makes little sense to deliver too much to the government. Enterprises following this rule are the explanation for the federal government’s collecting only about 60–65 percent of its taxes in cash in 1996 and 1997 [...]. The rest of the taxes were offsets.

Rule 2: “Be able to provide some services to the local government so you can offset your local taxes”.

Igor’s reasoning here is similar to rule 1, but applied to regional and local government levels. In fact, rule 2 is even more important than rule 1. Local governments are in general more inclined than the federal government to accept noncash tax payments. Moreover, since Russia’s central government remains constantly behind in its transfers to the regions, the federal government itself can give the

green light for an enterprise to deliver goods or services to the local government and be credited for payment of federal tax obligations.

Rule 3: “Produce some goods for barter with the gas and electricity companies”.

Here, Igor is referring to the “Three Fat Boys”—Gazprom, UES, and the Railways Ministry.

Rule 4: “Export something to a hard currency market to get cash for essential needs”.

Although one might infer from rules 1–3 that Igor is suggesting that enterprises can survive entirely without cash, this rule acknowledges that every enterprise needs some cash for its operations. Wage payments to workers are an obvious example. Another (not mentioned by Igor) is cash for bribes to government officials. (*Footnote*: One way to think of cash bribes, then, is to view them as investments in relational capital, *r*.)

Igor’s Final Injunction: “Never make a profit!”

Of course what Igor really means is do not make a profit that can be observed.

What sort of enterprise can best follow Igor’s Rules? The ideal would be a large, diversified, integrated, paternalistic enterprise with good relations with both federal and local authorities. [...]

Not every enterprise is as ideally suited to follow all of Igor’s Rules as Igor himself is. What is important, though, is that almost all of them follow *some* of the rules. Clearly, the extent to which the director concentrates on one or two and ignores the others will depend on his initial conditions. Enterprises that inherited a relationship with the federal government—as suppliers for a ministry, say—will tend to preserve that status. Other enterprises that lack a business relationship with the central government will instead nurture their relations with local governments. And so on. [*Footnote*: It should be noted that Igor’s first three rules represent three separate and distinct causes of barter in the Russian economy. This suggests an empirical approach to measure the relative importance of various causes of barter.]

The most important implication—and perhaps most disturbing for Russia’s future—is that Igor himself (or any other enterprise director who followed something like Igor’s Rules) *could* produce more marketable output, but he does not. He could restructure, but he does not. Why? Because [...] cash sales and the profits they bring can be costly to the enterprise and its manager.

By perverting the company’s fiscal relations with the federal, regional and local governments in the way indicated in the citation above, and by extensively using barter trade with companies in a similar predicament, the typical virtual economy enterprise manages to insulate itself from competition with (new) enterprises in the emerging Russian market economy.

The seriously distorted price formation system is the key factor that forced (as well as allowed) many Russian enterprises to enter the virtual economy (cf. Tompson, 1999). This distortion has its roots in the Soviet resource allocation mechanism, where the geographical allocation of investments was decided in accordance with principles governing central economic planning. These principles had very little to do with what governs resource allocation in market economies. In the Soviet Union, security considerations broadly conceived exerted the greatest influence on allocation of resources and, thus, on the geographical distribution of production. Over the years Soviet central planning gave rise to an industrial location pattern that would seem very odd judged from a market economic perspective (Heleniak, 2001). The Soviet economy might be thought of as a gigantic (state owned) concern engaged in economic activities all over the country’s vast territory—a concern that was, furthermore, expected to provide for the nation’s total needs in terms of goods and services and to do this entirely relying on domestic capacities. Defense considerations and the need to rely entirely on domestic raw materials supplies forced the establishment of many population centers in close proximity to large raw material deposits. Such centers were often constructed in very remote and climatically unfavorable areas of the country without any regard for development or transportation costs (see, e.g., Round, 2005). In this system, decisions about production of goods and services (what to produce, how much

and where) as well as output distribution were taken by the planning system with the goal of satisfying predetermined socioeconomic development targets. Nominal prices of goods and services were determined and successively adjusted (in an *ad-hoc* manner) by special authorities. In principle, given the set targets for all production units in the economy, so-called shadow prices reflecting commodity scarcities could be established in the planning process. But, since economic plans in the Soviet Union were never really elaborated in a democratic fashion, such prices in effect only reflected the preferences of the planners and influential members of the Communist Party, who ultimately were the ones who determined planning targets. Thus, in comparison with a situation (an ideal market economy), where resource allocation is determined by manifested demands of various actors (individuals, households, enterprises), the Soviet economy was biased in several important respects:

- Planning targets did not reflect agents' real demand for goods and services. (This is ultimately a problem of democracy. But even with planning goals elaborated in a perfectly functioning democracy central planning would anyway have run into problems.)
- Central planning was also faced with a technical problem. It is basically impossible to calculate consistent production and delivery targets for the multitude of products and producers that comprise an advanced economy.
- The intended workings of the Soviet command economy was furthermore seriously disturbed by obstruction from practically every citizen in society trying to satisfy his/her own personal goals, which often had a detrimental effect on social plan fulfillment.
- With time, the built-in inefficiency of the Soviet command economy tended to grow. Due to the investment policy (that did not fully account for all costs, and often overemphasized benefits) a production system emerged that was increasingly unable to match the economic performance of the surrounding (capitalist) world. A probably significant part of this problem was the fact that the Soviet Union had to deploy an increasing share of investment and production resources in the defense sector, thereby withdrawing investment resources from other sectors of the economy and, hence, contributing to a deterioration of living standards.

With the disintegration of the Soviet Union and the dismantling of central economic planning, which effectively broke up the old inter-enterprise delivery relations, the prices of all (final as well as intermediary) goods and services, and even wages, were suddenly to be established in the market through the free interplay of supply and demand. It now became evident how far the previous Soviet resource allocation mechanism had moved the economy from market equilibrium. In a market perspective, it was immediately obvious that the entire production system that Russia inherited from the Soviet Union was severely skewed. If goods and services were now to be sold on markets where prices reflected their relative scarcities, a totally different profitability pattern would have emerged. Since the costs of many inputs that had previously been "hidden" (e.g., through implicit transport subsidies) now had to be accounted for in full, and since final demand for certain commodities changed (as a result of competition with other commodities) new cost-price relations emerged sometimes making previously profitable products entirely unprofitable. Faced with such radically changed cost-price relations many Russian enterprises resorted to barter trade at negotiated prices bearing little or no resemblance to the prices that would have emerged in a normal market setting. This is also what has made the accounts of the Russian economy seem larger than they should be if market prices were used. It also explains the fact that Russian enterprises operating in the

virtual economy can go on producing goods and destroying value, i.e., producing goods that would be unprofitable should market prices have been used to evaluate inputs and outputs.

Thus, in effect, the emergence of the virtual economy could be interpreted as the autonomous self-organizing response of the Russian socioeconomic system to a situation that threatened the survival of the entire country. Without such a response it is very likely that a large part of the Russian production capacity would have crumbled when faced with market profitability requirements. Russia's virtual economy could be seen as an adaptive response ensuring the survival (in certain respects) of the disintegrating Soviet economy. It is a response based on the specific form of economic planning that had formed the peculiar Soviet production system with its specific orientation and location pattern. This means that the virtual economy, as outlined by Gaddy and Ickes and others, is not really an independent type of economic system. It is rather a specific system emanating in the Russian transition from central economic planning to a market based economy.

2.3 What Determines the Future of the Russian Virtual Economy?

The virtual economy to a large extent determines business behavior in Russia today, but it is essential to note that it is not all-encompassing (Tompson, 1999). After the disintegration of the Soviet Union in 1991, numerous new enterprises have been established in Russia. These enterprises were set up to cater for the market demand for various products and services by Russian individuals, households and enterprises. Thus, all such enterprises that are in operation today have met with, and survived, market competition from their very beginning. It is also obvious that the market based enterprise sector is thriving and expanding in Russia (cf. Shestoperovyi, 2005; Ahrend and Tompson, 2005) and it operates by offering products and services at market set prices—prices that cover production costs and leave a profit for enterprise owners. Clearly, transaction costs are considerably lower for enterprises operating in the market sector compared to what they are for enterprises operating in the virtual economy sector.

If this description of the Russian development is correct one can imagine several features that will eventually make the virtual economy sector diminish and ultimately disappear. In fact, it is not any more a question of whether the sector will disappear, but rather of how fast this will happen. Changing the behavior of Russian virtual economy enterprises to make it comply with, and contribute to, the advancement of the emerging market economic principles is fundamentally a question of creating a suitable incentive structure. Incentives are perceived opportunities. As such, they are amenable to manipulation by public authorities—in Russia ultimately the government and the president. Enterprises' assessment of their opportunities is also dependent upon more "subjective" factors, like management competence, general moral views, ideology, opinions about the future, etc. This means that enterprises' behavior can change both as a result of policy measures affecting business opportunities (the incentive structure) taken by the political sphere (such as changes in various legislative acts and other regulations by government agencies at various levels) and as a consequence of changes in management's *interpretation* and *assessment* of current opportunities. These two avenues of change are furthermore highly interdependent.

An enterprise's *investment policy* is the crucial factor affecting its future development. Whether a virtual economy enterprise is going to become more market competitive or whether it is going to stay—and perhaps even improve its position—within the virtual economy is largely determined by its choice to favor investments in reducing its "distance to the market"

(*d*) or in “relational capital” (*r*), that is, investing in modern production equipment and competence or in exploring its relations with the political power (Gaddy and Ickes, 2002:65). Thus, the question is what determines the owners’ or managers’ decisions to invest in either *d* or *r*. A decisive factor is, first of all, the enterprises’ initial resource endowments or, in other words, where the enterprise is located in the “*r–d* space.” More precisely, it depends on what pay-off structure the individual enterprise faces. For enterprises with a large stock of *r* it might pay off to continue investing in *r*. For enterprises with a short distance to the market (i.e., enterprises having a fairly modern production capital) investments in *d* might be most profitable.

This means of course that, if the goal is to force Russian enterprises to become viably market competitive, such measures have to be taken that support and stimulate investments in *d*, “distance reduction.” Numerous policy measures that could affect enterprises’ investment behavior can be envisaged. Previous research has pointed out several areas where public intervention might contribute to improving enterprises’ market behavior (cf., for instance, Gaddy and Ickes, 2002; 2005; Carlsson *et al.*, 2001). So, for instance, there seems to be a wide scope for improving Russian economic policy in the following respects:

- Market entry and exit should be facilitated (e.g., bankruptcy legislation should be improved as well as implementation procedures; support for small business);
- Public policies facilitating geographical production factor relocation should be elaborated and implemented—policies that would gradually correct the suboptimal (in a market economic perspective) locational decisions of the Soviet era.
- Business contract legislation and enforcement could be improved (e.g., the work of arbitration courts);
- Corporate legislation should be improved (the rights of shareholders should be secured, obstacles for foreign investments should be removed, accounting principles made to conform to international standards);
- The functioning of banks and the capital market might be improved (more advanced financial institutions capable of providing necessary risk capital to businesses and securing the investments of the emerging Russian middle class);
- Taxation system: tax laws should be simplified, the tax code should be consistent and transparent, law enforcement should not punish those who run an honest business;
- The education system might be improved in certain respects (e.g., modern management training should be made more widely available).

It should be noted that the problem is not only to improve the legislation. It is also a matter of enforcing existing laws and making economic actors behave in accordance with the legislator’s intentions.

In a recent article Gaddy and Ickes (2005) outline the several existing transparent and non-transparent routes for redistributing the profits produced in the Russian oil and gas industries and argue that the virtual economy will not—and, in fact, cannot—be abandoned until the redistribution of these natural resource rents have become entirely transparent. Enterprises operating in the virtual economy are partly being sustained through informal rent sharing by the large oil and gas producers (that allow some customers to pay lower than world market prices for purchased oil and gas). Thus, the oil and gas companies have in effect taken over the task previously performed by the state of subsidizing unprofitable enterprises. This way such enterprises are not faced with the hard budget constraints that would force them to

restructure their activities to become market viable, instead they are allowed a continued existence in the virtual economy. The reason for the oil and gas companies to go along with this practice is the fact that property rights in Russia are still not sufficiently secure. By performing this task they hope to attain a trade-off sparing them even more prominent state interference in their activities. The sheer magnitude of the oil and gas industries, their large contribution to the entire Russian economy (in 2005 estimated to 25 percent of GDP), brings them a power that constitutes a threat to the Russian state. This, in combination with a resource extraction ideology largely inherited from Soviet times, seeing rents of natural resources as a “gift of nature” to be employed for the benefit of the whole economy, makes the state try to maintain a strong influence over the resource sector, which in turn prevents a behavior of the resource extractive industries guided by normal market based rules. According to this line of reasoning, there cannot be a sustainable market based economic development (and abandoning of the virtual economy) in Russia until there has been a thorough reorganization of the energy sector (Gaddy and Ickes, 2005:578):

This would mean a sector open to new entrants, both Russian and foreign. The old and new companies would be free to compete (and be subject to the discipline of competition). They would be unburdened by the demands of onerous and opaque rent-sharing schemes. They would have secure property rights.

3 Analyzing Recent Developments of the Virtual Economy—Identifying Suitable Indicators

As noted in the previous section, the origin of the Russian virtual economy lies in the very special production structure (in terms of what was produced, how and where) inherited from Soviet times. After the disintegration of the Soviet Union the emerging market system proved this structure to be highly inefficient and unsustainable. Despite the inherent dynamics of the emerging market economy and a powerful socioeconomic reform package designed to rapidly transform the Soviet command economy into a modern market based system, many features of the old system nevertheless survived in the form of the virtual economy, a business organizational form that allowed market inefficient enterprises to survive without restructuring their operations to become better equipped to meet market competition. It was suggested that the virtual economy could be seen as a self-organizing “rescue scheme” preserving the Russian economy and the entire society from total collapse.

If this account of the events is correct, it should also be evident that the restructuring problem is of huge dimensions requiring changes in the geographical location of production, in the output mix (what goods and services to produce), as well as in the production technology and management. It should come as no surprise then that such a profound economic restructuring will most likely take a long time to accomplish. In our previous study of the institutional transformation of the Russian forest sector (see, for instance, Carlsson *et al.*, 2001) it was found that the rules characterizing the virtual economy to a significant extent were governing economic behavior in Russia in the late 1990s.

The remainder of this section will be devoted to a presentation of the method that will be used to assess to what extent actors in the Russian economy are still guided by the institutional set-up constituting the virtual economy.

3.1 Methods of Investigation

Turning now to an analysis of recent developments of the Russian virtual economy, there are evidently certain features of the economy and the behavior of economic actors that deserve closer attention. First of all, it is necessary to appreciate the fact that economic actors (e.g. business enterprises) at any specific moment in time operate in a given and largely fixed business environment. This environment is to a significant extent (but not entirely) the result of previous behavioral decisions by political as well as economic actors.¹⁰ Recognizing the relevance of the existing business environment for the current behavior of economic actors suggests a distinction between two kinds of indicators, (I) indicators describing changes in the business environment (or in the structure of the economic system), and (II) indicators describing changes in the behavior of the actors. Here a number of indicators belonging to either one of the two kinds will be identified. The indicators will be selected for their ability to disclose features of relevance for the assessment of our hypothesis that the virtual economy is losing ground and that the rules guiding a normal market economy are increasingly being adopted by economic actors in Russia.

Even if the conceptual distinction between indicators describing changes in the economic structure and those that describe the behavior of economic actors can be quite clearly made, it is not always easy (or even possible) to unambiguously refer an indicator to one or the other category. In principle, a “structural indicator” is one that describes a quality of the economic system that the actor has to take as a given when deciding upon future actions. Such an indicator restricts the scope of options between which an actor can choose. The actor cannot (immediately) influence the value of such a structural indicator. A “behavioral indicator” describes the decisions taken by economic actors about future action. In practice, however, such indicators rather describe the actual result of behavioral decisions.

For example, a structural indicator like “available transport capacity” describes existing restrictions for the choice of transport mode (and route) available to an economic actor, while a behavioral indicator like “volume of goods transported by rail” shows the implementation (the result) of actors’ decisions to send goods by rail (rather than by any other available mode of transport). The example also illustrates that even if the actor has no possibility to immediately affect the value of “available transport capacity” (the structural indicator) he could in fact contribute to changing its value in the somewhat longer term and this change might obviously affect his subsequent decision to use a particular mode of transport, which might eventually be recorded in changed values of “volume of goods transported by rail” (the behavioral indicator).

Finally, it should be mentioned that, while it is in principle possible to distinguish an almost unlimited number of indicators of economic structure and behavior, in actual empirical research one is forced to use indicators for which it is possible to find a reasonable operationalization and for which data are available that can be used to measure something of the quality that the indicator is supposed to capture. For practical purposes it is also necessary to limit the number of indicators used so that necessary data compilation and analyses can be performed within the time and with the effort that available resources allow.

¹⁰ By a political and an economic actor is meant—depending on context and level of analysis—either organizations like political parties, enterprises, and households or individual politicians, enterprise managers or citizens/voters.

In the remainder of this section the indicators selected to be used in the assessment of the recent development of the Russian virtual economy are briefly presented, their capacity to describe various (limited) aspects of the virtual economy is discussed, and the criteria used to assess the meaning of changes described by the respective indicators are stated.

3.2 Selection of Indicators for the Assessment

3.2.1 Indicators Depicting Change in the Economic Structure

People—A Basic Economic Resource. The population of a country or a region—its size and age composition—is an indicator describing some fundamental qualities of the environment in which economic actors operate. First of all, the population development restrains the development of human capital, which is a fundamental production factor in any economy. Other characteristics of the population development, such as infant mortality, life expectancy, etc., describe qualities that contribute to the standard of living, which broadly conceived is the ultimate “goal variable” for the economic activity of a society. Since total population is decreasing in a region like Arkhangelsk, due both to changes in demographic variables and transitional changes in the economy (Heleniak, 2001), population changes *per se* cannot tell us much about the development of the virtual economy. A decreasing infant mortality and an increasing life expectancy, on the other hand, could be interpreted as a result (partially and indirectly) of a restructuring of the enterprises improving their economic efficiency.

Education—Investments in Human Capital. The quality of human capital can be improved through education. Investments in education could be seen as an attempt to increase efficiency in the economy. Decisions to make investments in education could be taken at the societal level (government decisions to provide educational facilities) as well at the group/organization level (enterprises and households) or at the level of the individual. All these levels are of interest in the present context when we try to assess what is happening to the Russian virtual economy. Increased investments in education leading to improved workforce competence could be seen as the result of society’s strive to modernize the economy, to improve the business environment thus providing better conditions for raising enterprises’ economic efficiency.

Enterprises—Ownership—Entrepreneurship. A prominent feature of the legacy of the Soviet command economy was an economic structure with comparatively few (but typically large) enterprises, where decisions about production orientation were not issues to be decided by the company management in accordance with business criteria. Instead, such issues were decided within the planning apparatus with a view to socioeconomic criteria. This system produced decisions that more often than not were sub-optimal for individual enterprises. With the disintegration of the Soviet Union in 1991 the principles governing the command economy were (formally) abolished. Hereafter company management would take all decisions affecting the enterprise’s operations. And enterprises were to compete with one another. To secure and increase competition with the purpose of enhancing economic efficiency previously existing obstacles for enterprises’ market entry and exit were to be eliminated. As a consequence the number of enterprises could be expected to increase significantly. It goes without saying that most of this increase would be due to newly established small private enterprises.

An increasing (relative) number of enterprises (mainly new, small, private) could be seen as an indicator of a change in the environment of all Russian enterprises sharpening competition

thus making the economy more market oriented. Such a development could be seen as a structural change favoring market economic behavior.

Inflation and Demonetization of the Economy. An extremely high inflation rate was a characteristic feature of the turmoil that resulted from the disintegration of the Soviet Union in 1991. This no doubt contributed to the “barterization” of a large part of the economy. When prices skyrocketed and money was a scarce commodity many enterprises sought to avoid monetary transactions and resorted instead to barter trade with other enterprises in the same predicament. Enterprises’ tendency to delay (or entirely cancel) payments of deliveries and wages was another consequence of this situation. This was a typical behavior among enterprises operating in the virtual economy. Decreasing inflation rates and a re-monetization of the economy could be expected to affect enterprises’ behavior leading to a decrease in the share of barter transactions and wage and payment arrears. Thus, here we might see changes in structural indicators, like inflation and re-monetization, leading to changes in (causally related) behavioral indicators, like barter trade and wage and payment arrears.

Banks and Credit Supply. Banks mushroomed in the early transition period in Russia (see, e.g., Bernstam and Sitnikov, 2001). But the main activity of these banks was not to provide risk capital for enterprises’ investments. Conditions for borrowing in the banks were entirely prohibitive with astronomically high interest rates. Banks in the early transition were rather engaged in financial speculations to generate maximum short-term profits for their owners. A change in banks’ behavior making them more interested in supplying risk capital to finance enterprises’ investments would be a sign of a structural change in the Russian economy making it more conducive to a market oriented behavior on the part of Russian enterprises.

3.2.2 Indicators Depicting Change in the Behavior of Economic Actors

Output and Capacity Utilization. An unexpectedly deep and long production slump characterized developments in Russia during the years following the disintegration of the Soviet Union in 1991. Presumably the slump had to do with the sudden disruption of the delivery relations that had existed among enterprises during Soviet times (Granberg, 2000). The output volumes of enterprises’ production could be expected to recover as soon as they could reestablish relations to input suppliers and customers. At the aggregate level (for Russia at large and for the regions) increased production volumes would indicate a behavior typical for a prosperous market economy. Increased capacity utilization would mean the same. For individual enterprises, however, an increased production does not *per se* allow the conclusion that the company is operating in accordance with market economic principles. Without further information there is nothing telling us that such a company is not producing more of an unprofitable product or, in the parlance of Gaddy and Ickes, that the company is not actually destroying value in the production of this commodity.

Investments. Investments are a characteristic feature of a well-functioning market economy. An enterprise operating in such an economy is forced to make investments in new (efficiency increasing) capital in order to maintain and improve its competitive position on the markets for its products. Competing enterprises (making investments) will otherwise win increasing market shares at the expense of enterprises that do not invest. Enterprises operating in the Russian virtual economy did not necessarily make investments in new capital equipment. The decisive reason for this behavior was the fact that enterprises were not able to finance purchases of new technology since banks did not provide risk capital at affordable costs. In

addition, incentives to make investments were also low (or entirely absent) due to the fact that investments were actually not required for survival in the virtual economy.

Data showing that enterprises actually make capital investments and that they are able to finance those investments through bank credits would be a sign that the economy is increasingly functioning in accordance with market economic principles.

Employment, income, and productivity. Enterprise managers' decisions to recruit new or dismiss existing employees cannot *per se* tell us anything with certainty about the development of the virtual economy. As outlined above, an enterprise operating according to the rules-in-use characterizing the virtual economy might keep (or even increase) its workforce despite a deteriorating demand for its products, a behavior that would be highly irrational in a normal market economy. Changes in employment (and unemployment), therefore, have to be assessed in conjunction with changes in productivity and production volumes. Increased employment (decreased unemployment) combined with increased productivity and output volumes could be seen as an indication of a behavior compatible with that of an enterprise operating according to market economic principles.

In a properly functioning market economy, where the fundamental driving force is the strive to maximize profits, an enterprise operating with decreasing labor productivity (increasing value of labor per unit of output) would soon be forced either to close down or to restructure its activity with the purpose of increasing its productivity. In the first half of the 1990s, when production volumes tended to decrease, it was not uncommon that enterprises nevertheless kept their workforce or did not reduce it sufficiently to maintain its productivity. This behavior was possible for an enterprise operating in the virtual economy. Looking at the productivity development in conjunction with the development of production and employment will tell us whether or not enterprises are still operating in the virtual economy or if they are rather living by the rules characterizing a market economy.

Barter trade, wage and payment arrears. Enterprises operating in the virtual economy tend to refrain from monetary transactions and instead rely on barter trade. The share of all transactions between enterprises based on barter increased steadily during the early phase of transition, eventually reaching a level of 80–90 percent, according to one “pessimistic” estimate (see Makarov and Kleiner, 2000). It should be noted, however, that use of barter is not the only—or even the most important—criterion for whether or not an enterprise operates in the virtual economy. Another typical behavior of enterprises operating in the virtual economy was the tendency to delay their payments of production inputs, both labor (wages) and intermediary products. Data showing a decreased use of barter trade and shorter wage and payment arrears among the Russian enterprises would indicate that the economy is adapting to a market oriented behavior.

Bankruptcies. A profound economic transformation like that currently taking place in Russia, changing from a system where market entry and exit as well as resource allocation were decided in the planning hierarchy to a system where these issues are all decided by the actors themselves interacting in the market, will, not surprisingly, have to cope with a certain “friction” before the new system attains a smooth operation. Through the introduction of market principles to guide the operation of Russian enterprises so-called hard budget constraints will increasingly be enforced making it impossible for unprofitable enterprises to continue without either (if the opportunity is given) restructuring their operation to become market efficient or taking the ultimate consequence of its insolvency by going bankrupt. The virtual economy offered an opportunity for insolvent enterprises to avoid bankruptcy.

Consequently, initially during transition, bankruptcies were not occurring as frequently as observers had expected. Given a well-functioning bankruptcy institution an increase in the frequency of bankruptcies could be interpreted as a sign that enterprises are leaving the virtual economy and are increasingly facing the consequences of their insolvency in the manner required by the rules governing a market economy.

The Gaddy-Ickes Index—a Comprehensive Indicator of Enterprises’ Investment Behavior.

At the enterprise level we can also compare estimates of the so-called Gaddy-Ickes Index (cf. Carlsson *et al.*, 2001) calculated for 15 forest sector enterprises in Arkhangelsk. The index is calculated on the basis of the answers to 20 questions posed to the representatives of 15 forest enterprises in 1998 and in 2005. The questions are supposed to capture the propensity of enterprise management to invest in modern production capital vs. so-called relational capital. The former type of investment (typically investments in modern production technology) seeks to improve the market competitive position of the enterprise, to reduce its “distance to the market” (*d*). Investments in relational capital (*r*) refer to management’s efforts at cultivating relations with people in public administration in order to extract future benefits for the company.

3.3 A Note on Data Collection and Quality

In 1998, IIASA made a survey among a total of 221 forest enterprise representatives (mostly CEOs) in eight Russian regions. Seven years later, in the spring of 2005, new interviews were made with representatives of 15 of the 25 forest enterprises in Arkhangelsk that took part in our 1998 survey.¹¹ To allow comparison over time the same questionnaire form was used for the 2005 interviews as in the previous survey of 1998. Some new questions were added with the purpose of providing additional information about the development of the Russian virtual economy.

In our previous study we did not find any significant regional differences in the degree to which business behavior was guided by the specific rules-in-use constituting the Russian virtual economy (cf. Carlsson *et al.*, 2001) and we could therefore regard the information gained through the new Arkhangelsk survey as indicative (at least to some extent) of the situation in the country at large. And, conversely, information about developments in the Russian economy reflecting the pervasiveness of the rules-in-use characterizing the virtual economy should allow us to expect a similar situation to prevail in the Arkhangelsk region.

The database describing the situation in the Arkhangelsk forest sector and the behavior and opinions of its actors consists of an encoding of the answers to the questions in both the 1998 and the 2005 surveys. Most of the variables found in the database describe the situation for the 15 respondents (enterprises) in these two years. The questions used in the 1998 survey also provided information about some aspects of the situation in 1988 and 1993. All in all, the new dataset contains 210 variables describing (a) some basic facts (like size, type of company, production profile, ownership, social commitments, etc.) for each of the 15 surveyed enterprises, (b) some aspects of the enterprises’ input (purchases) and (c) output (sales) situation, as well as (d) some institutional factors restraining managers’ behavior.

¹¹ More details about the selection of these 15 enterprises is given in Section 5.

In addition to the data generated through the two surveys of fifteen forest enterprises in Arkhangelsk other official statistical data have been used in the operationalization and measurement of the selected indicators described above.¹²

It is now time to turn to an account of the operationalization of our selected indicators and an assessment of the changes in economic structure and behavior that these indicators describe.

4 The Russian Virtual Economy—Recent Development Trends

In general, our previous research concerning the institutional changes in the Russian forest sector showed that the behavior displayed by Russian forest enterprises was largely conforming to what the theory of the virtual economy predicted (cf. Carlsson *et al.*, 1999; 2001).

In this section an assessment will be made of the recent development of the Russian virtual economy. Specifically, an attempt will be made to refute the hypothesis stated initially that, since the end of the 1990s, forest enterprises in Arkhangelsk Oblast tend to leave the virtual economy and increasingly act in accordance with rules governing business behavior in a market economy. While the focus in this paper is on the behavior of enterprises in the Arkhangelsk forest sector, information about the situation in the Russian economy at large and in other sectors of the Arkhangelsk economy will also be briefly analyzed.

The assessment will be made on the basis of an analysis of the indicators describing different aspects of the economic structure and the behavior of economic actors that were selected in the previous section. Such an analysis entails an operationalization of the selected indicators resulting in numerical variables describing (limited aspects of) the quality of what the indicator is designed to capture. Tendencies that can be distinguished in the compiled data for the period 1990 through 2005 (or as close to 2005 as data is available) will then be analyzed.

Before looking closer at the selected indicators it might be useful with a brief overview of the place of the Arkhangelsk forest sector in the regional economy and in the Russian economy at large.

4.1 The Arkhangelsk Forest Sector in the Regional and National Economy

The territory of Arkhangelsk Oblast is almost as large as that of France. Despite its considerable size it only accounts for 3.4 percent of the total Russian territory and it houses about one percent of the total Russian population. The region's contribution to the national Russian economy is comparatively small. At the beginning of the 2000s it accounted for 0.9

¹² Much has been said about the quality of Russian official statistical data. An initiated short discussion about the reliability of Russian official statistics can be found in Ericson (2002). While it is true that official statistics still misrepresents Russian economic reality, it nevertheless seems clear that data (and especially the processing of data) have been gradually improving in the years following the disintegration of the Soviet Union. Anyway, the official Russian statistical data is what is available and commonly used for the description of Russian economic development. (Furthermore, these data are often the basis for western statistical compilations describing the development of the Russian economy.) But, of course, one should be aware that the picture of Russian economic development that emerges from analyses of official Russian statistical data might be (and probably is) biased to a certain—and sometimes even significant—extent. One can only hope that future improvements of the Russian system of official statistics will eventually make the picture more accurate.

percent of Russia’s GDP and industrial production, and it held 1.2 percent of the country’s total production capital. Its share of Russia’s total capital investments and exports was 1.1 and 0.7 percent, respectively.

In terms of economic structure the Arkhangelsk economy differs markedly from the Russian average. So, for instance, according to official statistical data for 2003, industry in Arkhangelsk accounts for close to 40 percent of GRP (Gross Regional Product), while the corresponding share for Russia is slightly below 30 percent. Agriculture and trade, which respectively accounted for 5.6 and 20 percent of the Russian Gross Domestic Product, only contributed about 2 and 12 percent respectively to the Arkhangelsk GRP. On the other hand, Construction and Transport contributed somewhat larger shares to the regional gross product than they do for Russia at large.

If we look at the structure of industrial production we also find significant differences between the situation in Arkhangelsk and that of the Russian Federation. The most pertinent difference is the huge size of the Arkhangelsk forest industry compared to Russia. Wood, Woodworking and Pulp and Paper account for nearly half (44.5%) of total industrial production in the region, while the corresponding share for the entire country is barely 5 percent (cf. Figure 1). In terms of employment the Arkhangelsk forest sector accounts for 42 percent of total industrial employment. The corresponding share for the country at large is around 6 percent.¹³

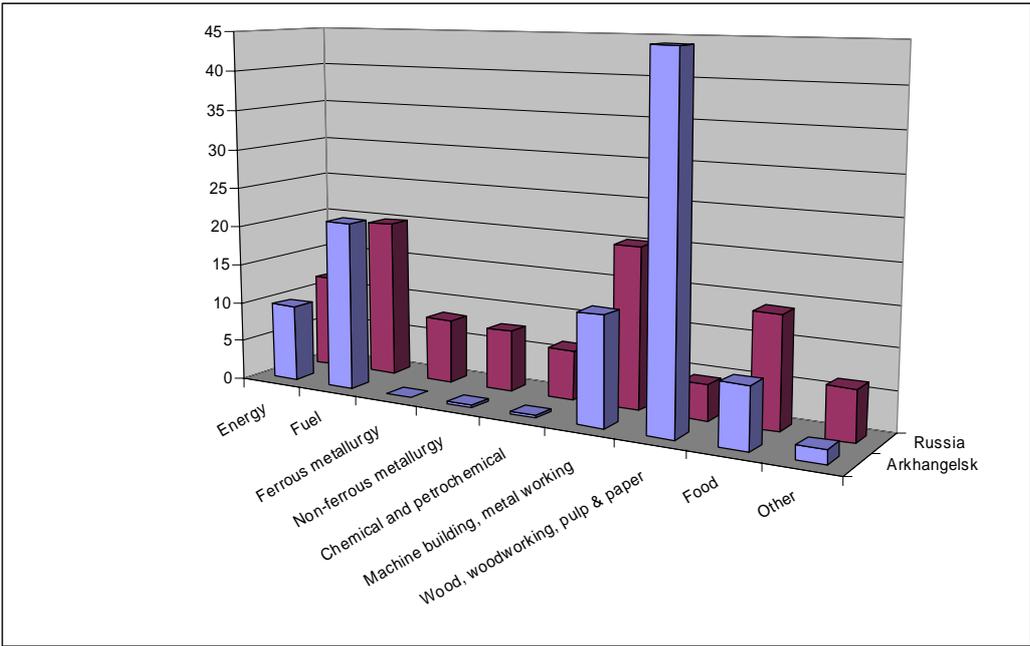


Figure 1: The contribution of various industrial branches to total industrial production in Arkhangelsk and the Russian Federation in 2002. Percent. Source: Calculation based on data from Goskomstat Rossii (2004).

¹³ Data on total number of industrial workers (in 2004) from Rosstat (<http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/06-03.htm>) and number of workers in the forest industrial complex (as of 2005) from Minpromenergo (2005).

As could be expected, the large forest industry in Arkhangelsk Oblast contributes significantly to the forest industrial production of the Russian Federation. For instance, in the year 2002, the region contributed a third of the total Russian production of pulp, close to a third (27.8%) of the production of cardboard, about 10 percent respectively of the country's production of commercial wood and lumber. Its share of the total production of paper and plywood was more modest, 9 and 3.6 percent, respectively.

Looking at the internal structure of the Arkhangelsk forest industry we find, not unexpectedly, that the production of pulp and paper accounts for almost a third (27.8% in 2002) of the total regional forest industrial production. Harvesting accounted for 5.6 percent and woodworking for slightly more than 11 percent. (Sawmilling alone contributed over 85 percent of total woodworking.)

The Russian forest sector still only makes a small contribution (around 4 percent) to the total Russian export value. However, about a tenth of the total forest sector exports from Russia originate from Arkhangelsk. Only Irkutsk Oblast contributes more (close to 20 percent) to total Russian exports of forest commodities. In terms of its share of total regional exports the Arkhangelsk forest sector is extremely important contributing around 75 percent to the total regional export value.¹⁴ The large export share is another indicator of the importance of the forest sector for the regional economy.

4.2 Structural Indicators

4.2.1 People—A Basic Economic Resource

Arkhangelsk Oblast belongs to a group of 13 of the 89 Russian regions (or Subjects of the Federation) that lost 15 percent or more of their respective populations between 1990 and 2005. Three other regions in Russia's north-west (the Komi Republic, the Nenets Autonomous District, and Murmansk Oblast) also belong to this group.¹⁵

Looking at official data for 1990–2005 describing the development of demographic variables, like working age population, natural population growth (births and deaths), life expectancy and infant mortality, we cannot find much evidence that the population structure has changed in a direction that is favorable for the business environment. The situation is similar in both Arkhangelsk and the country at large. In Russia, the working age population increased slightly both in absolute and relative terms (percent of total population). In Arkhangelsk, however, the size of the working age population tends to decrease. (Due to the rapid total population decrease the relative size of the working population has, however, increased.) Natural population growth, life expectancy and infant mortality, which are demographic variables that are ultimately dependent upon general economic development, present a rather gloomy picture. The natural population growth (net population increase excluding migration) has been negative during the whole period both in Arkhangelsk and Russia at large, the decrease has become somewhat smaller after the year 2000, but it is still quite sizeable (-6.3 and -5.6 per

¹⁴ Sources for the export data are: Goskomstat Rossii (2004); Arkhangelsk Oblast Administration, data on foreign trade retrieved on 14 February 2006, from <http://www.arkhadm.gov.ru/economy/foreign.asp>; data on the commodity structure of exports and imports 2003 and 2004 retrieved on 14 February 2006, from Rosstat at <http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/25-04.htm>, and Minpromenergo (2005).

¹⁵ Six of the remaining nine regions are to be found in Russia's Far East, three of which—the Koriakski Aut. Okrug, Magadan Oblast and Chukotka—lost 40 percent or more of their respective populations.

1,000 inhabitants, respectively). Life expectancy (both male and female), which was comparatively low already at the beginning of the period, has continued to decrease. In 2003, a boy born in Arkhangelsk might on average expect to live until he barely reaches the age of 56, a girl until she is about 70 years old. (Figures for Russia were somewhat higher—58.9 and 72.3, respectively). Infant mortality is the only indicator for which values have been improving somewhat during the observed period. But numbers are still quite high. In 2003, according to official statistics, 12.4 babies per 1,000 live births died within their first year of life in Arkhangelsk, the corresponding figure for Russia at large is 11.6.

Comparing these figures for Russia and Arkhangelsk with corresponding numbers for a well-developed west European country like Sweden indicates the large scope for improvements that still exists, improvements that a positive economic development should ultimately be able to achieve. In 2005, male life expectancy in Sweden was 78.4 years—female 82.8. In 1996 infant mortality was 3.8.¹⁶

4.2.2 Education—Investments in Human Capital

Education improves the quality of human capital, and exerts a positive influence on the behavior of all actors in the economic system. Changes in the performance of the educational system should thus be indicative of the *potential* for economic development. Here we take the education level in a region to reflect a potential resource for economic efficiency improvements and economic structural change. Higher general and professional education is of special importance in this respect.

The share of the total population with a higher professional education can be seen as an important indicator of the quality of the human capital. In 1989, not long before the disintegration of the Soviet Union, there were 44 specialists with higher education per 1,000 inhabitants in Arkhangelsk Oblast. The corresponding number for the country as a whole was 56. By the year 2000, these shares had increased to 93 and 94, respectively. Arkhangelsk had improved its position significantly in relation to the national average (and also relative to the neighboring regions Murmansk and Karelia). However, according to an estimate for 2002, the share for Arkhangelsk was down to 76 specialists per 1,000 inhabitants, while the corresponding country average was 103. Presumably the decrease in the relative number of specialists in Arkhangelsk has to do with the increased out-migration from the region.

Looking at two other indicators—the relative number of students engaged in higher education and the relative number of students graduating each year from higher educational institutions—it is obvious that Arkhangelsk Oblast has been making substantial investments in human capital. Especially after 1995, the region has displayed a fast increase in the relative number of students, starting from a low level in 1990 when there were 92 students per 10,000 inhabitants—the average for the country was 190. In 1995, the numbers had changed only moderately (to 105 vs. 179). However, by 2000, the share of students had increased significantly (to 208 vs. 294), reaching 330 (407) by 2004.¹⁷ Thus, since 1995, the share of the

¹⁶ For 2003, the respective figures were 77.9, 80.2 and 3.1, according to OECD statistics.

¹⁷ The data presented here were obtained from *Statistics of Russian Education*, a website created in 2002 as part of the Federal Program for the development of education. The compilations of data obtainable from this site (at <http://stat.edu.ru/>) is said to be based on information from Rosstat, the Ministry of Education and Science, a large volume of socioeconomic and demographic information characterizing the functioning and development of the educational systems at the regional and national levels, as well as on data and results of special statistical investigations.

total population of Arkhangelsk Oblast engaged in higher education has increased more than threefold.

While the share of students engaged in higher education in a sense reflects the size of investments made in human capital, the relative number of students graduating from higher educational institutions might be said to reflect the result of these investments. The number of students graduating from higher education can be seen as an indicator of the yearly addition to workforce competence. The pictures we get looking at these data is similar but with an even more marked tendency compared to that of students engaged in higher education (see Figure 2).

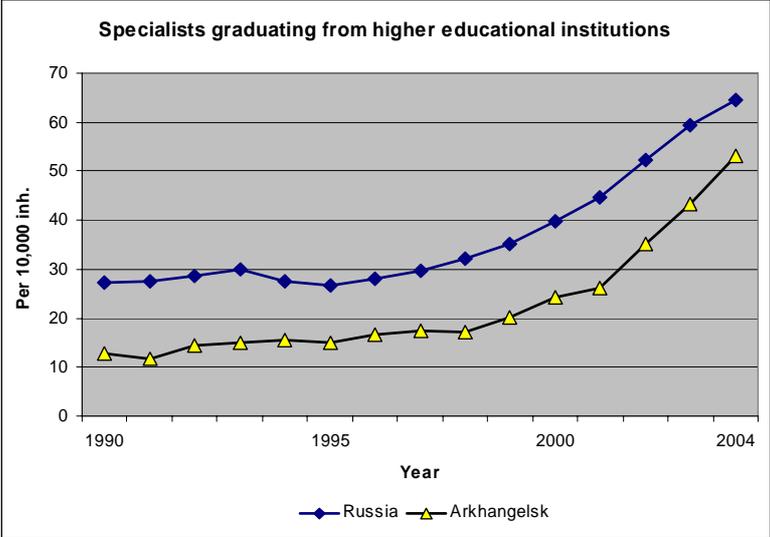


Figure 2: Yearly additions to workforce competence. Yearly number of specialists graduating from state higher educational institutions, 1990–2004. Source: Russia in Figures (2003); Statistics of Russian Education.

The growth in the number of students per 10,000 inhabitants graduating from higher educational institutions was especially large in Arkhangelsk after 2000 with a yearly growth rate of close to 21 percent (the growth rate for the country at large was 12.5 percent). In the period since 1990, Arkhangelsk significantly improved the value of this indicator relative to the Russian average, from a level slightly below half at the start of the period to over 80 percent of the country average by 2004.

Transition gradually introduced a radically different incentive structure into the Russian economy. The goal of enterprises’ production activity was no longer to satisfy planning targets, but rather to realize profits for the new owners. While engineering skills previously were most essential for enterprise managers, modern business management skills could now be expected to be an increasingly required quality of managers, something that potentially could decide if their companies would be able to survive in the emerging market environment. This new situation created a demand for more and better education in business administration. Available data on course enrollment and graduations show that the share of the total number of students in higher education engaged in (and graduating from) the study of courses belonging to the discipline “Economics and Management” increased significantly between

1998 and 2003.¹⁸ In 1998, 12.8 percent of students in higher education studied economics and management—in 2003 the share had increased to 22.2 percent. (Corresponding numbers for the country at large were 20.4 and 26 percent for the respective years.)

Previous research (see, e.g., Olsson, 2006) has shown that actors in the Russian forest sector are dissatisfied with the inadequate supply of qualified personnel for operating modern forest machines, etc. Despite this unsatisfied demand from forest enterprises for people with forest related education, data indicate that the share of all students in higher education engaged in the study of forest related topics¹⁹ was low and even decreasing between 1998 and 2003. (In Arkhangelsk the share decreased from slightly over 10 to less than 8 percent in the period indicated.) This decreasing interest in forest related education might reflect the unfavorable conditions meeting forest professionals in the labor market, the most important feature of which is the comparatively low wage level.

4.2.3 Enterprises—Ownership—Entrepreneurship

Enterprise structure. The Soviet economy had produced an enterprise structure characterized by a relatively small number, but mostly very large production units, whose activities were locked into highly inflexible delivery networks. After the disintegration of the Soviet Union this structure underwent a rapid transformation. The number of enterprises in Russia has increased dramatically after 1990, indicating that entry barriers are being dismantled. In Arkhangelsk, the number of enterprises increased from slightly over 3,000 in 1990 to close to 23,000 in 2004 (which is a 7.6 fold increase). For Russia, the number of enterprises increased more than 13 times, from close to 290 thousand to 3.8 million in the same period. In relative terms for Arkhangelsk this meant increases from less than five enterprises per 1,000 inhabitants in working age in 1990 to slightly over 23 in 2002. (In 1990, the level for Russia at large was very similar to that of Arkhangelsk but by 2002 the share had increased to 43.5.)²⁰

Privatization and new enterprises. A number of public reform measures have been implemented during the transition period in Russia. While the combined result of these measures was not able to prevent the establishment of the virtual economy in the early 1990s, it should, however, be noted that some of the reforms produced a number of positive effects stimulating the subsequent emergence of a growing segment of the Russian economy operating according to market economic principles. Thus, for instance, the privatization of state enterprises was an intensive process that deeply affected Russian society, converting an economy that had long been entirely dominated by state ownership into a system basically characterized by private ownership.²¹ True, in the process, several original goals of the

¹⁸ Data were retrieved (on 25 February 2006) from *Statistics of Russian Education*, a web portal available on the Internet at <http://www.edu.ru/>.

¹⁹ The total percentage referred to here was calculated as the sum of all students (and graduates) of the sub-disciplines constituting “260000-Reproduction and Processing of Forest Resources” as it is labeled in official Russian statistics (the source of the data is stated in the previous footnote), as well as the following sub-disciplines “170400-Machines and Equipment for the Forest Complex”, “553700-“Technology and Equipment for Forest Harvesting and Processing”, and “560900-Forestry”.

²⁰ Still, these are comparatively low numbers. In old market systems like, for instance, that of northern Sweden, the “enterprise density” is much larger. During all of the 1990’s there were about 50–52 enterprises per 1,000 inhabitants in working age. Data for these calculations were obtained from Russia in Figures (2003), Goskomstat Rossii (2004) and Facts and Perspectives (2003).

²¹ “When the voucher phase [of privatization] ended in mid-1994, the state’s average holding had fallen to 38 percent across all industrial firms (including those not privatized at all to mid-1994) and an average of just 15

transformation were modified. Privatization was intended to stimulate new efficient behavior on the part of enterprise management and owners (improved corporate governance). However, for political reasons the rules governing the Russian privatization process were modified to favor enterprise insiders (managers and employees) who became the dominating category of new owners in the first round of voucher privatization. The new owners often put higher priority on preservation of privileges and jobs than on making the operation of their enterprises more efficient. The failure of the authorities to strictly impose hard budget constraints on the enterprises also allowed many unprofitable firms to survive without restructuring (Ahrend and Tompson, 2005). These were all factors that unintentionally encouraged an enterprise behavior characteristic of the virtual economy.

By 2002, as much as 63 percent of all Russian employees worked in private enterprises and, according to an estimate by the European Bank of Reconstruction and Development, the private sector accounted for 70 percent of GDP (Ahrend and Tompson, 2005).

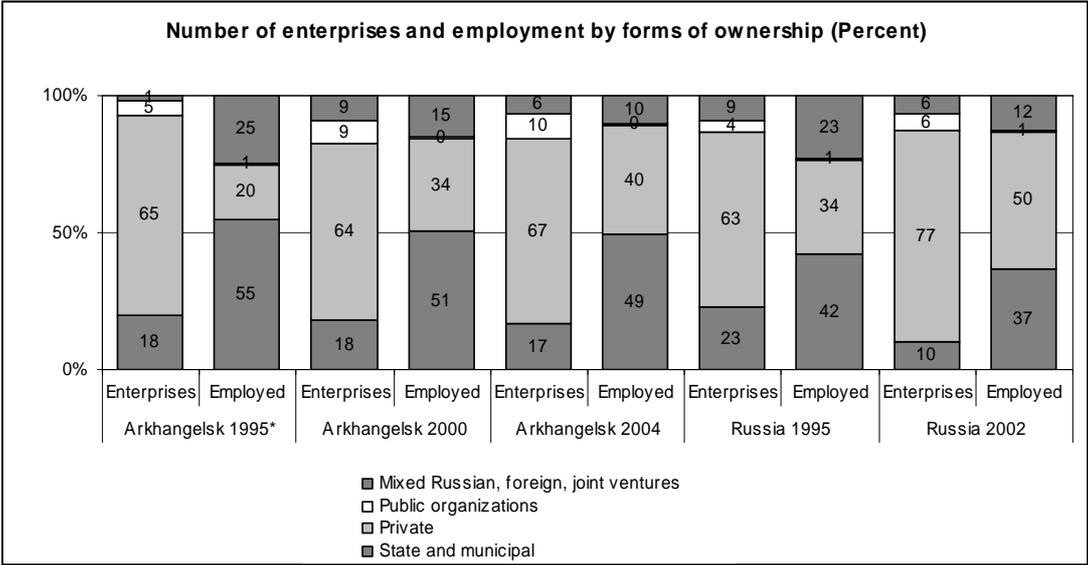


Figure 3 Number of enterprises and employment by forms of ownership 1995, 2000, and 2004 (2002) for Arkhangelsk Oblast and the Russian Federation. Percent.²²

Comparing Arkhangelsk with Russia at large we find that the private sector, measured as the number of privately owned enterprises, had already reached a completely dominant position by the mid 1990s (cf. Figure 3). Merely 18 percent of all enterprises in Arkhangelsk Oblast were owned by the state (including municipalities); the share for the whole country was in fact somewhat larger (23 percent). In Arkhangelsk the share of state owned enterprises still remained the same in 2004, while for the Federation as a whole the share had decreased to 10 percent already by 2002. However, looking instead at how many people the various types of enterprises employed, we find that even by 2004 the state sector was still dominating the scene in Arkhangelsk with 49 percent of total employment. The average relative state

percent in privatized enterprises. According to Goskomstat data, 57.9 per cent of the workforce (including 76 percent of the industrial workforce) was employed in privatized or new private firms. Over 70 percent of small-scale enterprises had been transferred to private ownership” (Ahrend and Tompson, 2005:7).

²² Source: Goskomstat Arkhangelsk (1996, 2004); Goskomstat Rossii (1996a, 2004); data retrieved on 31 March 2006, from Rosstat at <http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/06-03.htm> and http://www.gks.ru/free_doc/2005/b05_13/05-05.htm.

employment for Russia at large was smaller but the difference compared to the relative number of state enterprises was anyway striking. In 1995, the state sector had 42 percent of total employment; in 2002 the share had decreased to 37 percent.

The fraction of all enterprises owned by public organizations was very small throughout the period (growing from 5 to 10 percent) and their share of total employment was insignificant. However, an important shift in the enterprise-employment configuration characterizing the period after 1995 was the fact that enterprises with mixed state-private ownership (including joint ventures) lost much of their importance as employers. In 1995, these enterprises employed around 25 percent of all employed in Arkhangelsk, in 2004 the share was down to 10 percent. The development for Russia at large was very similar (23 percent in 1995, 12 percent in 2002). This development indicates a decreasing need for state support of recently privatized enterprises in the latter half of the 1990s. The interpretation would be that many privatized enterprises actually became gradually more competitive in the emerging market environment, being able to increasingly rely on their own resources. The development could possibly also be seen as an indicator of a progressing decrease in the size of the virtual economy, with its characteristic reliance on “relational capital.”

Joint ventures. The relative number of employees in foreign and joint venture enterprises was expected to grow as a consequence of the transitional reforms in Russia. Even if the number of foreign and joint venture enterprises in Russia increased by almost 28 percent between 1998 and 2002, their share of the total number of enterprises in the country had still only reached 0.3 percent. In Arkhangelsk Oblast the number of such enterprises increased by more than 56 percent, but by 2002 the share had still only reached the level of the country at large (0.3 percent). However, in terms of employment the foreign and joint venture capital made a much greater impact. Between 1995 and 2002, the foreign and joint venture enterprises' share of total employment in Arkhangelsk Oblast increased from 0.5 to 6.4 percent. (For Russia the corresponding numbers were 0.6 and 3.1 percent, respectively.). The importance of foreign and joint venture enterprises for Russian economic development is illustrated by their contribution to total capital investments. These enterprises' share of total capital investments is much higher than what is indicated by their share of total employment. For Russia at large this share increased from close to 7 percent in 1998 to over 14 percent in 2002 (and close to 16 percent one year later).

Small enterprises. Finally we must also note the feature of the new market economy that probably is the most important for Russian citizens: the emergence of a large number of small enterprises. The small enterprise sector is important in several respects. While various measures have been introduced by the government to stimulate the establishment of new small enterprises, in their daily activity these firms have been forced to meet and cope with the competition that has been introduced through the emerging Russian market economy. Thus, in general, small enterprises do not operate in the virtual economy. By their engagement in these enterprises (as employees or customers) people will automatically learn an adequate market economic behavior. Thus, the emergence of new small private enterprises has made an important contribution to changing the (now obsolete) “mental models” (North, 2005) that produced the institutional framework governing the behavior of *homo sovieticus* and that to a significant extent survived in the form of the virtual economy after the disintegration of the Soviet Union.

Available data suggest that small enterprises in Arkhangel'sk comprised slightly over 22 percent of the total number of enterprises in 2002.²³ If this number is related to the total number of *private* enterprises we find that the share is over one third. What ever measure is used, it is clear that the emergence of small enterprises has meant quite a change for a country where only 15 years earlier there were practically no such enterprises. However, the number of small enterprises is no certain indicator of their importance for the economy at large. Data also clearly show that the comparatively large number of private small enterprises together only employ a fairly small number of people. In 2002, the small enterprises of Arkhangel'sk Oblast only employed six percent of the total number of people employed in the regional economy. (While the share of small enterprises in Russia at large was the same as for Arkhangel'sk, their share of total employment was much higher, 11 percent.)

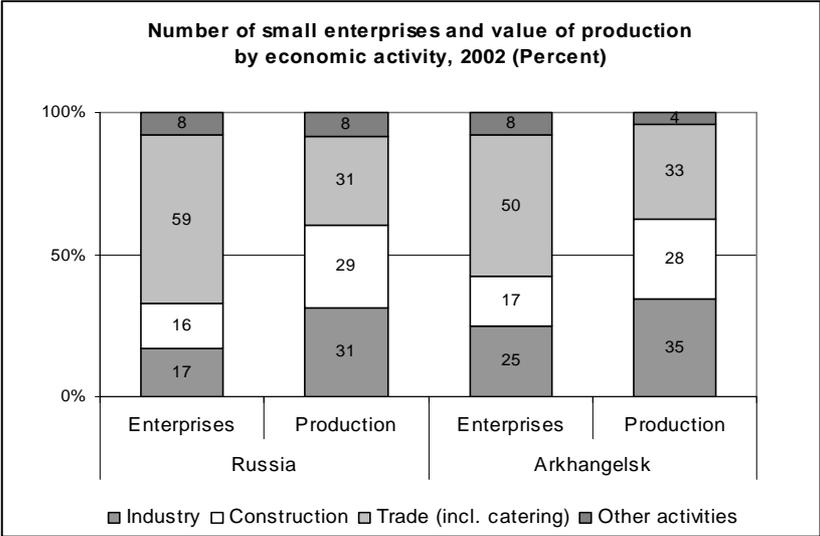


Figure 4: Number of small enterprises and value of production by type of economic activity in Arkhangel'sk and Russia, 2002. Percent. Source: Based on data from Goskomstat Rossii (2004).

As can be seen in Figure 4, in 2002, around half of all small enterprises in Arkhangel'sk were to be found in the trade and catering sector—for Russia this share was 59 percent. A quarter of the small enterprise sector consisted of industrial enterprises while a somewhat smaller number (17 percent) of all small enterprises were engaged in construction activities.²⁴ (For Russia at large the corresponding shares were 17 and 16 percent, respectively.) On the other hand, if we look at the value of production, these proportions are almost “reversed” so that the comparatively few industrial enterprises account for a significantly larger proportion of the total value produced by the small enterprise sector. For small trading enterprises the situation is the opposite—a large number of companies producing a relatively smaller value share of total output.

²³ Data from Goskomstat Rossii (2004).

²⁴ In the previous IIASA case studies it was clearly shown that very few small enterprises were active in the forest sector. Furthermore, it was often claimed by small forest company managers that the establishment of small forest enterprises was actively opposed by the “forest establishment.” The registration in 2003 of an Association of small and medium sized forest sector enterprises (Assotsiatsiia malogo i srednego biznesa lesopromyshlennogo kompleksa) in Arkhangel'sk may perhaps be seen as a sign that this attitude from the “forest establishment” is being relaxed. (Information Agency “REGNUM,” 22 August 2003, <http://www.regnum.ru/allnews/148151.html>.)

Holding companies. The 1998 financial crisis triggered several important changes in the Russian economy. The emergence and growth of large holding companies based on natural resource extraction and industrial production is a prominent feature affecting the structure and organization of the Russian enterprise sector. While originally these financial-industrial groups (FIGs) had been controlled by banks with a primary interest in making money on speculation they successively developed into holding companies with a widely diversified production orientation. After the 1998 financial crisis, which made it more difficult for enterprises to profit from financial operations, it seems that these holdings have restructured their activities and become modern production oriented corporations. Today, three kinds of corporations dominate the scene (Clarke, 2004): *vertically integrated holding companies* striving to control several links in a production chain (large oil holdings are the typical example), *horizontally integrated holding companies* striving to establish dominance in regional or national markets, and *diversified holding companies* (or industrial groups comprising a number of relatively independent vertically and horizontally integrated holding companies) oriented towards maximizing the profits of their subsidiaries.

To some observers this trend represents proof of the fact that the Russian economy is now leaving the stage of initial privatization of state property and entering a phase of consolidation, when property (production facilities, capital) is redistributed and in the process rearranged to produce more market efficient enterprises. Thus, the process could be seen to indicate that Russian enterprises and managers are becoming better adapted to the demands of a normal market system. However, other observers have noted that these holding companies often acquire property for purposes other than improving current and future profitability and with consequences for the operations of subsidiaries that seem far from what is normal in a well-developed market system. For instance, Barnes (2003) argues that “leading economic actors [...] are still engaged in a complex struggle for property that transcends simple processes of privatization or consolidation and shows no sign of abating.” Controlling property is important since it brings a certain amount of safety in terms of secure input supplies and as a source of wealth that can be of help in the event of hostile take over attempts, etc. Property is ultimately also a source of political power. Clarke (2004:419), reporting on a case study of management style in Russian holding companies, notes that management practices in the holdings still display a “high degree of continuity with, or even a reversion to, Soviet traditions.” Managers of subsidiaries are thus allowed to keep their “production orientation” while leaving questions of profit making to the senior managers of the holding company.

Thus, it seems that, while the concentration of capital to large business groups in Russia to some extent is made for reasons that are similar to those encountered in a well-developed market economy, there are often other prominent reasons for the strive to acquire property, reasons that would not be considered important or even relevant in a market system.

Clarke (2004) notes that, irrespective of the dominating reason for an acquisition, holding companies are likely to invest in the modernization of production or the development of new products of their acquired subsidiaries in order to improve their productivity and profitability.

Due to the non-transparency and the high speed of the property redistribution process that has contributed to a dramatic concentration of capital and economic power in Russia after 1998, there are no reliable data available that describe the process in more detail. Some estimates have been made by various scholars and institutes both in Russia and in the West (see, e.g., Dynkin, 2003; Barnes, 2003; Guriev and Rachinsky, 2004; Clarke, 2004; World Bank, 2005) indicating that the large financial-industrial groups today account for a significant share of

total industrial output in Russia. According to a World Bank (2005) report, 22 FIGs accounted for 38.8 percent of total sales and 20.2 percent of employment in 32 subsectors of the Russian industry.²⁵

The results also indicate that FIGs' control of the country's pulp and paper industry is around 30 percent in terms of both employment and sales. Their control of the timber industry is, however, very much smaller: less than five percent in terms of sales and about two percent in terms of employment. According to information in the media vertically integrated holding companies have become very important for the development of the forest sector of Arkhangelsk Oblast. For instance, in the first five months of 2005, close to 70 percent of total timber harvesting in Arkhangelsk was made by enterprises belonging to four large holding companies (OOO IlimSeverLes, GK Solombal'skii LDK and Lesozavod No. 3, GK Titan, and PLO Onegales).²⁶

4.2.4 Inflation and Demonetization of the Economy

As is well known, the Russian economy was beset with an extremely high inflation after prices were liberalized in 1992—the inflation rate reached an astounding 2,509 percent that same year (Klein and Pomer, 2001:441). Prices of goods and services obtaining before 1992 were the result of repeated administrative adjustments ultimately reflecting the preferences and intentions of the Soviet planning authorities. Price liberalization immediately revealed the large gap between the production structure of the planned economy and the structure that would be able to meet Russian citizens' and enterprises' market demand for goods and services. It revealed how much actual supply in the Soviet economy deviated from real demand in the (emerging) “new Russia.” When attractive commodities and services in great demand were offered in insufficient quantities, their prices increased dramatically.

Since the rapid inflation was not accompanied by a corresponding increase in wages the result was that citizens and enterprises alike soon found themselves without enough cash to pay for the goods and services they wanted to buy. Makarov and Kleiner (2000) suggest that using so-called *non-monetary exchange*²⁷ offered a natural solution to the problem—“natural” since all actors in the new Russian economy already had an “in-kind” perception of economic exchange. They suggest (p. 55) that:

Essentially, today's bartering arose on the basis of the former system of in-kind perception, accounting, and distribution of industrial products, from which the new reality has eliminated: (a) the system of hierarchical subordination of enterprises to ministries and interministerial bodies; and (b) the restrictions on direct business ties between enterprises.

²⁵ The estimate was made on the basis of a survey investigation performed during 2003. (The sampled enterprises together accounted for 86 percent of total sales and 43 percent of total employment in the 32 subsectors of industry to which they belonged.) More about this analysis can be found in Guriev and Rachinsky (2004).

²⁶ Data given in *Lesnye Novosti*, summarized in a press survey of Arkhangelsk Oblast published by the information agency REGNUM on 17 June 2005 (retrieved 25 January 2006, from <http://www.regnum.ru/news/471838.html>). The ownership of three of these four holding companies has been mapped out in a World Bank survey of ownership concentration in Russia as of 2004 (see World Bank, 2005, and the CEM database accessible via Internet at <http://ns.worldbank.org/cem/eng/setcriteria.asp>).

²⁷ Non-monetary exchange or non-monetary transactions is shorthand for a whole set of exchange types, such as barter, (direct and “pure” or channeled via intermediaries), offsets (*sachety*) where debts are paid for by goods or services, money surrogates such as promissory notes (*vekseli*) issued by enterprises, banks or government, and debt swaps and cross-cancellations of debt. In this paper “barter” denotes all of the enumerated types of non-monetary transactions.

In this view, the emergence of barter in Russia was really a path-dependent phenomenon offering a familiar solution to a problem that would otherwise be difficult to cope with. (Goldman (1998), has also noted the long tradition that barter has in Russia.) Polterovich (2001) has labeled the barter solution an *institutional trap*, by which he seems to mean what others (cf., for instance, Carlsson *et al.*, 2001) have called an *institutional deadlock*, emphasizing the fact that several simultaneous institutional changes are required in order to force the economy to switch to a monetized system of exchange that is more transparent and easy to monitor and that ultimately is more efficient in that it reduces transaction costs.

In a very general vein and much in agreement with the implications of the virtual economy hypothesis advanced by Gaddy and Ickes (1998b), Hendley *et al.* (1998:101) have argued that:

... demonetization has occurred largely as a consequence of two important legacies of socialism—a legal culture in which neither public officials nor private firms routinely obey the law and an industrial structure replete with firms on the edge of survival. These two features work together to give rise to a set of institutions whose weaknesses provide incentives for non-monetary exchange, including a government that routinely fails to pay for its purchases from enterprises, a tax system that lacks legitimacy, a bankruptcy system in which creditors have little incentive to file against debtors, a system of corporate governance in which outside owners are not able to exercise effective control, and a legal system that cannot effectively support the enforcement of contracts. [footnote omitted] Under these circumstances, profitmakers and lossmakers alike use barter and other forms of non-monetary exchange to evade taxes and hide income from outside owners, and to mitigate the probability that contracts will not be enforced.

As can be seen in Figure 5, the inflation rate decreased rapidly in the years following its peak in 1992. After 2000 the rate has stayed below 20 percent, approaching 10 percent in 2004–2005. The regional price changes in Arkhangelsk have been quite similar to that of the country at large.

More will be said later about the behavioral consequences (the increase of non-monetary transactions, and of wage and payment arrears) that resulted from the structural changes in the economy leading to the rapid inflation in the first years of the 1990s.

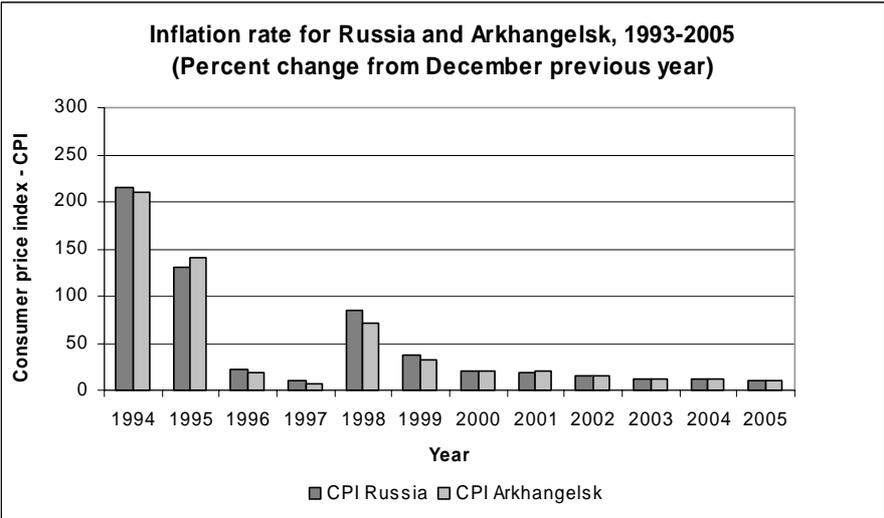


Figure 5: Inflation rate in Russia and Arkhangelsk Oblast, 1993–2005. Percent. (Changes in Consumer Price Index from December to December the previous year.) Source: Klein and Pomer (2001:441); Goskomstat Rossii (2004); Rosstat (<http://www.gks.ru>); Goskomstat Arkhangelsk (2004:115).

4.2.5 Banks and Credit Supply

Financial intermediation, as the credit providing functions of banks and other financial institutions, such as financial markets, and the insurance sector is often called, is severely underdeveloped in Russia (cf., for instance, Ahrend and Tompson, 2005). Efficient financial intermediation is highly beneficial for enterprises since it reduces their (transaction) costs of financing necessary input purchases and capital investments (Tompson, 2000). The existence of well-developed financial intermediation is also an important growth factor in the economy (Ahrend and Tompson, 2005; Chowdhury, 2003; Tompson, 2000). While the functioning of banks, financial markets, and the insurance sector are all important for the quality of financial intermediation, it could be argued that establishing a well-functioning banking system must precede financial market development (Tompson, 2000).

Banking has been malfunctioning in Russia during the whole transition period. In fact, as Tompson (2000:605) has remarked referring to a number of studies of the Russian banking sector,

... for all the diversity of their interests and activities, Russian banks do not actually *bank* very much—that is, they engage in very little financial intermediation. [Footnote omitted.] Indeed, on the conventional Western definition, most Russian banks are not banks at all, for it is financial intermediation—the provision of deposit and loan products—that distinguishes banks from other types of financial institutions. Banks attract funds from households and firms (including other banks) and lend them on to other borrowers.

In the course of privatization of state enterprises, several so-called Financial-Industrial Groups (FIGs) were established in Russia. Banks were often incorporated into FIGs in a subordinate function of providing financial services to the large natural resource extracting companies dominating these organizations. Many banks are still in such a position, being so-called “pocket banks” (Chowdhury, 2003; Okhmatovskiy, 2005; Tompson, 2000). At the beginning of the transition period the Russian banking sector developed fast and its development was basically unrestrained by any regulatory system. This was a time when it was possible to make large profits on speculation in financial markets (Chowdhury, 2003).

The crisis of 1998 was a severe blow to the existing banking sector in Russia. The number of banks and local bank offices was dramatically reduced. In 1998, there were 8,050 banks and local bank offices in Russia. By 2000, this number had been reduced by a third, and the number continued to decrease. By 2005, 1,299 banks and 3,238 local bank offices remained in all of Russia.²⁸ (In Arkhangelsk Oblast there were 6 banks and 39 local bank offices in 1999; at the end of 2005, the respective numbers were down to 4 and 32.²⁹) After the 1998 crisis the state-owned Sberbank is the dominating bank in Russia with a market share of 69.1 percent—Alfa Bank comes on second place with a market share of 2.3 percent (Chowdhury, 2003).

Russian banks were always rather small by international standards. Even the biggest Russian bank (the state-owned Sberbank) was ranked 155th in the world (by tier-1 capital) in 2003 (Tompson, 2004a). Despite a rapid growth in the Russian banking sector, its total assets only reached 42.1 percent of GDP at the end of 2003 and loans to the non-financial sector amounted to a mere 17 percent. (Corresponding shares for the EU countries were 280 and over 100 percent of GDP, respectively.) The ability of banks to mobilize and channel savings

²⁸ Data obtained on 22 May 2006, from the Rosstat website at http://www.gks.ru/free_doc/2005/b05_13/20-26.htm.

²⁹ Data for 1999 from Goskomstat Rossii (2004), data for 2005 from CBRF (2006).

to investments is important for economic growth. In Russia, slightly less than five percent of corporate investments was financed by bank loans in 2003 (Tompson, 2004a). The poor capacity of the banking system to provide credits for enterprises' investments is especially serious for SMEs, since they are unable to use retained earnings to finance investments.³⁰ With access to bank credits SMEs might become the motor of Russian economic growth like they have been in other transition countries (Chowdhury, 2003).

Observers agree that profound reforms of the Russian banking sector are necessary to make it better able to perform its market supporting functions. It has been noted that even if a well-designed banking reform package could be implemented right away (which it cannot in practice) it would anyway take a long time for the reforms to produce the intended effects. The reason is that the reforms entail institutional changes affecting also several other policy areas and that all such changes must be carefully designed to be found legitimate and adopted as guidance of actors' behavior.

Since 2002–2003, there is an ongoing reform of the Russian banking sector. The major ingredients in this reform program are measures that have already been suggested by several western observers of the Russian banking sector (see, for instance, Chowdhury, 2003, Tompson, 2000, 2004a).³¹ To increase public confidence in the banking sector and increase the volume of household savings a deposit insurance has been introduced—a measure that will “level the playing field” between state-owned and private banks (since previously only the former could guarantee depositors' money). The Bank of Russia (CBR—the Central Bank of Russia) has started changing its supervision of Russian banks emphasizing “substance-over-form,” which is a highly demanding task, entailing revisions of a complex system of regulations. As noted by Tompson (2004a:16) the goal is to “reduce the opportunities and the incentives for banks to manipulate their accounts in order to meet prudential ratios.” The reform also envisages a phasing in of International Financial Reporting Standards (IFRS). As of January 2006, the use of IFRS rules is supposed to have replaced the Russian Accounting Standards (RAS) and form the actual basis for bank supervision. The effect of this change is still uncertain. As a measure to improve transparency the Bank of Russia supervision reform also strives to disclose bank ownership. Information about ownership has hitherto been possible for banks to hide and this has decreased public confidence in the whole financial intermediation system.

Provisionally assessing the first consequences of the reform measures, Tompson (2004a:25) concludes:

Overall, the design of Russia's reform strategy reflects an awareness of the need for a 'good fit' between its major elements, and the main lines of the reform address some of the principal problems of the sector. It reflects an understanding of both 'international best practice' and the peculiarities of Russia's institutional environment. The emphasis current policies place on transparency is especially welcome, as greater openness will facilitate greater monitoring of banks by private-sector agents. The major lacuna in the strategy concerns the future of state-owned banks. Despite a long-standing official commitment to reducing the role of the state—and of the CBR in particular—in the ownership of credit institutions, there is still a need for a much more clearly defined policy in this area.

The real test of Russian banking reform efforts, however, will be in implementation. The reforms challenge numerous vested interests and their successful realization will require considerable political will as well as the development of regulatory capacities of a very high order.

³⁰ Ivanter (2005) discusses the results of a survey investigation of the problems facing small business in Russia. The lack of credits for investments was considered a difficult obstacle for business development.

³¹ The condensed account of the reform measures given here largely follows Tompson (2004a).

The author is, however, concerned by the authorities' handling of the May–July 2004 “turbulence” in the Russian banking sector, where several decisions that were at odds with the principles of the recently initiated reform program were taken. The state interfered in the market in a way that “suggested that key executive branch institutions viewed the sector’s problems rather differently and raised questions about whether the CBR really could count on the political and administrative support needed to press ahead with reform” (Tompson, 2004a:25).

Recent speculations about future developments of the Russian banking sector seem to underline Tompson’s concern in this respect. Rozhinskiy (2006), who is himself a banker, predicts that “oligarchic banks,” (i.e., the “pocket banks” of large FIGs) will be up for sale, since the banking business today is much less profitable than oil and metals, compared to the situation in the 1990s. If the Russian government wants to preserve most national banking in Russian hands, Rozhinskiy finds the most likely outcome to be that since the “non-oligarchic banks” will not be able to match foreign banks’ bids for the oligarchic banks this will prompt the state to intervene by having state-owned banks issuing competing bids. Rozhinskiy’s forecast is that “oligarchic banks as well as some non-oligarchic banks may well be ‘distributed’ among state-owned and foreign acquirers. As a medium-term projection, the share of state-owned banks in Russia may constitute 60 percent of total banking assets, while the foreign share may climb to around 25 percent.” Only in February 2006, the first Russian bank (Impexbank) was sold to a foreign bank (the Austrian Raiffeisenbank). Increased foreign ownership of Russian banks might raise the competence of banks to assess the prospects for borrowers’ investments and might lead to better (less risky) decisions about lending. “Importing” foreign bank’s experiences in this way might shorten the fairly long time it would take for Russian banks to accumulate the necessary risk assessment competence (Tompson, 2000).

4.3 Behavioral Indicators

4.3.1 Output and Capacity Utilization

The immediate—and unexpected (at least for many western observers) —response of the Russian economy to the transitional reforms at the beginning of the 1990s was a dramatic general output decline. Output levels started to recover in the second half of the decade, but still by 2004 total industrial production in Russia had only reached 70 percent of its 1990 level. The decline was even more serious in the forest sector, where output of the wood, woodworking and pulp and paper industries in the second half of the decade was down at about 45 percent of its 1990 level, only to slowly recover after the year 2000 reaching 50 percent by 2004. In Arkhangelsk Oblast, industrial production decrease was less pronounced and by 2003 industrial output was again above its 1990 level. The reasons for this slump are not (yet) well understood, neither are the reasons for the subsequent recovery. There is also great concern whether the present high annual growth rates will actually be sustainable. Ahrend (2006:2) argues that the high growth rate is mainly “driven by the output and exports of the natural resource sector, and especially by privately owned Russian oil companies” and that it may be possible to maintain the high growth “provided there is at least some progress with respect to gas sector reform, increased pipeline construction, greater respect of property rights on the part of the authorities, and a limit on the extent of state interference in the oil sector in particular.”

It is not clear, however, whether the strong economic growth in Russia observed in recent years can be regarded as a sign that enterprises are in fact improving their efficiency and

leaving the virtual economy, exposing themselves to the competition of the market. Analysts of the Russian transition, like Gaddy and Ickes (2005) and Ahrend (2006), draw attention to the still ongoing “covert” redistribution of value (rents) from the natural resource sectors (mainly oil and gas) to other sectors of the Russian economy, a practice with roots in the Soviet system. This way the very large profits made in the resource extraction sectors are in effect propping up the performance reports of enterprises in other sectors of the economy, a behavior that could make us believe that the influence of the virtual economy is vanishing, while it actually might be quite the opposite (at least for some enterprises). In this perspective, as advocated by many observers (e.g., Gaddy and Ickes, 2005; Ahrend and Tompson, 2005; Tompson, 2005; Ahrend, 2006), a genuine change of behavior among Russian economic actors, forcing them to comply with the demands of the market economy rather than live by the rules defining the virtual economy, requires a reformation of the Russian oil and gas sectors, securing property rights and putting an end to the highly non-transparent rent transfer practices currently used in the economy.

Figure 6 illustrates the dramatic decrease in production of all forest products that took place in Arkhangelsk Oblast between 1990 and 1995/6. A similar development was to be seen in the whole country (and in the whole economy). However, after 1995/96 production recovered and output levels of most forest commodities started to increase. For some commodities, like commercial wood, round timber and lumber, output levels increased only moderately (in 2004 output volumes still had not reached half of their 1990 level). For other commodities, like fiberboard, paper, and pulp, volumes exceeded 80 percent of their respective 1990 levels. For only two commodities, cardboard and plywood, output levels by 2001 had climbed above their 1990 levels. Especially plywood production has displayed a striking development after 1996.

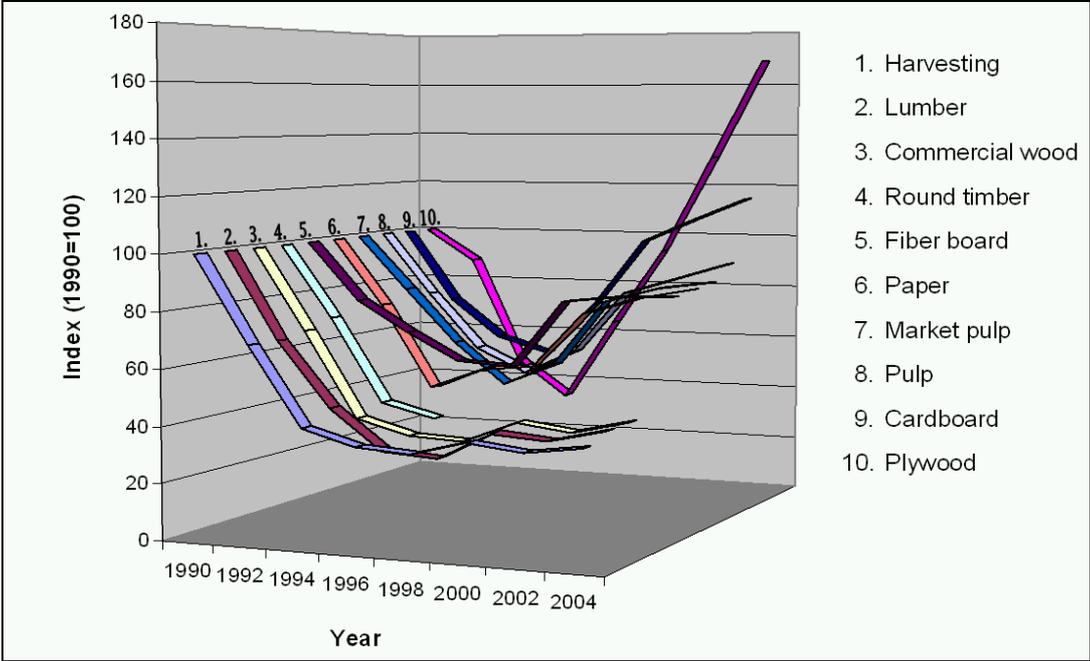


Figure 6: Production of certain forest products in Arkhangelsk Oblast, 1990–2004. Relative volume change (1990=100).³²

³² Source: Goskomstat Rossii (1996b, 2004); Arkhangelsk Oblast (1997); Goskomstat Arkhangelsk (1997:59, 2003:15, 2004:77); Komistat (2000); Russia in Figures (2003); data retrieved (2 February 2006) from Arkhangelsk Oblast Administration at <http://www.dvinaland.ru/economy/timber.asp?>; data retrieved (13 March 2006) from Arkhangelskstat at <http://www.arkhadm.gov.ru/economy/timber.asp>.

Since the beginning of the transition period the Russian industry has worked at only a fraction of its full capacity. The forest sector is no exception. For most forest products, however, the Arkhangelsk forest sector has displayed a higher capacity use than the Russian average. In general, capacity utilization in the production of most industrial commodities has increased since the mid 1990s and especially since 2000, sometimes from very low levels. Despite huge reductions in capacity use the forest industry worked more intensively than many other industrial branches. In Arkhangelsk Oblast capacity utilization in the production of most forest commodities was higher than the Russian average throughout the period. Table 1 shows the development of capacity utilization in the production of certain forest products for Arkhangelsk Oblast and the Russian Federation.

Table 1: Capacity use in the production of certain forest products 1995–2004. Percent.

	1995/6		2000		2004	
	Russia	Arkhangelsk	Russia	Arkhangelsk	Russia	Arkhangelsk
Harvesting	?	58.1	?	83.5	?	106.6
Lumber	31	32.9	39	60.8	47	83.8
Plywood	52	53.1	82	100	93	100
Paper	57	53.5	79	82.6	86	99.7
Cardboard	41	50.7	63	95	79	99.6
Fiber board	?	59.3	?	86.2	?	85.7
Pulp	?	46.9	?	88.1	?	98.7

Source: Data retrieved on 15 February 2006 from Rosstat (Internet: <http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/14-04.htm>); Goskomstat Arkhangelsk (2003); calculation based on data retrieved on 2 February 2006, from Arkhangelsk Oblast Administration (Internet: <http://www.dvinaland.ru/economy/timber.asp>).

4.3.2 Investments

Investments in the Russian economy decreased dramatically in the first half of the 1990s. By 1998 they were down at a mere fifth of their 1990 level—in Arkhangelsk Oblast the level was even lower, about 14 percent. However, after 1998 investments started to recover. As can be seen in Figure 7 the dynamics of investments in Arkhangelsk Oblast resembles that the country at large, even if growth rates were higher in Arkhangelsk in the period 1999–2003. Despite their increasing volume after 1998 total investments in Russia were still, by 2004, below 40 percent of their level in 1990 (the corresponding figure for Arkhangelsk Oblast was slightly over 50 percent).

Total investments in Russia have always been very unevenly distributed between the various sectors of the economy with Industry always receiving the main share. In the mid 1990s, slightly over one third of total investments in the Russian economy were made in industry. The share was about the same in the Arkhangelsk economy. But while the share for Russia increased moderately and reached just over 40 percent in 2002, in Arkhangelsk industry's share of total regional investments grew to nearly 60 percent in 2000 and reached close to 78 percent in 2002. Transport and housing were the only other sectors of the economy with significant investment shares. About one fifth of total investments in Russia has been allocated to transport in the period since 2000. Housing, which received around 20 percent of total investments in Russia by the mid 1990s, had by 2002 decreased its share to just under 10 percent. The corresponding figures for Arkhangelsk Oblast were for transport close to 25

percent by the mid 1990s, dropping to just over 10 percent by 2002. For housing the share of total regional investments was significantly lower, around 14 percent by the mid 1990s, down to a mere 1–2 percent in the 2000s.

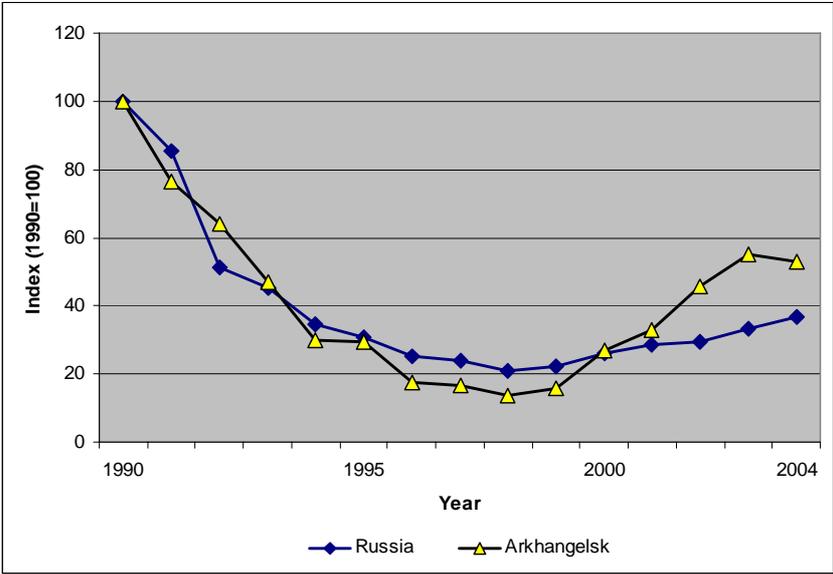


Figure 7: Investments, physical volume, 1990–2004. Index 1990 = 100. Source: Data from Rosstat retrieved on 2 February 2006 from the Internet at http://www.gks.ru/scripts/db_inet/dbinet.cgi.

While the share of industrial investments that has been allocated to the forest sector has remained around 1–1.5 percent for Russia at large throughout the period 1990–2004, the forest sector has dominated regional industrial investments in Arkhangelsk, accounting for shares varying between 22 (2002) to 68 percent (1999) of total industrial investments. Over two thirds of these investments were made in the pulp and paper industry.

Previous research (cf., for instance, Carlsson *et al.*, 1999) has drawn attention to the fact that a further expansion of the forest industry based on domestic timber would require harvesting of forest areas that are quite inaccessible today due to a lack of infrastructure, primarily forest roads. The problem has also been duly discussed in the press where, for instance, it has been noted that the length of roads per thousand hectares of the Russian forest fund is merely 1.2 km, compared to 10 km in the USA, 36 in Austria, and 45 in Germany (Smol'yakova, 2005). On the huge territory of Arkhangelsk Oblast timber has been intensively harvested mainly along existing roads and railroads. The result has been overexploitation of such accessibly located forests. Today, many forest harvesting companies (*lespromkhoz*y) in the region can only operate during 6–7 months of the year due to a lack of hardcover roads. Thus, there is a need for significant investments in forest roads in order to invigorate the forest sector, the contribution of which to total industrial production in the region is otherwise expected to decrease from 56 to 42 percent in 2006.³³

³³ As reported on 1 November 2005, by the news agency REGNUM (<http://www.regnum.ru/news/537690.html>) Evgenii Mikhailovskii, director of the economic department of the Arkhangelsk regional administration, gave this information in a regional дума hearing. The forecast was made on the basis of the following negative tendencies: raw material supply in locations with transport infrastructure is vanishing, production facilities have

Resources for road construction are currently being allocated. It is interesting to note that the process leading to the recent investment decisions has been hampered by some of the institutional hurdles (path dependency, institutional deadlock) identified in our previous research (Carlsson *et al.*, 1999, 2001). In Soviet times, a region's need for forest road construction was decided by the central forest authorities. In the new Russia, such decisions are expected to be taken by the actors in the forest sector themselves, by the enterprises. Regional administrations are by law prohibited to support the interests of commercial enterprises and they have therefore hesitated to support forest road construction with resources from the budget—funds could only be used for the construction of roads for “general use,” roads that might also obviously be used for timber transport. The problem is that constructing “general use” roads is five times as expensive compared to the construction of “forest roads,” even if such roads are often of good quality (Sholomitskaya, 2005). Branch organizations, like the “Pomor Industrialists,” representing a number of large regional forest enterprises,³⁴ have argued for a more creative use of public funding for road construction and they have also advocated the elaboration of a special regional short-term program for the construction of forest roads, despite previous meager results of such endeavors (Grevtsov, 2005). Federal organs (the Ministry of Natural Resources and *Roleskhoz*) have suggested a co-financing scheme according to which the federal and the regional authorities equally divide the costs for road construction. There are also suggestions to include private business in the funding of infrastructural projects. As a matter of fact the large forest enterprises are already investing in road construction in order to be able to procure the timber they need. Arkhangelsk Oblast may be one of the testing grounds for these co-financing projects (Smol'yakova, 2005). It is expected that such road construction projects will bring benefits not only to the forest sector, but also to other sectors of the economy as well as to ordinary citizens who can use the roads to reach previously inaccessible forest areas to collect wild berries and mushrooms, activities that significantly contribute to many households' budgets.

The impression produced by these press accounts of the discussion of the road investment problem in Arkhangelsk is that by engaging in public discussion and lobbying the members of the regional дума and the bureaucrats of the forest authorities, the actors of the forest sector have indeed managed to put the issue of forest road construction on the agenda, and also contributed to the resolution of an existing institutional deadlock.

4.3.3 Employment, Income, and Productivity

Changes in employment *per se* are an inherently ambiguous indicator of the development of the Russian virtual economy. Improving the efficiency of the Russian economy entails fundamental changes affecting the structure and functioning of the whole system that was inherited from the Soviet Union. Thus, changes are required in a large number of parameters, such as the location of production, the selection, quality and quantity of all commodities and services produced, the maintenance and renewal of production facilities (capital investments), and the establishment of an incentive system promoting productivity improvements. A region

been practically overused, forests are drying, and the warm weather is a hurdle for winter harvesting. Assessing all these circumstances, it was found that construction of forest roads allowing year around use is a necessary requirement for the further development of the regional forest sector.

³⁴ The organization “Pomor Industrialists” was founded in 1999 and engages in lobbying the regional administration and the regional дума trying to promote the interests of its members. It could be noted that in our previous study of the Arkhangelsk forest sector (cf. Carlsson *et al.*, 1999) we found that the actors of the sector would benefit from establishing branch organizations to lobby for improved business conditions and to elaborate proposals for measures that could be taken to stimulate a sound business behavior.

like Arkhangelsk Oblast, located in the north and largely dependent upon resource extraction, must expect to meet with a dramatic “transitional change pressure” with demands for a larger and more diversified market for consumer goods and services and with an intensified market competition forcing industrial enterprises to improve their efficiency in order to survive. For employment, this “change pressure” might mean different things.

- An increased demand for labor to work in the production of consumer goods and services could be expected.
- If the resource extraction industries are able to improve efficiency through capital investments, employment in these industries might decrease at least initially.
- If, on the other hand, in a somewhat longer perspective the achieved efficiency improvements are sufficiently large the output of these enterprises might become more competitive resulting in an increased demand for the products produced, leading to an expansion of (efficient) production, an expansion that might require more labor.

These aspects must all be taken into consideration when assessing the meaning of the changes in employment that have taken place in Arkhangelsk Oblast in the transition period.

As for the development of unemployment, it was also to be expected that it would grow rapidly in the first phase of the transition when enterprises in their restructuring efforts would lay off labor. If the restructuring were successful in producing market efficient enterprises, this might mean that they would eventually increase their production, which would raise the demand for labor and thus decrease unemployment.

Economic efficiency gains are ultimately dependent upon improved labor productivity, i.e., the relation between the amount of labor used in the production process and the volume of output produced. A successful restructuring of inefficient Russian enterprises would naturally entail productivity improvements and would most likely lead to improvements in real incomes as well.

Employment. Total Russian employment decreased between 1990 and 1998 by slightly over 15 percent. After 1998 total employment increased again but by 2004 it was still 13 percent below its 1990 level. Industrial employment decreased by 38 percent 1990–1998, by 2004 it still remained at approximately the same level. These figures indicate a shift in the relative size of the various branches of the economy. While Industry’s share of total employment decreased from 30 percent in 1990 to around 21.5 in 2004, the employment share for Trade increased from close to 8 to over 17 percent in the same period.

Total employment in the Arkhangelsk regional economy decreased between 1990 and 1998 by more than 25 percent (from 765 to 567 thousand) after which it increased again to reach, by 2003, 82 percent (612 thousand) of its 1990 level. Industrial employment, which has accounted for 25–33 percent of total regional employment in the period after 1990, decreased by about as much as 40 percent between 1990 and 1997/8 only to increase somewhat again reaching two thirds of its 1990 level by 2003. The figures indicate a structural shift in employment similar to that of Russia at large.

Looking at the regional forest sector employment we find that its share of total industrial employment has varied between 40 and 50 percent throughout most of the period. In 1995, the Arkhangelsk forest sector employed close to 81 thousand people, in 2004 the number was down to 65 thousand.

The largest share of the regional forest sector employment is found in harvesting, where close to 50 percent of all forest sector employees worked in the mid 1990s. By 2002, this share had decreased to slightly over 40 percent. Instead, pulp and paper had increased its share of total forest sector employment from about 25 to close to 30 percent in the same period. Woodworking—more than 80 percent of which is made up of sawmilling—accounted for around 30 percent of forest sector employment throughout the period.

Unemployment. As is clearly illustrated in Figure 8, in 1993, unemployment in Murmansk, Karelia and Arkhangelsk was similar to the average Russian level of around five percent of the economically active population. By and large, the unemployment level in all three regions and in Russia at large continued to increase until 1997–1999, reaching 13 and 15 percent of the economically active population for Russia and Arkhangelsk Oblast, respectively. By 2002, however, the unemployment level had been significantly reduced to eight percent for Russia as well as for Arkhangelsk Oblast.

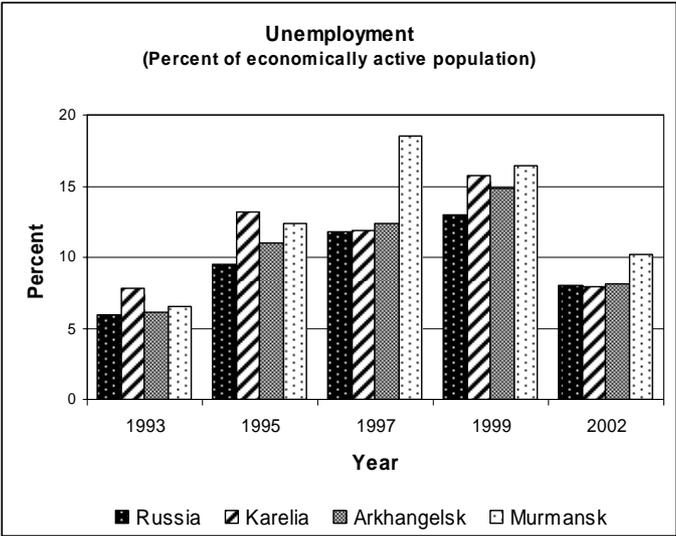


Figure 8: Estimated total unemployment in Russia, Karelia, Arkhangelsk, and Murmansk, 1993, 1995, 1997, 1999, and 2002. Source: Goskomstat Rossii (2004).

The rapid increase in unemployment from comparatively low levels at the beginning of the 1990s depicted in Figure 8 is due to many possible reasons. Transition brought open unemployment on a scale never previously experienced in the country. At first, it is likely that people who lost their jobs were not even aware of the services offered by the employment agencies or they did not bother to register, which was often a cumbersome and costly procedure, especially for people living in remote areas) to obtain the meager benefits that were offered (Ivanova and Nygaard, 1999; Piipponen, 1999). The increase in unemployment until the end of the decade must be regarded as a consequence partly of improved registration and partly of the increasing competition facing enterprises in the emerging market economy—a process that forced them to lay off labor. The fact that unemployment numbers were not even higher, which might have been expected knowing the Soviet legacy of high labor intensity with accompanying low labor productivity, may be due to the workings of the virtual economy that often seems to have led enterprise managers to hoard labor. Still, unemployment numbers reported by the official statistical agency can be expected to underestimate real unemployment levels (Carlsson *et al.*, 1999). But at the same time, the numbers also hide the fact that many unemployed are anyway gainfully occupied in the

“shadow economy,” since people are forced to perform some work in this large unofficial sector in order to survive (Ivanova and Nygaard, 1999).

Labor productivity. Despite the many shortcomings of the Russian privatization process there is evidence indicating that privatization has indeed improved enterprise performance (Ahrend and Tompson, 2005:32 ff.).³⁵ The 1998 financial crisis stimulated domestic production in Russia and the emerging large corporations seem to have initiated a restructuring of their subsidiaries making them more market competitive. After a recovery period in 1999–2001, enterprises eventually started to invest in new equipment and processes. Figure 9 illustrates the overall productivity change in the regional economies of Karelia, Arkhangelsk, and Murmansk as well as Russia at large. In the period 1997–2004, real Gross Regional Product (GRP) per employee annually increased by about 5.4 percent in Arkhangelsk, the average for Russia being 5 percent per year.

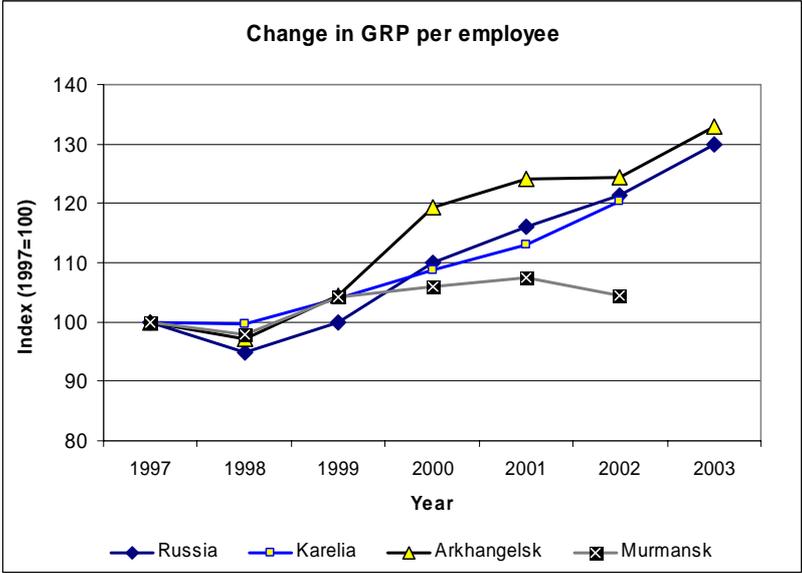


Figure 9: Productivity change in Russia, Karelia, Arkhangelsk, and Murmansk 1997–2003. Change in total GRP production related to change in total employment. Index (1997 = 100). Source: Calculation based on data from Rosstat (<http://www.gks.ru>); Goskomstat Rossii (2004).

Industrial labor productivity displayed improvements in the order of eight percent per year between 1997 and 2003 (Ahrend and Tompson, 2005:19–20). The Russian pulp and paper industry yearly gained around 12 percent in productivity, while the gain was about 4 percent per year for the woodworking industry.

Real incomes. Figure 10 illustrates the fact that real per-capita incomes display a similar development pattern as most other economic indicators that we have looked at so far. Per-

³⁵ At the same time, the methods of privatization caused serious legitimacy problems (Ahrend and Tompson, 2005:33): “Many criticisms of the process are clearly valid, not least those which focus on the way in which the chaotic and often corrupt privatization processes of the 1990s have made it difficult to secure and legitimate the post-privatization property settlement. [footnote omitted] There is little doubt that the continuing insecurity of property rights in Russia today is partly the result of past privatization processes, and that this has hurt economic performance. There is also good reason to believe that renewed insecurity about property rights contributed significantly to the slowdown in fixed investment and in the growth of a number of key industrial sectors, including oil, during 2004.”

capita incomes decreased moderately between 1993 and 1998/99 only to recover at a somewhat more rapid pace after 1999. Given the development of the Russian economy displayed by the previously discussed indicators and assuming as well that the behavior of economic actors in Russia is becoming more adapted to the demands of a market system (that some restructuring actually has been achieved), a corresponding development pattern was to be expected also for per-capita incomes.

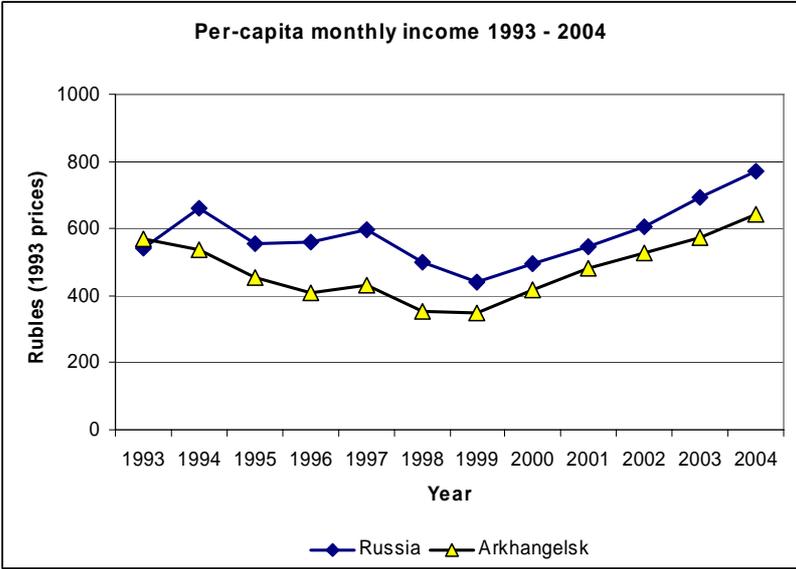


Figure 10: Per-capita monthly income in Russia and Arkhangelsk Oblast, 1993–2004. Rubles (1993 comparable prices). Source: Calculations based on data obtained from the Rosstat website at <http://www.gks.ru>.

4.3.4 Barter Trade, Wage and Payment Arrears

Observers of the barter and payment arrear phenomena in Russia have distinguished several features of the system that prevented an efficient exchange of commodities and services, inviting, or even forcing, as it were, actors to devise clever (and not always law abiding) ways of overcoming the obstacles while simultaneously making handsome profits in the process.³⁶

Commander *et al.* (2002:279) lists four categories of causes for the proliferation of barter in Russia:

- (1) *Liquidity and credit squeeze* of the industrial sector, prompted by falling demand, lack of enterprise restructuring, monetary tightening, cuts in direct subsidies and directed credit, and a decline in bank lending to enterprises, inducing firms to pay suppliers in kind, run up arrears and settle these arrears subsequently with off-sets.
- (2) *Implicit subsidies* and credit channeled to firms in the form of late and non-monetary payments to tax authorities and public utilities, reducing pressure for enterprise restructuring.
- (3) *Rent seeking* by managers and state bureaucrats, made possible by the lack of transparency inherent in non-monetary transactions, including tax evasion and over-pricing of goods in procurement, as well as distortions in the federal revenue sharing system.
- (4) *Network effects* arising from the persistence of historical relationships, thick markets in NMTs, as well as the mitigation of contractual risk associated with the use of NMTs in a network context.

³⁶ See, for instance, Goldman (1998); Hendley *et al.* (1998); Clarke (1998); Guriev and Ickes (2000); Woodruff (1999); Desai and Idson (2000); Makarov and Kleiner (2000); Commander *et al.* (2002); Earle and Sabirianova (2002); Javeline (2003); Guriev and Kvassov (2004); Kim and Pirtillä (2004). Yakovlev (2000) reviews various forms of barter (including offsets and veksels) that can be found in the Russian economy.

Bank lending to enterprises declined in Russia in the course of transition. Banks found it easier and more profitable to engage in funding the government’s deficit than extending credits to the industrial sector with its weak creditworthiness (Commander *et al.*, 2002). Without recourse to bank credits enterprises had to agree on inter-firm trade credits to satisfy their needs of working capital. This way large payment arrears were built up between enterprises.

In the study conducted by Commander *et al.* (2002) of 350 enterprises in 34 regions of Russia the primary reason given by the surveyed firms for using non-monetary transactions were liquidity problems. By resorting to non-monetary transactions enterprises were able to continue their operation despite the lack of cash to pay for inputs, wages, and taxes.

This way payment arrears grew rapidly both for debts among enterprises and debts to government authorities (for tax) and to state owned enterprises (for utilities, such as energy). In Figure 11 Commander *et al.* (2002) have illustrated the correspondence between the development of overdue payables to employees (wage arrears), overdue payables to general government (e.g., tax arrears), and overdue payables to suppliers (payment arrears to enterprises’ trading partners). The authors also note that the overdue payables of enterprises increased far more rapidly than overdue receivables, indicating an increase in overdue payables to the state. They conclude (p. 283).³⁷

Notwithstanding the complex nature of arrears between various levels of government and the infrastructure monopolies, it is clear that the private sector has run up high net payables to the public sector as a whole, including the budgetary entities and the public utilities. This suggests that the principal asymmetry at work has been not so much the transfer of liquidity *across* firms, but the transfer of liquidity of the budget and utilities *to* firms. This points to an infusion of net credit and implicit subsidy to the private sector.

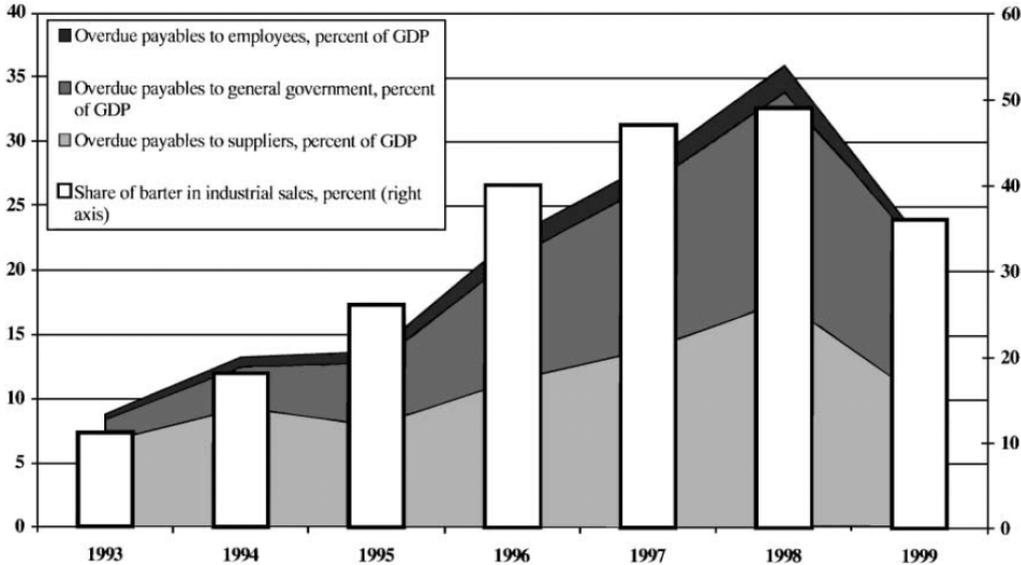


Figure 11: Dynamics of payment arrears and barter 1993–1999. Source: Commander *et al.* (2002:282).

³⁷ Cf. Gaddy and Ickes (2005).

Data published in the *Russian Economic Report* issued by the World Bank³⁸ indicate that non-monetary transactions in Russia have continued to rapidly decrease after 1999. In 2000, they still accounted for slightly over 30 percent of total sales, only to be further reduced to slightly over 10 percent in 2004. (Data for the first half of 2005 indicate that the level will decrease even further.)

The World Bank report also contains data showing that the stock of overdue payables (arrears) in Russia is shrinking as well, from about 37 percent of annual sales in 2001 to slightly below 15 in 2004. The development of arrears (overdue payables/receivables, tax arrears, and wage arrears) in Arkhangelsk Oblast displays a similar pattern as for the country at large. The share of overdue payables in Arkhangelsk Oblast was 38 percent of total payables in 2001 decreasing to 13 percent in 2005.³⁹ The situation with wage arrears is similar. After 1998, various measures of the volume of wage arrears have all gone down significantly. So, for instance, the ruble value of total wage arrears in Russia decreased by more than 70 percent in the period 2000–2005, for Arkhangelsk the decrease was even larger—87 percent. The share of all employed in the Russian economy who were affected by wage arrears decreased from 34 percent in 1998 to 9.2 in 2002 and to 4.4 percent in 2004. The corresponding share for Arkhangelsk decreased from over 50 percent in 1998 to 8.3 in 2002 (data for 2004 is missing). Likewise, the volume of wages in arrears as a percentage of the total wage fund of enterprises with wage arrears in Russia decreased from 374 percent in December 1998 to 190 percent in December 2002. Corresponding numbers for Arkhangelsk were 347 and 159 percent for the respective years.⁴⁰

For Arkhangelsk the share of tax arrears of total tax debts was close to 90 percent in 1999 decreasing to around 50 percent in 2005, according to data from Arkhangelskstat.⁴¹

4.3.5 Bankruptcies

In a well-functioning market economy there should ideally be no barriers for new, law-abiding enterprises to enter the market (start production) and there should be no barriers for mismanaged or unprofitable enterprises to exit the market (to close down). Enterprise start-ups and close-downs entail a “recycling” and simultaneous redistribution of productive resources (both labor and capital) among the actors in an economy with the purpose of making the use of these resources more efficient. Both enterprise start-ups and close-downs must proceed in an orderly (well-regulated, institutionalized) fashion in order to minimize the risk for property rights violations and reduce uncertainty among various claimants to the resources that are redistributed in the process. Rules (institutions) guiding such procedures must be well-designed, legitimate and efficiently implemented to preserve actors’ trust in the system.

³⁸ Russian Economic Report, No. 11, 2005, p. 7, retrieved on 20 February 2006 from http://ns.worldbank.org.ru/files/rer/RER_11_eng.pdf.

³⁹ Overdue receivables have decreased in a similar fashion. Data on overdue payables and receivables were obtained from the websites of Rosstat (<http://www.gks.ru>) and Arkhangelskstat (<http://www.arhangelskstat.ru>).

⁴⁰ Data on wage arrears were obtained from Goskomstat Rossii (2004); Rosstat (<http://www.gks.ru>) and Arkhangelskstat (<http://www.arhangelskstat.ru>). Data for Arkhangelsk indicate that the share of wage arrears in the wage fund of companies with such arrears had gone down to 135 percent in 2005.

⁴¹ Data were obtained from Goskomstat Arkhangelsk (2004:110); and the Arkhangelskstat web site at <http://www.arhangelskstat.ru/index.php?id=114> (9 February 2006).

Clearly, legitimate and well-functioning bankruptcy procedures are extremely important for a country like Russia, where transitional reforms (such as price liberalization and hardening budget constraints) have revealed the market inefficiency of a significant share of the enterprise sector.⁴²

According to official statistical data a very high proportion of all Russian enterprises are unprofitable. Data are based on accounting information submitted by the enterprises themselves, which should caution us not to draw too far-reaching conclusions about actual enterprise performance. Incentives are strong for concealing facts and manipulating the books so as not to disclose too good a result. (This is an example of malfunctioning institutions, pushing down the level of trust in society. When enterprises try to conceal the truth about their operations transparency decreases and incorrect information about market relations may contribute to inefficient resource allocation.)

The situation depicted by these data nevertheless gives great cause for concern. The share of unprofitable enterprises in Russia seems to have peaked by 1996–98, when as much as 50–53 percent of all organizations in Russia were unprofitable. Among the main branches of the economy the highest share of unprofitable enterprises were to be found in Agriculture and Municipal Housing. For instance, in Agriculture, the share of loss-making enterprises reached 84 percent in 1998, after which the share decreased to around 50 percent by 2003. In Municipal Housing the corresponding share has remained around 60 percent since 1998. Among the various industrial branches there are two, Coal and Wood, Woodworking and Pulp and Paper, for which the share of unprofitable enterprises have remained high throughout the period after 1996—for the former the share varied between 51 and 67 percent and for the latter the share dropped from close to 70 percent in 1997 to 58 percent in 2003.

Figure 12 compares the share of unprofitable enterprises in the whole Russian economy with corresponding shares for Industry as a whole and the Forest industry (Wood, Woodworking and Pulp and Paper) for selected years in the period 1992–2004. It could be noted that for Arkhangelsk Oblast the relation between these categories were very similar, but the shares were even higher. For instance, in 2004, the share of unprofitable enterprises in the Arkhangelsk economy was 45.6 percent (compared to 38.1 for Russia at large), for Industry the share was 47.2 (40.9) percent and for the Forest industry 55.3 (53.2) percent.

Thus, the data indicate that, since 1999, as much as 38–43 percent of all Russian organizations have been unable to make ends meet despite the improved conditions for domestic production resulting from the 1998 financial crisis. The high proportions may, as already noted, be due to enterprises' misreporting their actual situation, it may also reflect the fact that many Russian enterprises still operate in the virtual economy, allowing them to keep functioning despite their market inefficiency (cf. Section 2), or it may be that the insolvency legislation in Russia is not yet sufficiently developed or that implementation falters.

To date Russia has had three laws regulating insolvency (bankruptcy), the first from November 1992, the second from January 1998, and the third from October 2002 (cf. Simachev, 2003). The later versions of the law have brought improvements over previous ones, but even if the amendments introduced in the 2002 version of the law represent a step forward it should be noted that well-functioning bankruptcy procedures also require improvements in other rules (institutions) embedding enterprises' economic behavior (Simachev, 2003; Tompson, 2004b; Zhuravskaja and Sonin, 2005).

⁴² For an overview of the role and function of insolvency systems and the Russian insolvency practice, see Fuchs (2002).

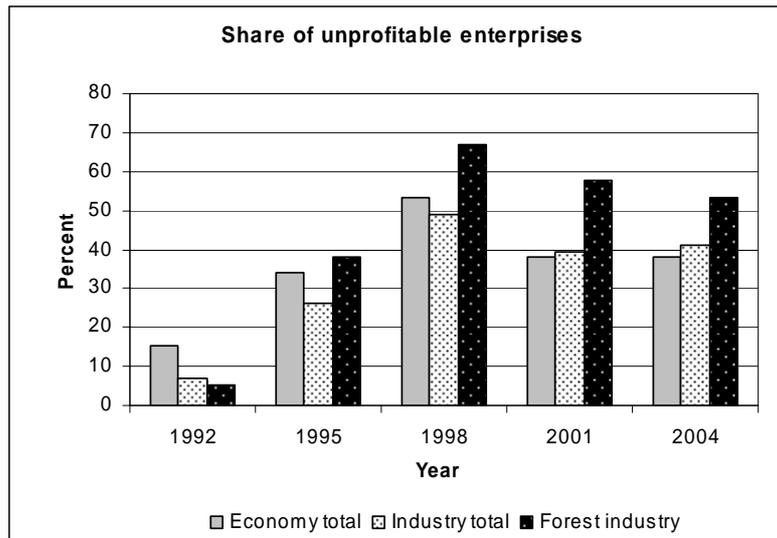


Figure 12: *Share of unprofitable enterprises in the Russian economy 1992–2004 (Percent).*
 Source: Rosstat web site at http://www.gks.ru/free_doc/2005/b05_13/20-39.htm
 (11 May 2006).

It seems to be generally agreed that the first (1992) law on bankruptcy in Russia was highly inefficient (cf., for instance, Simachev, 2003; Tompson, 2004b; Zhuravskaia and Sonin, 2005). The second bankruptcy law (from 1998) meant, in principle, an improvement compared to the previous law. It meant that it actually became possible to declare insolvent companies bankrupt. The number of initiated bankruptcy cases also rapidly increased. In January 1998 there were around 4,200 bankruptcy cases open. Two years later the number had risen to about 15,200, and by January 2002 there were about 52,500 cases open (Simachev, 2003). Such numbers might at first glance be taken to indicate the emergence of hardening budget constraints for the Russian enterprises. But, as Zhuravskaia and Sonin (2005) notes, such a conclusion is hardly warranted considering the fact that, in 2000, bankruptcy cases were brought against very few enterprises (less than 2 percent of all firms), while more than half of all Russian firms were unprofitable. However, as Simachev (2003) has pointed out, these average numbers hide that fact that there were huge regional variations in the number of bankruptcy cases. (For instance, in Moscow and St. Petersburg there were, respectively, 0.92 and 0.85 bankruptcy cases per 1,000 enterprises, while the corresponding numbers for Altai Republic and the Republic of Sakha (Yakutia) were 65.9 and 53.1.)

Furthermore, it soon became clear that the 1998 law offered plenty of opportunities for unlawful behavior on the part of all stakeholders affected by an enterprise unable to pay its debts on time. For instance, the law has been severely criticized for opening opportunities for unlawful maneuvering (Tompson, 2004b:1):

The number of bankruptcy cases processed in Russia skyrocketed after the new law was adopted, but this did not reflect the emergence of a civilized mechanism for protecting creditors' rights and liquidating or rescuing distressed companies. Rather, bankruptcy proceedings quickly became notorious for the ease with which they could be manipulated, either to defraud creditors rather than protect them—suits are often initiated and controlled by creditor companies that are in fact linked to the debtor's management—or to execute a hostile take-over very cheaply. Bankruptcies 'to order' have become a major business, often combining strategies for exploiting weaknesses in the law with political intervention and outright corruption. The government estimates that at least a third of all bankruptcy cases are either hostile takeovers or attacks by firms who have bought up rivals' debts specifically for the purpose of trying to bankrupt them.

A bankruptcy process encompasses many stages, such as supervision, financial rehabilitation, external administration, liquidation, and voluntary arrangement.⁴³ Comparably few cases lead to liquidation of an enterprise—the 1998 law was actually designed to further the rehabilitation of enterprises judged to be basically sound businesses rather than liquidating them (Tompson, 2004b). The law assigned an important role to arbitration court judges, who were to decide on the bankruptcy procedure (which stage to implement) and assign external administrators when appropriate.

The increase in the number of opened bankruptcy cases and the fact that the procedure was open to fraudulent attempts constitute a severe strain on the implementation, on the infrastructure of applying bankruptcy procedures (Simachev, 2003). Corruption seems to have been a prominent ingredient in the implementation of the 1998 law (Barnes, 2003). The appointment of external administrators is important and it seems that these administrators often favored only one or the other side in bankruptcy proceedings; in some cases they were instrumental in hostile takeovers (Simachev, 2003; Tompson, 2004b; Zhuravskaia and Sonin, 2005). Furthermore, implementation practice might significantly differ between various regions of Russia (Simachev, 2003). Bankruptcy procedures were often influenced by the regional administrations, especially if the fate of large, so-called town-forming enterprises with significant tax debts were at stake (cf. Ericson, 2002). Zhuravskaia and Sonin (2005) have elaborated and analyzed an interesting “theory of regional capture” of the bankruptcy institute in Russia. Their analysis results in several conclusions, one being that external management is more, and liquidations less, common in regions with “strong” governors (vis-à-vis the federal center) and with enterprises having large federal tax debts. Such bankruptcy procedures serve to avoid enterprise liquidations, to maintain employment when shutdowns would be politically inexpedient for a governor.

With the third bankruptcy law from 2002, the government sought to remedy some of the most severe problems of the previous law from 1998. The intention has been to prevent the use of the bankruptcy legislation for fraudulent initiation of bankruptcy procedures and unlawful hostile enterprise takeovers and it strengthens the control of the appointment and activity of external administrators. The new law is intended to support financial rehabilitation rather than liquidation of an enterprise in distress (Tompson, 2004b). But commentators are not convinced that the new law will mean any significant improvements (Simachev, 2003; Zhuravskaia and Sonin, 2005). On the basis of their “regional capture theory” Zhuravskaia and Sonin (2005) have raised concerns as to the efficiency of the new law (p. 87):

When the new Bankruptcy Law of 2002 was being drafted, such factors as the strong dependence of regional arbitration courts on the governors and the considerable power vested in arbitration court judges and external managers were not taken into account. According to Russian law, all arbitration judges are under federal jurisdiction and therefore independent of regional authorities. However, Russian practice departs markedly from theory. Inadequate federal funding of arbitration courts and their remoteness (both politically and geographically) from the federal center makes them highly dependent on regional authorities.

According to recent articles in the press some problems with the 1998 bankruptcy law were amended through the new law of 2002, but many pertinent problems still remain unsolved. For instance, while the new law seems to have curbed the increase in hostile takeovers, where corruption often played a significant role, “corporate raiders” are now increasingly making use of corporate law to acquire whole enterprises or some of their property. An especially

⁴³ A concise yet detailed overview of the stages of Russian bankruptcy proceedings is given in Cuthbert *et al.* (2005).

difficult problem is posed by the fact that, despite special provisions in the law, bankruptcy procedures have been brought on many so-called town-forming enterprises. During the first two years after the adoption of the new law more than 100 such enterprises went bankrupt.⁴⁴ Despite recent amendments, the new law has not been able to prevent deliberate (fraudulent) opening of bankruptcy procedures, during which enterprise owners can strip the company of most of its assets so when time finally comes to pay up the accumulated debts (often including years of tax debt) there are not much assets left in the company.⁴⁵

As we have already seen, the share of unprofitable enterprises in Arkhangelsk Oblast is considerably higher than for the country at large, and the shares are especially high for enterprises in the regional forest sector. The highest share of unprofitable forest sector enterprises in Arkhangelsk were to be found among harvesting firms (more than 80 percent in 2002), while the shares for woodworking and pulp and paper were much lower (66 and 38 percent, respectively). Thus, insolvency is likely to be most common among harvesting enterprises.⁴⁶ Data about bankruptcies in Arkhangelsk Oblast are hard to come by. According to the head of the regional tax authorities bankruptcy procedures were under way for 305 enterprises in Arkhangelsk Oblast by 1 January 2006. Of these, 41 were under observation, one was under financial rehabilitation, 19 under external administration, and 244 were bankrupt and under liquidation.⁴⁷ The Arkhangelsk regional administration calculated the total sum of taxes that were not paid to the regional budget due to intentional (fraudulent) bankruptcies of enterprises in the regional forest sector. For three of the four large forest holding companies in the region the unpaid tax debt for 2004 totaled more than 600 million rubles.⁴⁸

⁴⁴ “More hostile takeovers for Russia”, *The Russia Journal*, 24 April 2006 (retrieved 1 September 2005, from <http://www.russajournal.com/2006/04/24/more-hostile-takeovers-for-russia/>). Criticizing the law on bankruptcy the Chamber of Industry and Commerce President Yevgeny Primakov in a conference address on 24 February 2004, claimed that in Moscow alone annually more than 200 enterprises were objects of hostile takeover attempts (“Chamber President Criticizes New Law on Bankruptcies,” *RIA Novosti*, 24 February 2004. Retrieved 1 September 2005 from <http://en.rian.ru/business/20040224/39908532.html>).

⁴⁵ “60% jobs saved during bankruptcy procedures last year,” *RIA Novosti*, 24 February 2004, (retrieved from <http://en.rian.ru/onlinenews/20040224/39908545.html>). “Changes to Bankruptcy Law Backed,” *The Moscow Times*, 21 January 2005, p. 5 (retrieved 7 March 2006, from <http://www.themoscowtimes.com/stories/2005/01/21/043.html>).

⁴⁶ Information in the press indicates that still by the beginning of 2006 many harvesting enterprises in Arkhangelsk Oblast are bankrupt or on the verge of bankruptcy (cf., for instance, “Lespromkhozy Arkhangel'skoi oblasti nakhodiatsia na stadii bankrotstva” (Harvesting enterprises in Arkhangelsk Oblast are in a stage of bankruptcy), *REGNUM Informatsionnoe agentstvo*, 12 April 2006 (retrieved on 31 May 2006 from <http://www.regnum.ru/news/622405.html>).

⁴⁷ “305 predpriatii Arkhangel'skoi oblasti i Nenetskogo AO—v protsedure bankrotstva” (305 enterprises in Arkhangelsk Oblast and the Nenets Autonomous Okrug are in the process of bankruptcy), *REGNUM Informatsionnoe agentstvo*, 10 March 2006 (retrieved 31 May 2006, from <http://www.regnum.ru/news/603714.html>).

⁴⁸ The three holdings were GK Solombal'skii LDK and Lesozavod No. 3, GK Titan, and PLO Onegales (cf. Section 4.2). The numbers were given in “Administratsia Arkhangel'skoi oblasti pytaetsia vozdeistvovat' na predprinimatelei” (The Administration of Arkhangelsk Oblast tries to influence the businessmen), *REGNUM Informatsionnoe agentstvo*, 15 February 2005 (retrieved 31 May 2006 from <http://www.regnum.ru/news/407538.html>). The total of 618 million rubles of unpaid taxes withheld as a consequence of intentional bankruptcies among enterprises belonging to these three holdings roughly corresponds to 10 percent of the 2004 regional budget income generated in the oblast, i.e., excluding federal transfers. (Budget figures for 2004 were retrieved on 1 June 2006, from http://www.dvinaland.ru/finance/bud_2005.asp?part=5).

5 Assessing the Market Adaptation of Fifteen Forest Enterprises in Arkhangelsk Oblast

In this section the information collected through two surveys conducted among representatives of 15 forest enterprises in Arkhangelsk Oblast will be analyzed. The first survey was made in the period April–November 1998 and comprised interviews with 25 forest enterprise representatives. In the second survey, made seven years later, in the period April–June 2005, interviews were conducted with representatives of 15 of the 25 forest enterprises that took part in the previous survey.⁴⁹

The 1998 survey allowed grouping the 25 Arkhangelsk forest enterprises into four categories depending upon their command of the two types of capital identified by the virtual economy theory (cf., Carlsson *et al.*, 2001; Olsson, 2004a).⁵⁰ In the selection of 15 of these 25 enterprises for the 2005 survey the aim was to include a proportional number of enterprises from each of the four categories, as well as enterprises representing different production profiles (such as forest management, harvesting, woodworking, pulp and paper). After suggesting suitable candidates for the 2005 survey based upon the considerations just mentioned, it turned out that it was only possible to get access to 10 of our 15 “first choice” enterprises, five enterprises, therefore, had to be selected from the remaining 10 “second choice” enterprises (reserves). By and large, the distribution of the 15 enterprises that were finally included in the 2005 survey met our predetermined requirements. The number of enterprises selected for each of the four categories roughly corresponded to the proportions in the 1998 survey, and the selected 15 enterprises represented the different production profiles of the forest sector with one notable exception—no pulp and paper enterprise could be selected since access was not permitted.⁵¹

A word of caution is in order before proceeding to the analysis of the survey. Since the selection of the comparatively small number of enterprises that took part in the two surveys in Arkhangelsk does not meet the requirements for a proper statistical sampling, the results of the analysis can only serve as an illustration of some of the tendencies discussed earlier in this report. Getting access to representatives of individual enterprises is a crucial problem when conducting a survey investigation in Russia.

⁴⁹ The two surveys in Arkhangelsk Oblast were both made by a resident Russian scholar, Dr. Mikhail Yu. Varakin of the Arkhangelsk State Technical University. The interviews were based on a questionnaire originally constructed by a group of researchers at the International Institute for Applied Systems Analysis (IIASA) for a survey of some 220 forest enterprise representatives in eight Russian regions conducted in the period 1998–1999. The questionnaire form was further elaborated by the current author before the 2005 round of interviews in Arkhangelsk. (An English version of the questionnaire is reproduced in Appendix A.)

⁵⁰ For more details on the two types of capital (*d* “distance reducing capital” and *r* “relational capital”) identified by the virtual economy theory, see Section 2 and the discussion in Section 5.1. The four categories comprised enterprises with, respectively, (a) short *d* “distance to the market”/low *r* “relational capital”; (b) short *d*/high *r*; (c) long *d*/high *r*; and (d) long *d*/low *r*. (From a market economic point of view, enterprises belonging to category (a) could be considered in command of the most favorable and those in category (d) the least favorable capital mix.)

⁵¹ Looking at the ten enterprises that took part in the 1998 survey but were *not* in the end selected for the 2005 survey, it could be noted that (a) two enterprises no longer existed in 2005 (due to liquidation); (b) one was the pulp and paper mill not permitting access, one was a forest management company (*leskhoz*), three were harvesting companies, and three were woodworking enterprises (two sawmills and one furniture producer). In terms of *r* and *d* capital combination in 1998 (the four categories mentioned in the previous footnote) 3 of the 10 enterprises not included in the 2005 survey belonged to group a, 1 to group b, 4 to group c, and 2 to group d.

The result of the 1998 survey of 25 forest enterprise representatives in Arkhangelsk Oblast was reported in Carlsson *et al.* (1999). An analysis of all surveys conducted in the eight Russian regions was reported in Carlsson *et al.* (2001). The following discussion takes its departure in both these earlier reports. The purpose of the present analysis based on both rounds of interviews is to assess whether or not in the last seven years the behavior of these enterprises has become more adapted to the requirements of a market economy. In other words, do these enterprises display a more market efficient behavior today compared to what they did in 1998? Are they, as we hypothesized initially, actually leaving the virtual economy to be increasingly guided by the rules governing business behavior in a market economy?

5.1 Investment Behavior Among Fifteen Forest Enterprises in Arkhangelsk

In their elaboration of the virtual economy theory, Gaddy and Ickes (2002)⁵² distinguished two kinds of investment behavior pursued by business managers in Russia during transition. Managers tend to favor one kind over the other depending upon previous investment behavior and the estimated net benefits of their available investment options. In general, a Russian firm can either invest in capital that will contribute to making the enterprise more market competitive (reducing its “distance” to the market), or it may invest in so-called relational capital that will help the enterprise to survive despite its market inefficiency. Examples of the former kind of capital (that Gaddy and Ickes call “*d*” for “distance reducing”) are modern production equipment or skills that are required to make production more efficient. By relational capital (labeled “*r*” by Gaddy and Ickes) is meant measures that will improve the enterprise’s relations with public authority officials, the purpose being to obtain various kinds of future benefits.⁵³ In practice, enterprises will invest in both kinds of capital, but the relation between the two kinds will differ, with some enterprises favoring *d* over *r* and vice versa. In the Russian virtual economy, investments in relational capital (*r*) are typically pursued at the expense of investments in modern production capital (*d*). In a well-functioning market economy the opposite behavior predominates. Consequently, investments in *d* should have highest priority for a Russian enterprise striving to leave the virtual economy to engage instead in normal market operations.

Enterprises could be characterized by their command of distance reducing (*d*) and relational capital (*r*). Thus, in principle, a group of enterprises could be compared by the “amount” of *d* and *r* capital at their command. Plotting their command of *r* against their command of *d* in a two-dimensional diagram (“*r-d* space”) would produce a visual image of the degree to which various enterprises are engaged in the virtual economy.

In the synthesizing report from the 1998/99 survey investigation of forest enterprise behavior in eight Russian regions an attempt was made to produce such a diagram (see Carlsson *et al.*, 2001). Through a crude analysis of enterprise representatives’ answers to a number of survey questions it was possible to “measure” their propensity to invest in either *r* and/or *d* capital. The resulting diagram might be said to show the degree to which the virtual economy dominated the Russian forest sector in the eight regions taking part in the survey.

By going back, in 2005, to 15 of the 25 forest enterprises in Arkhangelsk Oblast that took part in the previous IIASA survey of 1998/99 and comparing the answers given on the two

⁵² For more details on the virtual economy theory, see references listed in footnote 4.

⁵³ The notion of distance reducing capital and relational capital is discussed in some detail in Chapter 4 of Gaddy and Ickes (2002).

occasions by the representatives of the same 15 enterprises it is possible to construct a diagram showing how the positions of the respective enterprises in the $r-d$ space have changed in the last seven years.

The measures used to place the respective enterprises in the $r-d$ space were estimated through a very simple (unweighted) addition of the “yes answers” to the 20 question listed in Table 2. The same 20 questions were used for the assessment on both survey occasions. It could be noted that the questions used for the assessment intentionally try to capture some (limited) aspects of firms’ actual behavior as well as some (limited) aspects of their managers’ attitudes (or “mental models”), which are of great importance for forming the rationale for managers’ decisions to comply (or not to comply) with the existing system of rules governing business behavior and which ultimately play an important role for institutional change (North, 2005).

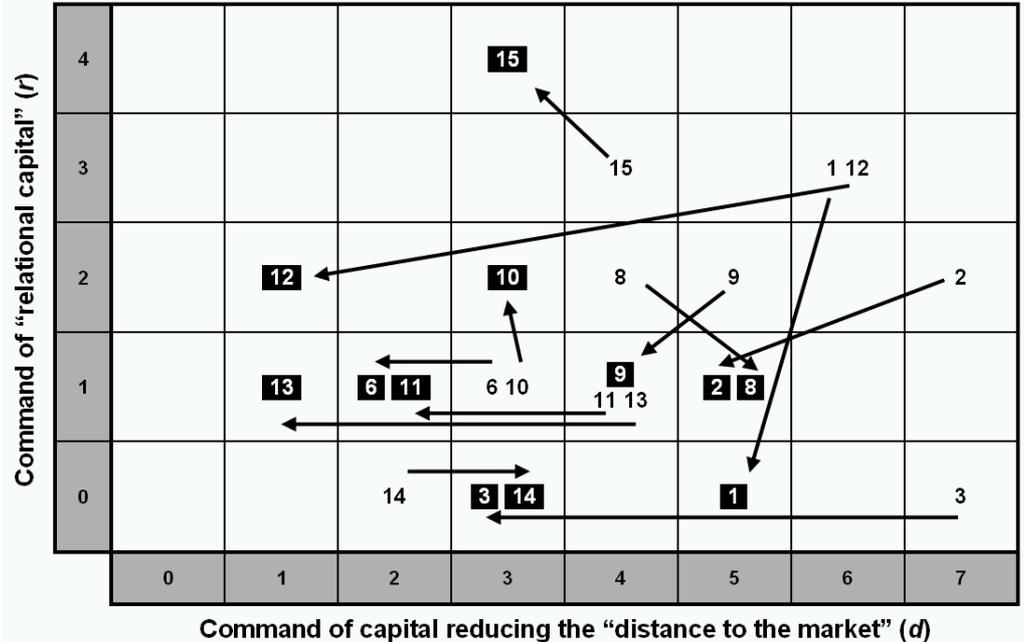
Table 2: Questions used to assess the investment behavior of 15 forest enterprises in Arkhangelsk Oblast in 1998 and 2005.

Relational Capital Orientation
1. Uses barter in buying arrangements
2. Uses barter in selling arrangements
3. Negotiates but does nothing more to enforce broken buying agreements
4. Negotiates but does nothing more to enforce broken selling agreements
5. Has (multiple) social responsibilities
6. Claims lack of privileges to be the most binding restriction for operating the firm
7. Calls for privileges for the company in question concerning important forest policy changes
8. Wants to become public again after being privatized or calls for ‘state coordination’, i.e., a state command economy to be reintroduced in the forest sector
9. Increasing employment while decreasing productivity
10. Increasing production while decreasing productivity
Market Orientation (market distance reducers)
1. Invests in equipment, buildings or education of the workforce
2. Has bank relations on the buying side
3. Has bank relations on the selling side
4. Is not involved in barter on the buying side
5. Is not involved in barter on the selling side
6. Uses arbitration courts to enforce broken buying and/or selling contracts
7. Regards workforce discipline and lack of entrepreneurial tradition and/or business ethics as important obstacles for operating the firm
8. Identifies poor workforce skill as an important binding restriction for the firm
9. Calls for efficient business legislation enforcement as a necessary change in policy in the forest sector
10. Operates with constant or increasing productivity

Plotting the sum of positive answers to the two sets of questions listed in Table 2 gives every enterprise a unique position in the r - d space. The positions in 1998 and in 2005 for 12 of the 15 surveyed enterprises are plotted in Figure 13. (Three forest management enterprises—*leskhoz*y—were dropped from the set, since they are public authorities and as such are not allowed to perform commercial operations in the Russian economy.)

An enterprise located towards the lower left corner of the diagram would indicate a highly market relevant investment behavior relying on capital that promotes market efficiency (d) without making (much) use of relational capital (r). An enterprise found far out towards the upper right corner of the diagram would indicate a behavior favoring relational capital and avoiding a restructuring of production activities to become more market efficient—a behavior largely guided by the institutional set-up characterizing the virtual economy.

The general impression that is conveyed by the plot in Figure 13 is that the 12 Arkhangelsk forest enterprises have indeed reduced their “distance to the market” in the seven year period since 1998. Many of them have also simultaneously reduced their investments in relational capital.



Note: Numbers in the plot refer to the individual enterprises that took part in our survey in 1998 and 2005. (For 2005 enterprises have been marked white text in black squares). Three *leskhoz*y have been excluded, since they are, in principle, a public authority.

Figure 13: Twelve forest enterprises in Arkhangelsk Oblast: Change of position in the r - d space 1998–2005.

In order to understand what distinguishes enterprises that display a faster adaptation to the requirements of a market economy from those that remain entrenched in the Russian virtual economy it might be useful to compare the enterprises that have improved their positions the most in the r - d space depicted in Figure 13 with those that have remained in an unfavorable position throughout the period of investigation. This is the focus of the next section. In subsequent sections focus will be shifted to the behavior of the 15 forest enterprises in our two Arkhangelsk surveys and how it relates to the picture that emerged from the previous analysis (in Section 4) of the indicators by which the virtual economy might be assessed.

But first it might be useful to take a brief look at Table 3 that summarizes some basic characteristics of the 15 Arkhangelsk forest enterprises that took part in our two surveys.

Table 3: Basic characterization of the 15 surveyed Arkhangelsk forest enterprises.

Period of Establishment	1881–1931	1943–1948	1964–1972	1985–1991	Total
Number of enterprises in the survey of which:	4	3	3	5	15
Size:					
Large (> 343 employees)	3	2	1	0	6
Medium (55-342)	1	1	0	4	6
Small (< 55)	0	0	2	1	3
Ownership:					
State owned	0	2	1	1	4
Old public—privatized	4	1	2	3	10
New private	0	0	0	1	1
Joint venture	1	0	0	1	2
Type of activity:					
Forest management (<i>leskhoz</i>)	0	1	0	1	2
Forest management/harvesting/sawmilling	0	0	1	0	1 ^a
Harvesting	0	2	1	2	5
Sawmilling/Processing	4	0	1	1	6
Harvesting/Sawmilling	0	0	0	1	1

^a This is an agricultural *leskhoz*, a forest management unit sorting under the Ministry of Agriculture. (Agricultural *leskhoz*y are allowed to perform certain operations in the market.)

The table shows that the largest enterprises in our survey were also the oldest—one established already in the late 19th century—and they were all sawmills or wood processing enterprises. All of them were privatized and one is today a joint venture. Four of the 15 enterprises in our group are state owned (three of them are forest management enterprises, *leskhoz*y, and one is an old harvesting enterprise). There is only one new private enterprise in the group. In terms of type of activity we find five harvesting companies (*lespromkhoz*y), six sawmilling/processing, and one harvesting/sawmilling company in the surveyed group. It could be noted that there is no pulp and paper company among the 15 enterprises in our group.⁵⁴

Figure 14 illustrates some aspects of the structural and behavioral changes that have taken place among the surveyed forest enterprises in Arkhangelsk Oblast in the seven year period since 1998. The general picture conveyed in the figure supports the impression given in Figure 13 showing enterprises' changed positions in the *r-d* space. The number of surveyed enterprises displaying a market oriented behavior has increased between 1998 and 2005. However, the figure also reveals some seemingly contradictory evidence. So, for instance, it

⁵⁴ Two pulp and paper enterprises took part in our 1998 survey. In the 2005 survey, it was not possible to gain access to any such enterprise at all.

could be noticed that the number of joint ventures decreased, as did the number of enterprises that made investments. The number of enterprises that exported part of their production was the same in 2005 as in 1998.

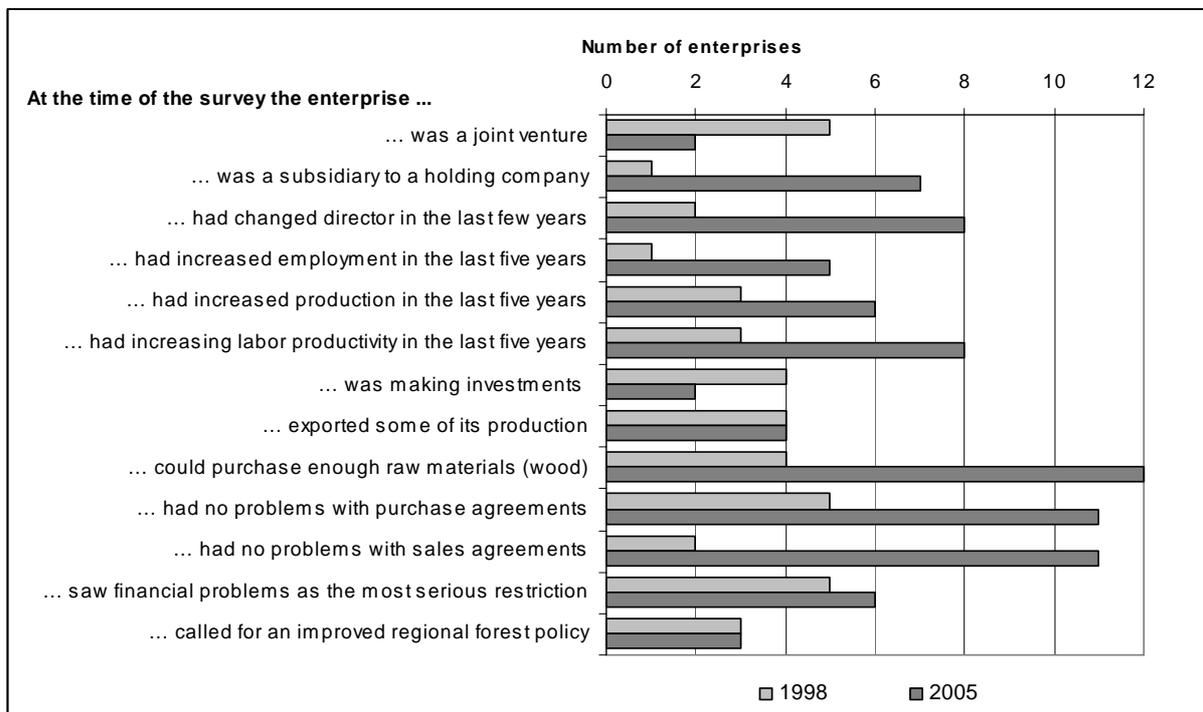


Figure 14: Some results of the surveys made among representatives of forest enterprises in Arkhangelsk Oblast in 1998 and 2005.

5.2 Characterizing Enterprises Displaying a Strong vs. Enterprises Displaying a Weak Market Adaptation in the Period 1998–2005

In order to identify features of importance for an enterprise’s adaptation to a more market efficient behavior it should be useful to compare what characterizes an enterprise that has moved farthest away in the $r-d$ space from an unfavorable to a favorable position in the period 1998–2005. In Figure 13, two or three such enterprises can easily be found. The most obvious case is Enterprise no. 12 that moved (in both the r and d dimensions) from the “worst” position to one of the best. Another possible candidate is Enterprise no. 13 that moved (in the d dimension only) from a middle position in 1998 to the best position in 2005. The third candidate would be Enterprise no. 3 that moved (also in the d dimension only) from a very bad position to a middle position.

Many of the questions posed in the two rounds of surveys aimed at finding out how the enterprises behaved when confronted with an issue of importance for its market competitiveness. By comparing the answers to 23 questions offered by the respondents representing the three enterprises that improved their positions in $r-d$ space the most between 1998 and 2005 (Enterprises no. 12, 13, and 3) with the three that remained in a comparatively unfavorable position also at the end of the period (Enterprises no. 15, 2, and 1) we can identify a number of features that characterize a Russian forest enterprise capable of adapting to the demands of a market economy.

Let us first compare the answers to these 23 questions given by Enterprise no. 12—the enterprise that improved its position in the $r-d$ space most dramatically from one of the least favorable positions (in the market sense) in 1998 to one of the most favorable in 2005—with the answers given by Enterprise no. 15—an enterprise that was in a comparatively unfavorable position in 1998 and moved to an even more unfavorable position in 2005. Assessing the answers given to the questions as either positive or negative from a market economic point of view it was found that, in 1998, when both enterprises were in an unfavorable position, the two enterprises gave “market positive” answers to merely 7 and 8 of the 23 questions, respectively. In 2005, Enterprise 12 displaying the most positive improvement of position in the $r-d$ space gave “market positive” answers to 19 of the same 23 questions (an increase by 2.7 times), while Enterprise no. 15 remaining in a highly unfavorable position in the $r-d$ space, gave “market positive” answers only to 12 questions (an increase of 1.5 times).

A comparison of the three enterprises having improved their position in the $r-d$ space the most (“market adapting” or “MA” enterprises) with the three that remained in an unfavorable position (“non-adapting” or “NMA” enterprises) indicates that MA enterprises are privately owned, have passed the stage of “insider ownership” and are owned by “other companies or juridical persons,” have changed their managements in recent years, make capital investments, and use long-term contracts when acquiring raw material (timber).

In 2005, no significant differences between the three MA and the three NMA enterprises could be observed with regard to exports (none of the six enterprises sold products to foreign customers), social responsibilities (most of them had such responsibilities), use of bank credits (none used bank credits), use of other bank services (all used banks for payments), input procurement (all could acquire enough raw materials for their production), and violations of sales agreements (none reported having such problems).

In the next section the behavior of the 15 Arkhangelsk forest enterprises, as it is captured by the answers provided by the respondents to our surveys in 1999 and 2005, will be compared with the picture that emerged from the previous analysis of the structural and behavioral indicators (cf. Section 4).

5.3 The Forest Enterprises in Our Survey Illustrate Recent Tendencies in the Development of Russia’s Market Economy

In this section we will see to what extent the behavior of the 15 Arkhangelsk forest enterprises that took part in our surveys in 1998 and 2005 conforms to what could be expected on the basis of the previous analysis of the current status of the emerging Russian market economy (cf. Section 4). The following features will be discussed: (1) enterprise structure, (2) production orientation, (3) investments and bank relations, (4) exports, (5) input and output situation, (6) employment and productivity, (7) payment arrangements, (8) violation of transaction agreements, and (9) social responsibilities.

(1) Enterprise structure. The structural changes that could be observed among the 15 Arkhangelsk forest enterprises taking part in our surveys deserve closer attention.

First we could note that the one enterprise in our survey remaining privately owned throughout the period of our investigation (1998–2005) was a small previously state owned enterprise [1] engaged for some years in timber processing but resuming again harvesting as

its main activity after 2000. As can be seen in Figure 13 this enterprise significantly reduced its dependence upon relational capital (r) in the seven year period after 1998. While in 1998, six of our 15 enterprises were (partly) owned by “insiders” (managers and/or employees); in 2005 this number was down to two. In 1998, only one enterprise [2] was owned by one or several “companies/juridical persons” (which could be considered the most “advanced” form of ownership from a market economic point of view). In 2005, there were six such enterprises [6, 8, 9, 11, 12, 13], all of them subsidiaries to holding companies.

As previous studies have shown (cf., for instance, Carlsson *et al.*, 2001), forest enterprises with some foreign ownership share (joint ventures) are more likely to invest in their production than purely Russian owned enterprises. Among the Arkhangelsk forest enterprises that were surveyed in 1998 there were five joint ventures [2, 9, 11, 12, 14]. In the recent 2005 survey only two of these enterprises remained joint ventures [2, 14]. Three of these previous joint ventures [9, 11, 12] had by 2005 been incorporated into holding companies. It can be noticed that the increased dominance of holding companies (or FIGs—financial-industrial groups) in the Russian economy (cf. Section 4) is reflected in the fact that while there was only one of the enterprises [10] in our 1998 survey that belonged to a holding company, by 2005 as many as seven of our 15 surveyed enterprises belonged to such a company. Two of these enterprises [12, 13], both harvesting companies (*lespromkhoz*y), were reregistered after bankruptcy some years back. In the process, both enterprises were taken over by a holding company led by another enterprise in our survey [10]. A fourth enterprise [6] in our survey, a sawmill, also belongs to the same holding. In the Arkhangelsk media the group of enterprises brought together in this holding company goes under the name “Solombala LDK and Forest Factory No. 3.” Two of the three remaining subsidiaries that took part in our survey [9, 11] belong to ArcticLes (which is part of FIG Arctic Technologies). The third holding subsidiary [8] belongs to a group locally known as “Severo-Zapad,” which is a management company working for Basoviy element (belonging to SibAl).⁵⁵

Becoming a subsidiary to a holding company might entail substantial benefits for an enterprise (Tushunov, 2005). In Figure 13, we can clearly see how five of the seven enterprises belonging to a holding company [6, 9, 11, 12, 13] improved their market competitiveness (moved towards the lower left corner in the r – d space diagram) in the period 1998–2005. One enterprise [8] reduced its dependence on relational capital (r), but somewhat increased its distance to the market (d). Another enterprise [10], itself a leading company in one of the holding groups, did not decrease its d , but curiously seems to have slightly increased its r . This is a comparatively large enterprise and as such it is more likely to have better access to relational capital, and be more prone and able to use non-market solutions to various problems it has to face (cf. Carlsson *et al.*, 2001).

Turning now to a review of the behavior of our surveyed enterprises with respect to (some of) the behavioral indicators that were discussed in Section 4, we will keep track of the seven holding subsidiaries to see if we can discern any differences in the behavior of these enterprises compared to the other enterprises in our survey.

(2) Production orientation. First, we can note that only two of our 15 enterprises [1, 2] changed their production orientation in the period 1998–2005. For the first of the two

⁵⁵ It is difficult to disentangle the ownership relations between holding companies and their subsidiaries. Ownership relations are still highly non-transparent in Russia. The information about ownership that enterprise representatives provided in our interviews was only sketchy. The World Bank has made an attempt to map out the ownership relations among the Russian FIGs (cf. footnotes 25 and 26).

enterprises the change meant a reduction of complexity (changing from lumber to round wood), for the second the change went in the opposite direction—from round wood to a mix of round wood and lumber.

(3) Investments and bank relations. Our 1999 survey (as reported in Carlsson *et al.*, 1999) indicated that merely seven of 25 enterprises (28 percent) invested to improve their production equipment. This low share was all the more surprising considering the fact that the efficient operation of most enterprises was hampered by an aging or obsolete capital stock. Since traditionally many enterprises were producing a limited number of products, there should also be a need for investments in order to enable a more diversified production, making enterprises more market competitive.

Only one of the seven firms that did invest in their businesses in 1999 financed its investments through bank loans. Typically, the firms making investments funded their investments themselves. In general, as revealed in our 1999 survey, only around 20 percent of the Arkhangelsk forest firms had any relations with the banking system. The lack of bank relations was said to depend upon security and trust problems.⁵⁶

Looking at the enterprises in our 2005 survey we saw already in Figure 14 that actually more of these 15 enterprises invested in their operations in 1998 than in 2005. While four of the 15 enterprises [8, 10, 11, 14] made investments in 1998, there were only three (different) investors in 2005 [7, 12, 13], one of which [7] was a *leskhoz*. (The two holding subsidiaries [12, 13] attribute their investments to the holding company to which they belong. Investments were made in new technology and the construction of forest roads and they contributed to a substantial production increase.) None of the enterprises that invested in their business in 1999 and 2005 used loans from Russian banks to finance their investments. (In 1998, one of the 15 enterprises—two in 2005—used banks for short term business credits.) However, almost all of our 15 enterprises report having some relations to banks on both survey occasions.

(4) Exports. It could be expected that enterprises displaying a market oriented behavior would also sell (part of) their production abroad. Looking at our survey data we find, however, that the same three of our 15 Arkhangelsk forest enterprises [2, 10, 11] on both survey occasions reported selling some of their production on export. One of these enterprises [2] was a joint venture, one [10] has been a part of a holding company during the whole investigated period, and the third [11] was a joint venture in 1998, subsequently bought by a holding group.

(5) Input and output situation. In our 1999 survey about 60 percent of the Arkhangelsk forest enterprises reported a shortage of wood for processing, a somewhat surprising number, considering the fact that the region is a major player in the Russian forest sector. Raw material supply should really not be a problem. (The situation seemed more aggravated in Arkhangelsk compared with the other regions that took part in our survey.) Two thirds of the companies experiencing a shortage of wood stated lack of financial resources as the major reason for their problems. The situation was seen as an indication of a serious dysfunction in the Arkhangelsk forest sector.

Excluding the three *leskhoz*y and looking at the 12 forest enterprises that took part in both our surveys, we find that, while eight of them were hampered by a shortage of raw materials in 1999, none had such problems in 2005.

⁵⁶ For comparison it could be mentioned that 85 percent of the 24 northern Swedish forest firms in our 1999 survey invested in their businesses. Almost 80 percent of the Swedish forest firms had good relations with banks.

As for output development, we can note that nine of the 12 enterprise reported a more or less dramatic production decrease for the period 1993–1998, while only three of the 11 enterprises that disclosed their production volumes had decreased their production in the period 1998–2005. The remaining eight enterprises all reported constant or increasing production volumes. (Of the seven holding subsidiaries, two [8, 10] reported a constant or moderately decreasing production volume, while three [6, 9, 13] reported dramatically increased production volumes in the period 1998–2005.)

(6) Employment and productivity. Despite some uncertainty in the data—Russian enterprises are (still) reluctant to disclose exact information about production and employment changes—we find that the relation between employment and productivity observed for the period 1998–2005 indicates a more market efficient behavior for twelve of our fifteen Arkhangelsk forest enterprises, compared to the behavior observed for the previous period 1993–1998. In the earlier period, nine enterprises operated with a decreasing staff as well as a decreasing productivity—only three enterprises [3, 8, 12] increased their productivity while simultaneously decreasing their employment. In the later period (1998–2005), as many as six enterprises decreased their employment while at the same time increasing their productivity, which represents a behavior that might be expected for many enterprises operating in a mature market economy. Three enterprises [1, 9, 11] managed to increase their productivity while at the same time increasing their employment. In a mature market economy this would represent a behavior typical for a rapidly expanding company (see Figure 15). (We can also note that four of the six enterprises that increased their productivity while decreasing their employment [6, 8, 12, 13] were subsidiaries to holding companies.)

EMPLOYMENT		1993–1998		PRODUCTIVITY					
				Increase			Decrease		
				%	> 25	+	-	> -25	
Increase	> 25							9	
	+								
Decrease	-			8,12		11		[10],13,15	
	> -25	3						1,2,6,14	

EMPLOYMENT		1998–2005		PRODUCTIVITY					
				Increase			Decrease		
				%	> 25	+	-	> -25	
Increase	> 25	1,[9]						[11]	
	+							[10]	
Decrease	-			[6],[12],[13]		[8]		15	
	> -25	3				2			

Figure 15: Employment and productivity change for the 15 surveyed Arkhangelsk forest enterprises 1993–1998 and 1998–2005. (Based on data obtained through our surveys.)

(7) Payment arrangements. The 1998 survey (cf. Carlsson *et al.*, 1999) also revealed that around 50 percent of the 25 forest firms in Arkhangelsk taking part in that study to some extent used barter trade when selling their produce. Similar shares were found in all the eight regions in our study. (Other studies, such as Aukutsionek (1998) and Makarov and Kleiner (2000), have claimed the cash-less economy to be even larger.) There was also a serious problem with trust. For instance, in 1998, more than 75 percent of all forest enterprises in our

Arkhangelsk survey required their customers to pay for purchased goods before or upon delivery. Only two firms accepted payment after delivery.⁵⁷

Looking at the 15 of the same 25 Arkhangelsk forest enterprises that took part also in the 2005 survey we find that, in 1998, six of them used barter to some extent in their sales transactions, while merely one of them used it in connection with input purchases. In 2005, none of the 15 enterprises in the survey reports using barter in their purchase and sales transactions. Furthermore, none of our 15 enterprises reports using in-kind payments or off-sets to pay for their tax debts.

By 2005, all enterprises reported using banks for transferring payments in connection with their purchase as well as their sales transactions. Both in 1998 and in 2005, in general enterprises were required to make payments for purchases on or before delivery. Similarly, for their sales, most enterprises required payment from their customers on or before delivery, with practices differing somewhat more between the enterprises in 1998 (when barter featured more prominently) than in 2005.

(8) Violation of transaction agreements. As was indicated in Figure 14, in 1998, about half of our 15 surveyed enterprises reported having some problems (big or small) with violations of purchase and sales agreements. In 2005, only one enterprise reported having such problems. The practice of using written contracts for regulating purchase transactions increased significantly during the period of investigation. In 1998, seven of our 15 enterprises used signed contracts for these transactions. In 2005, eleven enterprises used such a procedure. (Contracts seem to have been used throughout the period by most enterprises to regulate their sales transactions.)

(9) Social responsibilities. In 1998, the wide use of non-monetary based transactions reported among the Arkhangelsk forest enterprises was also reflected in the fact that around 50 percent of the firms provided social services for their employees—typically they provided consumer goods, child care and schooling (Carlsson *et al.*, 1999). It was assumed that such provision of communal services was often “paid for” by the local municipalities through tax exemptions or tax reductions.

Looking at respondents’ answers in our 2005 survey we find that the practice of providing social services for employees is still prominent among the 15 Arkhangelsk forest enterprises. In fact, the number of enterprises in our survey that did not provide any such services decreased from nine enterprises in 1998 to seven in 2005. In 1998, the services provided by the enterprises were mostly related to procurement of consumer goods and health care. By 2005, in addition, housing as well as child care and schooling were also mentioned among the social responsibilities belonging to the surveyed enterprises. It is difficult not to believe that the enterprises would not be compensated in one way or another by the public authorities for the provision of these social services (for instance, in the form of tax off-sets).⁵⁸

⁵⁷ This is in sharp contrast to the practice among Swedish forest firms. Here, almost all firms accept payment up to 30 days after delivery.

⁵⁸ Gaddy and Ickes (2005) report, however, that there seems to be greater transparency lately concerning enterprises’ social spending. They mention two large oil companies (Lukoil and Sibneft) that have publicized their activities in this field. They now issue their own “annual social report,” which is, as the authors call it, “a public account of its informal taxes.” Thus, as of recently, enterprises seem to be looking for ways to capitalize on their good-will.

5.4 Managers' Attitudes to and Understanding of the Emerging Russian Market System

The survey contained four questions intended to capture managers' attitudes and ideas about solutions to various problems they perceived as hampering the efficient activity of their enterprises. (1) The first question sought to identify formal rules and regulations that managers perceived as obstacles to their enterprises' activities. (2) The second question gave the respondents an opportunity to list other problems they saw as obstacles for a successful business. (3) The third question aimed at identifying the single most binding restriction on the activity of the firm. (4) The fourth question, finally, asked managers to state what they would change in the Russian forest sector given the opportunity. The same questions were posed on both survey occasions, in 1998 and in 2005.

Let us briefly look at the answers given by the representatives of our 15 forest enterprises to each of these questions.

(1) Problems with formal rules and regulations. As could be expected, representatives of the three forest management enterprises (*leskhoz*) [4, 5, 7] that took part in our survey saw many problems related to the current Russian *forest legislation*. But five other enterprise representatives [1, 6, 10, 11, 12] also saw the forest legislation as a problem in 2005 (in 1999 only one of these enterprises [1] did so).

Taxation rules were also mentioned as causing problems by three respondents [4, 5, 7] in 1999, and by four [2, 4, 7, 8] in 2005. One enterprise [3] mentioned *enforcement of the existing business legislation*—and not the rules as such—as an important obstacle.

(2) Other problems considered obstacles for business. Among other problems that might present an obstacle for enterprises' business the dominating issue mentioned concerned *obsolete technology/lack of capital*. This was stated as a problem by eight of the 15 respondents in 1998 and by eleven in 2005. Two enterprise managers [1, 14] mention lack of *entrepreneurial tradition and management competence* as serious obstacles. One respondent [3] mentioned problems related to *product development and finding new markets* and another two enterprise representatives [8, 9] mentioned *current business practices* as a pertinent obstacle for a successful business.

(3) The single most binding restriction on operations. Judging from the answers to both our surveys the single most binding restriction on enterprises' activity was *lack of capital*, which was mentioned by the representatives of six enterprises [1, 2, 6, 7, 10, 15] in 1998. In 2005, all in all eight enterprise managers [1, 2, 6, 8, 10, 11, 12, 13] saw lack of capital as the single most binding restriction on their activity—the number includes two enterprises [2, 8] stating “technology” as their single most binding restriction, which might be regarded as essentially a problem with lack of capital. The tax legislation was mentioned by two respondents [8, 11] in 1998, while none of the 15 enterprise representatives mentioned tax legislation as the single most binding restriction on their activity in 2005. Two enterprise managers [3, 14] saw *finding a market* as the most binding restriction on their operations in 2005. *Lack of privilege or state support* was mentioned as the most binding restriction in 2005 by the representative of one enterprise [15], itself a state owned *lespromkhoz*.

(4) Changes required in the Russian forest sector. Stating, in 1998, what they would change in the Russian forest sector given the opportunity one enterprise representative [1] mentioned that he would prefer his enterprise to *become publicly owned* again. Three other respondents

[2, 9, 15] declared that they wanted to see a *better state coordination* of the forest sector. One enterprise representative [14] would like to *improve the forest legislation*, while another [10] would improve *law enforcement*.

In 2005, there were three enterprise representatives [9, 12, 15] calling for better state coordination, and four [2, 8, 11, 13] calling for improvements in the forest legislation. One respondent [3] called for improved *law enforcement*.

5.5 Arkhangelsk Forest Enterprises and Civil Society

In a situation where state authority is weak and rules governing business activity are being elaborated and constantly changed it could be claimed that society does not provide the services that economic actors need and are entitled to expect. In such a situation collective action by the enterprises themselves might prove instrumental. It would seem that enterprises should have much to gain from membership in various kinds of *business associations*.⁵⁹ However, our two surveys among 15 Arkhangelsk forest enterprises revealed that only very few—in 1998 one [10] and in 2005 two [6, 10]—enterprises were members of a business association. Some enterprises compared being a subsidiary to a holding company with being a member of a business organization. Clearly, there is still a certain reluctance among Russian firms to engage in non-governmental organizations, the reason perhaps being—as suggested by one respondent to our survey—that there is no suitable organization that might take on and do something about the problems facing enterprises in the forest sector.

Another way of trying to make society improve conditions for business life would be for enterprise owners and managers to engage in politics as elected members of a parliamentary congregation. In 2005, three of the 15 surveyed enterprises [1, 6, 10] had representatives who were members of an *elected parliamentary assembly*. Leading managers or members of the council of directors were members of a city/district council or the regional council (Duma). None of the respondents representing these enterprises explained why they had sought this membership and whether it had brought them any benefits or general improvements in the “social embedding” of the enterprises’ activities.

With the dismantling of the Soviet mode of production, where workers and managers were seen as having an equal and joint interest in the development of their enterprises, and the emergence of a Russian market economy, it would seem that various categories of enterprise employees should have much to gain from *trade union membership*. In our 2005 survey respondents were asked about how many of the enterprise’s employees were trade union members. Answers indicate a very high level of trade union membership—between 90 and 100 percent in 2000 as well as in 2005. Only three enterprises [1, 9, 14] did not have any employees who were trade union members. Eight respondents claim that interaction with trade unions has changed character in the last 15 years. More attention is nowadays paid to workers’ social problems and rights, much of which is regulated through collective agreements.

⁵⁹ In a recent article William Pyle (2006) discusses the economic logic of Russian business associations.

5.6 How to Improve Enterprises' Market Efficiency

In the 2005 survey respondents representing the 15 Arkhangelsk forest enterprises were faced with seven suggestions for improving their enterprises' market efficiency and asked to state the degree of importance they attributed to each one of these suggestions. It turned out that some of the suggestions found a generally lower support than others. So, for instance, there were very few of our 15 respondents who wanted to try to influence politics/politicians in order to create a better business environment. Actually only one enterprises [11] gave this proposal highest priority. Eleven enterprises did not find it important at all. The proposal to influence politics/politicians to acquire special privileges for the enterprise got even less support—almost all enterprises (14 out of 15)—thought this to be “not important.”

The proposal to improve the efficiency of production through investments in new technology got high support from ten enterprises, while four enterprises [5, 7, 9, 14] found the proposal not particularly interesting—two of these enterprises [5, 7] are *leskhozy*. (One could note that the agricultural *leskhoz* [4] found this proposal very interesting.)

Eight enterprises [2, 3, 4, 5, 6, 7, 10, 15] found the proposal to improve the efficiency of production through organizational changes to be very important. (Note that three enterprises [4, 5, 7] are *leskhozy*, forest management enterprises.)

A remarkably small share of the 15 surveyed enterprises, only three firms [3, 9, 14], thought that developing new products to allow entry into new markets was very important. The remaining twelve enterprises found this proposal uninteresting.

Five enterprises [10, 11, 12, 13, 15] found the proposal to improve work productivity through recruitment of new personnel with a modern education to be very interesting. However, eight enterprises [1, 2, 3, 5, 6, 7, 8, 9] found this proposal uninteresting.

Seven enterprises [2, 3, 4, 5, 7, 9, 11] found the proposal to improve work productivity through education of the existing personnel to be uninteresting. Another five respondents [1, 6, 8, 10, 15] were indifferent.

6 Assessment and Concluding Remarks

6.1 Result of the Assessment

Let us state the main result of our assessment right at the outset: Based on the analysis performed in the current report we cannot refute the hypothesis that the Russian economy is leaving the virtual economy and is increasingly functioning according to rules guiding business behavior in a market economy. However, this does not mean that the institutional set-up constituting the virtual economy has vanished altogether. On the contrary, several distinguishing traits of the virtual economy are still manifested in many walks of Russian economic life. But the main development tendency seems clear; the virtual economy is losing ground and will eventually disappear, even if it may influence economic behavior for a long time yet.

The reasoning underpinning this result is briefly summarized below. The development of the Russian virtual economy was examined with the help of a number of indicators describing structural as well as behavioral changes in the economy, on the federal, regional (Arkhangelsk

Oblast) and the enterprise level (Arkhangelsk forest sector enterprises). It was argued that the general development tendencies that could be observed ought to be similar at all three levels. This was also substantiated in the analysis of the selected indicators. In this section, therefore, no explicit distinction will be made between the various levels. The behavior of the Arkhangelsk forest enterprises revealed through our survey investigations of 1998 and 2005 will be compared with the general development depicted through the selected indicators.

6.1.1 *Indications of Increased Market Adaptation*

The rapid inflation following the disintegration of the Soviet Union in 1991 made Russian enterprises resort to non-monetary transactions. The demonetized share of the Russian economy grew to immense proportions, culminating in the second half of the 1990s. This development made enterprises' mutual transactions largely non-transparent to outsiders, be they other enterprises, representatives of public authorities or ordinary citizens. The non-transparency greatly facilitated the emergence and functioning of the virtual economy.

Towards the end of the 1990s inflation was curbed, which led to a remonetization of the economy establishing a price formation system based on perceived supply and demand that forced enterprises to adopt more transparent and predictable modes of transacting. Barter trade, for instance, seems to have been largely abandoned (a tendency that was clearly illustrated in our survey investigation of Arkhangelsk forest enterprises). This is probably the change in Russian society that has been—and still is—contributing the most to the ongoing dismantling of the virtual economy.

With the remonetized Russian economy wage and payment arrears also decreased. After the 1998 financial crisis Russian enterprises started to make capital investments. But investments (like production output) had decreased dramatically during the first half of the decade and towards the mid 2010s total investments in Russia were still only around 40 percent of their 1990 level. In the Arkhangelsk economy total investments had reached over 50 percent. However, the tendency is not equally clear for the Arkhangelsk forest sector. It could be noted that the number of forest enterprises in our Arkhangelsk survey that made investments actually declined between 1998 and 2005, the reason probably being that they still had idle capacity that could be used for increasing their production.

At the regional level the development of the Russian forest sector is hampered by insufficient investments in roads for transporting timber from (often remote) harvesting sites to more centrally located processing industries. Institutional hurdles preventing state support of such road investments are nowadays discussed and creative solutions seem to be under way.

The disintegration of the Soviet Union was followed by a rapid and practically all-encompassing privatization of state enterprises in Russia. When faced with an emerging strong competition a large part of the privatized enterprises were, however, forced to operate according to the informal rules defining the virtual economy. But privatization eventually also produced some desired effects in terms of improved corporate governance. Perhaps even more important was the fact that barriers, previously preventing the establishment of new enterprises, were dismantled resulting in a rapid growth of the number of enterprises. New small enterprises have come to play an ever more important role in the Russian economy. Today there is an increasing number of them, they tend to employ an increasing share of the workforce, and they invest and produce relatively more than larger enterprises. The increased number of enterprises means that most Russian citizens nowadays are in direct and frequent contact with private business (both as employees and as consumers) thereby acquiring an

understanding of the principles underlying the functioning of a market economy. Thus, they tend to discard the “mental models” that were produced by the previous command economy and they are increasingly developing an adequate understanding of the emerging market system. This is an important change contributing to the dismantling of the virtual economy.

The turbulence created by the transition in Russia leading to a deep economic crisis had, as it seems, basically no negative effect on education. The changes might have made life somewhat more difficult for old established educational institutions, but it stimulated the establishment of new institutions and forced the older ones to reorganize to better accommodate the demands raised by the new social order and meet a hardening competition on the “educational market.” Education is a powerful agent of social change and economic development. Throughout the transition student enrollments and graduations in Russia indicate that authorities and citizens alike continue to appreciate the value of higher education. The observed tendency constitutes support for the further development of the emerging Russian market system. The fact that the study of business administration (management) attracts an increasing interest is another sign of “market behavior” manifesting itself—previously enterprise managers were typically engineers rather than economists.

As could be expected, with the elimination of some of the features characterizing the virtual economy and the gradual introduction of an institutional set-up supporting a more efficient market behavior, production volumes once again started to grow in the second half of the 1990s. Capacity utilization increased. However, still ten years later output volumes had not (yet) reached their pre-transition levels. Employment followed much the same pattern, with initially decreasing and subsequently—after 1998—increasing employment rates. In combination with the fact that the Russian economy was also affected by structural changes—the private sector produced an increased share of total output, the service sector grew at the expense of industry, both labor productivity and incomes improved radically, etc.—the output and employment increases may be seen to indicate that Russian enterprises were gradually abandoning the virtual economy.

Fifteen Arkhangelsk Forest Sector Enterprises Revisited

Looking again at 15 of the 25 forest sector enterprises in Arkhangelsk Oblast that took part in our 1998 survey of forest enterprises, in eight Russian regions it was found that several features of the development during the last seven years indicate that the surveyed enterprises are indeed increasingly being guided by rules governing business behavior in a market economy. Following Gaddy and Ickes’ (2002) reasoning on Russian enterprises’ investment behavior that might favor measures intended either to make enterprises’ operations more market efficient (investing in capital that would reduce d , their “distance to the market”) or to improve their relations to the political power (increasing r , their “relational capital”) it was found that the general behavior among the 15 firms that were revisited in the new 2005 survey had changed since 1998 to increasingly favor investments in capital improving market efficiency (d).

The three enterprises in our survey that changed their command of d and r in the most favorable direction between 1998 and 2005—that is, the enterprises that favored investments in d at the expense of r thereby obtaining resources allowing them to act in a more market efficient way, could be distinguished from the three that kept a comparatively inefficient mix of d and r capital, through the following characteristics:

- None of the three most swiftly market adapting enterprises were state owned. They were instead private companies having passed the stage of insider ownership now mainly being owned by juridical persons.
- They invested in equipment and skills making their activities more market efficient.
- Their interactions with suppliers and customers had become more institutionalized (long-term contracts for purchases and sales, harvesting from leased lands) ensuring a secure input supply. This also reduced their problems with violations of business agreements.
- They had new managers appointed in the last few years.

Looking at all of the 15 Arkhangelsk forest sector enterprises that were revisited in 2005 we found several development tendencies indicating that they had changed their behavior to increasingly act in accordance with rules governing a market economy:

- Many enterprises had been incorporated into large holding companies.
- No one used barter trade any more.
- All had some relations to the banking system (typically using banks to arrange payments).
- While most enterprises had decreasing output volumes until around 1998, almost all of them increased their production after this year.
- More enterprises had increasing productivity and decreasing employment in the period 1998–2004 compared to the preceding five year period.
- While many enterprises reported problems with the implementation of business agreements in the period 1993–1998, almost no enterprise reported such problems in the period after 1998.
- In 1998, about half of the interviewed enterprises reported having problems with wood supply. No enterprise reported having such problems in 2005. Thus, market relations seem to have started making an impact resulting in the re-establishment of inter-enterprise delivery networks.
- As for managers' attitudes to and understanding of the emerging Russian market system, our interviews indicated that very few thought it important to try to influence politicians to improve conditions for business. Surprisingly few (less than 1/3) complained about the tax legislation and implementation. Two thirds stressed the importance of capital investments (noting the financial difficulties making actual investments insignificant) and the necessity to restructure enterprises' activities to become more efficient in the new market environment. All this indicates that managers have a rather good understanding of the requirements of the emerging market economy and are disposed to take efficiency improving measures given the opportunity.

6.1.2 Some Observed Tendencies That Are Difficult to Interpret

Some development tendencies that are more ambiguous to interpret should also be noted. While population characteristics are generally considered important for economic development, it is difficult to assess the relation between changes in various population variables and changes in the Russian virtual economy. The declining total population of Arkhangelsk Oblast might be the result of a number of factors. It is reasonable to assume, however, that the entire settlement pattern and the comparatively large population of

Arkhangelsk Oblast, which was a result of the deliberate development policies pursued during the Soviet era, would be affected by the dismantling of the command economy during the 1990s. It was argued above that an economic development guided by market principles would probably have led to a radically different settlement and population pattern in Russia. The decline in population numbers that could be witnessed in the 1990s might thus be seen as a result of the emerging market forces exerting their influence on resource allocation. But it might also be seen merely as a consequence of the general turmoil caused by the transition. Whatever the interpretation, we should note that the development of the economically dependent demographic variables (life expectancy, infant mortality, etc.) indicates that the economy of Arkhangelsk Oblast has not (yet) significantly improved to make a very positive impact on these variables. Compared with the situation in a modern market economy (like Sweden) it is obvious that the scope for improvements is still very high.

Institutions regulating enterprises' smooth and orderly entry into and exit from the market are extremely essential for the efficient functioning of a market economy. Market entry barriers seem to have been largely dismantled in Russia, but the rules governing market exit (close-downs, bankruptcies) are still not functioning well despite several revisions of the legislation on insolvency. The legislation is still being reformed, but, reportedly, much remains yet to be done before the legislation becomes efficient. Still many enterprises are able to survive despite the fact that they are unprofitable. Until quite recently (before the last upgrade of the bankruptcy legislation in 2002) unlawful behavior was common among larger, richer firms in their attempts at taking over less financially sustainable enterprises (so-called hostile takeovers). Reports have it that bribes, pressure on the local legislature, regional administration officials, etc., were quite common in these processes. A cautious assessment might be that the reformation of the bankruptcy legislation (if it continues according to current plans) will be contributing to the elimination of the Russian virtual economy, by (hopefully) increasing transparency of bankruptcy proceedings and ensuring law-abiding and fair regulation of the redistribution of property rights.

As indicated in our previous discussion, the Russian banking system has never been efficient in the market economic sense of providing financial services to enterprises. Banking in Russia always had other main objectives. However, the banking system is currently being reformed after the crises it went through in the late 1990s, the purpose being to make its services better able to support the development of Russian business life. The provision of efficient banking services is especially important for the further expansion of the SME sector that is considered crucial for the long-term development of the Russian market economy. There are signs that the Russian banking sector is slowly opening up allowing foreign banks to enter the market. This ongoing development will, if it is allowed to continue, bring in actors on the Russian banking market that will provide efficient financial services simultaneously bringing along a better risk assessment competence (which is still rare in Russia). Thus, the current development of the banking sector will no doubt contribute to the further dismantling of the Russian virtual economy.

Holding companies have come to play an increasing role in Russian business life in the last 5–10 years. The effects of this expansion on the virtual economy are, however, somewhat ambiguous. Through finance provided by the holdings their subsidiaries can invest more than other enterprises. At the same time management is largely “relieved” from the task of economic management and planning, a task that is instead reserved for the management of the holding company, a development that tends to maintain old mental models among the managers as well as employees of these subsidiaries. This prevents enterprise leaders from engaging in business management and tends to keep their focus on engineering rather than

economics. As one observer (Clarke, 2004) has noted, this development means in fact a reversal to Soviet management practices. This could of course not be said to further the dismantling of the Russian virtual economy.

Developments Among Our Fifteen Arkhangelsk Forest Sector Enterprises Illustrating This Ambiguity

Looking once again at the answers provided by the managers of 15 Arkhangelsk forest sector enterprises we find concrete illustrations of some of the ambiguities indicated above.

- Very few of our 15 enterprises made investments or exported some of their produce. Close to half of the interviewed enterprise representatives stated that obsolete technology (due to lack of capital) was the single most binding restriction on their activity. Increased investments and exports would have meant that financial markets were able to provide the necessary funding and that business relations were being expanded in response to demand emanating from beyond the regional borders. That would have indicated that normal market relations were being introduced and the development might then have constituted a clear-cut support for the hypothesis that the virtual economy was being dismantled.
- It could also be noted that surprisingly few of the interviewed Arkhangelsk managers (2 of 15) mentioned lack of entrepreneurial tradition and management competence as important problems for the development of their business. Product development and difficulties with finding new markets were recognized as a problem by merely one respondent in our 2005 survey. Two respondents mentioned problems with current business practices. More emphasis would probably have been laid on these problems if managers' old "mental models" had been discarded altogether and replaced by a more advanced understanding of the workings of a market economy.
- Very few enterprises reported belonging to a business association. Engaging in such associations would be useful in a situation where the state is unable to provide efficient business services (Pyle, 2006). A more widespread engagement in business associations could have been seen as an indication of a market adapted business behavior.

6.1.3 Remaining Problems

Finally, we should also note some features of current Russian business behavior that are hardly compatible with normal institutions governing behavior in a market economy, features that rather indicate that the rules governing behavior in the Russian virtual economy are still in effect.

The non-transparency characterizing the workings of the virtual economy efficiently hides much "murky business". We have already noted the unlawful behavior often displayed in bankruptcy proceedings where, for instance, an economically strong enterprise can force a company into bankruptcy by acquiring its debts and demand immediate payment, a behavior that sometimes is sanctioned by corrupt officials in the regional administrations or in arbitration courts. The powerful large financial industrial groups (led by the so-called oligarchs) have been accused of "bending the law" in the broadening of their operations and expansion into the regions of Russia. The development has been noted and certain measures

are under way to curb the unlawful maneuvering, but problems still seem to be quite pertinent.⁶⁰

At the root of much of these problems lies the inability of the state to fully guarantee property rights. Business owners who are threatened by hostile takeovers by a FIG have been forced to seek alliances with another FIG to defend its property rather than referring the conflict to the legal authorities of the state (Latynina, 2002; Kenneth, 2006).

The problem with insecure property rights is also a crucial factor behind the continued practice of non-transparent redistribution of natural resource rents. As was briefly noted above, Gaddy and Ickes (2005) have explained the principles of this redistribution practice by which inefficient and sometimes entirely unprofitable Russian enterprises are able to continue their activity without restructuring. While probably more of the rent distribution is transparent today than a few years ago, there is still a portion of it that remains non-transparent and officially unaccounted for. The practice of supporting inefficient enterprises helps to maintain the Russian virtual economy. It can be seen as a substitute for the direct transfers to enterprises distributed via the state budget during Soviet times. Today, the large natural resource extracting industries (oil and gas) in effect helps the state to avoid the potentially serious social problems that would arise if all of these inefficient enterprises—firms that are largely operating in the Russian virtual economy—were to be forced into bankruptcy all at once. They do this, so the authors maintain, in an effort to make their property rights more secure. The state “pays” for these services by not interfering in the operation of the “donor enterprises.” This is the rationale of the system, according to Gaddy and Ickes (2005).

Assuming that this analysis of the non-transparent redistribution of resource rents is accurate and that the practice is of the significance claimed by Gaddy and Ickes, the Russian virtual economy cannot be entirely eliminated, and a certain misallocation of resources will continue. In order to come to grips with this problem Gaddy and Ickes (and others, see for example Ahrend and Tompson, 2005; Ahrend, 2006) advocate a thorough reformation of the Russian energy sector.

6.2 Conclusion and Policy Implications

On the basis of the previous analysis we come to the following conclusion: In the last 7–8 years Russian enterprises have in fact been increasingly acting in accordance with institutions governing business behavior in a market economy. A tentative corollary of this development is that the virtual economy is gradually being dismantled.

This does not mean, however, that it is now time to entirely discard the notion of the virtual economy and its implications. As long as the non-transparent redistribution of resource rents continues, as Gaddy and Ickes (2005) have indicated, the virtual economy continues to exert a negative influence on resource allocation in the Russian economy. From a market efficiency point of view, resources continue to be sub-optimally allocated. This means that policies aiming at final elimination of the causes and effects of the virtual economy should have high

⁶⁰ Recent articles in the press report on these developments. See, for instance, “RUSSIA: Bankruptcy court still a case of “Russian Roulette”, *The Deal*, 15 November 2004 (available from the CorpWatch website at http://www.corpwatch.org/print_article.php?id=11684, retrieved on 3 March 2006); “More hostile takeovers for Russia,” *The Russia Journal*, 24 April 2006 (retrieved 1 September 2005, from <http://www.russiajournal.com/?p=9380>); Kenneth (2006).

priority. The fight for the complete dismantling of the virtual economy and, for that matter, for the final passing of the transition period in Russia, is still likely to last several years. How long it will take to reach a more mature stage of the market economy largely depends upon the public policies pursued.

From a strictly economic point of view there are ample good reasons to introduce efficiency improving policies. Clearly the turmoil created by the transition process has prevented foreign investors from heavily engaging in the Russian economy, despite potentially large and fast profits. Risks have simply been considered too high. Another reason for the low foreign interest is the fact that many Russian industrial enterprises being privatized in the early 1990s were in fact not viable in the emerging market environment. As elaborated above, this has to do with the peculiar structure and geographical location pattern of the industry that was an outcome of the operation of the Soviet command economy. Foreign investors who nevertheless entered the Russian market were often met with fierce resistance from domestic actors using their political clout to prevent foreign capital to gain access and make a significant impact. This “isolationist” behavior was made possible through the dominance of the virtual economy, with its characteristic alliance between economic and political actors, who had too much to lose with the introduction of proper market economic principles to guide actors’ behavior.⁶¹

This also means, as pointed out by Gaddy and Ickes (2002), that incentives for Russian policymakers to work for the reformation of the system and a definitive dismantling of the virtual economy are ambiguous, since by advocating necessary reforms they do not only risk losing their influence over the economy, but also to become unpopular among Russian citizens/voters who realize that they will be forced to cope with the (frictional) problems that are likely to be an (unintended) consequence of the reform measures taken. The declared intentions and the actual policy decisions taken by the highest political authorities, in particular the Duma and the President, are therefore of great importance for the continued reformation of the Russian economy. However, even with a clear commitment from the highest authorities, the reformation process aiming at the ultimate elimination of the Russian virtual economy may take considerable time. The resistance to reform can be expected to be strong among many actors in the Russian economy, especially among owners and managers of enterprises still operating in the virtual economy. It is therefore difficult to estimate the time it will take for the Russian virtual economy to be definitely dismantled.

However, considering the kind of change that is necessary for achieving this goal it is obvious that a fairly long time—several years, perhaps even decades—will be required. While actors’ behavior might in principle change rather fast, the basic underlying structural problems that have to be solved for the Russian economy to attain market efficiency will require a long time to cope with, irrespective of the speed by which necessary institutional changes are introduced. At the bottom of the problem lies the existing production structure (the production orientation as well as its geographical location) inherited from the Soviet era. As noted above (cf. Section 2.1), the current production structure is badly compatible with the efficient functioning of a market economy. The geographical location of industry resulting from Soviet investment policy is highly suboptimal in a market economic perspective. There are in Russia today many very large enterprises located in the vicinity of a natural resource deposit often in

⁶¹ In an “update for investors” Gaddy *et al.* (2000) advised potential foreign investors to make special considerations when assessing risks and potential profits associated with investments in Russian enterprises so much under the influence of the institutions characterizing the virtual economy.

remote and sparsely populated areas. These enterprises tend to be highly undiversified (focusing on the extraction of a specific natural resource) and they are often the major employer in the communities where they are located. In fact the resource deposit may well be the sole reason for the establishment of the enterprise and the whole community (so-called “town-forming” enterprises).

With the introduction of market economic principles to guide business investment behavior in Russia a tremendous pressure will emerge for changing the existing suboptimal economic structure (both in terms of its geographical location and production orientation). Changes in this structure occur partly as a result of a process of self-organization in the economy, and partly as a result of public intervention. Both processes are amenable to policymaking aimed at modifying existing and/or introducing new institutions (rules-in-use) to govern the behavior of economic actors. On the one hand, policies should be developed with the purpose of facilitating (smoothing) the self-organization of the Russian economy to make it better adapted to meet the demands of an efficient market system. These would be policies introducing improved institutions – institutions that are adequate for the efficient functioning of a market economy—to guide business behavior. On the other hand, more direct (public/state) interventions are probably also necessary to facilitate, stimulate or even to force necessary changes in the Russian economic structure. Such changes might include the allocation of budget resources for the closing down of old or opening up of new production establishments, improving various aspects of the infrastructure, etc. These interventions should also preferably be prescribed by well-elaborated policies. In this context, institutional change might entail the introduction of efficient rules to guide the elaboration of such intervention policies.

The discussion in this and previous reports from the IIASA study of institutional hurdles hampering the development of an efficient market economy in the Russian forest sector (cf., for instance, Carlsson, 2000; Carlsson *et al.*, 2001; Olsson, 2004b; Nilsson, 2005; Olsson, 2006) has many possible policy implications, some of which were already listed in Section 2.3.

In conclusion, the following policy recommendations pertaining to the improved functioning of the Russian economy at large should be especially emphasized.

Policies facilitating (smoothing) the self-organization of the economy:

- Enterprise ownership should be made more transparent. Property rights should be made more secure. This fundamental task is basically the responsibility of the federal government, something that can be achieved through changes in formal institutions (various legislative acts) and by improving the enforcement of existing and new legislation thereby increasing the level of trust in Russian society.
- The banking sector should (continue to) be reformed so that it can fulfill its function of providing risk capital for investments that would make Russian enterprises more efficient and better able to meet market competition. This requires, among other things, an improvement in bank officials’ risk assessment competence. Opening the banking sector to foreign competition would be a way to achieve these ends.
- The transfers from natural resource producers to other sectors in the Russian society should be made entirely transparent. This way it would be possible to assess the social costs of subsidizing currently inefficient producers. Public policies aiming at the eventual elimination of inefficient producers should be elaborated and implemented.

- Public policies aiming at the elimination of the causes of corruption should be elaborated and implemented.

Policies for improving the economic structure entailing direct public/state interventions:

- Efforts to correct the market inefficient geographical location of production in Russia should be guided by a federal policy for regional development. Such a regional policy should be elaborated in cooperation with the regions affected identifying realistic and implementable goals and measures to attain these goals under the efficiency restrictions imposed by the market economy and restrictions imposed by national security considerations.
- One ingredient in such a policy for a market efficient regional development—actually one of the means for attaining the goal of improving the economic structure—could be a set of measures to stimulate and support an increased geographical and occupational labor mobility.
- Another ingredient of such a policy could be measures to direct and support private and public investments in infrastructure required to facilitate the realization of the regional development goals.

A crucial problem for all policy implementation is that people who are affected by the changes suggested by the policy must find the design process and the intended outcome of the policy to be well-considered, realistic, and fair. If they do, the policy will acquire legitimacy and policy implementation will have a greater chance of success. In the Russian context, the forms for elaborating public policies could be expected to be especially important. To gain legitimacy it would seem necessary to very clearly denounce the policy elaboration and implementation methods used in the command economy and instead introduce modern participatory policy formulation approaches. Furthermore, since redistribution is a pertinent issue in most of the policies that might be envisaged to improve the Russian market economy, equity issues must be duly considered for policies to gain necessary popular sanction and support. If this is overlooked policy implementation will necessarily suffer. The conclusion is obvious: stakeholder participation should therefore be allowed and encouraged to ensure efficiency in policy elaboration and implementation.

References

- Ahrend, Rudiger (2006). Russia's Post-crisis Growth: Its Sources and Prospects for Continuation. *Europe-Asia Studies*, Vol. 58, No. 1, pp. 1–24.
- Ahrend, Rudiger and William Tompson (2005). *Fifteen Years of Economic Reform in Russia: What Has Been Achieved? What Remains to Be Done?* (Economics Department Working Papers No. 430). Paris: Organisation of Economic Co-operation and Development (OECD).
- Arkhangelsk Oblast (1997). *Razvitie i reformirovanie lesopromyshlennogo kompleksa Arkhangel'skoi oblasti: Podprogramma No. 1* (Development and Reformation of the Forest Industrial Complex of Arkhangelsk Oblast: Subprogram No. 1), Arkhangelsk: Arkhangelsk Regional Administration.
- Åslund, Anders (1999). Russia's Virtual Economy: A Comment. *Post-Soviet Geography and Economics*, Vol. XXXX, No. 2, pp. 98–102.

- Åslund, Anders and Nazgul Jenish (2006). *The Eurasian Growth Paradox*. Working Paper WP 06-5, Institute for International Economics, Washington D.C., June.
- Aukutsionek, Sergei (1998). Industrial Barter in Russia. *Communist Economies and Economic Transformation*, Vol. 10, No. 2, pp. 179–188.
- Barnes, Andrew (2003). Russia's New Business Groups and State Power. *Post-Soviet Affairs*, Vol. 19, No. 2, pp. 154–186.
- Bernstam, Michael S. and Andrei Sitnikov (2001). Ersatz Banks. In: R. Lawrence and Marshall Pomer Klein (eds.), *The New Russia; Transition Gone Awry*, pp. 221–232.
- Boycko, Maxim, Andrei Shleifer and Robert Vishny (1995). *Privatizing Russia*. MIT Press, Cambridge Mass. and London.
- Braguinsky, Serguey and Grigory Yavlinsky (2000). *Incentives and Institutions; The Transition to a Market Economy in Russia*. Princeton University Press, Princeton, New Jersey.
- Carlsson, Lars (2000). Towards a Sustainable Russian Forest Sector. *Natural Resources Forum*, Vol. 21, pp. 31–37.
- Carlsson, Lars, Nils-Gustav Lundgren, Mats-Olov Olsson and Mikhail Yu Varakin (1999). *Institutions and the Emergence of Markets, Transition in the Arkhangelsk Forest Sector*. Interim Report RR-99-021, International Institute for Applied Systems Analysis, Laxenburg, Austria, June.
- Carlsson, Lars, Nils-Gustav Lundgren and Mats-Olov Olsson (2001). The Russian Detour: Real Transition in a Virtual Economy? *Europe-Asia Studies*, Vol. 53, No. 6, pp. 841–867.
- CBRF (2006). *Bulletin of Banking Statistics. Regional Supplement*, No. 2 (22). The Central Bank of the Russian Federation, Moscow.
- Chang, Gene Hsin (1999). Observations on the Nature of Russia's Virtual Economy. *Post-Soviet Geography and Economics*, Vol. XXXX, No. 2, pp. 114–120.
- Chowdhury, Abdur (2003). Banking Reform in Russia: Winds of Change? *Policy Reform*, Vol. 6, No. 2, pp. 89–103.
- Clarke, Simon (1998). Trade Unions and the Non-Payment of Wages in Russia. *International Journal of Manpower*, Vol. 19, No. 1/2, pp. 68–94.
- Clarke, Simon (2004). A Very Soviet Form of Capitalism? The Management of Holding Companies in Russia. *Post-Communist Economies*, Vol 16, No. 4, pp. 405–422.
- Commander, Simon, Irina Dolinskaya and Christian Mumssen (2002). Determinants of Barter in Russia: An Empirical Analysis. *Journal of Development Economics*, Vol. 67, pp. 275–307.
- Cox, Terry (1996). *From Perestroika to Privatisation; The Politics of Property Change in Russian Society 1985–1991*. Avebury, Aldershot.
- Cuthbert, Michael, Victoria Bortkevicha, Logan Wright, Mark Hyde, Nicolas Frome and Gabrielle Ruiz (2005). *Bankruptcy Proceedings in the Russian Federation*. Clifford Chance LLP, London.
- Desai, Padma and Todd Idson (2000). *Work without Wages: Russia's Nonpayment Crisis*. MIT Press, Cambridge, Mass.

- Desai, Raj and Itzhak Goldberg (2000). Stakeholders, Governance, and the Russian Enterprise Dilemma. *Finance and Development; A Quarterly Magazine of the IMF*, Vol. 37, No. 2, pp. 14–18.
- Dynkin, Alexandr A. (2003). *Krupnyi rossiiskii biznes i problemy modernizatsii (Big Russian Business and Problems of Modernization)*. Paper presented at the Nauchnyi seminar pod rukovodstvom E.G. Iasina ekonomicheskaia politika v usloviakh perekhodnogo perioda (Scientific Seminar facilitated by E.G. Yasin on Economic Policy in the Transition Period), Moscow, 29 January.
- Earle, John S. and Klara Z. Sabirianova (2002). How Late to Pay? Understanding Wage Arrears in Russia. *Journal of Labor Economics*, Vol. 20, No. 3, pp. 661–707.
- Ericson, Richard E. (1999). Comments on an Accounting Model of Russia's Virtual Economy. *Post-Soviet Geography and Economics*, Vol. XXXX, No. 2, pp. 103–109.
- Ericson, Richard E. (2000). The Post-Soviet Economic System: An Industrial Feudalism? In: Tuomas Komulainen and Ilkka Korhonen (eds.), *Russian Crisis and its Effects*. Series B, Kikimora Publications, Aleksanteri Institute, Helsinki, pp. 133–136.
- Ericson, Richard E. (2002). *The Russian Economy*. Discussion Paper No. 0102-07, Department of Economics, Columbia University, New York.
- Facts and Perspectives (2003). *Facts and Perspectives*. A compilation of regional information about Sweden based on official data from Statistics Sweden. (Data retrieved on 25 May–5 June 2003, from <http://www.regionfakta.com/>.)
- Fuchs, Michael J., Ed. (2002). *Building Trust: Developing the Russian Financial Sector*. The World Bank, Washington, D.C.
- Gaddy, Clifford and Barry W. Ickes (1998a). *To Restructure or Not to Restructure, Informal Activities and Enterprise Behavior in Transition*. Unpublished manuscript, May. (Retrieved 22 March 2000, from <http://econ.la.psu.edu/~bickes/informal.pdf>.)
- Gaddy, Clifford G. and Barry W. Ickes (1998b). *Beyond a Bailout: Time to Face Reality About Russia's "Virtual Economy."* Unpublished Paper, June. The Brookings Institution, Washington, D.C. (Retrieved 21 June 2005, from <http://www.brookings.edu/views/articles/gaddy/199806.htm>.)
- Gaddy, Clifford G. and Barry W. Ickes (1998c). Russia's Virtual Economy. *Foreign Affairs*, Vol. 77, No. 5, September/October, pp. 53–67.
- Gaddy, Clifford G. and Barry W. Ickes (1999a). Getting Realistic About Russia: No Time for Illusions, *Brookings Review*, Winter. (Retrievable from <http://www.brookings.org/press/review/win99/gaddy2.pdf>.)
- Gaddy, Clifford G. and Barry W. Ickes (1999b). *Stability and Disorder: An Evolutionary Analysis of Russia's Virtual Economy*. Working Paper Number 276, William Davidson Institute, University of Michigan Business School. (Retrieved 17 May 2001, from <http://eres.bus.umich.edu/docs/workpap-dav/wp276.pdf>. Changed link last checked 5 October 2006: <http://wdi.umich.edu/files/Publications/WorkingPapers/wp276.pdf>.)
- Gaddy, Clifford G. and Barry W. Ickes (1999c). An Accounting Model of the Virtual Economy in Russia. *Post-Soviet Geography and Economics*, Vol. XXXX, No. 2, pp. 79–97.

- Gaddy, Clifford G. and Barry W. Ickes (2001). The Virtual Economy and Economic Recovery in Russia. *Transition Newsletter*, Vol. 12, No.1, February–March. (A copy of the article can be retrieved from http://www.brookings.org/views/articles/gaddy/virtual_2001.htm.)
- Gaddy, Clifford G. and Barry W. Ickes (2002). *Russia's Virtual Economy*. Brookings Institution Press, Washington, D.C.
- Gaddy, Clifford G. and Barry W. Ickes (2005). Resource Rents and the Russian Economy. *Eurasian Geography and Economics*, Vol. 46, No. 8, pp. 559–583.
- Gaddy, Clifford, Barry Ickes, Andrei Mazharov and Andrei Volgin (2000). *Russia's "Virtual Economy": An Update For Investors*. The Brookings Institution, Washington, D.C., USA, March.
- Goldman, Marshall I. (1998). The Cashless Society. *Current History*, Vol. 97, No. 621, pp. 319–324.
- Goskomstat Arkhangelsk (1996). *Sotsial'no-ekonomicheskoe polozhenie oblasti za 1996 god* (Socioeconomic situation of the region in 1996). Goskomstat Rossii, Arkhangel'skii oblastnoi komitet gosudarstvennoi statistiki, Arkhangelsk.
- Goskomstat Arkhangelsk (1997). *Arkhangel'skoi oblasti – 60 let; Kratkii statisticheskii sbornik* (Arkhangelsk Oblast 60 Years Old; Short Statistical Collection). Goskomstat Rossiiskoi Federatsii, Arkhangel'skii oblastnoi komitet gosudarstvennoi statistiki, Arkhangelsk.
- Goskomstat Arkhangelsk (2003). *Lesnaia, derevoobrabatyvayushchaia i tsellyulozno-bumazhnaia promyshlennost' Arkhangel'skoi oblasti 1996–2002 gody* (The Forest, Wood Processing and Pulp and Paper Industry of Arkhangelsk Oblast 1996–2002). State Committee on Statistics of the Russian Federation (Goskomstat Rossii); Arkhangelsk Oblast Committee of State Statistics (Arkhangel'skii oblkomstat), Arkhangelsk.
- Goskomstat Arkhangelsk (2004). *Arkhangel'skaya oblast' v tsifrakh; ofitsial'noe izdanie* (Arkhangelsk Oblast in Figures; Official Edition, 2004). Federal'naia sluzhba gosudarstvennoi statistiki (Rosstat), Territorial'nyi organ federal'noi sluzhby gosudarstvennoi statistiki po Arkhangel'skoi oblasti, Arkhangelsk.
- Goskomstat Rossii (1996a). *Rossia v tsifrakh; Ofitsial'noe izdanie, 1996* (Russia in Figures; Official Edition, 1996). Finansy i statistika, Moscow.
- Goskomstat Rossii (1996b). *Promyshlennost' Rossii; Ofitsial'noe izdanie* (Industry in Russia; Official edition). Goskomstat Rossii, Moscow.
- Goskomstat Rossii (2004). *Regiony Rossii; Osnovnye kharakteristiki sub"ektov Rossiiskoi federatsii; Sotsial'no-ekonomicheskie pokazateli. Ofitsial'noe izdanie, 2003* (Regions of Russia; Basic Characteristics of the Subjects of the Russian Federation; Socioeconomic Indicators. Official edition, 2003). Goskomstat Rossii, Moscow (CD ROM).
- Granberg, Alexander (2000). Regional Development and Regional Policy in the New Russia. In: Hans Westlund, Alexander Granberg and Folke Snickars (eds.), *Regional Development in Russia: Past Policies and Future Prospects*, Edward Elgar, Cheltenham, UK; Northampton, MA, USA, pp. 123–165.
- Grevtsov, Aleksander (2005). Postroim dorogu—pomozhem otrasli (Let's build a road—let's help the sector). *Lesnye novosti*, 30 August.

- Guriey, Sergei and Barry W. Ickes (2000). Barter in Russia. In: Paul Seabright (ed.), *The Vanishing Ruble: Barter Networks and Non-Monetary Transactions in Post-Soviet Societies*, Cambridge University Press, Cambridge, pp. 147–175.
- Guriey, Sergei and Dmitri Kvassov (2004). Barter for Price Discrimination. *International Journal of Industrial Organization*, Vol. 22, pp. 329–350.
- Guriey, Sergei and Andrei Rachinsky (2004). *Ownership Concentration in Russian Industry* (Revised version of the authors' background paper for the World Bank's Country Economic Memorandum (CEM) for Russia 2004).
- Hanson, Philip (2002). Barriers to Long-Run Growth in Russia. *Economy and Society*, Vol. 31, No. 1, February, pp. 62–84.
- Hanson, Philip (2003a). The Russian Economic Recovery: Do Four Years of Growth Tell Us that the Fundamentals have Changed? *Europe-Asia Studies*, Vol. 55, No. 3, pp. 365–382.
- Hanson, Philip (2003b). *The Rise and Fall of the Soviet Economy: An Economic History of the USSR from 1945*. Longman, Harlow.
- Heleniak, Timothy (2001). Migration and Restructuring in Post-Soviet Russia. *Demokratizatsiya*, Vol. 9, No. 4, Fall.
- Hendley, Kathryn, Barry W. Ickes and Randi Ryterman (1998). Remonetizing the Russian Economy. In: Harry G. Broadman (ed.), *Russian Enterprise Reform: Policies to Further the Transition*, Discussion Paper No. 400, The World Bank, Washington D.C., pp. 101–120.
- Ivanova, Lyudmila and Vigdis Nygaard (1999). *Institutions and the Emergence of Markets—Transition in the Murmansk Forest Sector*. Interim Report IR-99-071, International Institute for Applied Systems Analysis, Laxenburg, Austria, December.
- Ivanter, Aleksandr (2005). Ne v dver', tak v okno (If not through the door, then through the window). *Ekspert*, No. 28 (475), July.
- Javeline, Debra (2003). *Protest and the Politics of Blame; The Russian Response to Unpaid Wages*. The University of Michigan Press, Ann Arbor.
- Kenneth, Christopher (2006). Oligarchs could be jailed over illegal acquisitions of assets. *The Russia Journal Magazine*, 24 March. (Retrieved on 26 April 2006, from <http://www.therussiajournal.com/?p=99>.)
- Kim, Byung-Yeon and Jukka Pirttilä (2004). Money, Barter, and Inflation in Russia. *Journal of Comparative Economics*, Vol. 32, pp. 297–314.
- Klein, Lawrence R. and Marshall Pomer, Eds. (2001). *The New Russia; Transition Gone Awry*. Stanford University Press, Stanford.
- Komistat (2000). *Sotsial'no-ekonomicheskie pokazateli respublik i oblastei Severnogo i Severo-Zapadnogo raionov, Kaliningranskoi i Kirovskoi oblastei v 1990-1999gg. Sbornik* (Socioeconomic indicators for the republics and counties of the Northern and North-Western regions, the Kaliningrad and Kirvosk Counties in 1990–1999. Data Compilation). Goskomstat Respubliki Komi, Syktyvkar.
- Latynina, Yulia (2002). Forestry Industry: Ripe for Carving Up. *Moscow Times*, 17 July.

- Makarov, V. and G. Kleiner (2000). Barter in Russia; An Institutional Stage. *Problems of Economic Transition*, Vol. 42, Issue 11, pp. 51–79. (Translated from Russian, original title: “Barter v Rossii: institutsional’nyi etap,” *Voprosy ekonomiki*, No. 4, 1999, pp. 79–101.)
- Minpromenergo (2005). *O sostoianii i perspektivakh razvitiia lesopromyshlennogo kompleksa. Doklad zamestitelia ministra Ivana Materova na 8-m s"ezde lesopromyshlennikov i lesoeksporterov 20 maia 2005* (On the situation and future development of the forest industrial complex. Statement by deputy minister Ivan Materov on the 8th congress of forest industrialists and forest exporters, 20 May 2005.). Minpromenergo (Ministry of Industry and Energetics).
- Nilsson, Sten (2005). Experiences of Policy Reforms of the Forest Sector in Transition and Other Countries. *Forest Policy and Economics*, Vol. 7, pp. 831–847.
- North, Douglass C. (2005). *Understanding the Process of Economic Change*. Princeton University Press, Princeton, N.J.
- Nove, Alec (1986). *The Soviet Economic System* (Third edition). Allen and Unwin, Boston.
- Okhmatovskiy, Ilya (2005). Sources of Capital and Structures of Influence; Banks in the Russian Corporate Network. *International Sociology*, Vol. 20, No. 4, pp. 427–457.
- Olsson, Mats-Olov (2004a). Institutional Change in the Russian Forest Sector: Stakeholder Participation in Forest Policy Formulation in Murmansk, Karelia, and Arkhangelsk. Interim Report IR-04-030, International Institute for Applied Systems Analysis, Laxenburg, Austria, July.
- Olsson, Mats-Olov (2004b). Barriers to Change? Understanding the Institutional Hurdles in the Russian Forest Sector. Licentiate Thesis (2004:79). Luleå University of Technology, Luleå.
- Olsson, Mats-Olov (2006). Systemic Interventions to Promote Institutional Change in the Russian Forest Sector. *Review of Policy Research*, Vol. 23, No. 2, pp. 505–530.
- Ostrom, Elinor (2005). *Understanding Institutional Diversity*. Princeton University Press, Princeton, N.J.
- Phillips, Anthony (1999). Changing Characterizations of the Roots of Russia’s Problems. *Russian and Euro-Asian Bulletin*, Vol. 8, No. 3, March. (Retrieved 1 November 1999, from <http://www.cerc.unimelb.edu.au/bulletin/99mar.htm>.)
- Piipponen, Minna (1999). Transition in the Forest Sector of the Republic of Karelia, Russia. *Fennia*, Vol. 177, No. 2, pp. 185–233.
- Polterovich, Viktor M. (2001). Institutional Traps. In: R. Lawrence and Marshall Pomer Klein (eds.), *The New Russia; Transition Gone Awry*, Stanford University Press, Stanford, pp. 93–116.
- Pyle, William (2006). Collective Action and Post-Communist Enterprise: The Economic Logic of Russia’s Business Associations. *Europe-Asia Studies*, Vol. 58, No. 4, pp. 491–521.
- Round, John (2005). Rescaling Russia’s Geography: The Challenges of Depopulating the Northern Periphery. *Europe-Asia Studies*, Vol. 57, No. 5, pp. 705–727.
- Rozhinskiy, Ivan (2006). Russian Banking—State vs. Foreigners. *BOFIT Russia Review*, 8 May.

- Russia in Figures (2003). *Rossia v tsifrah; Regional'nyi sbornik* (Russia in Figures; Regional Handbook). Interactive on-line database containing information based on official statistical material about all Russian regions. "Practical Science Database", Moscow. (Available on the Internet from <http://www.sci.aha.ru/cgi-bin/regbase.pl>.)
- Shestoperovyi, A.M. (2005). *Dinamika razvitiia malogo predprinimatel'stva v regionakh rossii v 2004 gody* (Development Dynamics of Small Business in Russia's Regions 2004.) NISIPP, Moscow. (Retrieved 21 March 2006, from http://smb.economy.gov.ru/statistics/dynamics/dyn_2004.)
- Sholomitskaya, Anastasia (2005). Razvitie LPK tormozitsia bezdorozh'em (The development of the forest sector is hampered by the lack of roads). *Biznes-klass, Arkhangel'sk*, 16 October. (Retrieved 1 February 2005, from <http://www.wood.ru/ru/index.php3?reg=landpag=loa252>.)
- Simachev, Iu. (2003). The Institution of Bankruptcy in Russia; Demand, Basic Trends, and Problems of Development. *Problems of Economic Transition*, Vol. 46, No. 8, pp. 32–65.
- Slay, Ben (1999). A Comment on Russia's 'Virtual Economy'. *Post-Soviet Geography and Economics*, Vol. XXXX, No. 2, pp. 110–113.
- Smol'yakova, Tat'yana (2005). Gosudarstvo poshlo v les; Ono reshilo stroit' dorogi i izmenit' tsenevuyu politiku (The State went to the forest; It decided to construct roads and change its price policy). *Rossiiskaya Gazeta*, 16 September. (Retrieved 19 September 2005, from <http://www.rg.ru/2005/09/16/les.html>.)
- Statistics of Russian Education. Internet resource containing official data on Russian education at federal and regional level. Data retrieved from <http://stat.edu.ru>.
- Tompson, William (1999). The Price of Everything and the Value of Nothing? Unraveling the Workings of Russia's 'Virtual Economy'. *Economy and Society*, Vol. 28, No. 2, pp. 256–280.
- Tompson, William (2000). Financial Backwardness in Contemporary Perspective: Prospects for the Development of Financial Intermediation in Russia. *Europe-Asia Studies*, Vol. 52, No. 4, pp. 605–625.
- Tompson, William (2004a). *Banking Reform in Russia: Problems and Prospects*, OECD Economics Department Working Papers, No. 410, OECD Publishing. (doi:10.1787/346560635401).
- Tompson, William (2004b). *Reforming Russian Bankruptcy Law*. Briefing Note (REP BN 04/03). Russia and Eurasia Program, The Royal Institute of International Affairs, London, August.
- Tompson, William (2005). The Political Implications of Russia's Resource-Based Economy. *Post-Soviet Affairs*, Vol. 21, No. 4, pp. 335–359.
- Tushunov, D. (2005). Borrowing by Russian Businesses. *Problems of Economic Transition*, Vol. 48, No. 5, September. (Translated from Russian, original title: "Kreditnaia aktivnost' rossiskikh predpriatii," *Voprosy ekonomiki*, No. 7, 2003, pp. 78–88.)
- Woodruff, David M. (1999). It's Value That's Virtual: Bartles, Rubles, and the Place of Gazprom in the Russian Economy. *Post-Soviet Affairs*, Vol. 15, No. 2, pp. 130–148, April–June.

- World Bank (2005). *From Transition to Development* (No. 32308-RU). Poverty Reduction and Economic Management Unit; Europe and Central Asia Region, The World Bank, Washington, D.C.
- Yakovlev, Andrei (2000). Barter in the Russian Economy: Classifications and Implications. Evidence from Case Study Analyses. *Post-Communist Economies*, Vol. 12, No. 3, pp. 279–291.
- Zhuravskaia, E. and K. Sonin (2005). The Economics and Politics of Russian Bankruptcies. *Problems of Economic Transition*, Vol. 47, No. 11, pp. 70–94.

APPENDICES

Appendix A: Questionnaire Form Used in the Survey of 15 Forest Enterprises in Arkhangelsk Oblast, April–June 2005

SECTION A: GENERAL DESCRIPTION OF THE ENTERPRISE

- 1) Name of the enterprise (incl. legal status)?
- 2) What year was the enterprise established?
Have any major changes taken place in the status of the enterprise during the last 6–7 years?
- 3) Give a short description of the enterprise. (The answer should contain the following type of information: general activities of the enterprise; organization and management structure; name and experience of leading personnel; how and in what way the enterprise has developed.)
- 4) Type of enterprise? State main activity! (More than one alternative may be chosen.)
 - Forest owner/possessor/forest service
 - Harvesting enterprise
 - Sawmill
 - Pulp and paper
 - Other processing industry
 - Consultant
 - Other type, describe
- 5) What are your main products?
 - Today (end of 2004)
- 6) What is the actual production volume of the enterprise? (In physical units and in rubles)
 - Volume (end of 2004) _____, rubles: _____
- 7) Who is the legal owner of this enterprise?
 - The state, specify:
 - Private person/persons, namely:
 - The enterprise is a corporation owned by other companies, namely
 - Other, namely:

Were there any changes in the ownership of the enterprise during the last 6–7 years?

 - No.
 - Yes, describe which changes (and what consequences these changes have produced):
- 8) Number of employees? (Counted as full time personnel)
 - Workers, today (end of 2004):
 - Administration/management staff, today (end of 2004):
- 9) Do you currently have any engagements and responsibilities related to activities other than “production”? (Describe each engagement briefly)
 - Housing
 - Provision of consumer goods
 - Schools
 - Health care
 - Child care
 - Other
- 10) Do you currently make any investments in your enterprise?
 - No.
 - Yes, describe content and scale

SECTION C: OUTPUT SIDE OF THE ENTERPRISE

- 21) To whom do you sell your 'products'? Name and type of customers in order of importance (as a percentage of total volume), name all

<p>CUSTOMER 1: _____ % of total volume: _____</p> <p><input type="checkbox"/> Regional/local customer <input type="checkbox"/> Customer within the federation <input type="checkbox"/> Customer in FSU <input type="checkbox"/> Export</p> <p><input type="checkbox"/> Via sales organization, namely: _____</p>
<p>CUSTOMER 2: _____ % of total volume: _____</p> <p><input type="checkbox"/> Regional/local customer <input type="checkbox"/> Customer within the federation <input type="checkbox"/> Customer in FSU <input type="checkbox"/> Export</p> <p><input type="checkbox"/> Via sales organization, namely: _____</p>
<p>CUSTOMER 3: _____ % of total volume: _____</p> <p><input type="checkbox"/> Regional/local customer <input type="checkbox"/> Customer within the federation <input type="checkbox"/> Customer in FSU <input type="checkbox"/> Export</p> <p><input type="checkbox"/> Via sales organization, namely: _____</p>
<p>CUSTOMER 4: _____ % of total volume: _____</p> <p><input type="checkbox"/> Regional/local customer <input type="checkbox"/> Customer within the federation <input type="checkbox"/> Customer in FSU <input type="checkbox"/> Export</p> <p><input type="checkbox"/> Via sales organization, namely: _____</p>

Etc.

- 22) Can you describe how a typical sales transaction is performed? (Give a description, try to be detailed, who is contacted, how long does the procedure take, who is involved, are contracts written, etc?)
- 23) What will happen if either part breaks the sales agreement or does not fulfill its duties? Describe What measures are taken to rectify the situation? Are these measures possible to implement?
- 24) Do you regard violations of sales agreements as a problem?
- Yes a big problem
 - Yes, but a small problem
 - Not really a problem
- 25) How do you get paid for your products?
- Cash or equivalent upon delivery
 - Cash or equivalent paid before delivery
 - Other arrangement, namely:
- 26) How are payments arranged?
- Via bank; name of this bank:
 - Payments are done by the enterprise itself
 - Other construction, namely:
 - If barter is used, estimate its share of total payments: _____ %
What was the corresponding share five years ago? _____ %

SECTION D: INSTITUTIONAL ASPECTS

- 27) Are there rules or regulations that apply to your enterprise which you regard as an obstacle for your activities?
- No
 - Yes, describe:
- 28) Are there other problems which you regard as obstacles for a successful business?
- No, only minor.
 - Yes, the following (mark the problems you find most pertinent):
 - Technology: machinery, maintenance
 - Entrepreneurial tradition, lack of competence (skills)
 - Forest legislation, in particular

- Other business legislation, such as
 - Law enforcement
 - Product development, finding new markets
 - Financial problems, lack of capital
 - Current business practices, such as
 - Other problems, such as
- 29) What is the single most binding “restriction” on the activity of your enterprise? Describe
- 30) Generally speaking, do you find the formal legislation regulating Russian forest enterprises adequate and efficient?
- Yes
 - No, explain why.
- 31) If it would be possible to change anything related to the Russian forest sector, what would you change? (First, second, etc., in order of priority)
- 32) Is this enterprise member of any branch organization or equivalent?
- No
 - Yes, namely:
 - a) **When** did the enterprise join this organization?
 - b) **Why** did the enterprise join this organization?
 - c) **What benefits** does the membership produce?
- 33) Estimate how large a share of the enterprise’s taxes that is actually paid in cash? How large a share is paid in kind (or paid through various tax off-sets)? What were the corresponding numbers five years ago?
- Percentage cash today: % Percentage in kind today: %
 - Percentage cash five years ago: % Percentage in kind five years ago: %
- 34) What do you think is the most important activity on which management should focus in its efforts to make the enterprise more prosperous. Grade the importance of each one of the suggested alternatives by stating a number between 1 and 5, where 1 is not important and 5 is very important:
- Improve efficiency of production through organizational changes
 - Improve efficiency of production through investments in new technology
 - Develop new products to allow entry into new markets
 - Improve work productivity through recruitment of new personnel with a modern education
 - Improve work productivity through education of the current workforce
 - Influence politics/politicians to create a better environment for business
 - Influence politics/politicians to acquire special privileges for the enterprise
 - Other suggestion, namely
- 35) How would you characterize your company’s current dependence upon the following structures compared to the situation 5–6 years ago:
- 1. Public forest sector authorities:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 2. Other public authorities/services:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 3. Other forest enterprises in the region:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 4. Other forest enterprises in Russia:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 5. Foreign companies:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 6. Banks:** _____ Not relevant
 - More dependent; Less dependent; No change
 - 7. Forest organizations and companies in Moscow:** _____ Not relevant
 - More dependent; Less dependent; No change

- 36) What can enterprises do to influence political life in Arkhangelsk in order to improve conditions for all actors in the regional forest sector?
What does your enterprise actually do?
- 37) Is any board member or representative of the company management an elected member of the Regional Duma?
 No
 Yes. Who is this member? (Who are these members?) (Position in the company)?
Has their political activity produced any benefits for the enterprise? Describe:
- 38) Estimate the share (%) of the enterprise's employees who are trade union members?
 Percentage today : _____% Percentage five years ago: _____%
Which trade unions do they belong to?
- 39) Has enterprise management's interaction with trade unions changed in character during the last 15 years? If so, how? Give a brief description?
- 40) Are environmental organizations taking an active interest in the activities of your enterprise?
 No
 Yes. How? (Examples?)
- 41) Other comments of relevance? (Invite comments concerning other problems that have not been discussed above, especially regarding a) what is working well, relative progress, the prospects of a sustainable yield and harvesting, etc. b) problems with wage and tax arrears, order situation, etc. Here it should also be indicated to what extent the activities of the enterprise affect the environment in a negative way and how this might affect its future existence.)

Appendix B: List of Publications from IIASA's Study "Institutions and the Emergence of Markets—Transition in the Russian Forest Sector"

Most of the listed publications can be downloaded free of charge via <http://www.didaktekon.se/mats/ii-publ.htm>.

IIASA Interim Reports—Case Studies in Eight Russian Regions:

Initial Studies:

- Carlsson, Lars (1997). Prerequisites for the Evolution of Markets. An Institutional Analysis of the Russian Forest Sector. In Sten Nilsson (ed.), *Dialogue on Sustainable Development of the Russian Forest Sector, Vol. 1*, IIASA Interim Report (IR-97-009). Laxenburg, Austria: International Institute for Applied Systems Analysis, April, pp. 143–145.
- Carlsson, Lars and Mats-Olov Olsson, eds. (1998). *Initial Analyses of the Institutional Framework of the Russian Forest Sector*. IIASA Interim Report (IR-98-027). Laxenburg, Austria: International Institute for Applied Systems Analysis, June.
- Mamlöf, Tomas (1998). The Institutional Framework of the Russian Forest Sector—A Historical Background. In: IR-98-027 (See link above!)
- Lehmbruch, Barbara (1998). Ministerial Spin-Offs and Economic Transformation in the Russian Timber Industry, 1992–1996. In: IR-98-027 (See link above!)
- Mashkina, Olga (1998). Measuring Attitudinal Diversity through Q-analysis—An Illustration of a Research Approach. In: IR-98-027 (See link above!)

Tomsk Oblast:

- Carlsson, Lars and Mats-Olov Olsson (1998). *Institutions and the Emergence of Markets, Transition in the Tomsk Forest Sector*. IIASA, Interim Report (IR-98-084). Laxenburg, Austria: International Institute for Applied Systems Analysis, October. (Also available in Russian.)
- Carlsson, Lars, Nils-Gustav Lundgren and Mats-Olov Olsson (1999). *Forest Enterprises in Transition — Business Behavior in the Tomsk Forest Sector*. IIASA Interim Report (IR-99-010). Laxenburg, Austria: International Institute for Applied Systems Analysis. (Also available in Russian.)

Arkhangelsk Oblast:

- Carlsson, Lars, Nils-Gustav Lundgren, Mats-Olov Olsson and Mikhail Yu. Varakin. (1999). *Institutions and the Emergence of Markets, Transition in the Arkhangelsk Forest Sector*. IIASA Interim Report (IR-99-021). Laxenburg, Austria: International Institute for Applied Systems Analysis. (Also available in Russian.)

Khabarovsk Krai:

- Efremov, Dmitry F., Lars Carlsson, Mats-Olov Olsson and Alexander S. Sheingauz (1999). *Institutional Change in the Forest Sector of Khabarovsk Krai*. IIASA Interim Report (IR-99-068). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Mabel, Marian (2000). *The Flexible Domestic State: Institutional Transformation and Political Economic Control in the Khabarovsk Krai Forestry Sector*. Interim Report (IR-00-037). Laxenburg, Austria: International Institute for Applied Systems Analysis.

Moscow Oblast:

Kleinhof, Andris E., Lars Carlsson and Mats-Olov Olsson (1999). *The Forest Sector in Moscow Oblast*. IIASA Interim Report (IR-99-069). Laxenburg, Austria: International Institute for Applied Systems Analysis. (Also available in Russian).

The Karelian Republic:

Piipponen, Minna (1999). *Transition in the Forest Sector of the Republic of Karelia*. Interim Report (IR-99-070). Laxenburg, Austria: International Institute for Applied Systems Analysis. (This IR is also available in Russian.)

Murmansk Oblast:

Ivanova, Lyudmila and Vigdis Nygaard (1999). *Institutions and the Emergence of Markets Transition in the Murmansk Forest Sector*. Interim Report (IR-99-071). Laxenburg, Austria: International Institute for Applied Systems Analysis, December. (This IR is also available in Russian.)

Jacobsen, Birgit (1999). *Auctions Without Competition—The Case of Timber Sales in the Murmansk Region*. Interim Report (IR-99-072). Laxenburg, Austria: International Institute for Applied Systems Analysis.

Irkutsk Oblast:

Blam, Yuri, Lars Carlsson and Mats-Olov Olsson (1999). *Institutions and the Emergence of Markets—Transition in the Irkutsk Forest Sector*. IIASA Interim Report (IR-00-017). Laxenburg, Austria: International Institute for Applied Systems Analysis.

Krasnoyarsk Krai:

Sokolova, Nastassia (2000). *Institutions and the Emergence of Markets—Transition in the Krasnoyarsk Forest Sector*. Interim Report (IR-00-028). Laxenburg, Austria: International Institute for Applied Systems Analysis. (This IR is also available in Russian.)

Summary Reports:

Carlsson, Lars, Nils-Gustav Lundgren, and Mats-Olov Olsson (2000). *Why Is the Russian Bear Still Asleep after Ten Years of Transition?* IIASA Interim Report (IR-00-019). Laxenburg, Austria: International Institute for Applied Systems Analysis, March.

Policy Exercises:

Olsson, Mats-Olov (2001). *Participatory Forest Policy Development—Experiences from a IIASA Policy Exercise in Tomsk, Russia*. IIASA Interim Report (IR-01-061). Laxenburg, Austria: International Institute for Applied Systems Analysis, December.

Olsson, Mats-Olov (2004). *Institutional Change in the Russian Forest Sector: Stakeholder Participation in Forest Policy Formulation in Murmansk, Karelia and Arkhangelsk*. IIASA Interim Report (IR-04-030). Laxenburg, Austria: International Institute for Applied Systems Analysis, July.

IIASA Interim Reports on Other Institutional Issues:

Fell, Astrid (1999). *On the Establishment of Trust in the Russian Forest Sector*. Interim Report (IR-99-054). Laxenburg, Austria: International Institute for Applied Systems Analysis.

Pappila, Minna (1999). *The Russian Forest Sector and Legislation in Transition*. Interim Report (IR-99-058). Laxenburg, Austria: International Institute for Applied Systems Analysis.

- Kallas, Aigar (2000). *The Estonian Forest Sector in Transition: Institutions at Work*. Interim Report (IR-00-073). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Nysten-Haarala, Soili (2000). *Development of Constitutionalism in Russia*. Interim Report (IR-00-042). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Nysten-Haarala, Soili (2001). *Russian Enterprises and Company Law in Transition*. Interim Report (IR-01-005). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Nysten-Haarala, Soili (2001). *The Russian Property Rights in Transition*. Interim Report (IR-01-006). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Vasenda, Sandra (2001). *Waking the Russian Bear: Institutional Change in the Russian Forest Sector*. Interim Report (IR-01-013). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Nilsson, Sten (2001). *Future Challenges to Ensure Sustainable Forest Management*. Interim Report (IR-01-039). Laxenburg, Austria: International Institute for Applied Systems Analysis. Also appears in the Proceedings of the workshop on "Forests and Forestry in Central and Eastern European Countries" on 12–14 September 2001 in Debe, Poland, organized by MCPFE – Ministerial Conference on the Protection of Forests in Europe and the Liaison Unit Vienna, Austria.
- Wignall, Jim (2001). *Evaluating the Russian Forest Sector: Market Orientation and Its Characteristics*. Interim Report (IR-01-047). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Kotova, Maria (2001). *Institutional Traps of Russian Forest Enterprises—A Lawyer's View*. Interim Report (IR-01-062). Laxenburg, Austria: International Institute for Applied Systems Analysis.
- Nilsson, Sten (2002). *Supply Forecasts for Timber from the Russian Far East and Links with the Pacific Rim Market*. Interim Report (IR-02-001). Laxenburg, Austria: International Institute for Applied Systems Analysis.

Books:

- Nysten-Haarala, Soili (2001). *Russian Law in Transition: Law and Institutional Change*. Helsinki: Kikimora Publications. Series B.

Published Articles:

- Carlsson, Lars (1998). Utan plats för individer (No Room for Individuals). *Norrländska Socialdemokraten*, September 15. (Newspaper article. In Swedish.)
- Carlsson, Lars and Mats-Olov Olsson (1999). Den ryska skogssektorns institutionella inramning (The Institutional Embedding of the Russian Forest Sector). *IIASA-Nytt*, No. 30, March. Stockholm: The Swedish Council for Planning and Coordination of Research (FRN), pp. 6–7.
- Lehmbruch, Barbara (1999). Fragmented Clientelism: The Transformation of Sectoral Economic Governance in the Russian Timber Industry. In: Vladimir Tikhomirov (ed.) *Anatomy of the 1998 Russian Crisis*. Carlton, Australia: Contemporary Europe Research Centre, University of Melbourne, pp. 238–258. (Based on the author's contribution to IIASA Interim Report IR-98-027.)
- Piipponen, Minna (1999). Transition in the Forest Sector of the Republic of Karelia, Russia. *Fennia* 177:2, pp. 185–233. Abstract. (Based on IIASA Interim Report IR-99-070.)
- Carlsson, Lars (1999). 'The Tragedy of the Commons' and Global Environmental Problems. *Minerals and Energy* 15(1) pp.41–43.

- Carlsson, Lars (2000). Towards a Sustainable Russian Forest Sector. *Natural Resources Forum*, Vol. 24, No. 1, pp. 31–37.
- Carlsson, Lars, Mats-Olov Olsson, and Nils-Gustav Lundgren (2000). If money only grew on trees—The Russian forest sector in transition. *The Forestry Chronicle*, Vol. 76, No. 4, July/August.
- Pappila, Minna (2000). The Russian Forest Sector and Legislation in Transition. *Turku Law Journal*, Vol. 2, No. 2. (Based IIASA Interim Report IR-99-058.)
- Nilsson, Sten (2000). International Cooperation for Sustainable Development of the Russian Forest Sector. In: *Final Report and Proceedings of the Expert Seminar "Sustainable Development of the Forest Sector in Northern Europe," Petrozavodsk, Russia, October 12–13, 1999*, Barents Euro-Arctic Council. Working Group on Economic Cooperation. Joensuu: University of Joensuu, Faculty of Forestry, pp. 35–46.
- Carlsson, L. (2001). *Keeping Away from the Leviathan: The Case of the Swedish Forest Commons*. Discussion Paper No 51. Published by the MOST Programme at the United Nations Educational, Scientific and Cultural Organization (UNESCO), Paris: UNESCO.
- Carlsson, Lars, Mats-Olov Olsson and Nils-Gustav Lundgren (2001). Состояние лесного сектора в России - отражение трудностей трансформирования экономики (The State of the Russian Forest Sector—a Reflection of the Difficulties of Transforming an Economy), *Проблемы теории и практики управления* (Theoretical and Practical Aspects of Management), No. 2, pp. 75-80. (This is an abridged version of an article by the same authors published in *The Forestry Chronicle*, Vol. 76, No. 4, July/August, pp. 605–610.)
- Carlsson, Lars, Nils-Gustav Lundgren, and Mats-Olov Olsson (2001). The Russian Detour: Real Transition in a Virtual Economy? *Europe-Asia Studies*, Vol. 53, No. 6, pp. 841-867. This article is available from the electronic edition of *Europe-Asia Studies* to institutional subscribers at no additional cost. (Note that this article was based on a previous IIASA Interim Report IR-00-019. See entry above!)
- Carlsson, Lars (2001). Book Review: *Business and The State in Contemporary Russia*, ed. by Peter Rutland, Oxford and Boulder, CO: Westview Press. *Europe-Asia Studies*, Vol. 53, No. 8, pp. 1255–1256.
- Carlsson, Lars and Mats-Olov Olsson (2001). Policyövningar med ryska skogsintressenter (Policy Exercises with the Stakeholders of the Russian Forest Sector). *IIASA-Nytt*, No. 34, September. Stockholm: The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas), pp. 8–10.
- Nilsson, Sten (2002). The Real Problem and Needs of Sustainable Development in the Russian North: An Analysis of the Forest Sector. In: *A Common Approach to Collaborative Technological Research for Arctic Development*. Proceedings of the Joint EU-Russia-Canada-US Workshop, Conference Centre Albert Borchette, Brussels, Belgium, 25–27 October 2001. pp 310–329.
- Carlsson, Lars and Nils-Gustav Lundgren (2002). Den ryska skogssektorn på väg mot marknadsekonomi? (The Russian Forest Sector Towards Market Economy?). In Persson, Gunnar (ed.), *Människor, Hälsa, Miljö*. Acta Philosophica Universitatis Lulensis, Luleå Studies in the Arts and Social Sciences 2. Luleå: Luleå Science Press, pp. 5–17.
- Carlsson, Lars (2002). The Strategy of the Commons: History and Property Rights in Forestry in Central Sweden. In Fikret Berkes, Johan Colding, and Carl Folke (eds.), *Navigating Social-Ecological Systems*. Cambridge: Cambridge University Press, pp.116–131.
- Kallas, Aigar (2002). Public forest policy making in post-Communist Estonia. *Forest Policy and Economics*, Vol. 4, Issue 4. December, pp. 323–332. (Note that this article was based on a previous IIASA Interim Report (IR-00-073). See entry above!)
- Sten Nilsson (2005). Experiences of policy reforms of the forest sector in transition and other countries. *Forest Policy and Economics*, Vol. 7, Issue 6, November, pp 831–847.

Olsson, Mats-Olov (2006). Systemic Interventions to Promote Institutional Change in the Russian Forest Sector. *Review of Policy Research*, Vol. 23, No. 2, pp. 505-530, March. (This article is based on a much longer IIASA Interim Report (IR-04-030). See entry above!)

Other Publications:

Malmlöf, Tomas (1999). *Prospects for Ecological Sustainability in Russian Forestry; An Institutional and Historical Perspective*. C/D Extended Essay 1999:02, Department of Business Administration and Social Science, Division of Political Science. Luleå: Luleå Technical University. (Based on the author's contribution to IIASA Interim Report IR-98-027.)

Ivanova, Lyudmila and Vigdis Nygaard (2001). *Policy Exercise for Stakeholders in the Forest Sector in the Murmansk Region*. Working Paper 2001:106. Oslo: Norwegian Institute for Urban and Regional Research (NIBR).

Olsson, Mats-Olov (2004). *Barriers to Change? Understanding the Institutional Hurdles in the Russian Forest Sector*. Licentiate Thesis in Political Science. Luleå: Luleå University of Technology (203 pp.).