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The Russian Virtual Economy Turning Real: Institutional Change in the Arkhangel'sk Forest Sector

MATS-OLOV OLSSON

Abstract

The article reports on an attempt to assess recent developments of the Russian 'virtual economy', a system that, some have argued, represents an alternative form of economic interaction to the modern market economy. In the virtual economy enterprises are engaged in informal non-market transactions with other enterprises and the public sector in accordance with rules that are alien to a market economy. Structural and behavioural changes that have taken place in the Russian economy after 1998 are studied with the help of official data and two surveys (from 1998 and 2005) of 15 forest sector enterprises in Arkhangel'sk *Oblast'*, a region in Russia's north-west with a largely forest-based economy. The outcome of the assessment indicates that the virtual economy is contracting in the Arkhangel'sk forest sector as well as in Russia at large, and that it will eventually disappear altogether, even if it is likely to exert a profound influence on the behaviour of Russian enterprises for some time yet.

IN THE DRAMATIC CHANGE PROCESS THAT UNFOLDED IN THE years following the disintegration of the Soviet Union, Russian society was forced to enter a fundamental institutional reconfiguration. Not only the entire legislation, but much of people's norms and rules of conduct had to change radically. The dismantling of the Soviet command economy led to a spectacular reduction in production volumes, while simultaneously it became clear that great difficulties had to be overcome in order to change the economic mechanism. It was envisaged that the 'visible hand' of central planning would be replaced by a system of rules that would allow the economy to self-organise and adopt a market-based form of resource allocation. Clearly, the country's rich resource endowments opened up great prospects for a positive economic

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development in the long-term. This was based on the assumption that an institutional framework conducive to an efficient market-based economy could be established. Since the onset of transition in the early 1990s, the pressure for change in the institutional set-up has remained extremely high in Russia. However, institutional change is no simple and straightforward process that could easily be controlled and governed.¹ It soon became evident that severe rigidities hampered the profound reorganisation of society necessary to make it comply with the requirements of a modern market economy.

To the surprise of many observers, the reform package introduced by the Russian government with financial support from international organisations did not produce the fast and efficient changes in the economy that were expected. Rather than forcing Russian enterprises to restructure their activity to become more market-efficient, many enterprises turned away from market interactions and instead engaged in informal exchange with other enterprises in a similar predicament, thus establishing what has come to be known as the 'virtual economy'. A debate has developed on whether the virtual economy constitutes a fundamentally new mode of economic interaction or if it merely represents a detour on Russia's road to a modern market economy. In this article the development of the Russian forest sector is used as a means to answer this question.

The theory of the virtual economy

The theory of the virtual economy was launched and popularised in the late 1990s by the American scholars Clifford G. Gaddy and Barry W. Ickes (2002).² This theory aims to explain why it has been so difficult to make Russian enterprises modify their behaviour to suit the demands of the emerging market economy. It argues that a largely outmoded production capital and a serious lack of market economic competence, as well as a suboptimal geographical distribution of production, were the main aspects of the legacy of the Soviet era that system change in Russia was supposed to overcome. The problems were of a magnitude that threatened many (if

¹According to institutional theory, actors in society base their decisions on some set of established rules or norms. Such 'rules-in-use' or 'institutions' can be formal or informal. The former are the result of collective decisions often manifested in legal codes, while the latter have emerged in the course of actors' interactions. 'Institution' in this sense should not be confused with 'organisation', even if special organisations are sometimes established to monitor and enforce actors' compliance with specific institutions. The most important property of both formal and informal institutions is their obligatory character. Actors are expected to comply with the rules-in-use and such expectations are held not only by actors directly affected by the expected behaviour, but by 'society' as a whole. Understanding actors' behaviour as guided by rules or institutions means that changes in behaviour can be interpreted as changes in the rules or institutions governing that behaviour or vice versa. These are the defining distinctions of institutions emphasised, for instance, by North (2005) and Ostrom (2005), and elaborated on by Streeck and Thelen (2005).

²The book was preceded by a number of papers and research memoranda by the same authors (Gaddy & Ickes 1998a, 1998b, 1998c, 1999a, 1999b, 1999c) and other authors discussing their theory (Phillips 1999; Åslund 1999; Ericson 1999; Slay 1999; Chang 1999; Tompson 1999; Woodruff 1999; Gaddy *et al.* 2000; Carlsson *et al.* 2001).

not most) Russian enterprises with bankruptcy if they were 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 of the first half of the 1990s—including the privatisation of state owned enterprises—did not entirely correspond with the outcome expected by the reformers. The rapid privatisation 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 long before that.³ In reality, central economic planning hardly functioned at all in the late 1980s (Naishul' 1985; Braguinsky & Yavlinsky 2000). Instead a parallel 'informal' economy had emerged that interacted with the officially recognised economy and solved many of its rigidity problems. Thus, the changes in enterprise behaviour that were introduced as a consequence of the disintegration of the Soviet system were not, after all, particularly dramatic. In terms of enterprise managers' behaviour, at least initially, the new privatised economy largely meant continued business as usual. A large share of the newly privatised enterprises chose to withdraw from market-based monetary exchange and revert to barter trade at negotiated prices. Their behaviour also displayed a number of other characteristics that would seem odd in a market context, such as seeking tax exemptions or tax offsets, rather than making investments in modern technology and improving their competitive capacity. With large numbers of enterprises, not only in the forest sector, adopting similar behaviour, a special enclave—a virtual economy with its very specific institutions—was established in the emerging Russian market system.

What determines the future of the Russian virtual economy?

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 will be largely determined by whether it chooses to favour investments reducing its 'distance to the market' (d) or 'relational capital' (r), that is, investing in modern production equipment and competence or exploring its relations with political power (Gaddy & Ickes 2002, p. 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 (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'. In principle, numerous policy measures affecting

³Desai and Goldberg (2000) note that property rights over enterprises had already been allocated *de facto* during the Soviet era. See also Cox (1996) for a more detailed description of how property rights gradually changed during the Gorbachev period.

enterprises' investment behaviour can be envisaged. Previous research has pointed out several areas where public intervention might contribute to improving enterprises' market behaviour (Gaddy & Ickes 2002, 2005; Carlsson *et al.* 2001). However, 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 has become entirely transparent. Enterprises operating in the virtual economy are partly being sustained through informal rent sharing by the large oil and gas producers (allowing 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 subsidising unprofitable enterprises. In 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 at 25% 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 behaviour 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 reorganisation of the energy sector, opening it to competition, releasing it from existing rent-sharing schemes, and securing its property rights (Gaddy & Ickes 2005; Ahrend & Tompson 2005b). The question is if there are any observable signs that the institutional deadlock at the core of the virtual economy is actually being disentangled.

Previous research on the virtual economy in the Russian forest sector

On the basis of the theoretical and practical considerations outlined above, a multiple case study design was developed for the task of examining the character of the economy prevailing in the Russian forest sector (Carlsson *et al.* 2001). The research found that the behaviour displayed by many of the forest enterprises in the studied regions largely conformed to what could be anticipated on the basis of the theory of the virtual economy.

Case studies were carried out in eight regions of Russia. The focus was on the regional 'timber procurement arena' and emphasis was laid on an analysis of the

characteristics of the resources, the society and the rules-in-use (or institutions) governing actors' behaviour in the forest sector. In each one of these regions between 25 and 35 forest enterprise representatives (mostly CEOs) were surveyed.⁴ In researching the unruly Russian transition, where old established rules-in-use (institutions) were challenged both by the actors who were supposed to be guided by them and by a weak government, frequently issuing directives intended (with or without much success) to modify actors' behaviour, it seemed necessary to directly approach the actors themselves to find out which rules actually governed their behaviour and what motives they had for complying with certain rules while violating others. In this way it was possible to identify and characterise the existing institutional set-up governing actors' behaviour, and the actors' reasoning behind the adoption of new rules of behaviour could be analysed. The surveys of enterprise representatives were accompanied by analyses of contextual features (in particular the character of the resources and society) based on information (in the form of previous research, official documents, and public statistical data) pertaining to the forest sector and the whole economy of the selected regions, and (to some extent) of the country at large.

The case studies revealed institutional obstacles to the development of an efficient forest sector in all eight Russian regions. They showed that very similar institutional problems were experienced in all the regions studied, despite their quite varying preconditions in terms of raw materials, climate and economic structure.

A case study of Arkhangel'sk: objectives and approach

The purpose of this article is to report on the findings of a single follow-up case study of Arkhangel'sk *Oblast'* and to compare it with the findings relating to the same region in the previous research reported above. Its aim is to investigate whether the behaviour of business actors in the Arkhangel'sk forest sector is still guided by the specific institutional arrangements that characterise the virtual economy. There is evidence 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 (Hanson 2002, 2003; Gaddy & Ickes 2001, 2005). On the other hand, there are also indications that developments in Russia in recent years have opened opportunities and created positive incentives for many enterprises to move from the virtual economy and face competition from firms

⁴The institutions governing actors' behaviour in the forest sector of eight Russian regions were the object of a four-year study (1997–2001) conducted by a group of researchers at the International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. The regions that provided cases in this study were: the Republic of Karelia, the *Oblasti* of Murmansk, Arkhangel'sk, Moscow, Tomsk, and Irkutsk, and the Krasnoyarsk and Khabarovsk *Kraya*. 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 with links for downloading most of the papers. Information about IIASA can be obtained from the institute's website at <http://www.iiasa.ac.at>.

operating in the emerging Russian market economy (Hanson 2003; Åslund 2007). Therefore it is hypothesised in this article that, since the end of the 1990s, forest enterprises in Arkhangel'sk *Oblast'* have tended to leave the virtual economy and have increasingly acted in accordance with rules governing business behaviour in a market system. As will be further argued below, the observed behaviour of the Arkhangel'sk forest sector enterprises can be seen as an example of what is happening in other sectors of the regional economy, and in the economy of Russia at large.

The theoretical underpinning and the specific design of the present follow-up case study of the institutional obstacles for an efficient forest sector in Arkhangel'sk *Oblast'* is based upon the methodology employed in the 1997–2001 series of case studies. There were several motives for selecting Arkhangel'sk *Oblast'* as the single case in this follow-up study. Arguably, prerequisites for enterprise restructuring should be favourable in regions with a highly diversified economy and in regions with a large production of products for which there is a high international demand (like oil and gas). Conversely, prerequisites for enterprise restructuring should be comparatively unfavourable in regions with an undiversified economy dominated by a sector (or sectors) in great need of radical modernisation (such as the Russian forest sector). Thus, Arkhangel'sk *Oblast'*, with its highly undiversified economy dominated by the forest sector, may be considered a critical case (Yin 2003) for assessing the extent to which restructuring has actually been achieved, not only among Arkhangel'sk forest enterprises and the regional forest sector, but in the whole regional economy, and, as is further argued below, in the whole Russian economy.⁵

Several propositions of importance for the present follow-up study might be generated on the basis of the results of the earlier studies. For instance, no significant regional differences were found in the degree to which business behaviour was guided by the specific rules-in-use constituting the Russian virtual economy, despite the fact that natural and general socio-economic conditions varied greatly between the regions included in the study (Carlsson *et al.* 2001). Other studies have indicated that the institutions constituting the virtual economy guide the behaviour of most Russian market non-viable enterprises irrespective of the sector to which they belong (Aukutsionek 1998; Guriev & Ickes 2000; Desai & Idson 2000).⁶ These findings underpin the proposition that information gained through the new survey among Arkhangel'sk forest enterprises could also be regarded as (at least partially) indicative of the situation in the Russian forest sector and the economy at large. And, conversely,

⁵Two arguments of different nature actually are at play here. The first argument—relevant for selecting the sector to study—says that if it can be shown that restructuring takes place in the Russian forest sector, chances are good that it also takes place in other sectors of the economy. The other argument—relevant for selecting the region to study—says that if we want to ascertain whether restructuring is indeed taking place in the Russian forest sector then Arkhangel'sk is a good case to look at, since the region's economy is heavily dependent upon the forest sector, and it can be expected that serious efforts will be made in Arkhangel'sk to achieve a higher economic efficiency through restructuring of the regional forest enterprises.

⁶However, it must be assumed that market non-viable enterprises (should any exist) belonging to sectors favoured by a high world demand for their output (for example, the energy sector) and located in, or in the vicinity of, large central cities (such as Moscow and St Petersburg) are in a significantly more favourable position to actually restructure their activities to become more market competitive than enterprises belonging to other sectors and in less central and dynamically developing locations.

information about developments in the Russian economy reflecting the pervasiveness of the rules-in-use characterising the virtual economy should allow us to expect a similar situation to prevail in the Arkhangel'sk region. Thus, it can be argued, if our hypothesis—that forest enterprises in Arkhangel'sk *Oblast'* are increasingly behaving in accordance with normal market institutions—cannot be refuted, this would indicate that the virtual economy may actually be vanishing not only in this specific region, but all over Russia.

The assessment made in the present follow-up case study of Arkhangel'sk *Oblast'* uses the same interview design as in the older study. The study also uses a review of recent research of the ongoing institutional change process in Russia and, in particular, the effects of these changes on the regional forest sector. In addition, the assessment uses a number of statistical indicators describing the development of several structural features of the economy as well as indicators describing changes in the behaviour of economic actors (enterprises and their managers). Structural changes in the economy are important in that they condition the behaviour of economic actors. Thus, such changes might either facilitate or hamper enterprises' efforts to improve their market efficiency.⁷ As far as possible, the changes depicted through these indicators of economic structure and the behaviour of economic actors were specified for three levels of aggregation: the national, the regional and the enterprise level. Arguably, it is necessary to perform the analysis at all three levels in order to arrive at viable conclusions concerning the character of the institutional changes that have taken place in the Arkhangel'sk forest sector and in the Russian economy at large.

In the sections that follow, the results of the new Arkhangel'sk case study are discussed and related to the results of the previous study. This discussion is followed by an account of the regional and federal level analyses performed on the basis of previous research and relevant statistical indicators. But before proceeding to the discussion of the new Arkhangel'sk case study it may be useful to examine the significance of the forest sector for the Arkhangel'sk regional economy and the economy of Russia at large.

The importance of the forest sector for economic performance

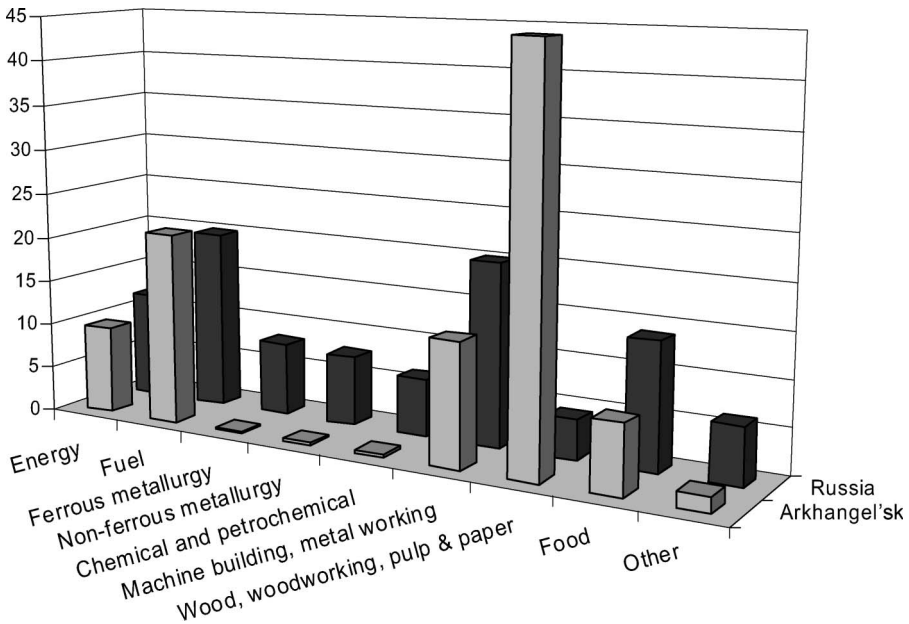
Despite its considerable size, Arkhangel'sk *Oblast'* only occupies 3.4% of the total Russian territory and it is home to about 1% of the total Russian population. The region's contribution to the Russian national economy is comparatively small. At the beginning of the 2000s it accounted for 0.9% of Russia's GDP and industrial production, and it held 1.2% of the country's total production capital. Its shares of Russia's total capital investments and exports were 1.1% and 0.7%, respectively. According to official statistical data for 2003, industry in Arkhangel'sk accounted for close to 40% of gross regional product (GRP), while the corresponding share for Russia is slightly below 30%. Agriculture and trade, which, respectively, accounted for 5.6% and 20% of the Russian GDP, only contributed about 2% and 12%,

⁷In the longer term the opposite is also true of course; actors' behaviour can modify the economic structure. These change processes are in fact interdependent, with the purpose of increasing the functional compatibility between the economic structure and the behaviour of economic actors.

respectively, to the Arkhangel'sk GRP. On the other hand, construction and transport contributed somewhat larger shares to the GRP than they did for Russia as a whole.

Looking at the structure of industrial production we also find significant differences between Arkhangel'sk and the Russian Federation. The most pertinent difference is the huge size of the Arkhangel'sk forest industry compared to Russia (Figure 1). 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%. In 2002 the region contributed a third of the total Russian production of pulp. In terms of employment the Arkhangel'sk forest sector accounted for 42% of total industrial employment. The corresponding share for the country at large was around 6%.⁸

The Russian forest sector still makes only a small contribution (around 4%) to the total Russian export value. However, about a tenth of the total forest sector exports from Russia originate from Arkhangel'sk. Only Irkutsk *Oblast'* contributes more



Source: Calculation based on data from Goskomstat Rossii (2004).

FIGURE 1. THE CONTRIBUTION OF VARIOUS INDUSTRIAL BRANCHES TO TOTAL INDUSTRIAL PRODUCTION IN ARKHANGEL'SK AND THE RUSSIAN FEDERATION IN 2002 (%)

⁸Data on total number of industrial workers (in 2004) from Rosstat (<http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/06-03.htm>, accessed 13 March 2008) and number of workers in the forest industrial complex (as of 2005) from a speech by Ivan Materov (deputy minister of *Minpromenergo Rossii*, the Russian Ministry of Industry and Energy), 20 May 2005, available at: <http://www.minprom.gov.ru/activity/wood/appearance/1>, accessed 14 March 2008.

(around 20%) to total Russian exports of forest commodities. In terms of its share of total regional exports, the Arkhangel'sk forest sector is extremely important contributing around 75% to the total regional export value.⁹ The large export share is another indicator of the importance of the forest sector for the regional economy.

Assessing the market adaptation of forest enterprises in Arkhangel'sk

As noted above, this article is based on two survey investigations designed to capture changes in business leaders' outlook and enterprises' behaviour conducted in 1998 and 2005 among managers of forest enterprises in Arkhangel'sk *Oblast'*. The first survey was made in the period April–November 1998 and comprised interviews with 25 forest enterprise representatives; in the second survey, made in the period April–June 2005, interviews were conducted with representatives of 15 of the same 25 forest enterprises that took part in the previous survey.¹⁰ Efforts were made to include a proportionate number of the different categories of enterprises that took part in the 1998 survey (Olsson 2004, 2006).

A word of caution is needed 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 Arkhangel'sk does not meet the requirements for a proper statistical sampling, the results of the analysis can only serve as an illustration of some development tendencies discussed in this article. Actually, a case study research design does not aim at statistical generalisation—if that were a goal, some other design (for example, one involving statistical sampling) would have been used. A case study (both single and multiple) rather aims at analytic generalisation, 'in which a previously developed theory is used as a template with which to compare the empirical results of the case study' (Yin 2003, pp. 32–33). It is the latter logic that is applied in the present study.

The purpose of the present analysis is to assess whether the behaviour of these enterprises has become more adapted to the requirements of a market economy. In other words, do enterprises display a more market-efficient behaviour today compared

⁹Sources for the export data are: Goskomstat Rossii (2004); Arkhangel'sk *Oblast'* Administration, data on foreign trade, available at: <http://www.arkhadm.gov.ru/economy/foreign.asp>, accessed 14 February 2006; data on the commodity structure of exports and imports 2003 and 2004, available at: <http://www.gks.ru/bgd/regl/brus05/IssWWW.exe/Stg/25-04.htm>, accessed 14 February 2006; and Minpromenergo Rossii (2005).

¹⁰The two surveys in Arkhangel'sk *Oblast'* were both carried out by the same resident Russian scholar. 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 same questionnaire was used in the 2005 round of interviews in Arkhangel'sk. Respondents' answers to the questions posed in the two surveys were encoded in a database. Most of the variables compiled in the database describe the situation for the 15 respondents (enterprises) in 1998 and 2005. 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 basic facts, such as size, type of company, production profile, ownership and social commitments for each of the 15 surveyed enterprises; some aspects of the enterprises' input (purchases); output (sales) situation; and some institutional factors restraining managers' behaviour. The questionnaire form used on the two survey occasions is reproduced as Appendix A in Olsson (2006).

to 1998? Are they, as we hypothesised initially, actually leaving the virtual economy to be increasingly guided by rules governing business behaviour in a market economy? Thus, as discussed above, observed changes in the behaviour of enterprises and in the perception and attitudes ('mental models') of their managers, will be interpreted as indications of changes in the rules-in-use or institutions governing actors' behaviour.

Investment behaviour among 15 forest enterprises in Arkhangel'sk

As noted above, business managers in the Russian transition may pursue two kinds of investment behaviour—they may invest in 'distance reducing' capital (d) or 'relational' capital (r). Examples of the former kind of capital are modern production equipment or skills that are required to make production more efficient. By relational capital is meant measures that will improve the enterprise's relations with public authority officials, the purpose being to obtain various kinds of future benefits. In practice, enterprises will invest in both kinds of capital. In the Russian virtual economy, investments in r are typically pursued at the expense of investments in d . In a well-functioning market economy the opposite behaviour 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 characterised 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') indicates the degree to which various enterprises are engaged in the virtual economy.

In the synthesising report from the 1998–1999 survey investigation of forest enterprise behaviour in eight Russian regions, it was possible to 'measure' their propensity to invest in either relational or distance reducing capital (Carlsson *et al.* 2001). The data describing the situation for all of the 221 forest enterprises that took part in our 1998–1999 survey indicated that merely 12% of the enterprises seemed to be favouring investments in distance reducing capital (d). These enterprises might be characterised as market actors (short d , low r). The rest were either operating in the virtual economy, relying heavily on relational capital (high r) while having a long 'distance' to go before becoming market efficient (large d) or to be found in the most difficult position, being far away from market efficiency (large d) without recourse to relational capital (low r) that might to some extent compensate for their market inefficiency.

By going back to 15 of the 25 forest enterprises in Arkhangel'sk *Oblast'* that took part in the previous survey and comparing the answers given by the respondents on the two occasions it is possible to construct a diagram showing how the positions in the r - d space of the respective Arkhangel'sk enterprises 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 questions listed in Table 1. 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 aspects of firms' actual behaviour as well as some aspects of their managers' attitudes (or 'mental models'), which are of great importance for forming the rationale for managers' decisions to comply (or not comply) with the existing

TABLE 1
 QUESTIONS USED TO ASSESS THE INVESTMENT BEHAVIOUR OF 15 FOREST ENTERPRISES IN
 ARKHANGEL'SK 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 privatised 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)

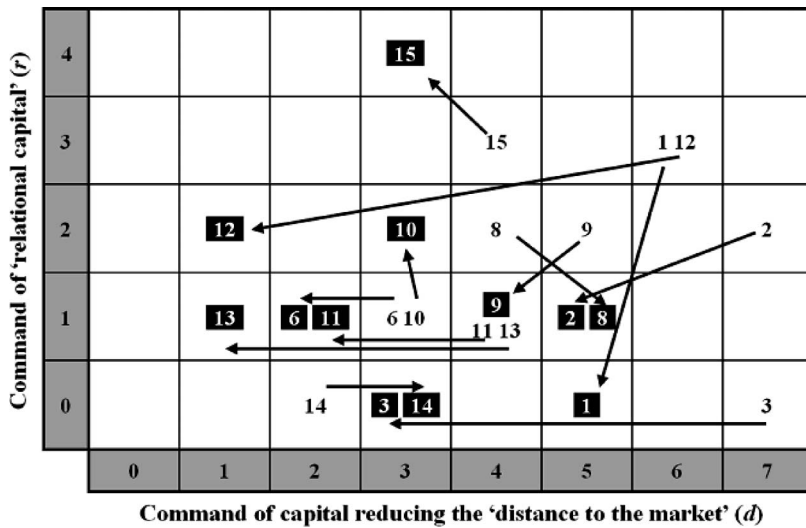
1. Invests in equipment, buildings or education of the workforce
 2. Has bank relations on the buying side
 3. Has bank relations on the selling side
 4. Is not involved in barter on the buying side
 5. Is not involved in barter on the selling side
 6. Uses arbitration courts to enforce broken buying 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
-

system of rules governing business behaviour and which ultimately play an important role for institutional change (North 2005).

Plotting the sum of positive answers to the two sets of questions listed in Table 1 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 2. (Three forest management enterprises—*leskhozzy*—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 behaviour 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 behaviour favouring relational capital and avoiding a restructuring of production activities to become more market efficient—a behaviour largely guided by the institutional set-up characterising the virtual economy.

The general impression that is conveyed by the plot in Figure 2 is that the 12 Arkhangel'sk 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.

Table 2 summarises some basic characteristics of the 15 Arkhangel'sk forest enterprises that took part in our two surveys. The table shows that the largest enterprises in our survey were also the oldest—one established already in the late



Note: Numbers in the plot refer to the individual enterprises that took part in the surveys of 1998 and 2005. (For 2005, enterprises have been marked as white text in black squares.)

FIGURE 2. FOREST ENTERPRISES IN ARKHANGEL'SK OBLAST': CHANGE OF POSITION IN THE R-D SPACE 1998–2005

TABLE 2
BASIC CHARACTERISATION OF THE 15 SURVEYED ARKHANGEL'SK FOREST ENTERPRISES

Period of establishment	1881–1931	1943–1948	1964–1972	1985–1991	Total
Number of enterprises in the survey	4	3	3	5	15
of which:					
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—privatised	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

Note: ^aThis 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.)

nineteenth century—and they were all sawmills or wood processing enterprises. All of them were privatised 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 (*lespromkhozy*), six sawmilling and processing companies, and one harvesting and 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.

Figure 3 illustrates some aspects of the structural and behavioural changes that have taken place among the surveyed forest enterprises in Arkhangel'sk *Oblast'* in the seven-year period since 1998. The general picture conveyed in the figure supports the impression given in Figure 2. The number of surveyed enterprises displaying market-oriented behaviour has increased between 1998 and 2005. However, the figure also reveals some seemingly contradictory evidence. So, for instance, it 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.

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 2 with those that have remained in an unfavourable position throughout the period of investigation.

Comparing the three enterprises in our survey that changed their command of d and r in the most favourable direction between 1998 and 2005—that is, the enterprises that

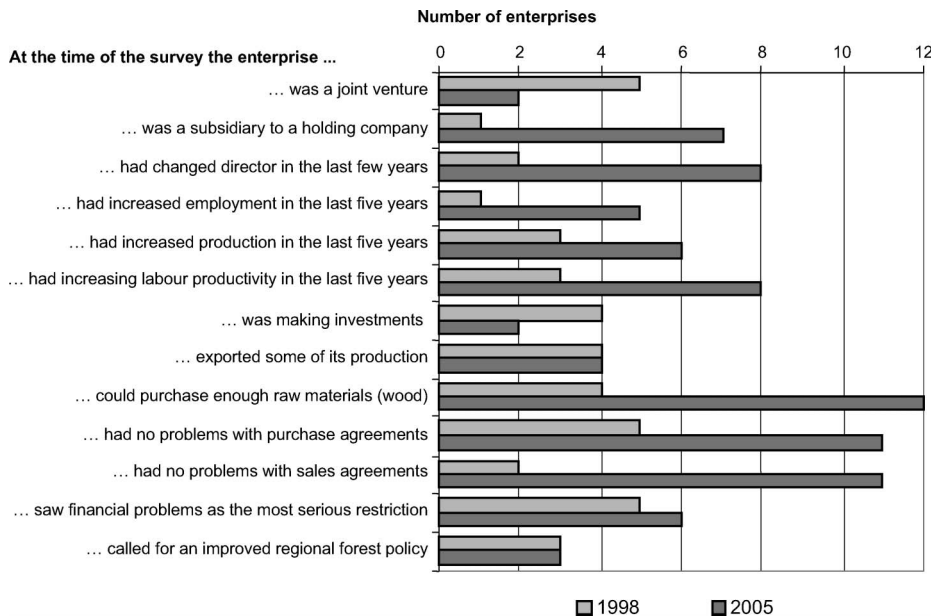


FIGURE 3. SOME RESULTS OF THE SURVEYS MADE AMONG REPRESENTATIVES OF FOREST ENTERPRISES IN ARKHANGEL'SK *OBLAST'* IN 1998 AND 2005

favoured investments in d at the expense of r thereby obtaining resources allowing them to act in a more market-efficient way—with the three that kept a comparatively inefficient mix of d and r capital, several interesting differences were found. It could be noted that 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. All three invested in equipment and skills making their activities more market efficient. Their interactions with suppliers and customers had become more institutionalised (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. All three of them had new managers appointed in the previous few years before the survey.

It could also be noted that the behaviour of all 15 Arkhangel'sk forest enterprises that were revisited in 2005 had changed in a number of respects indicating an improved adaptation to rules governing enterprises' normal market behaviour. So, for instance, our survey revealed that many enterprises had been incorporated into large holding companies, no one used barter trade any more, and 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 than in 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 subsequent period. 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 one-third) 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.

However, analysing the results of the two surveys also revealed certain facts that could not be interpreted as an indication that forest enterprises in Arkhangel'sk *Oblast'* have fully embraced a market-efficient behaviour. First it could be noted that 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. Managers hereby indicated an understanding of the importance of financial intermediation, which is a severely deficient part of the business structure embedding Russian enterprises today, but they saw no solution to the problem and had difficulties avoiding its consequences.

It could also be noted that surprisingly few of the interviewed Arkhangel'sk managers (two of 15) mentioned a 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 recognised as a problem by only 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 of our 15 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 behaviour.¹¹

Structural and behavioural changes in the Russian economy

As indicated above, the analysis of the new survey among forest enterprises in Arkhangel'sk *Oblast'*, the main results of which were discussed in the previous section, needs to be supplemented by a broader analysis of indicators describing structural and behavioural changes in the regional and federal economy to enable a more reliable assessment of the recent development of the Russian virtual economy. In this section, we will see if and how changes that could be observed in the institutional set-up governing the Arkhangel'sk forest sector are also reflected in the indicators describing structural and behavioural changes at the regional and federal levels.

Inflation, demonetisation, barter and arrears

After 1992, when prices were liberalised, the Russian economy was beset by an extremely high inflation rate that reached a peak of 2,509% (Klein & Pomer 2001, p. 441). Price liberalisation immediately revealed the large gap between the production structure of the earlier planned economy and a structure that would be able to meet market demand for goods and services. When attractive commodities and services 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. According to Makarov and Kleiner (2000, p. 55), reverting to so-called 'non-monetary exchange'¹² offered a natural

¹¹It should be noted, however, that several forest enterprises in Arkhangel'sk today are members of business associations, such as the 'Pomor Industrialists' founded in 1999 and the 'Association for small and medium sized forest sector enterprises' founded in 2003 (Olsson 2006).

¹²Non-monetary exchange or non-monetary transactions are shorthand for a whole set of exchange types, such as barter (direct and 'pure' or channelled 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. Here 'barter' denotes all of the enumerated types of non-monetary transactions.

solution to the problem—‘natural’ since all actors in the new Russian economy already had an ‘in-kind perception’ of economic exchange. They suggest that:

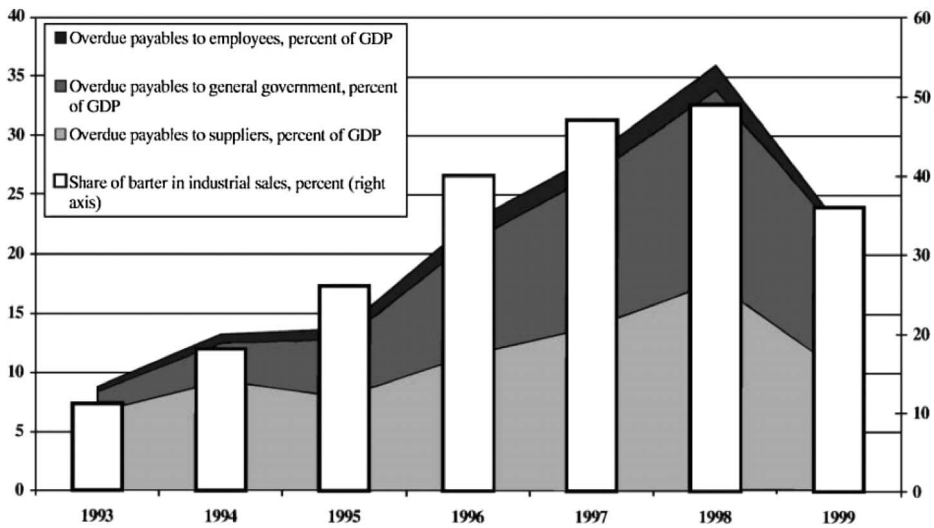
Essentially, *today's bartering arose on the basis of the former system of in-kind perception, accounting, and distribution of industrial products, from which the new reality has eliminated: (a) the system of hierarchical subordination of enterprises to ministries and interministerial bodies; and (b)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

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). Carlsson *et al.* (2001) see the barter solution as a result of an institutional deadlock, emphasising the fact that several simultaneous institutional changes are required in order to force the economy to switch to a monetised system of exchange that is more transparent and easy to monitor and that ultimately is more efficient in that it reduces transaction costs. However, inflation rapidly decreased in the years following its peak in 1992. In the years after 2000 the rate stayed below 20%, approaching 10% in 2005. The price changes in Arkhangel'sk Oblast were quite similar to that of the country at large (Olsson 2006). 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.¹³

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 (Tompson 1997, 2000). Without recourse to bank credits, enterprises had to agree on inter-firm trade credits to satisfy their need for working capital. In this way large payment arrears were built up between enterprises. In a 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.

In 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 4 Commander *et al.* (2002) have illustrated the correspondence between the development of overdue payables to employees (wage arrears), overdue payables to general government (for example, 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

¹³See, for instance, Goldman (1998), Hendley *et al.* (1998), Clarke (1998), Guriev and Ickes (2000), Woodruff (1999), Desai and Idson (2000), Yakovlev (2000), Makarov and Kleiner (2000), Commander *et al.* (2002), Earle and Sabirianova (2002), Ivanenko and Mikheyev (2002), Javeline (2003), Guriev and Kvassov (2004), and Kim and Pirtillä (2004). Yakovlev (2000) reviews various forms of barter (including offsets and *veksels*) that can be found in the Russian economy.



Source: Commander *et al.* (2002, p. 282).

FIGURE 4. DYNAMICS OF PAYMENT ARREARS AND BARTER 1993–1999

than overdue receivables, indicating an increase in overdue payables to the state. They conclude:

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. (Commander *et al.* 2002, p. 283)

Data recently published in the *Russian Economic Report* issued by the World Bank¹⁴ indicate that non-monetary transactions in Russia continued to rapidly decrease after 1999. In 2000, they still accounted for slightly over 30% of total sales, only to be further reduced to slightly over 10% in 2004. The World Bank report also contains data showing that the stock of overdue payables (arrears) in Russia was shrinking as well, from about 37% of annual sales in 2001 to slightly below 15% in 2004. The development of arrears (overdue payables and receivables, tax arrears, and wage arrears) in Arkhangel'sk Oblast' displayed a similar pattern as for the country at large. The share of overdue payables in Arkhangel'sk Oblast' was 38% of total payables in 2001, decreasing to 13% in 2005.¹⁵ The situation is similar with wage arrears. In

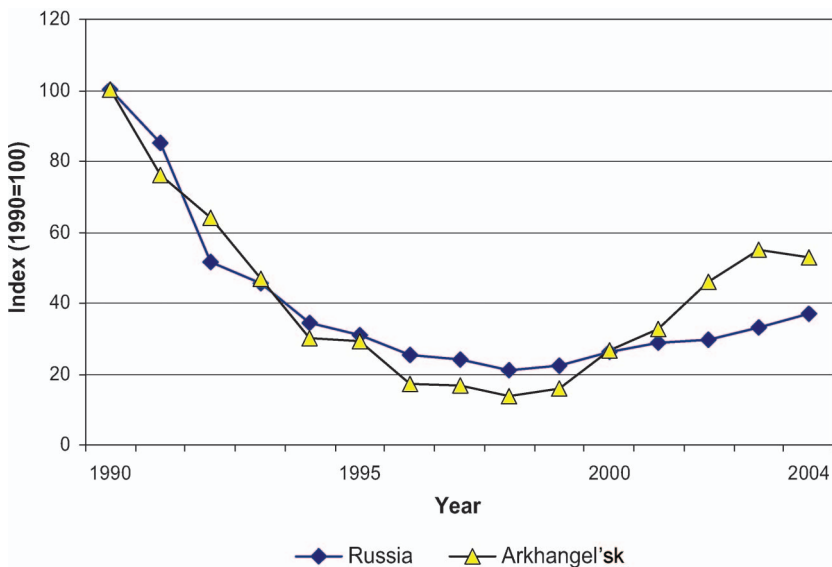
¹⁴*Russian Economic Report*, No. 11, 2005, p. 7, available at: http://ns.worldbank.org.ru/files/rer/RER_11_eng.pdf, accessed 20 February 2006.

¹⁵Overdue 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 Arkhangel'skstat (<http://www.arhangel'skstat.ru>), both websites last accessed 9 February 2006.

Arkhangel'sk the share of tax arrears of total tax debts was close to 90% in 1999 decreasing to around 50% in 2005.¹⁶

Investments in physical and human capital

The reform package supporting the transition in Russia was supposed to make enterprises restructure their activities to become better equipped to meet market competition. However, as it turned out, a great part of Russian enterprises refrained from restructuring, instead turning to operating in the virtual economy. Physical capital investments dropped dramatically after 1990. By 1998, investments were down to a mere fifth of their 1990 level—in Arkhangel'sk *Oblast'* the level was even lower, about 14%. However, after 1998 investments started to recover. As can be seen in Figure 5, the dynamics of investments in Arkhangel'sk *Oblast'* resembled that of the country at large, even if growth rates were higher in Arkhangel'sk in the period 1999–2003. Despite their increasing volume after 1998 total investments in Russia were still, by 2004, below 40% of their level in 1990 (the corresponding figure for Arkhangel'sk *Oblast'* was slightly over 50%).



Source: Data from Rosstat, available at: <http://www.gks.ru/>, accessed 25 February 2006.

FIGURE 5. INVESTMENTS, PHYSICAL VOLUME, 1990–2004. INDEX (1990=100)

¹⁶Data were obtained from Goskomstat Arkhangel'sk (2004, p. 110); and the Arkhangelskstat website, available at: <http://www.arhangelskstat.ru/index.php?id=114>, accessed 9 February 2006. [For more details about this development, see Olsson (2006).]

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 Arkhangel'sk, but while the share for Russia increased moderately and reached just over 40% in 2002, in Arkhangel'sk industry's share of total regional investments grew to nearly 60% in 2000 and reached close to 78% in 2002. While the share of industrial investments allocated to the forest sector has remained around 1–1.5% for Russia at large throughout the period 1990–2004, the forest sector dominated regional industrial investments in Arkhangel'sk, accounting for shares varying between 22% (2002) and 68% (1999) of total industrial investments. Over two-thirds of these investments were made in the pulp and paper industry.

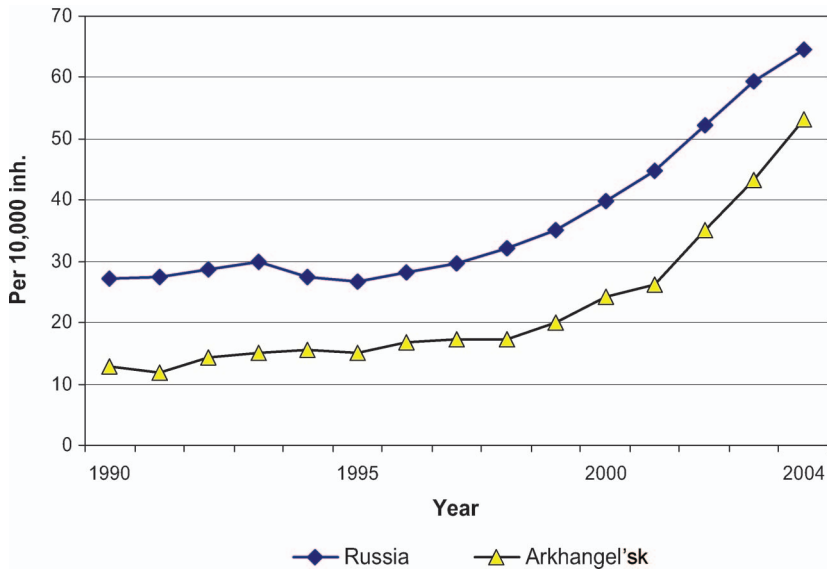
Thus, in summary, it should be noted that investments in physical capital increased after 1998. The financial crisis of that year was a probable cause for the increased investments. The crisis resulted in more favourable conditions for domestic production—the ruble devaluation made domestic products cheaper compared with imported substitutes—creating incentives for business to restructure and expand.

Alongside investments in physical capital however, a successful restructuring of Russian enterprises also requires investments in human capital. Changes in the performance of the educational system should thus be indicative of the potential for economic development. As is well known, the level of education was high in the Soviet Union. Figures confirm that investments in education have been substantial in Russia. Developments in Arkhangel'sk *Oblast'* follow a similar pattern. The impression conveyed by data is that authorities and citizens alike continued to appreciate the value of higher education. For example, 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. There has been a rapid growth in the number of students per 10,000 inhabitants graduating from higher educational institutions, especially after 2000. Arkhangel'sk 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% of the country average by 2004, as can be seen in Figure 6.

Transition could be expected to create a demand for managers with a modern, market-oriented education.¹⁷ Available data on course enrolment 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% of students in higher education studied economics and management—in 2003, the share had increased to 22.2%. Those were figures for Arkhangel'sk *Oblast'*. Corresponding numbers for the country at large were 20.4 and 26% for the respective years. The

¹⁷In the Soviet era managers were often engineers focusing on the technical side of the production process.

¹⁸Data available via the web portal *Statistika Rossiiskogo obrazovaniya* [*Statistics of Russian Education*], available at: <http://www.edu.ru/>, accessed 25 February 2006.



Source: Russia in Figures (2003); Statistics of Russian Education, Internet web portal *Statistika Rossiiskogo obrazovaniya*, available at: <http://stat.edu.ru>, accessed 25 February 2006.

FIGURE 6. YEARLY ADDITIONS TO WORKFORCE COMPETENCE. YEARLY NUMBER OF SPECIALISTS GRADUATING FROM STATE HIGHER EDUCATIONAL INSTITUTIONS, 1990–2004

observed tendencies constitute a support for the further development of the emerging Russian market system.

Enterprise structure, changes in production and employment

After the disintegration of the Soviet Union the inherited enterprise structure underwent a rapid transformation. The number of enterprises in Russia increased dramatically, indicating that entry barriers were being dismantled. In Arkhangel'sk, the number of enterprises increased from slightly over 3,000 in 1990 to close to 23,000 in 2004 (a 7.6-fold increase). For Russia the number of enterprises increased more than 13 times, from close to 290,000 to 3.8 million in the same period. In relative terms, for Arkhangel'sk this meant increases from less than five enterprises per 1,000 inhabitants of working age in 1990, to slightly over 23 in 2002. (In 1990, the level for Russia at large was very similar to that of Arkhangel'sk, but by 2002 the share had increased to 43.5 per 1,000 inhabitants.)¹⁹ By 2002, as much as 63% of all Russian employees worked in private enterprises and, according to an estimate by the European Bank of

¹⁹Still, these are comparatively low numbers. In old market systems such as that of northern Sweden, the 'enterprise density' is much larger. During all of the 1990s there were about 50–52 enterprises per 1,000 inhabitants of working age. Data for these calculations were obtained from *Russia in Figures* (2003), *Goskomstat Rossii* (2004) and *Facts and Perspectives 2003*, a compilation of regional information about Sweden based on official data from Statistics Sweden (available at: <http://www.regionfakta.com/>, accessed 5 June 2003).

Reconstruction and Development, the private sector accounted for 70% of GDP (Ahrend & Tompson 2005a).

Comparing Arkhangel'sk with Russia at large we find that the private sector, measured as the number of privately owned enterprises, had already reached a dominant position by the mid-1990s (see Table 3). In Arkhangel'sk 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% 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.

An important shift in the enterprise–employment configuration characterising the period after 1995 was the fact that enterprises with mixed state–private ownership lost much of their importance as employers. This development indicates a decreasing need for state support of recently privatised enterprises in the latter half of the 1990s. The interpretation would be that many privatised 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'.

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% between 1998 and 2002 (in Arkhangel'sk by more than 56%), their share of the total number of enterprises still remained low (0.3%). However, in terms of employment the foreign and joint venture capital made a much greater impact and their importance for

TABLE 3
ENTERPRISES BY OWNERSHIP IN ARKHANGEL'SK AND RUSSIA, 1995 AND 2004 (%)

	<i>Arkhangel'sk</i>		<i>Russia</i>	
	<i>1995</i>	<i>2004</i>	<i>1995</i>	<i>2004</i>
<i>State ownership</i>				
Number of enterprises	18	18	23	<10 ^c
Employment	55	49	42	36
Investments	36	14 ^c	38	22
<i>Private ownership</i>				
Number of enterprises	65 ^a	67	63	77 ^c
Employment	20	40	34	52
Investments	10	27 ^c	13	46
<i>Mixed ownership</i>				
Number of enterprises	–	4	–	–
Employment	25	10	22	9
Investments	40	11 ^c	46	16
<i>Foreign and joint ventures</i>				
Number of enterprises	0.22 ^b	0.29 ^c	0.3 ^b	0.29 ^c
Employment	0.5	6.4 ^c	0.6	3.5
Investments	–	–	2.7	15

Notes: ^a1996; ^b1998; ^c2002.

Sources: Goskomstat Rossii (2004), Goskomstat Arkhangel'sk (2004), Rosstat (<http://www.gks.ru>, accessed 25 February 2006).

the country's economic development is illustrated by their increasing contribution to total capital investments.

The feature of the new market economy that probably was the most important for Russian citizens was the emergence of a large number of small enterprises. The small enterprise sector is important in several respects.²⁰ In their daily activities, these firms have been forced to meet and cope with the competition 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 learn about adequate market-economic behaviour. Thus, the emergence of new small private enterprises has made an important contribution to changing the 'mental models' (North 2005) that produced the institutional framework governing the behaviour 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% of the total number of enterprises in 2002.²¹ Thus, 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, data also show that small enterprises together do not employ a large number of people. In 2002, the small enterprises of Arkhangel'sk *Oblast'* only employed 6% of all occupied in the regional economy. (While the share of small enterprises in Russia at large was roughly the same as for Arkhangel'sk, their share of total employment was much higher, at 11%.)

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 organisation 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. Since 1998 these holdings have been restructuring their activities to become modern production-oriented corporations (Clarke 2004).

To some observers this trend proves that the Russian economy is now leaving the stage of initial privatisation of state property and entering a phase of consolidation, when property 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, p. 155) argues that 'leading economic actors . . . are still engaged in a complex struggle

²⁰By a small enterprise what is meant is a company in which the average number of employees does not exceed 100 (in industrial production, civil engineering and transport), 60 (in agriculture, science or engineering), 30 (in retail trade or consumer services), or 50 (in other sectors or types of business), and for which the state ownership share does not exceed 25% of the charter capital (SME Resource Centre 2004).

²¹Data from *Goskomstat Rossii* (2004).

for property that transcends simple processes of privatisation 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 takeover attempts. Property is also ultimately a source of political power. Clarke (2004, p. 419), reporting on a case study of management style in Russian holding companies, notes that management practices in the holding companies 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. However, as Clarke (2004) also notes, holding companies are likely to invest in the modernisation of production and 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 estimates²² indicate 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% of total sales and 20.2% of employment in 32 subsectors of Russian industry.²³ The results also indicate that FIGs' control of the country's pulp and paper industry is around 30% in terms of both employment and sales while their control of the timber industry is very much smaller. According to information in the media, vertically integrated holding companies have become very important for the development of the forest sector of Arkhangel'sk *Oblast'*. For instance, in the first five months of 2005, close to 70% of total timber harvesting in Arkhangel'sk was made by enterprises belonging to four large holding companies.²⁴

While output increase is no certain sign of a restructuring taking place among Russian enterprises—the increased output might consist of 'virtual goods' to be distributed on 'virtual markets'—one may argue that such an increase together with improvements in labour productivity and income indicates a more normal market-oriented enterprise behaviour. After a dramatic decline at the beginning of the 1990s, 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% of its 1990 level. The decline was even more serious in the forest sector. In Arkhangel'sk *Oblast'* industrial

²²See, for instance, Dynkin (2003), Barnes (2003), Guriev and Rachinsky (2004), Clarke (2004), and the World Bank (2005).

²³The estimate was made on the basis of a survey investigation performed during 2003. (The sampled enterprises together accounted for 86% of total sales and 43% 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).

²⁴According to data given in *Lesnye Novosti*, summarised in a press survey of Arkhangel'sk *Oblast'* published by the information agency REGNUM on 17 June 2005 (available at: <http://www.regnum.ru/news/471838.html>, accessed 25 January 2006), the four holdings were OOO IlimSeverLes, GK Solombal'skii LDK and Lesozavod No. 3, GK Titan, and PLO Onegales. 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 available at: <http://ns.worldbank.org.ru/cem/eng/setcriteria.asp>, accessed 25 April 2006].

production decrease was less pronounced and by 2003 industrial output was again above its 1990 level.

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, leaving the virtual economy, and exposing themselves to the competition of the market. Analysts of the Russian transition, such as 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. In 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 behaviour 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).

Table 4 illustrates the dramatic decrease in production of forest products that took place in Arkhangel'sk *Oblast'* between 1990 and 1995–1996. A similar development was to be seen in the whole country (and in the whole economy). However, after 1995–1996, production recovered and output levels of most forest commodities started to increase. For some commodities, like commercial wood, round wood and saw logs, output levels increased only moderately—in 2004 output volumes still had not reached

TABLE 4
EMPLOYMENT AND FOREST INDUSTRIAL PRODUCTION IN ARKHANGEL'SK *OBLAST'* 1990–2005, SELECTED PRODUCTS (PHYSICAL VOLUMES), 1990 = 100

	1990	1994	1996	1998	2000	2002	2005
<i>Employment</i>							
Total employment	100	87	80	74	78	81	82 ^a
Industrial employment	100	76	69	–	65	66	66 ^a
<i>Production of certain wood products</i>							
Timber harvesting (1000 cub. m)	100	41	36	35	40	38	39
Commercial wood (1000 cub. m)	100	40	35	34	42	39	43
Round wood, (1000 cub. m)	100	44	39				49
Saw logs (1000 cub. m)	100	46	32	30	40	39	40
Fibre board, (1000 sq. m)	100	67	57	56	81	83	84
Paper (1000 tons)	100	45	53	54	75	81	86
Pulp (1000 tons)	100	56	47	56	80	86	95
Cardboard (1000 tons)	100	59	53	73	99	107	125
Plywood (1000 cub. m)	100	48	34	64	93	131	164

Notes: ^aData for the year 2003.

Sources: Employment data: for 1990–1995: Goskomstat Arkhangel'sk (1997, p. 12); for 1996–2002: Goskomstat Arkhangel'sk (2003, p. 37, 2004, p. 31), Arkhangel'sk *Oblast'* Administration (data available at: <http://www.dvinaland.ru/economy/timber.asp?print=yes>, accessed 2 February 2006), and Komistat (2000, p. 20).

Production data: Goskomstat Rossii (1996), Arkhangel'sk *Oblast'* (1997), Goskomstat Arkhangel'sk (1997, p. 59), Komistat (2000), Russia in Figures (2003), Goskomstat Arkhangel'sk (2003, p. 15, 2004, p. 77), Goskomstat Rossii (2004), Arkhangel'sk *Oblast'* Administration (data available at: <http://www.dvinaland.ru/economy/timber.asp?>, accessed 2 February 2006), and Arkhangel'skstat (data available at: <http://www.arkhadm.gov.ru/economy/timber.asp>, accessed 13 March 2006).

half of their 1990 level. For other commodities, like fibreboard, paper and pulp, by 2004 volumes exceeded 80% of their respective 1990 levels. For only two commodities, cardboard and plywood, output levels by 2001 had climbed above their 1990 levels. Plywood production in particular displayed a striking development after 1996.

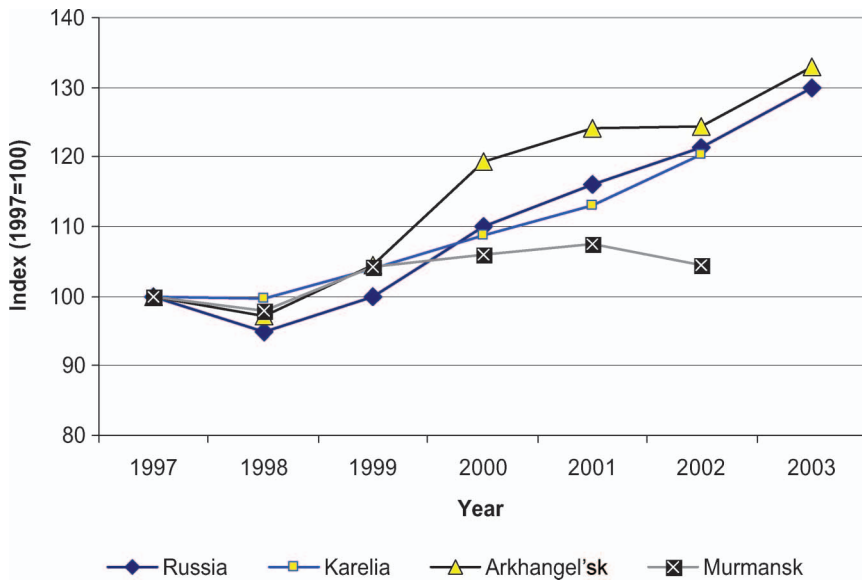
Changes in employment *per se* are an inherently ambiguous indicator of the development of the Russian virtual economy. Improving the efficiency of the Russian economy entails fundamental changes affecting the structure and functioning of the entire system inherited from the Soviet Union. Thus, changes 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 (Ericson 2002).

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

Total employment in Russia decreased between 1990 and 1998 by slightly over 15%. After 1998 total employment increased again, but by 2004 it was still 13% below its 1990 level. Industrial employment decreased by 38% in the period 1990–1998, and 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% in 1990 to slightly over 20 in 2004, the employment share for trade increased from close to 8% to over 17% in the same period. In Arkhangel'sk *Oblast'* total employment decreased even more dramatically between 1990 and 1998 after which it started to increase again reaching, by 2003, 82% of its level 13 years earlier (see Table 4). The decline in industrial employment was even more dramatic, and by 2003 it had only reached two thirds of its 1990 level. The figures indicate a structural shift in employment similar to that of Russia at large. Looking at regional forest sector employment we find that its share of total industrial employment has varied between 40% and 50% throughout most of the period. In 1995, the Arkhangel'sk forest sector employed close to 81,000 people, in 2004 the number was down to 65,000.

In 1993, unemployment in Arkhangel'sk was similar to the average Russian level of around 5% of the economically active population. By and large the unemployment level in Russia and in Arkhangel'sk continued to increase until 1999, reaching 13% and 15%, respectively, of the economically active population. By 2002, however, the unemployment level had been significantly reduced to 8% for both the Russian Federation and Arkhangel'sk *Oblast'* (Goskomstat Rossii 2004).

The fact that unemployment numbers did not reach even higher levels, which might have been expected in view of the Soviet legacy of high labour intensity with accompanying low labour productivity, may be due to the workings of the virtual economy that often seems to allow enterprise managers to hoard labour. Still, unemployment numbers reported by the official statistical agency can be expected to underestimate real unemployment levels (Carlsson *et al.* 1999). At the same time the numbers also hide the fact that many unemployed are actually gainfully occupied in the 'shadow economy', since people are forced to perform some work in this large unofficial sector in order to survive (Ivanova & Nygaard 1999).



Source: Calculation based on data from Rosstat (<http://www.gks.ru>, accessed 25 February 2006); Goskomstat Rossii (2004).

FIGURE 7. PRODUCTIVITY CHANGE IN RUSSIA, KARELIA, ARKHANGEL'SK, AND MURMANSK 1997–2003. CHANGE IN TOTAL GRP PRODUCTION RELATED TO CHANGE IN TOTAL EMPLOYMENT. INDEX (1997=100)

Despite the many shortcomings of the Russian privatisation process there is evidence that privatisation did indeed improve enterprise performance (Ahrend & Tompson 2005a, p. 32 ff). 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 7 illustrates the overall productivity change in the regional economies of Karelia, Arkhangel'sk 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% in Arkhangel'sk, the average for Russia being 5% per year. Labour productivity in industry displayed improvements in the order of 8% per year between 1997 and 2003 (Ahrend & Tompson 2005a, pp. 19–20). The Russian pulp and paper industry yearly gained around 12% in productivity, while the gain was about 4% per year for the woodworking industry.

Changes in the Russian economy of ambiguous significance

Some observed development tendencies are ambiguous to interpret. 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

Arkhangel'sk *Oblast'* might 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 (such as life expectancy and infant mortality) indicates that the economy of Arkhangel'sk *Oblast'* has not (yet) significantly improved to make a very positive impact on these variables.

Institutions regulating enterprises' smooth and orderly entry into and exit from the market are essential for the efficient functioning of a market economy. While market entry barriers seem to have been largely dismantled in Russia, 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 (Tompson 2004). Reports have it that bribes, pressure on the local legislature and regional administration officials are quite common in these processes (Zhuravskaia & Sonin 2005). A cautious assessment might be that the reformation of the bankruptcy legislation—if it continues according to current plans—will contribute to the elimination of the Russian virtual economy, by increasing the transparency of bankruptcy proceedings and ensuring law-abiding and fair regulations of the redistribution of property rights.

The Russian banking system has never been efficient in the market economic sense of providing financial services to enterprises (Tompson 2000). 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, if it is allowed to continue, will bring actors into the Russian banking market who will provide efficient financial services and 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.

Concluding remarks

On the basis of the previous analysis the following can be concluded: Russian enterprises have in fact been increasingly acting in accordance with institutions governing business behaviour 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 suboptimally allocated. This means that policies aiming at final elimination of the

causes and effects of the virtual economy should have a high 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 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.²⁵ Another reason for the low foreign interest is the fact that many Russian industrial enterprises privatised 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 a fierce resistance from domestic actors using their political clout to prevent foreign capital from gaining access and making a significant impact. This 'isolationist' behaviour 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' behaviour.

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 becoming unpopular among Russian citizens and voters who realise that they will be forced to cope with the (frictional) problems that are likely to be an unavoidable 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, a reform 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' behaviour 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, irrespective of the speed by which necessary institutional changes are introduced. At the bottom of the problem lies the existing production structure inherited from the Soviet era. As previously noted, the

²⁵In 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 under the influence of the institutions characterising the virtual economy.

geographical location of industry resulting from Soviet investment policy is highly suboptimal in a market economic perspective.

With the introduction of market economic principles to guide business investment behaviour 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-organisation 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 behaviour of economic actors. On the one hand, policies could be developed with the purpose of facilitating (smoothing) the self-organisation of the Russian economy to make it better adapted to meet market demands. These would be policies introducing improved institutions— institutions that are adequate for the efficient functioning of a market economy—to guide business behaviour. On the other hand, more direct (public or 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 companies and improving various aspects of the infrastructure. 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.

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 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.

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References

- Ahrend, R. (2006) 'Russia's Post-crisis Growth: Its Sources and Prospects for Continuation', *Europe-Asia Studies*, 58, 1, pp. 1–24.
- Ahrend, R. & Tompson, W. (2005a) *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)).
- Ahrend, R. & Tompson, W. (2005b) 'Unnatural Monopoly: The Endless Wait for Gas Sector Reform in Russia', *Europe-Asia Studies*, 57, 6, pp. 801–821.
- Arkhangel'sk Oblast' (1997) *Razvitie i reformirovanie lesopromyshlennogo kompleksa Arkhangel'skoi oblasti: Podprogramma No. 1 [Development and Reformation of the Forest Industrial Complex of Arkhangel'sk Oblast': Sub-programme No. 1]* (Arkhangel'sk, Arkhangel'sk Regional Administration).

- Åslund, A. (1999) 'Russia's Virtual Economy: A Comment', *Post-Soviet Geography and Economics*, 40, 2, pp. 98–102.
- Åslund, A. (2007) *Russia's Capitalist Revolution: Why Market Reform Succeeded and Democracy Failed* (Washington, DC, Peterson Institute for International Economics).
- Aukutsionek, S. (1998) 'Industrial Barter in Russia', *Post-Communist Economies*, 10, 2, pp. 179–188.
- Barnes, A. (2003) 'Russia's New Business Groups and State Power', *Post-Soviet Affairs*, 19, 2, pp. 154–186.
- Braguinsky, S. & Yavlinsky, G. (2000) *Incentives and Institutions; The Transition to a Market Economy in Russia* (Princeton, NJ, Princeton University Press).
- Carlsson, L., Lundgren, N.-G. & Olsson, M.-O. (2001) 'The Russian Detour: Real Transition in a Virtual Economy?', *Europe-Asia Studies*, 53, 6, pp. 841–867.
- Carlsson, L., Lundgren, N.-G., Olsson, M.-O. & Varakin, M.Yu. (1999) *Institutions and the Emergence of Markets, Transition in the Arkhangel'sk Forest Sector*. IIASA Interim Report (IR-99-021), June (Laxenburg, Austria, International Institute for Applied Systems Analysis).
- Chang, G.H. (1999) 'Observations on the Nature of Russia's Virtual Economy', *Post-Soviet Geography and Economics*, 40, 2, pp. 114–120.
- Clarke, S. (1998) 'Trade Unions and the Non-Payment of Wages in Russia', *International Journal of Manpower*, 19, 1/2, pp. 68–94.
- Clarke, S. (2004) 'A Very Soviet Form of Capitalism? The Management of Holding Companies in Russia', *Post-Communist Economies*, 16, 4, pp. 405–422.
- Commander, S., Dolinskaya, I. & Mumssen, C. (2002) 'Determinants of Barter in Russia: an Empirical Analysis', *Journal of Development Economics*, 67, 2, April, pp. 275–307.
- Cox, T. (1996) *From Perestroika to Privatisation; The Politics of Property Change in Russian Society 1985–1991* (Aldershot, Avebury).
- Desai, P. & Idson, T. (2000) *Work without Wages: Russia's Nonpayment Crisis* (Cambridge, MA, MIT Press).
- Desai, R. & Goldberg, I. (2000) 'Stakeholders, Governance, and the Russian Enterprise Dilemma', *Finance & Development; A Quarterly Magazine of the IMF*, 37, 2, pp. 14–18.
- Dynkin, A.A. (2003) *Krupnyi rossiiskii biznes i problemy modernizatsii [Big Russian Business and Problems of Modernization]*, presentation at the Scientific Seminar facilitated by E.G. Yasin on Economic Policy in the Transition Period, Moscow, 29 January, available at: http://hse.ru/science/yassin/seminar_290103.html, accessed 17 October 2006.
- Earle, J.S. & Sabirianova, K.Z. (2002) 'How Late to Pay? Understanding Wage Arrears in Russia', *Journal of Labour Economics*, 20, 3, pp. 661–707.
- Ericson, R.E. (1999) 'Comments on an Accounting Model of Russia's Virtual Economy', *Post-Soviet Geography and Economics*, 40, 2, pp. 103–109.
- Ericson, R.E. (2002) *The Russian Economy*, Discussion Paper No. 0102–07 (New York, Department of Economics, Columbia University).
- Gaddy, C.G. & Ickes, B.W. (1998a) 'To Restructure or Not to Restructure, Informal Activities and Enterprise Behaviour in Transition', unpublished manuscript, May, available at: <http://econ.la.psu.edu/~bickes/informal.pdf>, accessed 22 March.
- Gaddy, C.G. & Ickes, B.W. (1998b) 'Beyond a Bailout: Time to Face Reality About Russia's "Virtual Economy"', unpublished paper, June (Washington, DC, The Brookings Institution), available at: <http://www.brookings.edu/views/articles/gaddy/199806.htm>, accessed 21 June 2005.
- Gaddy, C.G. & Ickes, B.W. (1998c) 'Russia's Virtual Economy', *Foreign Affairs*, 77, 5, September/October, pp. 53–67.
- Gaddy, C.G. & Ickes, B.W. (1999a) 'Getting Realistic About Russia: No Time for Illusions', *Brookings Review*, Winter, available at: <http://www.brookings.org/press/review/win99/gaddy2.pdf>, accessed 5 June 2003.
- Gaddy, C.G. & Ickes, B.W. (1999b) *Stability and Disorder: An Evolutionary Analysis of Russia's Virtual Economy*, Working Paper Number 276 (William Davidson Institute, University of Michigan Business School).
- Gaddy, C.G. & Ickes, B.W. (1999c) 'An Accounting Model of the Virtual Economy in Russia', *Post-Soviet Geography and Economics*, 40, 2, pp. 79–97.
- Gaddy, C.G. & Ickes, B.W. (2001) 'The Virtual Economy and Economic Recovery in Russia', *Transition Newsletter*, 12, February–March.
- Gaddy, C.G. & Ickes, B.W. (2002) *Russia's Virtual Economy* (Washington, DC, Brookings Institution Press).
- Gaddy, C.G. & Ickes, B.W. (2005) 'Resource Rents and the Russian Economy', *Eurasian Geography and Economics*, 46, 8, pp. 559–583.

- Gaddy, C.G. & Ickes, B.W., Mazharov, A. & Volgin, A. (2000) *Russia's 'Virtual Economy': An Update For Investors*, March (Washington, DC, The Brookings Institution).
- Goldman, M.I. (1998) 'The Cashless Society', *Current History*, 97, 621, pp. 319–324.
- Goskomstat Arkhangel'sk (1997) *Arkhangel'skoi oblasti—60 let; Kratkii statisticheskii sbornik [Arkhangel'sk Oblast' 60 Years Old; Short Statistical Collection]* (Arkhangel'sk, Goskomstat Rossiiskoi Federatsii, Arkhangel'skii oblastnoi komitet gosudarstvennoi statistiki).
- Goskomstat Arkhangel'sk (2003) *Lesnaya, derevoobrabatyvayushchaya i tselyulozno-bumazhnaya promyshlennost' Arkhangel'skoi oblasti 1996–2002 gody [The Forest, Wood Processing and Pulp & Paper Industry of Arkhangel'sk Oblast' 1996–2002]* (Arkhangel'sk, State Committee on Statistics of the Russian Federation (Goskomstat Rossii); Arkhangel'sk Oblast' Committee of State Statistics (Arkhangel'skii oblkomstat)).
- Goskomstat Arkhangel'sk (2004) *Arkhangel'skaya oblast' v tsifrakh; ofitsial'noe izdanie [Arkhangel'sk Oblast' in Figures; Official Edition]* (Arkhangel'sk, Federal'naiia sluzhba gosudarstvennoi statistiki (Rosstat), Territorial'nyi organ federal'noi sluzhby gosudarstvennoi statistiki po Arkhangel'skoi oblasti).
- Goskomstat Rossii (1996) *Promyshlennost' Rossii; Ofitsial'noe izdanie [Industry in Russia; Official Edition]* (Moscow, Goskomstat Rossii).
- Goskomstat Rossii (2004) *Regiony Rossii; Osnovnye kharakteristiki subektov Rossiiskoi federatsii; Sotsial'no-ekonomicheskie pokazateli. Ofitsial'noe izdanie, 2003 [Regions of Russia; Basic Characteristics of the Subjects of the Russian Federation; Socio-Economic Indicators. Official Edition, 2003]* (Moscow, Goskomstat Rossii (CD ROM)).
- Guriev, S. & Ickes, B.W. (2000) 'Barter in Russia', in Seabright, P. (ed.) (2000) *The Vanishing Ruble: Barter Networks and Non-Monetary Transactions in Post-Soviet Societies* (Cambridge, Cambridge University Press), pp. 147–175.
- Guriev, S. & Kvassov, D. (2004) 'Barter for Price Discrimination', *International Journal of Industrial Organization*, 22, 3, pp. 329–350.
- Guriev, S. & Rachinsky, A. (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), available at: <http://www.cefir.ru/download.php?id=136>, accessed 17 October 2006.
- Hanson, P. (2002) 'Barriers to Long-Run Growth in Russia', *Economy and Society*, 31, 1, February, pp. 62–84.
- Hanson, P. (2003) 'The Russian Economic Recovery: Do Four Years of Growth Tell Us that the Fundamentals have Changed?', *Europe-Asia Studies*, 55, 3, pp. 365–382.
- Hendley, K., Ickes, B.W. & Ryterman, R. (1998) 'Remonetizing the Russian Economy', in Broadman, H.G. (ed.) (1998) *Russian Enterprise Reform: Policies to Further the Transition*, World Bank Discussion Paper No. 400 (Washington, DC, The World Bank), pp. 101–120.
- Ivanenko, V. & Mikheyev, D. (2002) 'The Role of Non-monetary Trade in Russian Transition', *Post-Communist Economies*, 14, 4, pp. 405–419.
- Ivanova, L. & Nygaard, V. (1999) *Institutions and the Emergence of Markets—Transition in the Murmansk Forest Sector*, IIASA Interim Report (IR-99-071), December (Laxenburg, Austria, International Institute for Applied Systems Analysis).
- Javeline, D. (2003) *Protest and the Politics of Blame; The Russian Response to Unpaid Wages* (Ann Arbor, The University of Michigan Press).
- Kim, B.-Y. & Pirttilä, J. (2004) 'Money, Barter, and Inflation in Russia', *Journal of Comparative Economics*, 32, 2, pp. 297–314.
- Klein, L.R. & Pomer, M. (eds) (2001) *The New Russia; Transition Gone Awry* (Stanford, Stanford University Press).
- Komistat (2000) *Sotsial'no-ekonomicheskie pokazateli respublik i oblastei Severnogo i Severo-Zapadnogo raionov, Kaliningradskoi i Kirovskoi oblastei v 1990–1999gg. Sbornik [Socio-economic Indicators for the Republics and Counties of the Northern and North-Western Regions, the Kaliningrad and Kirvosk Counties in 1990–1999. Data Compilation]* (Syktyvkar, Goskomstat Respubliki Komi).
- Makarov, V. & Kleiner, G. (2000) 'Barter in Russia; An Institutional Stage', *Problems of Economic Transition*, 42, 11, pp. 51–79.
- Minpromenergo Rossii (2005) *O sostoyanii i perspektivakh razvitiya lesopromyshlennogo kompleksa. Doklad zamestitelya ministra Ivana Materova na 8-m s''ezde lesopromyshlennikov i lesoksporterov 20 maya 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]* (Moscow, Minpromenergo Rossii), available at: <http://www.minprom.gov.ru/activity/wood/appearance/1/print>, accessed 29 June 2006.

- Naishul', V.A. (1985) *Drugaya zhizn'* [Another Life] (Moscow, Samizdat), available at: <http://www.inme.ru/previous/otherlif.htm>, accessed 2 March 2008.
- North, D.C. (2005) *Understanding the Process of Economic Change* (Princeton, NJ, Princeton University Press).
- Olsson, M.-O. (2004) *Barriers to Change? Understanding the Institutional Hurdles in the Russian Forest Sector*, Licentiate Thesis 2004:79 (Luleå, Luleå University of Technology).
- Olsson, M.-O. (2006) *Is the Russian Virtual Economy Coming to an End? Institutional Change in the Arkhangel'sk Forest Sector*, IIASA Interim Report (IR-06-048), November (Laxenburg, Austria, International Institute for Applied Systems Analysis).
- Ostrom, E. (2005) *Understanding Institutional Diversity* (Princeton, NJ, Princeton University Press).
- Phillips, A. (1999) 'Changing Characterizations of the Roots of Russia's Problems', *Russian and Euro-Asian Bulletin*, 8, 3, March, available at: <http://www.cerc.unimelb.edu.au/bulletin/99mar.htm>, accessed 1 November 1999.
- Pyle, W. (2006) 'Collective Action and Post-Communist Enterprise: The Economic Logic of Russia's Business Associations', *Europe-Asia Studies*, 58, 4, pp. 491–521.
- Russia in Figures (2003) *Rossiia v tsifrakh; Regional'nyi sbornik [Russia in Figures; Regional Handbook]*. Interactive on-line database containing information based on official statistical material about all Russian regions (Moscow, 'Practical Science Database'), available at: <http://www.sci.aha.ru/cgi-bin/regbase.pl>, accessed 3 March 2008.
- Slay, B. (1999) 'A Comment on Russia's "Virtual Economy"', *Post-Soviet Geography and Economics*, 40, 2, pp. 110–113.
- SME Resource Centre (2004) *Analysis of the Role and Place of Small and Medium-Sized Enterprises in Russia, Statistical Reference* (Moscow, Russian SME Resource Centre), available at: <http://www.rcsme.ru/eng/common/libArt.asp?id=4558>, accessed 13 March 2008.
- Streeck, W. & Thelen, K.A. (2005) 'Introduction: Institutional Change in Advanced Political Economies', in Streeck, W. & Thelen, K.A. (eds) (2005) *Beyond Continuity: Institutional Change in Advanced Political Economies* (Oxford, Oxford University Press).
- Tompson, W. (1997) 'Old Habits Die Hard: Fiscal Imperatives, State Regulation and the Role of Russia's Banks', *Europe-Asia Studies*, 49, 7, pp. 1159–1185.
- Tompson, W. (1999) 'The Price of Everything and the Value of Nothing? Unravelling the Workings of Russia's "Virtual Economy"', *Economy and Society*, 28, 2, pp. 256–280.
- Tompson, W. (2000) 'Financial Backwardness in Contemporary Perspective: Prospects for the Development of Financial Intermediation in Russia', *Europe-Asia Studies*, 52, 4, pp. 605–625.
- Tompson, W. (2004) *Reforming Russian Bankruptcy Law*, Briefing Note (REP BN 04/03), August (London, The Royal Institute of International Affairs, Russia and Eurasia Program).
- Woodruff, D.M. (1999) 'It's Value That's Virtual: Bartles, Rubles, and the Place of Gazprom in the Russian Economy', *Post-Soviet Affairs*, 15, 2, April–June, pp. 130–148.
- World Bank (2005) *From Transition to Development* (No. 32308-RU). Poverty Reduction and Economic Management Unit; Europe and Central Asia Region (Washington, DC, World Bank).
- Yakovlev, A. (2000) 'Barter in the Russian Economy: Classifications and Implications. Evidence from Case Study Analyses', *Post-Communist Economies*, 12, 3, pp. 279–291.
- Yin, R.K. (2003) *Case Study Research: Design and Methods* (Thousand Oaks, Sage Publications).
- Zhuravskaia, E. & Sonin, K. (2005) 'The Economics and Politics of Russian Bankruptcies', *Problems of Economic Transition*, 47, 11, pp. 70–94.