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Ye.Yasin, V. Gimpelson, V. Golikova, K. Gonchar, T. Dolgopyatova, B. Kuznetsov and A. Yakovlev

Russian Manufacturing Revisited: Industrial Enterprises at the Start of the 2008 Financial Crisis



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Russian Manufacturing Revisited: Industrial Enterprises at the Start of the 2008 Financial Crisis

Abstract

This paper is based on a major study by the HSE's Institute for Industrial and Market Studies (IIMS) on competitiveness of Russian manufacturing enterprises. The study seeks to identify the drivers and dynamics of business competitiveness, focusing particularly on behavior adjustments of firms in the period 2005-2008 and the lead-up to the global financial crisis. Using the study findings, we attempt to ascertain which firms succeeded (and the extent to which they succeeded) in capitalizing on the strong economic growth before the 2008 global financial crisis. We then ask if these firms managed to catch up with their competitors and secure sustainable competitive positions in the market, as well as identify the bases for output increases and enhanced production efficiency.

Keywords: Russia, competitiveness, industry

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Introduction and main results

There is an unjustified sense of doom, both in and outside Russia, about the country's manufacturing sector. True, Russian manufacturing generally lacks international competitiveness and still relies extensively on obsolete technologies. But there is also strong evidence that some Russian manufacturers have made significant advances in recent years.

Russian manufacturing initially revived from the 1998 financial crisis on the wings of a devalued currency, cheap labor, and dormant production capacity. This initial stage of recovery was bolstered by rising domestic demand and import substitution. These post-crisis drivers of growth largely were exhausted by the mid-2000s, and Russian manufacturing firms found themselves staring at long-avoided issues such as capital investment, technological upgrades, and expansion into new markets (Desai&Goldberg, 2008).

The 2005-2008 period was exceptionally favorable for Russian firms in terms of the external environment, terms of trade, expansion of domestic demand, and improved access to borrowing. Even so, industrial enterprises largely focused on maintaining market share and increasing output without significant changes in technologies. Moreover, most firms remained reluctant to assume innovation risk or entering new (especially international) markets. At the macro-level, the share of manufacturing in GDP stayed stable. There were fairly robust gains in labor productivity as jobs were cut without corresponding drops in production.

This does not mean plans to modernize Russian industry were entirely off the table. Russia's institutional arrangements and overall numbers simply mask restructuring efforts on the part of proactive firms. To better understand these divergent trends inside manufacturing, we look beyond the macroeconomic data to indicators of performance and behavior at the micro-level. Given the challenge of such a task, we restrict our investigation to a few straight-forward questions: Were the years before the 2008 crisis a time of efficient growth? Which firms enhanced competitiveness? What were the big changes in firm behavior (e.g. innovation, management, government-business relations)?

These questions are relevant both in assessing the current situation and designing post-crisis economic and industrial policies. Our data end in spring 2009, a time when Russia was still deeply mired in crisis and the consequences of the crisis were yet to be fully felt or understood.

Our findings, which largely consider changes in the pre-crisis period, can be summarized as follows:

- External conditions: Russian manufacturing firms saw favorable external conditions during 2005-2008. Rising domestic demand, low interest rates, improved access to external financing, and stable institutions all facilitated investment and technological modernization of industrial firms and encouraged FDI growth. The major challenges to firms in the period were revaluation of the ruble, high inflation, and labor market tensions that forced up wages and salaries.
- Labor productivity: Russian manufacturing saw labor productivity soar 50 % on average during 2005-2008. This was achieved through a combination of increased output and decreased employment. Profit margins increased, but were still low compared to other sectors. Manufacturing's contribution to GDP growth matched that of the economy overall. Unlike the initial period of manufacturing recovery (1999-2004), firms focused their efforts on efficiency gains. Firms with better competitiveness created more jobs and saw larger increases in output. Less competitive companies sought productivity through downsizing.

- Global competitiveness: As a whole, Russian manufacturing firms failed to substantially improve their global competitiveness in the period. This view is reinforced by the self-assessments of surveyed firms and the fact that no significant growth of manufacturing export was registered at the macro-level. While the share of exporting firms did not change, growth in the share of firms exporting 10 % or more of sales increased along with the volume of exports.
- Competitive climate: While overall competitive pressure on firms remained stable, increasing competition from foreign firms producing goods inside Russia lifted quality demands. Manufacturing of foreign firms in Russia partly replaced competition from imports.
- Innovation: Despite competitive pressure and state policies encouraging industrial innovation, we see little evidence that manufacturing widely embraced frontier R&D innovation strategies in manufacturing. Instead, we find that the more innovative firms relied on the much less costly "catch-up" strategy, which emphasizes incremental innovation and imitation. While the share of enterprises making at least some R&D investment decreased from 55 % in 2005 to 36 % in 2008, micro-spenders fell away and the remaining firms spent more on R&D. Thus, we see a trend to concentration similar to that of export activity. Innovating firms tended to be more productive, and their product and process innovations correlated with relatively high initial levels of technology, investment activity, and exports.
- Ownership structure: New pro-market trends were seen in ownership structure of Russian manufacturing firms. For the first time, we registered diffusion of ownership and a decrease in the share of joint-stock companies with a single controlling owner. A second trend was transfer of control from owners to professional managers. The data show a significant increase in the number of firms with no large shareholders in executive management.
- Foreign investment: Equity participation of foreign owners (investors) in Russian manufacturing firms increased. One in ten of the companies surveyed in our 2009 sample reported foreign equity participation. Over half of these had controlling foreign owners with stakes above 50 %. While that is low by international standards, it represents a significant change in Russia from a decade earlier. Foreign investors tended to hold large stakes in companies of more than a thousand people.
- Quality of management: Our survey indicates positive trends in the quality of management in Russian industrial firms. Managers had better professional education (share of managers with MBA degrees doubled during 2005-2008 from 9% to 17%), longer planning horizons, and used a wider spectrum of modern management technologies. Management innovation appeared to go hand in hand with major capital investments and technological innovation. Despite this rosy news, Russian management still has a long way to go to match top-tier international practice (even within the group of innovative and investment friendly enterprises). Only a third of firms reported the use of benchmarking in gauging performance and only half actively assessed and revised their business processes.
- **Skilled labor:** Russian firms not only lack qualified managers, they generally suffer from a structural deficit of skilled labor. This continued to be an obstacle to growth of industrial firms in 2005-2008. Even as the financial crisis of 2008-2009 alleviated the problem, over 36 % of enterprises still reported a lack of skilled labor and that was a marked

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improvement from the 2005 survey, where over half of respondents reported a lack of skilled labor.

• Government-business relations: Our data show improvement in state-business relations, at least at regional and municipal levels. The survey confirmed a shift to an "exchange model" in relations of enterprises and authorities and away from the "state capture model" typical of the 1990s. During 2007-2008, regional authorities led in providing support for enterprises, particularly financial and administrative support to firms playing important social roles or assisting regional and local authorities in social development. While such relationships were found at all levels of government, the federal government appeared to expend more energy on preserving jobs at antiquated state-run enterprises rather than boosting promising firms. Regional authorities, on the other hand, often conditioned their support on whether the enterprise was engaged in major investment projects. Municipal support in 2007-2008 frequently went to firms with foreign equity. We can suppose that local and regional authorities in more advanced regions in Russia worked to attract investment and encouraged firms to restructure their businesses. This is similar to the experience of China, Brazil and many other developing countries.

Study database

Our database was compiled in the course of two HSE IIMS projects to monitor industrial enterprises involved in manufacturing. Both projects were commissioned by Russia's Ministry for Economic Development. The HSE partnered with the World Bank in the first round of the survey, which was conducted by the GFK-Rus company. The second round of the survey, conducted in February-June 2009, was done by the Levada Center and used face-to-face interviews.

In both the 2005 and 2009 surveys, approximately 1,000 top managers responded to a comparable questionnaire. The second round targeted the same companies as the first round. Where possible, the earlier sample characteristics were compared to detect changes (types of activity and enterprise size). The panel part of the survey, covering firms surveyed both in 2005 and in 2009, accounted for about half of total respondents. Sample enterprises employed about 9 % of the total average payroll in the total population of manufacturing enterprises. These enterprises accounted for about 6 % of Russia's total manufacturing output in 2007.

The survey excluded small businesses and large enterprises with more than 10,000 employees. The panel, however, includes enterprises employing fewer than 100 persons. This group largely consists of enterprises surveyed in 2005 that had downsized by 2009.

Table 1. 2005 and 2009 samples by sector	2005		2009	
	%	N obs	%	N obs
Food	24.8	248	24.6	235
Textiles and garments	9.2	92	9.3	89
Timber and woodworking	8.4	84	8.5	81
Chemicals	8.8	88	9.2	88
Metals and fabricated metal goods	10.3	103	10.2	98
Electrical, electronic and optical equipment	14.2	142	12.2	117
Transport vehicles and equipment	9.0	90	9.0	86
Machines and equipment	15.5	155	17.0	163
Total	100	1002	100	957

Table 2. 2005 and 2009 samples by enterprise size				
	2005		2009	
Employees	%	N obs	%	N obs
Fewer than 250	43.8	439	45.0	431
251-500	25.6	257	24.1	231
500-1000	15.9	159	16.5	158
More than 1000	14.7	147	14.4	137
Total	100	1002	100	957

The general database of the study includes data from both surveys, as well as SPARK statistical information on firm activities..

The manufacturing sector in 2005-2008: Macroeconomic and institutional environments

For several years before the summer of 2008, Russia's manufacturing industries enjoyed a relatively benevolent economic environment. Domestic demand expanded dramatically, external financing became increasingly available, real interest rates on bank loans fell (and were sometimes even negative), and foreign investment in Russia's manufacturing sector was rising. Manufacturing's biggest challenges were coping with stubbornly high inflation (albeit moderate compared to earlier episodes), an appreciating real effective exchange rate (REER) and accelerated growth in labor costs.

Notably, labor productivity in manufacturing increased 50 % between 2005 and the end of 2008. The sector also retained its share of contribution to GDP as added-value growth in the sector allowed it to match Russia's overall GDP growth. Given the inflation rate in this period, the marginal increase in profitability in manufacturing from about 16 % in 2005 to 18 % in 2009 can hardly be called impressive.

An important obstacle to manufacturing competitiveness in this period was the lack of progress in institutional development. As a result, respondent assessments of business barriers in 2005 and 2009 are largely unchanged. Figure 1 presents respondent perceptions of certain aspects of the business environment in 2005 and 2009. Large improvements are observed only for tax administration and skilled labor availability (likely a reflection of the crisis). Moderate improvement is seen in assessments of the judiciary and ease of doing business. There was no progress infrastructure development, although institutional factors continue to be larger constraints for business than the state of infrastructure. Interestingly, corruption, so frequently mentioned in the mass media and expert discussions, ranks only eighth among all major business obstacles (mentioned by 21 % of respondents in 2009). Customs regulation disturbingly moves up from 15th in 2005 to 10th place in 2009, a shift unexplained by the economic crisis. Institutional constraints were most acute for firms involved in major investment projects, most likely because such projects require regular dealings with state officials and regulators. Thus, businesses making large investments in 2005-2008 indicated customs barriers as major business obstacles almost twice as frequently as businesses that did not invest during the period (42 % versus 22 %). A similar variance is observed in perceptions of availability of construction permits. Access to land was more frequently mentioned as a problem by active investors (35 % of active investors vs. 24 % of noninvesting firms).

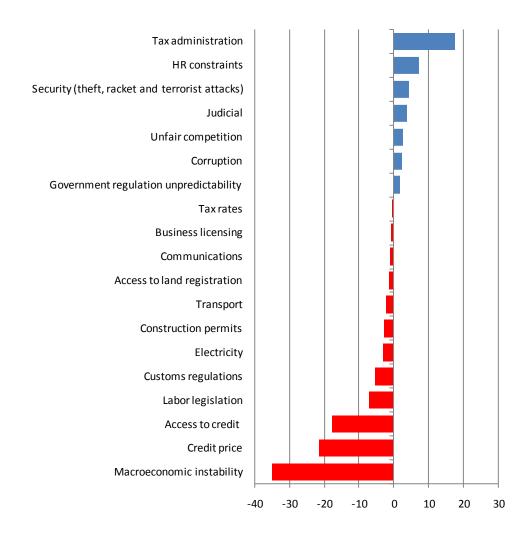
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¹ Manufacturing's share of economic output fell in 2008 after the onset of the financial crisis.

² This comparison is not perfect. The 2009 survey was conducted at the height of the economic crisis at a time when the growth outlook was uncertain. This likely explains some of the drastic deterioration in perceptions of macroeconomic stability, access to bank credit, and the regulatory environment for labor.

Figure 1. Variation in assessment of business barriers, 2005 and 2009 (percentage points).

Figures on the horizontal axis show the difference between the share of firms that indicated the factor as a serious impediment to business. A minus sign (-) indicates a downgraded assessment and a plus (+) an improved assessment.



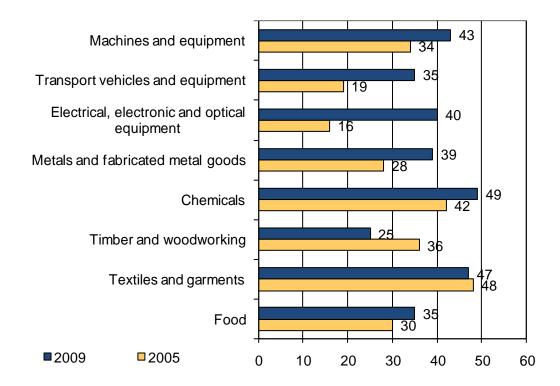
Source: HSE surveys of 2005 and 2009.

The absence of significant improvements in Russia's business climate against a background of positive developments in the institutional environment in other transition economies is notable as Russian enterprises saw their competitiveness erode vis-à-vis their peers in these economies. According to the BEEPS,³ Russia in 2002 looked better on average than 26 other surveyed

³ The Business Environment and Enterprise Performance Survey is the product of a joint 2002 initiative of the EBRD and the World Bank. The most recent 2008-2009 round of the survey covered 11,800 companies in 29 countries. The survey universe is limited to industrial, commercial or service business establishments with at least five full-time employees. The survey used comparable questionnaires. The Russian sample of 2009 covered 1,004 enterprises, including 603 industrial companies. The Russian sample in 2005 covered only 601 enterprises. (See "The Business Environment and Enterprise Performance Survey (BEEPS) 2008-2009: A report on methodology and observations," October 2009.)

transition economies in three-fourths of business climate parameters. By 2005, Russia led in only half of the surveyed parameters. In 2009, it lagged the average in 16 of 18 parameters among the 29 surveyed countries.

Figure 2. Share of firms facing significant competition from Russia-based foreign producers in 2005 and 2009 (%).



As competition is important to market vibrancy, the lack of competition in Russian manufacturing has traditionally been seen as a major limitation as it removes any incentive to improve efficiency. On the surface, the situation appeared to show no improvement in recent years. In both the 2005 and 2009 surveys, approximately every fifth enterprise said it faced little or no significant competition from its domestic peers and foreign producers. Around 30 % of firms said they competed exclusively with domestic rivals and less than 40 % said they were exposed to strong competition from both domestic and foreign producers.

Detailed analysis of our dataset, however, reveals considerable changes in the pattern of competition from foreign companies. There was a sizeable increase in the share of enterprises reporting strong competition from both imports and locally based foreign producers. In 2005, such competition was largely confined to the chemicals and textiles & clothing sectors. By 2009, it also applied to domestic metals and machine producers (Fig. 2). To a certain degree, competition from "Russian foreigners" seems to have replaced direct competition from imports.

Quality of growth

Our analysis shows growth in manufacturing in general was driven by firms that were more productive and competitive. This becomes clear when we break out enterprise dynamics into three groups. Using the performance data for our firms in 2004, we construct a simple indicator based on a firm's individual labor productivity compared to average labor productivity of its industry (type of economic activity) and the assessment of top management as to their firm's competitive position relative to its main competitors. If a firm claims it is a competitive leader and its labor productivity is above average for the sector, we classify it as a leader. If the firm assesses its competitiveness below the leaders (and the gap is not closing or widening) and its labor productivity is below average for its sector, it is classified as an outsider. All other firms are placed in the "midrange" competitiveness group. Despite the arbitrary and limited character of these groupings, it is still adequate to distinguish leaders from outsiders. Following our criteria, the group of leaders includes about a quarter of surveyed enterprises, the "midrange" group about 55 %, and the group of outsiders about 20 %. An analysis of growth rates in various groups reveals that the bulk of revenue growth is concentrated with the most competitive firms. Firms included in the leaders group in the 2005 survey increased output by 23 % a year on average (in nominal terms) during 2005-2007. The midrange competitiveness group experienced average growth of 17 % a year, while the 2005 outsider group averaged below 10 % a year. Thus, the key contributors to output growth before the crisis were the most competitive businesses with the highest profitability.

Output increases in the group of the most competitive firms were accompanied by similar advances in labor productivity. In other words, these enterprises raised output without additional hiring or significant shedding of jobs. In contrast, the midrange group improved productivity largely through labor downsizing. The highest rates of productivity growth were observed in the low competitiveness group, possibly indicating the presence of a low base effect and the fact that only firms that survived made it into the 2009 sample. We infer such surviving outsiders achieved improvements in efficiency.

Higher labor productivity growth among less competitive firms appears to narrow gaps within individual sectors as underperformers manage catch up with the leaders. The variance in labor productivity between the top and the bottom quintiles within one economic activity decreased over the three years across all sectors except chemicals and metals. This may be related to the favorable global environment and exporters breaking away from domestically oriented producers.

Technology upgrades and innovations

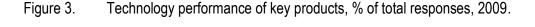
Growing demand, access to cheap credit, and a modicum of profitability before the crisis made it possible for most enterprises to embrace an investment-based model featuring modernization of fixed capital assets and adoption of new technologies. A plurality of enterprises made good use of this window of opportunity. Almost 40 % of enterprises made substantial capital investments in the years before the crisis. Many of these firms subsequently saw their investment plans disrupted by the crisis.

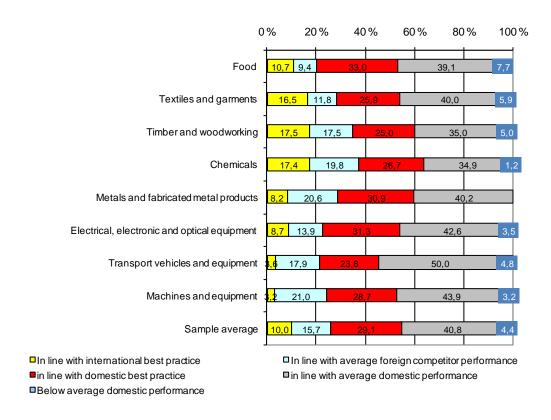
Russian enterprises continued to lag behind their rivals in technological standards. Self-assessments of the technological level of production indicate (Fig. 3) that on average only a fourth of the surveyed respondents believed their technological level matched that of their foreign

⁴ We do not include 2008 data here due to the severe impact of the financial crisis on many industries.

competitors. Another 30 % of companies thought their technologies met the highest domestic standards.

Assuming the "sound technology performance" watershed lies roughly at the level of the Russian best practice, the chemical industry came out as the top performer. The timber and metals sectors also performed better than the sample average. However, the timber industry includes a diverse range of firms from those that meet the most stringent international standards and those hopelessly behind, evidencing extremely high heterogeneity in this sector. The poorest performance was reported for the transport vehicles and machines and equipment engineering.





Comparison of the 2005 and 2009 findings shows the sectors have not converged in the area of technology absorption. The leaders have become stronger and the laggards have slipped farther behind. Most manufacturing industries found themselves ensured in a "catch-22" situation. According to V. Polterovich (2009), this vicious circle of backwardness means "innovation cannot drive economic growth as backward production does not create demand for innovation and suppresses supply, while absent supply in its way tends to be a drag on demand."

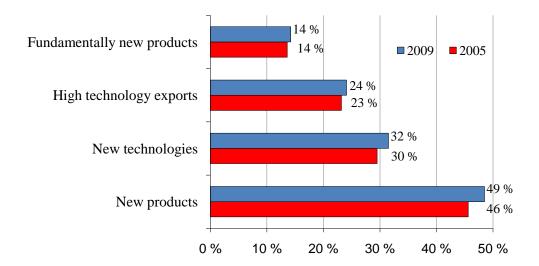
Overall innovation performance did not change visibly in the period (Fig. 4). The panel data registered an unchanged number of formal innovators.⁵ If we deviate from the formal criteria of innovator enterprises and include in this category firms with product and technology innovation, as well as R&D budgets (essential for successful technology adoption and use), it would appear that

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⁵ We classify enterprises that have reported technology innovations over the last three year, including a new product offering and/or new technology absorption as formal innovators. We also show enterprises reporting high-tech exports (among exporters) and those that gained some competitive advantage via their new to market product innovations.

the share of innovative enterprises contracted during 2005-2009. The deepest fall is observed for the low-tech timber and food sectors.

Figure 4. Innovation performance metrics in 2005 and 2009, % of total responses.



In grouping companies, we take into account their use of innovation, R&D spending, and how specifically new products target new markets. Our analysis shows that Russia's manufacturing sector was dominated by abstainers (no innovation) and imitators that opted for off-the-shelf solutions. A mere fifth of the companies that absorbed innovation did so with at least the whole domestic market in mind. Most of these enterprises were concentrated in electronic engineering field. Global innovators were most numerous in the chemicals sector and absent from the timber sector.

Technological underperformance is a crucial reason for the low competitiveness of Russian industrial firms. Enterprises that saw themselves in line with national best practices in technology performance had productivity 45 % higher than other enterprises in the sample. *Ceteris paribus*, proactive investment behavior tended to raise a firm's productivity by an average of 26 %, while proactive innovation behavior (eyeing at least the national market backed by in-house R&D spending) added another 15 % to productivity gains.

The trends observable prior to the crisis seem to justify cautious optimism. Unlike earlier years when proactive innovation was not always rewarded with improvements in competitiveness, the situation was healthier and market-driven by 2009. Innovative Russian enterprises are more competitive today, and that competitiveness improves as innovation deepens (Fig. 5).

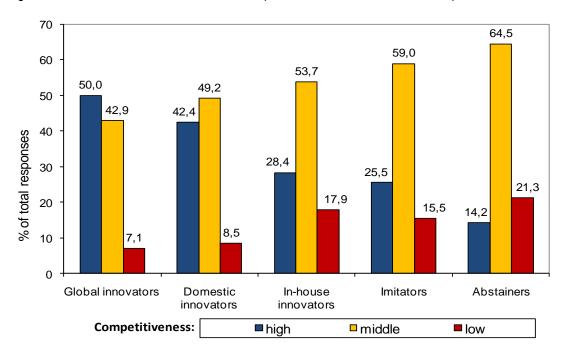


Figure 5. Association between firm competitiveness and firm innovation performance.

Our assessment of current trends suggests Russia's industry is forming an innovative core. While the proportion of enterprises with some R&D investment decreased from 55 % in 2005 to 36 % in 2008, the losses were mostly micro-spenders. The group of enterprises continuing with R&D spending generally devoted more money to R&D.

Ownership and corporate governance: From Russian specifics to international practice

Researchers routinely note that Russian corporate governance for most of the transition period was characterized by high equity concentration ratios that permitted tight control of the dominant owner over the corporate processes and management bodies (often to the detriment of minority shareholders). Our data suggest Russian corporate governance systems are now converging with those in advanced economies and that Russian firms are gradually improving their corporate governance practices.

As much as 75 % of business companies had a controlling owner (holding more than 50 % of the company's stock) in 2005. By 2009, that share of companies with a single main owner had fallen to 64 % of the sample. Panel data indicate that the proportion of companies having a controlling owner has shrunk by more than 6 percentage points for all business companies and by more than 4 percentage points for joint stock companies.

This development, however, was by no means universal. Our panel data analysis shows that one in five firms decreased its ownership concentration, while every sixth company experienced ownership concentration. Indeed, the diffusion of ownership appears to be the result of deliberate measures by dominant owners; incumbent business owners were most likely to seek a reduction in the ownership concentration ratio. Increased public offerings and trading in company stock and bonds further contributed to this effect. Notably, stock exchange funding increased during this

period as the share of joint-stock companies publicly trading their securities (shares and bonds) doubled over four years from 4.8 % to 9.6 %.

Another important development in recent years has been the trend to transfer control from owners to hired managers. According to the data, 41 % of business companies in 2009 had no major shareholders on their executive management team and the chief executive officer had no shares (ownership interest) in the company they were leading. Comparison with data from a 2005 survey (Dolgopaytova, Iwasaki, and Yakovlev, 2009) shows a 10 percentage point increase (i.e. by roughly a third) of companies with hired managers in the group of large and medium-sized manufacturing joint-stock companies. Separation of management from ownership was seen as a way to create incentives for large owners to use standard internal corporate procedures to oversee the operations of executive management, thus boosting demand for corporate governance rules and procedures on behalf of business.

Probably the most important trend here, however, was toward wider equity participation of foreign owners (investors) in Russian manufacturing firms. In the early 2000s, empirical studies found the share of foreign interest in manufacturing was only 1-2 %. The above-mentioned 2005 survey found that foreign investors accounted for up to 4 % of equity in manufacturing overall, and the foreign equity participation in joint-stock companies was just under 10 %.

Foreign equity participation was reported by one in ten business companies in our 2009 sample. More than half of these companies said the controlling foreign owner held a stake of over 50 %. Though the total share of foreign investors in the sample is relatively low by international standards (averaging just 6 % of total equity), foreign owners in Russia tended to hold large stakes. In companies with multiple foreign co-owners, this interest exceeded 60 %. Foreign investors tended to hold large stakes in companies employing more than a thousand people.

Notably, the trend to increased foreign ownership of Russian companies was across-the-board. There were no signs of concentration in individual sectors, although foreign ownership was more prominent in the chemicals industry, manufacturing of transport vehicles and equipment, and the metals sector.

Economists and policymakers have long debated the impact of ownership structure on business operations, particularly the role of foreign ownership. In Russia, it has always been especially difficult to pinpoint and tease out the ownership factor from many others, not least due to the low transparency of ownership structures. Not surprisingly, the few empirical studies on this topic arrive at differing, sometimes conflicting, results.

Our study suggests that the linkage equity capital structure to firm behavior and business competitiveness has strengthened. Specifically, there has emerged an explicit positive correlation with foreign co-ownership, similar to what has been earlier observed in other advanced and transition economies.

Foreign participation motivates enterprises to modernize (Fig. 6), promotes comprehensive development of business systems, and helps in alignment of strategic and day-to-day managerial objectives. Enterprises with foreign ownership often aspire to the market leader position (mentioned by 43 % of firms with foreign ownership). They are more likely to engage in strategic behavior and are more active in investment. These enterprises also look internationally to strategic partnerships. Strategic targets are set by benchmarking against foreign competitors. These companies are also more likely to leverage other management technologies, business restructuring measures, and measures to enhance accounting and reporting.

There is an oft-repeated trope that foreign owners are uninterested in innovative development of their Russian assets. Our study suggests this is not the case. Firms with foreign interest by and large demonstrated more proactive innovation behavior. Over 60 % offered new products, and over 50 % developed new technologies. Half of the firms classified as most innovative in our study were

firms with foreign participation. (At this point, we offer a *caveat*: this may be due to a positive selection effect, i.e. foreign investors tend to cherry-pick among the most efficient enterprises when targeting participation.)

Figure 6. Behavior profile of companies with foreign equity.

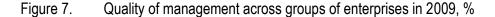


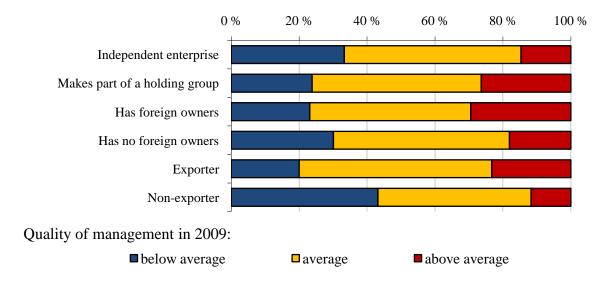
Our survey also does not support the general view that foreigners come to Russia exclusively to tap the domestic market. Nearly 89 % of enterprises with foreign equity were exporters (and not just in resource-intensive sectors). The exports shares of total sales of these enterprises were more than four times higher than for firms without foreign equity. A higher share of their exports also went to non-CIS countries (39 % of their exports to non-CIS vs. 21 % of non-CIS exports for other enterprises).

Quality of management: Sound management essential for competitiveness

Poor management of Russian enterprises and the lack of adequate management skills were long seen as the Achilles heel of the Russian economy. Management innovations driving firm efficiency began to emerge in the first half of the 2000s. Our earlier study (Golikova et al. 2007) found that the quality of management at Russian manufacturing enterprises was become highly varied by 2004-2005. Some enterprises were leveraging a wide array of state-of-the-art management technologies and hiring MBA graduates, while others still avoided the most rudimentary modern production management methods.

One way an empirical survey might assess the quality of management would be to ask about the range or number of management technologies employed. Generally speaking, the more management technologies in use, the better the management. Again, we break our enterprises into three groups. The bottom third contains the group of firms with poorly trained management. The mid-range group (about half of firms) had some competent managers. The top fifth consists of firms with superior management. This long tail of poor performers in management is quite typical of other BRIC countries (e.g. Brazil and India) and not limited to Russia (Bloom and Reenen, 2010).





Despite the limitations of our indicator used to measure the quality of management, many determinants identified at Russian enterprises are surprisingly similar to those found in cross-country surveys, i.e. quality of management appears significantly better in larger enterprises, foreign-owned companies, and exporters (Fig. 7). In the Russian context, stronger management performance is also seen in companies that are part of integrated business groups and in firms established in the period 1992-1998. The Russian picture differs from other countries in that there is no strong evidence of that management in state-owned enterprises is particularly poor or

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⁶The highest possible number of management technologies assessed in the survey is 14, the sample average is 4.12, and the median is 4. We have classified the surveyed enterprises into three groups by their management performance:

[&]quot;below average" (0-2 technologies utilized); "average" (3-5); and "above average" (6 or more).

incompetent. We also find no evidence to suggest Russian firms with hired CEOs are better managed than those managed by their owners.

The quality of management is an important contributor to firm competitiveness. Other variables constant, firms with management performance "above average" tended to become leaders more than five times more frequently than firms with "below average" management performance.

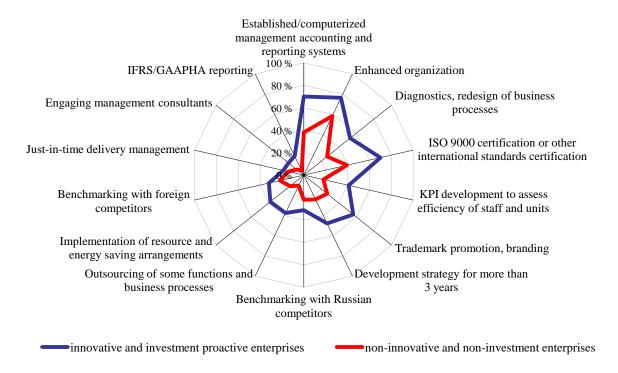
Competitiveness leadership is most related to such management technologies as branding and ISO certification. This strong association of competitiveness and branding appears to be a new phenomenon, and was not picked up in 2005 survey. The value of trademarks and brands has indisputably grown in recent years; a quarter of the enterprises in the panel mentioned they had launched their branding efforts since they were surveyed in 2005.

ISO certification has also become more common. As of 2009, half of the industrial enterprises had ISO certification, an increase of 11.2 percentage points from 2005 (growth of 8.1 % for the panel). ISO certification was more common among larger enterprises; two-thirds of firms employing 500-1,000 people were ISO certified, and more than 80 % of companies in the group of companies employing more than 1,000 people.

A recent observable development is the use of tendency of firms to combine management innovations with major capital investments and technological innovation. This suggests that innovation in a broad sense as it is seen internationally may be applicable to some enterprises, i.e. innovation in business models, products, and processes. The share of enterprises leveraging management technologies was 1.5-2.5 times larger in the group of innovative and investment proactive enterprises (Fig. 8). As a result, one in three enterprises in this group demonstrated above average management, while only one in ten of companies in the group of non-innovative and non-investing (or investing on a small scale) enterprises showed above average management.

Another positive development in management was the use of longer planning horizons. Our findings show that the period 2005-2009 saw a sizeable contraction (15 percentage points) of the proportion of enterprises unable to plan more than a year in advance. Despite the recent crisis, more than half of surveyed companies now confidently plan 1 to 3 years ahead. This trend is fully observable in the panel data. Half of the firms that indicated their planning horizon was less than a year in 2005 claimed they planned 1-3 years ahead in 2009. Some 15 % said they planned more than three years ahead. Longer planning horizons were typical for enterprises in holding groups, enterprises employing over 500 people, and companies geared toward innovation or imitation. The longer is the planning horizon, the more often enterprises tended to practice systemic improvements of management and major investments.

Figure 8. Use of management technologies in groups of enterprises by innovation and investment activity, %.



During the period 2005-2009, management skills at surveyed firms improved significantly. The number of panel firms employing MBA graduates from Russian business schools and universities doubled from 9 % to 17 %. Every seventh enterprise in 2009 included managers with employment experience with a foreign firm. Companies looking toward innovation leadership invested not only in technology upgrades but also human resources, head-hunting highly qualified and experienced managers. This group had on average twice the number of MBA graduates from Russian schools, holders of international advanced degrees in economics and management, and persons with experience working for a foreign company, than the overall survey. They were three times more likely to be found in such companies than in the group firms that abstained from innovation and investment.

It appears Russian industry has developed a cluster of enterprises with top-quality management staff employing a total range of the latest management technologies. This enclave is not vast, just about 15 %, and it still too small to determine the overall quality of management in Russian manufacturing. According to the 2009 data, almost 45 % of firms did quite well in their markets without innovation and major investment, getting by with a sluggish approach to management improvement.

The biggest challenges in developing the quality of Russia management relates to the adoption of benchmarking practices that regularly compare the firm's performance against its foreign and Russian competitors, as well as the use of diagnostics and restructuring of business processes. Even within the group of innovative and investment proactive enterprises, only a third said they practiced benchmarking, and only half reported diagnosing and restructuring business processes. A recent study (McKinsey, 2009) underscores weak business processes as a major factor in the low productivity of Russian enterprises compared to benchmark countries.

The labor market: How bad is the manufacturing skills shortage?

Throughout the 1990s, redundant labor persisted as the key labor-related problem faced by enterprises. Companies complained excess employees pushed up their costs. In the 2000s, especially in the second half of the decade, enterprises increasingly shifted complaining about the labor deficit. Earlier studies (Gimpelson et al, 2008) reveal that less-efficient enterprises are more likely to complain about a labor deficit of skilled labor. We argue that these labor deficit complaints more likely reflect the low efficiency and inability to pay competitive wages of the firm, rather than an actual lack of skilled workers in the labor market.

The 2009 survey offers a different macroeconomic context for an assessment of labor excess and deficit issues, i.e. a raging crisis and deep recession instead of rapid growth followed by overheating economy and increased demand for labor. Responses indicate that the labor shortage was resolved, albeit temporarily. In 2005, about 60 % of enterprises perceived their staffing levels as optimal. By the spring of 2009 when the survey was conducted, this share exceeded 70 %. At the same time, the share of understaffed enterprises halved from 27 % to 13 %, while the proportion of over-staffed firms remained basically unchanged (down slightly from 13 % to 12 %). In other words, the economic crisis reduced demand for labor and accelerated the decline in employment, suggesting excess employment was, after all, the dominant problem in the Russian manufacturing sector. The fact of this switchover from deficit to surplus is further backed by other surveys of large and medium-sized enterprises (IET, 2010).

In a crisis environment, it appears successful companies work hardest to maintain optimal staffing. For enterprises that assessed their financial and economic position as sound, the extent of suboptimal employment (as a quantifying measure of variation from the norm), if reported at all, did not exceed 10 % of payroll headcount. In the group of poor performers, the shortage was 15 % on average (if they had a shortage) and the surplus was on average above 22 %.

Nevertheless, there is a basis for seeing a structural skilled labor deficit in manufacturing. This is evidenced, in particular, by the fact that even during the crisis skilled labor shortages were reported by over 36 % of enterprises. Of course, this is still an improvement from the 2005 survey, when this problem was reported by over half of the respondents.

Summing up, labor shortage complaints have become much less common than in 2005, while labor excess complaints are relatively more common (though they have not become across-the-board despite the crisis). Many enterprises report problems of both excess labor and a lack of the right kind of skilled labor at the same time. During the downturn, as well as during the boom, the key contributor to labor shortages continued to be low pay, rather than an actual physical deficit of workers in the labor market. As for the structural deficit of certain staffing categories, we believe it is rooted in the underdeveloped system of vocational and professional training, especially in-house training, rather than a physical shortage.

Formal staff training was reported by every second industrial enterprise in our survey. On the surface, this appears a fairly strong performance (even if the reported share in 2005 was 69 %). However, the overwhelming number of enterprises pursuing training programs did so on a limited scale. Indeed, only one in five enterprises had training programs covering more than 10 % of employees, and only 15 % had training programs lasting over a month.

Flexibility may also be a specific feature of the Russian labor market driving structural deficits. Russian labor market flexibility primarily comes from the low share of the basic rate (fixed part of labor compensation) in total labor costs. On one hand, this feature allows enterprises to

⁷ Training and professional development data refer to 2008.

respond promptly and adapt to changes in the market and manage costs. On the other hand, it encourages high labor turnover, because employees tend to be predominately motivated by their current wage. High turnover, in turn, creates disincentives for enterprises to invest in training or retraining of employees.

Employment flexibility in Russia is vividly illustrated by firm responses to the crisis. The crisis forced about two-thirds of enterprises to adapt their employment and labor compensation. Notwithstanding sweeping changes in the overall Russian labor market conditions (institutional, structural and macroeconomic) of the 2000s, enterprises still fell back on instruments and methods of crisis adaptation of the 1990s. When faced with major economic difficulties, enterprises opted to take multiple measures simultaneously. They cut their headcounts, shortened working hours, stopped paying benefits, reduced wages and salaries, and even ran wage arrears if worst came to worst. The three most favored ploys — lay-offs, shorter working hours and salary cuts — were utilized almost in equal proportion with a minor bias toward shorter working hours. During the crisis, about 41 % of surveyed enterprises resorted to headcount cuts, 46 % opted for shorter working hours or administrative leave, and 39 % reduced wages.

Is such flexibility a competitive advantage or a weakness of the Russian labor market paradigm? The answer largely depends on the nature of the crisis facing the firm. A short-term crisis caused by price volatility does not require a profound transformation of the economy's structure. In such case, measures such as cuts in working hours, unpaid leave and salary cuts help cushion the shocks of the crisis and support social stability. On the other hand, if the crisis lingers and continues to signal that the economy suffers structural inefficiencies that need overhaul, then such measures only mask the true problems. They prevent labor from shifting to more efficient sectors and more efficient enterprises, and thereby impede recovery.

A new role for regional and local authorities

The experiences of China, Brazil, Mexico and several other developing countries suggest that local and regional authorities may help firms attract investment to modernize and gain access to international markets. Our study confirmed such trends in Russia during the period 2007-2008.

Our review of business-government relations includes several aspects: federal, regional or local fiscal support received by enterprises in 2007-2008, administrative support provided by government authorities of various levels during the same period, and regional social development support to regional and/or local authorities provided by enterprises in 2007-2008.

The data indicate that in 2007-2008, regional authorities were the most active providers of support (see Fig. 9). In total, 26 % of firms in the survey received support from the regional government level, including 19 % in the form of administrative support and 14 % in the form of financial support. It is notable that both regional and local levels were more like to provide administrative support than the federal level, which focused on financial support.

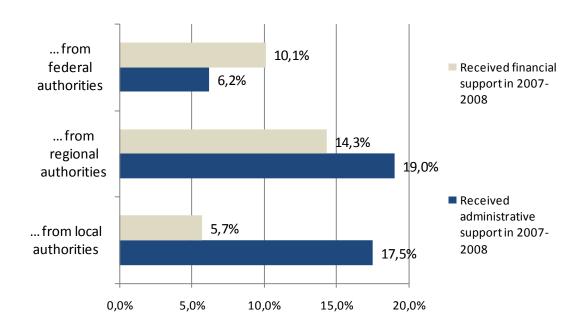
An important aspect of business-government relationships is support provided by businesses to regional and municipal authorities in social development of the region. This practice is almost universal. In 2007-2008, only 23 % of firms provided no assistance to the authorities (Fig. 10). On the other hand, we can fairly say few enterprises incurred burdensome costs from assisting the authorities.

⁸ Administrative support was interpreted as any other than financial support, including assistance in contacts with Russian and foreign partners, other government authorities, in attracting investors, etc.

"Socially responsible" behavior was often rewarded. Indeed, in the group of socially responsible companies 27-34 % of respondents reported receiving some kind of regional government support, versus only 12 % in the group of businesses that did not spend on social development of their regions.

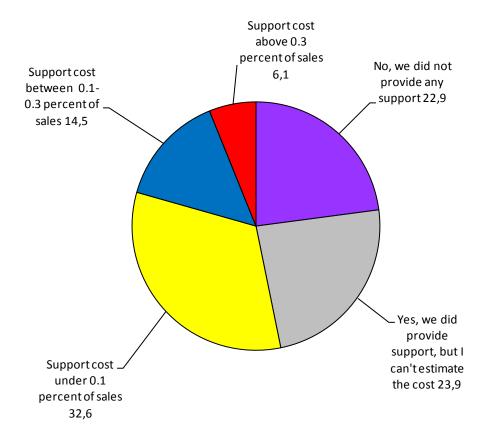
Apart from business support to the region, we ask if other factors might influence government support. These other factors are classified into three groups: structural features of enterprises, indicators of social responsibility performance, and modernization performance.

Figure 9. Share of enterprises receiving government financial and organizational support in 2007.



Structural features included the enterprise's sector, its size, its age (when it was established), specific owners (state, foreign investors), and the investment potential of the host region. To measure the social responsibility of the enterprise, alongside the above-mentioned support to local and regional authorities in regional social development, we took into account respondents' job preservation and/or creation and their participation in business associations. Employment support (via job preservation and/or creation) may be an element in the business-government interchange. In turn, business associations provide an important channel for enterprises to communicate with the public authorities. Modernization performance was measured in terms of export performance, occurrence of major investments in 2005-2008, and innovation performance.

Figure 10. Business support to local and regional authorities in regional social development (% of firms).



Our analysis indicates government support is more often provided to firms located in regions with low and medium investment potential. In all the cases, older firms dating back to the Soviet era enjoy apparent preference in access to government support.

Government support at the federal level differs from the other levels in that government-owned firms get explicit preference. At the same time of the surveys, federal support focused on firms that preserve jobs. However, modernization variables tended to prove non-significant. This suggests a sort of a "conservative exchange," whereby the federal government grants support to older enterprises and companies with government stakes on condition that recipient companies maintain their employment headcount.

The regional and local levels present a largely modified set of factors associated with access to government incentives. An important predictor is support to the authorities in regional social development. This may be seen as signaling the existence of a different exchange arrangement. Another significant factor for getting support from government authorities is firm participation in business associations, confirming the role of associations as a business-to-government communication channel. Defying expectations, neither job preservation nor government stakes are associated with access to the regional and municipal incentives.

Unlike federal support, getting regional and municipal support is conditioned on some aspects of firm modernization performance. Thus, regional authorities in 2005-2008 conditioned their support on whether the enterprise engaged in major investment projects. Municipal support in 2007-2008 was much more frequently provided to firms with foreign equity. However, it is still an open question as to whether regional and local authorities support companies that invest, or these companies are developing and investing thanks to the government support.

Due to the nature of our study, we surveyed only "insiders," i.e. companies that have already entered the regional market and developed relations with the authorities. These companies feel relatively comfortable compared to outsiders, who have not yet entered the market. This notion of an "insider alliance" is supported by the evidence from the study that shows enterprises established before 1991 had priority in access to support at all levels of government. However, preferences granted to firms with foreign equity run counter to this assumption, suggesting the existence of alternate criteria for granting regional and municipal government support.

Final question: Was the crisis a moment of truth for Russian industry?

Before the crisis, as some of our cited cases showed, Russian manufacturing experienced strong structural transformation that resulted in enterprise behavior changes. These processes directly impacted firm efficiency and competitiveness. While study of the changes and their underlying causes warrants further analysis, the general development trends are quite clear.

Development in the period was based on effective utilization of available resources within the bounds of existing company markets and relying largely on entrenched basic technologies. This view is supported both by the stable structure of product markets and the low degrees of innovation and capital investment (as seen in the persisting technology gap vis-à-vis international rivals). Indeed, it is not too far from the truth to say that Russian enterprises in the period overall continued to make the same products at the same production capacities using the same technologies – and then sold those same products to the same buyers.

Amidst the public debate on innovation and diversification of the Russian economy away from its resource curse, the government urged a R&D innovation strategy at the frontiers of technology in order to pull the country ahead. Most enterprises surveyed, in contrast, seemed content with much cheaper "catch-up" strategies based on absorption and implementation of the existing (mostly foreign) technologies and equipment, along with small-scale innovation and imitation. Indeed, this strategy worked well for the many enterprises that had started pursuing it several years before the crisis.

The pre-crisis period was also a period of positive selection. The more efficient competitive enterprises grew faster than their less competitive counterparts. Furthermore, the surviving firms that started out less competitive at the beginning of the period appear to have caught up with the leaders, closing of efficiency gaps within their respective sectors. The global financial crisis of 2008-2009 disrupted the smooth evolution of Russia's industry by dramatically changing the environment for development and generating new challenges and threats. In the spring of 2009, when the survey was conducted, over half of the enterprises indicated the drop in demand for their products had become a severe problem. Some 40 % felt the need to adjust employment and/or wages (via various forms of shorter working time and compensation reductions). Still another 40 % said they were axing investment projects and programs. At the same time, an unexpected finding was that many firms intended to try new market entry as a crisis response. This intention was reported by 40 % of respondents, most the more competitive enterprises. About a third of companies said they were planning major investments during the next twelve months despite the crisis.

Such intentions indicate that the crisis may ultimately lead to a market redistribution in favor of the more efficient enterprises and create incentives for firms to expand their markets and leverage investment to enhance production efficiency. On the other hand, it appears to be harder in the post-crisis world for Russia's manufacturing leaders to move away from a defensive strategy (defending one's entrenched positions in existing markets) to an offensive break-through into new

markets or new product markets. Moreover, we do not expect the same favorable conditions that prevailed during of 2005-200 (i.e. cheap credit and galloping demand) to return any time soon.

As we see it, many manufacturing enterprises again find themselves at the cross-roads. Should they revert to their earlier strategy of gradual incremental improvement aimed at catching up with competitors? Should they leverage the crisis to challenge their rivals in both domestic and global markets? How this dilemma is resolved will largely depend on Russian government policies.

There is no easy trade-off. Given the difficult situation in which many enterprises find themselves, the natural political instinct is to protect domestic manufacturers. Indeed, this is what the business community expects. One in two respondents in our survey called for a freeze on natural monopoly tariffs, and one in five called for more government procurement and import restrictions. Only tax reductions, banking system support, and supporting the ruble's exchange rate were more popular with enterprise top managers.

Russia's policymakers are currently betting on "national champions." However, our data suggest firms in "runners up" category are more resilient and have a higher capacity for relatively low-cost growth. In our survey (which is generally biased toward medium-sized enterprises), these would be companies employing 500 or more people. Providing support to such firms poses fewer risks of government failure. As such firms are numerous, the risks associated with supporting inefficient firms are also neutralized. Obviously, this policy change would still need to provide appropriate channels for monitoring and feedback, as well as appropriately dimensioned support measures.

Defying the entrenched stereotypes, we conclude Russia's manufacturing sector has accumulated potential capable of driving economic growth. Future successes will be predicated on government willingness to interact with businesses so that this potential is tapped in ways that drive development in Russia.

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