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## Introduction

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The Russian economy has been growing at an average nominal rate of 6 percent annually for the past decade. Among the most important factors contributing to its expansion has been the skyrocketing cost of oil and gas. In 2000, when Vladimir Putin took office, the cost of oil was approximately \$20 a barrel; at the end of his term, it was five times higher. During Putin's presidency, Russia earned about \$1 trillion in oil and gas revenues. Meanwhile, the competitiveness of Russian enterprises has become increasingly fragile because of the appreciating ruble, climbing resource prices, and rising wages as well as the exhaustion of Russia's excess industrial capacity. And in the past few years, the chorus of voices (both inside and outside the country) raising concerns about the sustainability of the Russian economy's performance has become louder. Observers have called for Russian authorities to take measures to counterbalance the nation's increasing economic dependence on natural resources.

Economic diversification can cover a wide number of issues and involve many challenges, including entrepreneurship, foreign investment, regional development, and physical infrastructure. In Russia's case, it comes down to one thing: ensuring that the manufacturing sector can compete in the global economy.

Russian competitiveness will not depend on centralized, top-down efforts to pick winners but on broader policy measures designed both to improve the investment climate—which affects firms' incentives to invest productively

and create jobs—and to develop a more competitive, knowledge-based economy. Russian authorities are seeking to address many of the country's most important developmental challenges. They are emphasizing policies aimed at unleashing an “innovation economy,” through, among other things, greater government commitment to research and development, better protection and enforcement of intellectual property rights, the formation of industrial technology parks, and the establishment of venture capital funds. Theirs is an ambitious program, yet it includes some controversial areas of economic policy that have yielded mixed results in other parts of the world. In particular, a “new industrial policy” aims to stimulate diversification and “knowledge absorption”—firms’ application of current global technologies to their production process—through direct state support to and intervention in specific sectors and firms. The government has proposed an array of familiar mechanisms to accomplish this: state-managed technology programs, state-run development banks, state-owned venture capital funds, and so on.

But to exploit the opportunities generated by a good investment climate, Russian firms do not need more state intervention and support. They need a workforce with the skills required to carry out higher-value-added tasks. They also need the organizational and managerial capacity and the technical competence to invest, innovate, and enter strategic supply chain arrangements with other firms. Increasing the incentives for the private sector to offer specialized training to more workers should be a priority, and human capital measures should be accompanied by additional incentives to encourage firms to invest in commercial research and development (R&D), to absorb knowledge, and to adapt production processes so that they can move closer to the global technology frontier.

Economic diversification will require reducing investment risks induced by national and regional policies and lowering barriers to entry for newer, more dynamic, and innovative firms, specifically by facilitating transfer of land from municipalities and from older, loss-making firms. It also will require greater inclusiveness in government decisionmaking, more transparency regarding government decisionmaking, and stable legislation at all levels of government.

This book quantifies and benchmarks the relative strengths of Russian manufacturing and identifies opportunities to increase its productivity and competitiveness. Drawing on new surveys of manufacturing firms of all sizes, the book sets out proposals to

- enhance the innovative potential of Russian firms
- upgrade the skills of the workforce
- develop a business-friendly climate characterized by lower administrative costs and greater policy certainty.

The pursuit of sound economic policies following the financial crisis of the late 1990s and the rise of international prices for key natural resource exports have become the leading engines for Russia's economic growth. The results are better current account and fiscal balances, higher domestic demand, moderate inflation, and rising export revenues. But continuing dependence on commodity exports will leave Russia hostage to unpredictable shocks in international prices. Boosting non-oil exports, however, will not be easy: industrial production has been dominated by energy exporters and by ferrous metals since 2001.

Meanwhile, Russian manufacturing firms have lower average productivity relative to labor costs than do manufacturing firms in comparable countries. Even though Russia's manufacturing value added per worker is about the same as China's and India's, its comparative disadvantage lies in its higher labor costs, which reflect shortages of skilled labor despite high enrollment at higher levels of education. Russia's inputs in terms of share of researchers in the population and aggregate outlays for R&D in GDP are comparable with those of Germany and South Korea and far ahead of those of Brazil, China, and India. But the high level of inputs does not translate into high value added per capita. Russia lags behind OECD and other large middle-income countries in R&D outputs; it also has a relatively low number of patents and scientific publications per capita.

This volume focuses on the challenges now facing enterprises in Russia, highlighting sources of productivity growth and competitiveness within enterprises, including technological progress (knowledge absorption and innovation), worker skills, and the investment climate. After the 1998 crisis, as gross domestic product rebounded, investment accelerated, and foreign direct investment increased dramatically, Russia's recovery surpassed expectations. The recovery was driven to a large extent by the devaluation of the real exchange rate, the availability of cheap domestic inputs, and excess capacity and labor hoarding. Thanks to those three factors, the last several years have witnessed balanced growth, with a structural shift toward the service sector (consistent with Russia's goal of joining the club of postindustrial nations). Yet, a closer look at national accounts reveals that much of that shift has produced relative price increases in (nontradable) services and full

capacity utilization in industry—indicators more characteristic of a resource-dependent economy than of successful industrial diversification.

### **Productivity Patterns and the Sustainability of Russia's Economic Performance**

In chapter 2, Schaffer and Kuznetsov examine how productivity in Russian manufacturing compares with that in other large economies, such as Brazil, China, India, and South Africa, and in other developed economies. They argue that although productivity in the Russian manufacturing sector has been rising, it has not kept pace with rising real wages in recent years, limiting the international competitiveness of manufacturing. Russia's productivity lags behind that of Brazil, South Africa, and new EU entrants such as Poland. When adjusted for labor costs, it also lags behind that of India and China. And because real wages are rising rapidly and the ruble is rapidly appreciating, the international competitiveness of Russian manufacturing is suffering. This book argues that diversified growth will depend on better human capital, knowledge absorption and diffusion, and a favorable policy environment for business.

Some of the relative decline in manufacturing competitiveness is due to the increase in real wages in recent years. According to Shaffer and Kuznetsov, real wages in manufacturing in Russia (deflated by the producer price index) have increased by 72 percent since 1999. In 2004 the current dollar monthly wage in industry was over \$250, an increase of 67 percent in just two years and a remarkable 266 percent increase over the \$75 per month wage in 1999. Under these conditions, international competition from countries with cheaper labor costs may become increasingly difficult for Russian manufacturers. Russia's manufacturing productivity is now about 40 percent of Brazil's and a third of South Africa's.

Labor productivity in Russia, measured by value added per employee, is higher than that in India and China, but low labor costs in those two countries put Russia at a competitive disadvantage. For each dollar of wages, a Russian worker produces about half the output of an Indian or Chinese worker. The low productivity in manufacturing would be of less concern if it were matched with lower wages. But China's wages in manufacturing are 30 percent lower than Russia's.

#### *Improving Knowledge Absorption*

Improving the capacity of firms to tap into the world technology pool is an important way to increase productivity. Trade flows, worker mobility, licensing

of codified knowledge, and foreign direct investment are all conduits of knowledge absorption. But adoption also requires a favorable investment climate, a skilled workforce, and sufficient domestic R&D. Chapter 3, by Goldberg, Blanco-Armas, Goddard, and Kuriakose, explores what can be done to boost the absorptive and innovative capacity of Russian enterprises.

The complementarities between firm-specific absorptive capacity and R&D and innovation are supported by extensive theoretical and empirical work. Despite the large size of Russia's R&D effort (in both expenditures and personnel), manufacturing productivity has not benefited. Based on research "inputs," Russia's productivity should be among the world's highest—on par with Germany's and South Korea's. Instead, Russia's R&D activities fall short of their potential.

Goldberg and colleagues propose three major reforms to the institutional and regulatory regime that governs research and development in the Russian Federation. First, they recommend that incentives be strengthened to encourage researchers at public R&D institutes to engage in commercial innovation with and promote knowledge absorption in private companies—and to facilitate the spinning off of private research groups from R&D institutes.

Scientific research teams in the public system often sell R&D services, on an informal basis, to enterprises. Although that practice may facilitate the "spontaneous privatization" of the R&D industry, it also leads to conflicts of interest between researchers and institutes, to uncertainty over the ownership of technical results, and to political concerns that the state is not capturing the returns from its investment and the resulting intellectual property.

The government should consider creating incentives, the authors argue, for spinning off research groups. The objective should be to reduce the burden of public financing for R&D institutes, foster commercial knowledge absorption by firms, and reallocate basic research funding toward universities. It also is important to hasten the dissolution of R&D institutes and teams within R&D institutes that work on obsolete scientific and industrial problems.

Second, the authors indicate that the government should provide incentives for private firms to invest more in their capacity for absorption-driven productivity growth.

Matching grants can encourage public-private risk sharing and orient the selection of research projects toward commercial concerns. They can support new technologies and production processes, investments in soft technology by private firms, and access to information and communication technologies and ISO (International Organization for Standardization) certification. But

matching grant programs face risks from ineffective allocation due to corruption, capture, or poorly designed targeting strategies. In a successful program, the funding and allocation mechanisms are immunized from interference by public officials, politicians, or private groups and authorities monitor and enforce the neutrality of targeting.

Finally, the authors strongly urge the Russian government to avoid establishing state-owned or state-managed venture capital programs. The Russian government has proposed a state venture capital initiative—a government-owned institution that would participate in existing venture funds and contribute to the creation of funds to finance new companies. The record of state-owned venture capital funds in other countries is poor, so caution is warranted. In the most successful cases, governments typically have seeded the venture capital industry by investing in privately managed funds. In such public-private partnerships, governments mitigate some of the risk in technology-oriented start-ups, and the venture capitalist provides commercial and managerial expertise. A seed capital program aimed at promoting knowledge absorption is likely to work best when a matching grants program provides critical funding at the earlier stages of technological development, with later support by private VCs.

### *Upgrading Worker Skills*

No incentives to encourage innovation will have their intended effects unless the Russian workforce can acquire the skills needed to meet the challenges of the global marketplace. Turning to this critical issue, Tan, Gimpelson, and Savchenko argue in chapter 4 that the Russian workforce, though highly educated by international standards, lacks the modern skills that firms need to compete globally, a deficit that can be made up for through an effective combination of vocational and in-house training. Russian firms can no longer rely on state-funded schools to provide them with workers who possess the skills and qualifications necessary for global competition. More companies are relying on in-house training to upgrade the skills of their employees, but they tend to provide it to a small fraction of employees. The government can assist firms in overcoming the skill shortfall by boosting the incentives for in-house training and by engaging with appropriate private sector counterparts to reform and expand vocational training.

In 2001 Russia had one of the most highly educated workforces in the world. For the bulk of the population (ages twenty-five and older), the average citizen had 10.5 years of schooling, ahead of Brazil, India, China, South Africa, and other transition countries as well as Germany, Japan, and the

United Kingdom. Russia also had one of the highest shares of population holding a tertiary-level degree (more than 50 percent), more than in Canada and more than twice the share in other postsocialist countries. But despite that significant educational achievement, Russia faces problems with the quality of education, the deterioration of secondary education, and the absence of effective professional training.

More than a third of all managers reported deterioration in the quality of their workforce between 1996 and 2005. The low quality of newly hired workers (rather than the high quality of employees who left the firms) may have been responsible for the reported deterioration. Almost half the firms hired workers with lower-quality skills, while only 10 percent improved workforce quality by hiring workers with higher-quality skills.

Tan, Gimpelson, and Savchenko encourage greater use of employer-targeted incentives for in-service training. The proportion of employees who receive in-house training in Russian firms is among the lowest for countries with data available. The authors argue that the Russian government should consider putting in place employer-targeted training policies to remedy the underinvestment in in-service training.

—*Payroll-levy training funds.* Employers should be closely involved in the governance of levy funds. Policies should be designed to increase competition in training provision from all providers, both public and private, including employers. Levy funds should be strictly earmarked for training and not diverted to other government uses.

—*Matching grants.* Training levies do not work especially well for small and medium enterprises, which are unlikely to be served by targeted training programs. Encouraging training in smaller enterprises may require more proactive approaches to address systemic weaknesses in training, technological capability, and access to finance. Matching grants can help to develop a training culture but by themselves will not expand the training market.

### *Improving the Investment Climate*

In chapter 5, the final chapter, Desai looks at the policy-induced constraints on business activity that hold Russian firms back from becoming dynamic and internationally competitive. He notes that the Russian investment climate is still characterized by significant policy and regulatory instability as well as a tendency to punish its most dynamic and innovative firms. Although progress has been made since 2001, corruption, anticompetitive practices limiting entry of new firms, and the quality of the legal system have continued to deteriorate. Well-connected firms tend to enjoy preferential treatment,

including special privileges, tax breaks, investment credits, direct subsidies, guaranteed loans, and access to state property; moreover, special economic zones have been created on the sites of specific enterprises. Firms controlled by regional private owners as well as by foreign investors are most likely to receive preferential treatment, and such favoritism toward the most politically influential firms hurts less influential regional firms.

Many problems in investment climates around the world—the policy-induced costs and risks that firms face as well as the formal and informal barriers to competition—are driven by weaknesses in the institutions that govern the investment climate. Those weaknesses may allow administrative corruption to go unchecked or encourage powerful private firms to “buy” legislation, government decrees, and regulatory and judicial decisions. Strengthening the capacity and credibility of institutions may require improving the system of checks and balances, the restraints on administrative discretion, the ability of all levels of government to make and enforce laws, and transparency in business-government relations.

Adopting such reforms has proven to be costly and politically complicated across the region. But the experience from investment climate reforms around the world suggests another way: to adopt manageable and sustainable reforms that encourage openness, competition, and greater integration with global markets and at the same time complement reforms to the systems for innovation and worker training.

A set of credibility-enhancing reforms that, though seemingly disparate, could prompt deeper reforms by empowering and supporting the natural constituencies for openness, rule-based regulation, and innovation in the Russian economy includes the following:

- greater transparency and flexibility in the acquisition and disposition of land, empowering entrepreneurs and firms
- an improved intellectual property rights regime, empowering inventors and entrepreneurs
- more openness in policymaking through consultation, empowering business associations.

Desai puts forward four proposals to move the Russian economy in the direction of the suggested reforms. First, he supports greater privatization of municipally held land. While many regions and municipalities have mechanisms to privatize real estate, they are neither transparent nor fair. Regions that adopted legislation on land privatization ahead of the federal law (the Land Code) tended to be the leaders in land reform. In other words, the adoption of the Land Code may have clarified the basis for land



transactions, but it did not always persuade unwilling regions to initiate land reform and privatize land. About 90 percent of the firms trying to purchase land failed to finish the procedure in half a year. The lack of competition in real estate markets contributes to the problem. Effective land privatization will require greater use of auctions and tenders for vacant land (not discretionary and opaque administrative procedures) and greater transparency in the processes involved.

Second, Desai outlines ways of improving the allocation and protection of intellectual property rights (IPRs). Two primary weaknesses remain in the regime governing intellectual property rights. First, the assignment of IPRs remains unclear. There is an ongoing debate on who controls IPRs—the inventor, the inventor’s employer (research institute or enterprise, either state-owned or private), or the state, which may have paid R&D costs. Those uncertainties complicate collaboration between private firms and public institutes, inhibit technology transfer, impair the ability to spin off companies into independent and growing businesses, and create potential conflicts of interest for the institutes. Second, registered IPRs are weakly protected due to the inability or unwillingness of public authorities to police producers or importers of pirated goods and to prosecute violators—a particular concern for foreign investors and exporters facing copyright piracy or patent infringement by domestic producers or importers.

What is needed? A more detailed elaboration of the distribution of IPRs among inventors, research organizations, and the state. A current draft of the Civil Code allows research organizations to become owners of IPRs for technologies developed using government funds “provided that the procurement contracts do not specify otherwise.” The research and business communities are rightly concerned that this open-ended provision would allow public authorities to continue to exercise ownership of subsequent IPRs and prevent closer cooperation between innovators and firms.

Third, Desai argues that the government should strengthen the consultative basis for regulatory decisions by being more inclusive and in particular by encouraging greater participation by business associations.

Although firms that face competitive pressures are subject to harsher investment climate constraints than those that do not, when the same firms are members of business associations, they find themselves more protected from investment climate obstacles than their counterparts that are not members. Informing market participants about new and forthcoming legal and regulatory changes and requesting comments during a formal consultation period can improve the quality and stability of regulations and

encourage sector buy-in. The participation of business associations that represent smaller firms should be actively encouraged, and the government should develop adequate mechanisms to consult the community of entrepreneurs and business people in an inclusive manner, informing market participants well in advance of new proposed measures. Regulatory transparency and predictability are especially important for smaller domestic investors and for prospective foreign investors. In sum, there is power in numbers: through collective action, innovative firms can mitigate investment climate constraints.

Finally, Desai encourages the Russian government to adopt one or more periodic “regulatory review” mechanisms to ensure that the rules and statutes under which businesses operate are not rendered obsolete by technological change or by changes in other economic conditions. Several countries around the world have used similar mechanisms—ranging from full-fledged regulatory impact assessments for proposed regulatory changes to “guillotine-style” reviews that eliminate outdated rules.

## **Methodology and Structure**

The book uses different types of available data, including data in the Doing Business Database (World Bank 2006a), the World Bank Enterprise Surveys, the Business Environment and Enterprise Performance Survey (BEEPS), and the Russian Competitiveness and Investment Climate Assessment Survey, a new survey of Russian enterprises commissioned for this book, which includes the Large and Medium Enterprise (LME) Survey and the Small Enterprise (SE) Survey (see box 1-1).

On the basis of those data, the book presents international comparisons and benchmarks to illustrate the challenges to creating a competitive Russian economy. Where appropriate, the information is complemented by results of econometric regression analyses that illustrate the relationships among different investments, firm-level capabilities and characteristics, and the wider investment climate. The use of a combination of international comparisons based on aggregate and microeconomic data, econometric results from firm-level data, and relevant case studies—rather than a single data source—should increase confidence in the book’s conclusions and policy recommendations.

### **Box 1-1. Data Sources**

***Enterprise Surveys:*** Since 2002 the World Bank has undertaken its Enterprise Surveys (formerly known as the Productivity and Investment Climate Surveys) in more than seventy-six countries, covering more than 50,000 firms. The Enterprise Surveys capture firms' experience in a range of areas, including regulation, tax policy, labor relations, infrastructure services, technology, and training. The surveys attempt to identify and, whenever possible, quantify firms' obstacles in the investment climate. Since the basic methodology is consistent across countries, many areas of the surveys allow international comparisons.

***The Russian Competitiveness and Investment Climate Assessment Survey:*** This survey included two enterprise surveys of Russian firms carried out specifically for the study on which this book is based. The first covered large and medium enterprises (LME Survey); the second covered small enterprises (SE Survey). These surveys were designed by the World Bank and undertaken in partnership with the Higher School of Economics in Russia and the Russian government. The LME Survey covered a stratified random sample of 1,000 medium and large firms; the SE Survey covered 300 small firms.

***Business Environment and Enterprise Performance Survey (BEEPS):*** Developed jointly by the World Bank and the European Bank for Reconstruction and Development, this survey was carried out in 1999, 2002, and 2005, covering countries in Central and Eastern Europe and Central Asia. The 2005 BEEPS was also conducted in Portugal, Spain, Greece, Germany, Ireland, and South Korea. The BEEPS examines a wide range of interactions between firms and the state that affect the business environment. It is designed to generate comparable measurements of corruption, state capture, lobbying, and the quality of the business environment, which can then be related to specific firm characteristics and firm performance.

***Systemwide data:*** For the benchmarking of different segments of the overall economy in Russia, the study draws on country-level information collected and disseminated by the World Bank through its World Development Indicators; trade data from UN COMTRADE; labor productivity data from the ILO; and information collected by other international organizations, such as the OECD.