

Institutional Change and Economic Development
in Siberia and the Russian Far East

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Abstract

This paper studies the institutions for exercise of property rights in forestry, fisheries, and mining in Siberia and the Russian Far East, linking current arrangements with the administrative structures of the command era. It describes production, income, and structural change in Asian Russia arguing that if Russia hopes to rely on the rapid growth of Asia as a locomotive for Russian growth, then the government will need to develop a legal framework for long-run property rights in resources and to establish stronger links for business cooperation with all of the countries of Asia and, particularly, with China, Japan, and South Korea.

JEL: D73, H7, O57, P35, P37

1. Introduction

The example of Asian Russia provides a view of Russian institutional reform and economic performance from a regional perspective. The bottom-up, regional perception of how Russia's central government shapes incentives and regulates economic outcomes provides a counterpoint to the views from Moscow. In spite of uncertainty about investment, a burgeoning Asia will turn to Russian energy as a driver of future growth. However, the disparity between real per capita incomes and human development indicators in Siberia and in European Russia raises the question of whether residents of the energy-rich provinces of Siberia will benefit from Russia's export of energy and other resources products to the global market.

More seriously, the evidence in this essay of widespread illegal exportation of timber and fish in two of Siberia's core industries tells us that the Russian institutions for management of these industries are not working. Whenever the rules of the game as legislated and what people are actually doing shows such strong variance, then something

is wrong—institutions and enforcement are not incentive compatible. A large informal economy, high levels of corruption, and high rates of violence are all symptoms of weak state capacity.

The case of Siberia invites us to explore the sources of misgovernance and the possible remedies. We argue in the cases of forests and fish that establishment of private property rights in resources is needed to create incentives for efficient resource use and to reduce the opportunities for rent-seeking by authorities.

Moreover, using Asian Russia as a case study of regional development raises the issues of scale and decentralization. How should Siberia's resources and people be linked with domestic and global markets? How can Russia achieve flexible and efficient structural change when resources are owned and managed by a government centered in European Russia while administration is delegated to sub-national authorities in Russia's remote provinces. The issue of efficient decentralization confronts other large, unwieldy governments.

We hypothesize that effective fiscal decentralization would make regional administrators more accountable to regional tax-payers, providing greater opportunity to monitor and enforce market-supporting public governance. In spite of the incentives for protectionism, the need for greater integration into the global market and greater local flexibility and accountability is overwhelming.

Why are some countries so much more productive than others? Economists note that economic well-being depends on the quality of a country's institutions. The central hypothesis of the modern theory of institutional economics is that the primary, fundamental determinant of a country's long-run economic performance is its social infrastructure. This view was first documented by Robert Hall and Charles Jones. They defined social infrastructure to be the institutions and government policies that provide incentives for individuals and firms in an economy. Those underlying incentives could encourage productive activities such as the accumulation of skills or the development of new goods and production techniques or could encourage predatory behavior such as rent-seeking, corruption, and theft. In their empirical work, they demonstrated the close association between measures of social infrastructure and per capita output (Hall and Jones, 1999).

In high income countries, rule of law prevails, investors feel secure about property rights, private incentives are aligned with social goals, monetary and fiscal policies are consistent with macroeconomic balance, individuals have means of moderating risks, and citizens enjoy civil liberties and political participation. In low income countries, these arrangements are absent or incomplete. On these criteria, Siberia has weak social institutions and low levels of economic welfare in spite of its vast resource wealth.

As will be discussed later in the chapter, in the tsarist and Soviet eras, Siberia's remote location, ethnic diversity, and riches in natural resources fostered a colonial relationship between government policy-makers at the center and local communities. This implicit colonialism, laid on top of existing centralized, authoritarian structures, encouraged institutional arrangements designed to extract income from the region for the benefit of outside policy-makers and elites at the center.

In the Soviet period, the GULAG system became the core of Soviet development strategy for building Siberia. In 1938, and again in 1949-53, the GULAG population peaked at more than 2 million persons and Siberia became the graveyard for vast numbers of victims of Stalin's terror (Khalevnyuk 2001, 116).

Still, the forced relocation of factories beyond the Urals allowed the Soviet Union to withstand invasion in World War II and spurred the growth of cities in Siberia. Yet, over subsequent decades when the central government's megaprojects in Siberia were implemented by industrial ministries, the primacy of political over economic criteria and the lack of realistic measures of opportunity costs meant that, on the eve of the break-up of the former Soviet Union, everyone was in the wrong place and doing the wrong thing.

The legacies of Siberia's top-down control persist today. Today, regional actors still view federal authorities as remote colonial masters seeking to extract the last ounce of rent from the region's resource wealth while sharing few of the benefits with the region. The conflict of interests between federal and regional authorities contributes to biased information flows, tax evasion, corruption, and a large informal economy. All of these symptoms of bad governance impede growth-supporting development. The fact that future, efficient developments in Siberia will be linked to a considerable withdrawal of people makes the task of managing structural change doubly difficult.

More seriously, some policy-makers fear that measures increasing efficient, cross-boarder integration of Siberia's land and resources with the economies of its neighbors--China, Japan, and Korea--will leave Russia vulnerable to hold-up or threaten Russian sovereignty over Siberia.

In their drive to settle Siberia with Europeans, the Soviet state subsidized large permanent settlements in some of the remotest and least hospitable sites in the world, so, today, the availability of market alternatives is finally generating a rapid and efficient exodus of people from areas where work is unrewarded and life is difficult (Hill and Gaddy 2003, Mikhailova 2004). But falling population again fosters fears of loss of central control over Russia's Asian hinterland.

The challenge for Siberia's future is how to bring its natural resources and population efficiently into the global economy at the same time that inefficient mono-cities are downsized or closed. I argue here that efficient, resource-based development of Siberia will require legislative and administrative changes allowing efficient, market-based exercise of property rights in agricultural land, forests, and fisheries (Fortescue 2009). It will require fiscal and political decentralization to give local taxpayers the ability to monitor and invest in state capacity and it will require full integration with the dynamic states of Asia.

The recent literature on economic development of Asian Russia provides case studies of the economic issues raised here. Recent literature on Siberian development draws on a vast library of materials on Siberia's resource wealth and history. The historical roots of Siberian growth are documented in stories of heroism and despair—the construction of Magnitogorsk and tragic history of the GULAG (Kotkin 1991, Naumov 2006, Stephan 1994, Applebaum 2003, Khalevnyuk 2001).

The opening of Asian Russia to the global market generated a substantial body of research on the structural change that Siberia would face once its producers had to compete with global suppliers in the domestic market and had to pay world prices for their inputs (Hill and Gaddy 2003, Thornton 2006). Much of this recent literature focuses on the development and potential of Russia's resource base in energy and metals (Bradshaw 2010, Gaddy and Ickes 2005, Moe and Kryukov 2010, Poussenkova 2007, Thornton 2010).

The potential role that dynamic Asian economies could play in linking Asian Russia to resources users and markets in the Pacific has generated a substantial body of literature on the promise and perils of international economic cooperation (Bradshaw 2001, Mikheeva 2004, Minakir 1999, Thornton and Ziegler 2002, Thornton 2010). Yet, that literature, too, emphasizes the impact that a rigid and unstable political system poses to the prospects for economic integration.

2. The Geography of Siberia

Two-thirds of Russian territory lies in Asia. Siberia stretches more than 3,700 miles from the Urals to Kamchatka. With the Arctic Ocean to the north, Kazakhstan, Central Asia, Mongolia, China, and Korea to the south, and the Seas of Okhotsk and Japan to the east, Siberia's 5.3 million square miles of territory dwarfs European Russia.

Siberia is legendary for cold, harsh winters. In Sakha, winter temperatures can fall to minus 71 degrees C. In the permafrost in summer, water accumulates in swamps that breed clouds of mosquitoes and other insects. Along the Arctic Ocean, lies the Arctic tundra, covered with lichen, moss, and sedge. South of this frozen land is the taiga, the dense boreal forest of larch, spruce, pine, and fir that first attracted Russian trappers and explorers and now supports Russia's export of hard wood to China. Conifer-broadleaved forests grow below the taiga zone in highly diverse temperate forests in the Far East (Newell 2004, 5).

3. Siberia's History

Early Expansion

In the 15th century, Tatar-Mongol invasions threatened Russia's borderlands. However, military victories under Ivan the IV transferred control of eastern lands to the Russian Crown. Conquered territories were established as land grants to important military generals and families close to the Tsar.

However, early movement of Russians into Siberia was limited. It wasn't until after completion of the Trans Siberian railroad beyond Lake Baikal that the flow of immigrants migrating to Siberia became a flood. In 1897 population was 5.8 million; by 1905, it approached 9.4 million persons (*Naselenie* 1956, 26).

In the 17th Century, the administration of Siberia was centralized, hierarchical, and bureaucratic. The unlimited powers of the military governors and the large distances

from the center provided ample opportunity for abuse. In the 17th century, the Siberian administrative system was characterized by “feeding” (*kormlenie*). The governors received no salaries from the state but could collect bribes and kick-backs from businesses, traders, and lower-level officials on their territories.

The Stolypin reforms of 1906 improved the legal framework to support private property in land, the growth of commercialized, scientific farming, and the unitization of private farmlands. International trade in farm products more than doubled in the following decade, with new production from Siberia contributing some of the largest increases.

As the Twentieth Century began, electricity from industrial hydroelectric stations in Siberia changed life in cities. Opening Russia to the modern world gave foreign investors access to Siberian markets. Siberians produced less than one-twenty-fifth of Russian exports in 1910 but received one-seventh of its foreign imports in the form of British mining machinery and consumer goods, US farm equipment, and German machinery and electrical equipment (Lincoln 1994, 285).

In 1884, when St. Petersburg recognized the geostrategic significance of its Far East, it created a new Priamur governor-generalship, sited in Khabarovsk (Stephan, 1994, 60). Starting in 1894, the Priamur became a staging ground for Russian penetration into Manchuria. Russia joined with France and Germany to force Japan to relinquish the Liaodong Peninsula, while Witte entered into agreement with China to build a line from Transbaikalia across Manchuria to Vladivostok. In 1897, Russia received a twenty-five year lease of 1,300 square miles at the tip of Liaodong, including a naval base at Port Arthur and a commercial port at Dalny (Dalian). By 1902, there were 100,000 Russian troops in Manchuria and another 80,000 in Priamur.

However, by 1900, Japan, too, had an industrial base and an army of more than 1 million. In 1904, Japanese battleships attacked and captured Russia’s newly-built naval base at Port Arthur. In response, the Russian navy sent the Baltic Fleet to the Far East, where, in May 1905, the Japanese sent twenty Russian warships to the bottom in the battle of Tsushima.

On the eve of World War I, the Russian state was ill-prepared to defend the vast territories that it claimed. The economic and military costs of maintaining a population

stretched out over 5,000 miles along the Trans-Siberian Railway were staggering. It was unclear whether Siberia would prove an asset or a burden for the new Soviet state.

Siberia in the Command Era

While many of the features of Russia's centralized administration and colonial relationship with Siberia had their foundations in pre-revolutionary eras, the territorial and industrial structures of the Siberian and Far Eastern economies were established by Moscow's centralized administration of Siberia during the Soviet command economy. Under central planning, Siberia underwent forced industrialization based on forced labor in the Soviet GULAG. In its eastward expansion, Russia committed high rates of investment into the extraction of its energy and resource wealth and extended its military power to the Pacific.

In part, Russia's relocation of industrial capacity beyond the Urals was spurred by Germany's invasion in June 1941 and the onset of World War II, but, even in the post-war period, the political imperative to control its vast Siberian hinterland and to develop the energy and resource wealth of Siberia provided a strong incentive to continue expansion of the military-industrial complex in Siberia. On the eve of the break-up of the Soviet Union, about 20 percent of Russia's military forces were in the Russian Far East, including the substantial Pacific Fleet.

Expansion of Industry beyond the Urals: Magnitogorsk

Stalin's expansion of industry beyond the Urals is best documented in John Scott's *Behind the Urals*, the story of the Magnitogorsk Metallurgical Works, founded in 1929 (Scott 1941). In 1932, Scott, a young American, joined a labor force that totaled 200,000 workers in the construction of a vast new steel complex beyond the Urals. The workers ranged from Komsomol enthusiasts to 40,000 peasant exiles, or *kulaks* who had their property confiscated and were deported to permanent exile in Magnitogorsk. Almost 10 percent of the exiled peasants died during the first winter, when they lived in tents with little food or warm clothing, performing the most difficult manual labor (Kotkin 1991, 209). Yet free and forced laborers alike paid unbelievable human costs from the deprivation, overwork, and inefficiency of the forced industrialization program.

In spite of the hunger, cold, and poor skills of the workers, the blast furnaces and rolling mills were mostly in place by 1937. In 1937-38, the Great Purge hit

Magnitogorsk, decimating the factory's top level party leaders, factory managers, and cultural figures (Kotkin 1991, 210). Then, World War II brought an influx of more factories and equipment evacuated from Moscow, Leningrad, and the Ukraine together with refugees and deported Volga Germans. Thus, while Magnitogorsk provided more than half of the steel committed to production of Soviet tanks during the war, no more than 15 percent of the population lived in permanent housing.

After the war, Magnitogorsk built myriad box-like, pre-fabricated apartment complexes in the typical socialist style in an attempt to meet the chronically short housing demand. City infrastructure improved and the planners opened consumer goods factories in the city. But, for fifty years, the steel plant itself saw little technological modernization. Labor conditions were difficult and dangerous. Kotkin reports that there were fourteen deaths at the Works in 1987 and ten deaths in 1988 (Kotkin 1991, 8).

Visiting Magnitogorsk in 1989, Stephen Kotkin writes, "Forty-three kilometers around, the Magnitogorsk Works, a dense mass of smokestacks, pipes, cranes, and railroad track, consists of 130 shops, many of which are as large as whole factories. 'Steel plant' would be an inadequate description of the complex formed by an ore-crushing and ore-enriching plant, a coke and chemical by-products plant, 10 gigantic blast furnaces, 34 open-hearth ovens, and dozens of rolling and finishing mills. The Magnitogorsk Works produces more steel each year than Canada or Czechoslovakia and almost as much as Great Britain," (Kotkin 1991, 1). Yet, with the largest assemblage of obsolete equipment in the country, the factory's blast furnaces filled the air with thick, multicolored smoke. A reported 223,000 residents—34% of adults and 67% of children—suffered from respiratory illnesses (Feshbach and Friendly 1991, 92). In 1989, in the local stores, one could find milk, eggs, bread, and low-quality fish, but scarce items, such as sugar, meat, butter, and sausages were rationed, (Feshbach and Friendly 1991, 125). City Hospital No. 1 lacked a reliable source of water. Patients lay fourteen to a room and survived on food packets brought by their families. On the eve of the break-up of the Soviet Union, the residents of Magnitogorsk and other large Siberian cities enjoyed relatively few of the benefits of Russia's decades of industrial growth.

Siberia's Energy Wealth

During the command era, it was Siberia's vast wealth in resources that generated much of the foreign exchange for Soviet imports of food, consumer goods, and Western technologies. Exports of coal, timber, and fish products expanded, but oil and gas dominated the statistics of foreign trade. Siberia provided the largest share of that energy and, in the 1970's and early 1980's, an eight-fold increase in the world price of oil played a determining role in Russia's economic growth.

Gaddy and Ickes document Russia's resource dependence. Measured in constant dollars of 2006, energy revenues peaked in the early 1980's at more than \$350 billion, or about 40 percent of GDP. Then, energy revenues plunged in 1986, threatening the ability of the Russian government to earn foreign exchange and import foodstuffs (Gaddy and Ickes 2005, 561). Writing in *Collapse of an Empire*, Yegor Gaidar details how falling foreign exchange revenues contributed to the growing crisis and ultimate collapse of the Soviet economy (Gaidar 2007, 110).

The expansion of energy production came largely from investment in West Siberia. The West Siberian Basin is Russia's major energy producing region, accounting for 71 percent of oil output and 92 percent of gas output. It is a low-lying, flood-prone marsh. A line of low hills divides the region. South of the divide, in the Khanty-Mansiisk Autonomous Okrug are the major oil resources. North of the divide, is the Yamal-Nenets Okrug, where the bulk of natural gas is extracted (Sagers 2006, 518). In 1990, Russia had the world's largest gas production and transport industry, largely centered in four giant fields—Medvezh'ye, Urengoy, and Yamburg, and Zapolyarnoye—located in Yamal-Nenets district in West Siberia (Sagers 2007, 652). Siberia's resource wealth funded much of what proved to be the inefficient and unsuccessful Soviet attempt to catch up with developments in the global economy during the command era.

The Role of Forced Labor in Building Siberia

In 1929, Stalin's Politburo approved a resolution "On the Utilization of the Labor of Criminal Prisoners," that provided for prison camps in remote areas to colonize and exploit the regions' natural resources (Khalevnyuk 2001, 113). In 1930, the OGPU began building a White Sea-Baltic canal with penal labor. In April 1932, a camp was established on the Kolyma in Magadan, where gold extraction and non-ferrous mining were developed. Later that year, construction of the Baikal-Amur Mainline (BAM) in the

Far East began. The core of the Gulag economy was large-scale projects, usually construction, based on a steady supply of workers. Yet, the camp inmates were a minority in the Soviet penal system, which also included special settlements and colonies. Khalevnyuk reports that in January 1933, prison camps housed 334,000 inmates, while another 1,142,000 people were re-settled in special settlements (Khalevnyuk 2001, 116).

In the Far East alone, 63,000 inmates built railroads, mined coal, constructed the shipyard in Komsomolsk-on-Amur, and mined the rich gold deposits in Magadan. The largest penal agency in the camp system was Dalstroï (Far North Construction Trust), a ruthless agency of the NKVD (Ministry of Internal Affairs) that administered more than 130 prison camps covering nearly 3 million square km of territory. Penal ships delivered dekulakized victims of collectivization and common criminals from Vladivostok to the GULAG in Magadan.

Dalstroï's initial task was the excavation of gold. Between 1932 and 1934, regional labor count grew from 13,053 to 35,995. Of these, the prison counts grew from 9,928 to 32,304 (Nordlander 2003, 109). In 1934, it supplied the center with 5,515 kg. of gold. By 1935, the production reached 33,360 kg of gold (Nordlander 2003, 110). The violence of the Great Purges of 1937-38 disrupted the production role of Dalstroï. In Magadan, a new and much harsher camp boss took over, arresting most of the previous administrators along with the technical specialists and engineers who had managed to deliver gold to the center in earlier years. The number of prisoners grew, but production lagged. The NKVD was unable to cope with the huge influx of new political prisoners. Between August 1937 and November 1938 almost 700,000 people were executed. "A significant portion of them, the lists of those executed show, were able-bodied men, highly qualified specialists and workers, who were constantly in short supply at NKVD projects," (Khalevnyuk 2001, 118).

The appalling inhumanity and brutality of Russia's GULAG is hard to comprehend. The sheer waste of human lives on tasks that failed or had no purpose is even sadder. Efforts to use forced labor to construct railroads in Siberia, such as the BAM were largely unsuccessful.

Today, in the reform era, in Magadan, the production of gold and silver has grown while population continues to fall. In 2010, the Magadan region produced 17 tons of

gold and 677.8 tons of silver. However, a visitor to the city still finds architecture reminiscent of a decaying prison and a population who view their work life in the Far East as a temporary tour of duty. Outside the city, the landscape was once a setting of forested river valleys and abundant wildlife. However, between the 1930s and 1980s, the clear-cutting of the region's larch and cedar denuded the hillsides and destroyed salmon-spawning beds. Today, the remaining forests are in inaccessible areas or in protected forest zones.

The Military Defense of Siberia and the Russian Far East

During the 1930's, as unemployment, political crisis and war clouds unfolded in Western Europe, the Soviet Union faced challenges in the Pacific as well. In the wake of the Russo-Japanese war, Japan made Korea a protectorate and, in 1910, occupied the Korean peninsula. In 1931-32, Japan invaded Manchuria.

Communities of ethnic Koreans had lived in the Russian Far East since the mid-nineteenth century, notably in Primorye and Amur territories. In 1902, an estimated 310,000 Koreans had settled in the region. However, between 1937 and 1939, Stalin deported more than 200,000 Koreans to Kazakhstan, where many of the deportees died.

In 1932, with Japanese expansion, the Soviet government established a Pacific Fleet in the Far East. By the start of World War II, the Far East forces included destroyers, torpedo boats, submarines, aviation, coastal artillery and marines. In 1945, the Pacific Fleet counted two cruisers, ten destroyers, 78 submarines, and 1459 war planes.

With intensified rivalry between Russia and China in the 1960's and the pressures of the Cold War, the Soviet Union rapidly expanded its forces in the Pacific. Ground force and air force bases expanded along Russia's borders with China, and mushroomed in Primorye, Khabarovsk, remote Chukotka, Sakhalin, and, under the Soviet navy, on Kamchatka.

Soviet military strength in the Far East included advanced weaponry and nuclear forces. In the 1960's diesel submarines in the Pacific Fleet carried ballistic missiles. In the 1970's, nuclear submarines appeared, including the Delta-class boat with a 4,200-nautical-mile missile. In 1989, the Soviet Pacific Fleet peaked at a strength of 126 submarines, including 77 nuclear submarines (Monterey 2010). Military plants in Irkutsk

and Khabarovsk produced fighter-bombers, and Komsomolsk-na-Amur produced nuclear submarines.

By the end of the 1980's the burden of the country's vast military effort weighed heavily on the state budget and resource base. In 1989, President Gorbachev removed the last Soviet troops from Afghanistan and began reducing military expenditures. However, it was only after the break-up of the Soviet Union that Russia undertook a drastic reduction in the military budget. This decrease hit cities in the Siberian military-industrial sector, such as Novosibirsk, Krasnoyarsk, and Khabarovsk, with particular severity. The combined impacts of reduced military spending, hyper-inflation, a fierce conflict between central and regional elites for ownership and control of regional assets, and a collapse of governance saw many territories in Siberia and the Far East descend into near chaos.

Siberia and the Far East on the Eve of Reform

In the late 1980's, on the eve of the dissolution of the Soviet Union, Siberia and the Far East faced conflicting forces. The legacy of planning meant that many of Siberia's industries could not survive in a competitive economy. Siberia's mono-cities were placed in remote, hostile environments—an archipelago in the wilderness. Once the Russian economy opened to global markets, large sectors of its economy and a large share of its capital stock would be unprofitable at world prices. On the other hand, as export through centralized government channels fell, opening up opportunities for elites to move trade revenues off shore, short-run capital flight stimulated demand for resources that could be sold on the world market.

On the eve of its break-up, the Soviet economy was in crisis. Goods disappeared from shops. Real GDP declined 15 percent. The government deficit rose to 16.5 percent of GDP. In dollar terms, exports fell 40 percent, imports 84 percent.

In outlying regions of Russia, the consequences of repressed inflation, capital flight, and institutional collapse were easy to see. In September, 1989, a visitor arriving in Khabarovsk in the Russian Far East felt as if he or she had been caught in a time-warp and transported back to the 1950s. Rows of immobile cranes hovered over unfinished five-storey reinforced concrete municipal apartments served by dilapidated buses with arms, legs, and shopping bags hanging out of their partly-closed doors. In the

government food store, a shopper could find 10-kopek dry bread and 2-ruble Bulgarian pickles, but no fruits, vegetables, milk, butter, cheese, or meat (Thornton 2001).

In Khabarovsk, as in other defense-oriented cities, more than a third of the vehicles on the street were military. Yet, the apparent large role of the military left unanswered the question of what might be the future economic role of Pacific Russia in a global economy.

As capital flight reduced the inputs available for domestic production and consumption, production links unraveled. In January, 1991, delivery of spare parts and replacement equipment for the Khabarovsk power station was interrupted, leaving half of the city's 680,000 people without heat, lights, or water for two months in sub-zero temperatures (Thornton 2001).

4. Demographic and Structural Change in Siberia

Early transition was a period of chaos in Siberia. Closure of military bases, drastic cuts in production of military hardware, and reductions in central subsidies led to unemployment and a collapse in incomes. Although nominal incomes of workers in Asian Russia exceeded European incomes, real income was lower, due to higher costs of living. Enterprises accumulated large payments, wage, and tax arrears.

The prospect of opening the Russian economy to the world market and adjusting to world market prices revealed large economic distortions. At world terms of trade, Siberia's raw materials had far greater value relative to manufactured goods outside rather than inside the country. Assessed at world prices, the value of domestic output would not cover the cost of purchased raw materials alone, even if existing labor and capital prices were zero. These industries had negative value-added at world prices. In a 1996 study, Thornton estimated apparent competitiveness of industrial sectors in the Far East at world prices. Four sectors—food processing (fishing), forest products, light industry, and chemicals had negative value added sectors at world prices. They would be bankrupt unless they could improve underlying technologies. Three additional sectors—agriculture, ferrous metals, and coal—could not cover existing wages at world prices. Two of the region's main export sectors, forestry and fishing, would become unprofitable once they paid the full price of energy (Thornton *Structural* 1996).

The uncertainty and industrial decline of the post-Soviet era had profound demographic effects on the population structure in Asian Russia. While, between 1990 and 2009, total population fell 4 percent in the Russian Federation, the outflows from Russia's Asian regions westward showed a decline in Siberia of 7.4 percent and a staggering fall in Far East population of 20 percent.

Only the oil and gas regions, Khanty-Mansiysk and Yamal-Nenets, gained in numbers. Within each region, there were large outflows from smaller cities and settlements in the far north to larger cities along the borders. In the Far East, the declines totaled 29 percent in Sakhalin and Kamchatka, 58 percent in Magadan, and 69 percent in Chukotka (*Regiony Rossii* various years).

[Insert Graph: Siberia Population Change 2009/1990]

[Insert Graph: Far East Population Change 2009/1990]

Small-scale privatization occurred rapidly in Siberia and the Far East, as elsewhere. However, privatization of medium-sized firms was subject to intense competition between territorial and central authorities. Large firms in energy, metallurgy, and the military industries remained in state hands and usually were privatized at the center. About three-quarters of the small service firms were privatized by commercial bidding, and in larger municipalities, privatization provided a basis for genuine competition.

Voucher privatization of large-scale firms proceeded more slowly in Siberia and the Far East than in other regions because of the large shares of firms providing infrastructure services, producing military products, or extracting state-owned resources. Nevertheless, by 1994, in two-thirds of firms, employees had opted for a variant of privatization that allowed managers and employees to acquire 51 percent of the voting stock of their firms, bidding with vouchers (Minakir 1999, 89-96).

By 1995, most of the large firms in Asian Russia were under hybrid ownership with shares of stock held by managers, employees, members of the territorial elite, outside owners, and the state. Initially, ownership was exercised by enterprise managers and territorial authorities, but, gradually outside investors from Moscow-based holding companies began to acquire ownership of firms with valuable export products.

The parceling out of licenses and rights to develop resource reserve in Siberia and the Far East occurred in opaque processes, often at the center. For example in oil extraction,

Rosneftgas, the successor to the former USSR Ministry of Petroleum, was forced to give up its many subsidiaries in favor of new vertically-integrated oil companies in the 1990's but then regained assets through nationalization in the following decade.

Agricultural privatization proved illusive. Instead of providing a framework for ownership of family farms, local collective farms were transformed into huge joint stock companies managed by former collective farm managers and local government officials. Collective farm members received nominal stock shares with few effective ownership rights. In a study based on interviews with territorial officials and small peasant farmers, Duncan and Ruetschle found that farmers in the Far East who attempted to set up family farms faced tax obligations exceeding farm revenue (Duncan and Ruetschle 2002, 201). If they ceased production to avoid taxes, territorial land use committees confiscated their land for non-production. The process of privatization of land in the Far East saw more than half of the arable land move into land redistribution funds controlled by the regional governments. Today, these territorial land redistribution funds are leased, often to peasants from neighboring China.

Initially, liberalization of markets and privatization of firms attracted widespread foreign interest. In export industries, such as oil extraction, international oil companies sought partnerships with the emerging vertically-integrated domestic producers. Yet, in an unpredictable regulatory and tax environment, most of the early foreign direct investments proved unprofitable—sometimes spectacularly so, although British Petroleum in Siberia, and Shell and Exxon on Sakhalin undertook successful, long-term investment into new capacities. In the decentralized forestry and fishing industries, discussed later, foreign investors, notably Japanese suppliers of modern technology, were expropriated repeatedly (Thornton *Strategies* 1996).

5. Economic and Social Change of Transition

On the eve of transition, industrial production in Siberia and the Far East was capital intensive. Thus, per capita gross regional product in the territories with a large manufacturing and mining base exceeded the all-Russian average. However, the drastic decrease in Russian demand for military and investment products after 1992 and the collapse of vertical supply links across separate countries with the break-up of the former

Soviet Union led to drastic declines in economic activity. In 1999, gross regional product (GRP) in the Far East stood at 42 percent of the 1990 level (Mikheeva 2002, 91).

Between 1994 and 2008, most Siberian provinces recorded larger drops in per capita GRP and showed slower recoveries than the all-Russian average.

Regional performance was heterogeneous, with Tyumen and Sakhalin accounting for nine and six times greater industrial output per person than other territories.

[Insert Table: Ratio of Per Capita GRP to Average GRP 1990-2008]

[Insert Graph: Per Capita GRP and Fixed Capital in Siberia and the Far East 2008]

With the drastic declines in industrial output, between 1992 and 1998, the share of the population with income less than a subsistence minimum rose from about one-quarter to more than one-third. However, the situation began to improve after 2000 as Siberian production responded to a four-fold depreciation in the ruble exchange rate, a re-monetization of the domestic economy, and rapid growth in world demand for Russia's exports. Further, the drastic change in exchange rates allowed a recovery of import-substituting domestic production and increased the competitiveness of Russia's exports.

Trade with the Asia Pacific region, notably with China, played an increasing role in the recovery and expansion of two-way trade in Siberia. In addition, the central government directed rising oil revenues to increases in the incomes of pensioners and public employees. Estimates of changes in per capita income derived by deflating money income by regional indices of the cost of a fixed basket of goods yield measures of estimated income that grow more rapidly than official indices. Both official and estimated real incomes in Siberia more than doubled between 2000 and 2008.

[Insert Graph: Siberia Per Capita Money Income Deflated by the Regional Cost of a Fixed Basket 1998-2009]

[Insert Graph: Far East Per Capita Money Income Deflated by the Regional Cost of a Fixed Basket 1998-2009]

In spite of the gains, the average real wage in large Siberian and Far Eastern cities remained less than half of the average wage in cities in European Russia. Russia had

undergone major structural changes, but the outflow of people from the Siberian archipelago was far from over. Russia's ageing infrastructure and industrial capital stocks would have difficulty remaining competitive, much less fostering future growth. Government budget policies allowed the center to postpone the political and social costs of massive structural change, but, outside of the energy sector, labor productivity improved slowly in Siberia.

[Insert Graph: Average Monthly Per Capita Income in Russian Siberia and Far East 2009]

Low incomes and a harsh natural environment are reflected in physical measures of well being as well. During the post-Soviet era, Russian age-specific mortality statistics increased drastically (Eberstadt-Groth 2009). Russian life expectancy is a full twelve years shorter than life expectancy in Western Europe. In 2005, it was two years shorter than in the 1950's. Again, the statistics of life expectancy at birth for Siberia and the Far East were well below other regions—56 years for men and 69-70 years for women in 2005.

The popular image of Russia's "Wild East" in the Russian press is reflected in the higher crime rates reported in the Siberian and Far Eastern regions. Using murder rates per capita as one of the more carefully measured proxies for serious crime, the data indicate that murder rates continued rising in Asian Russia until 2005, well after the time when police forces seem to have suppressed many of the organized criminal groups that were active in early transition. Eberstadt observes that Russia's death levels from injury, such as accidents, suicide, and murder, are comparable to post-conflict societies of sub-Saharan Africa. In 2009, murder rates in Siberia and the Far East remained three times higher than in Moscow.

[Insert Graph: Murder Rates by District 2005 and 2009]

Although Siberia and the Far East lag far behind European Russia in other health indicators, there are hopeful signs of improvements in some health indicators across all regions, notably a large decrease in infant mortality rates. Between 1990 and 2009, average infant mortality rates in Russia fell by half—from 17.4 to 8 per thousand births. Yet, the largest gains were concentrated in European Russia, notably Moscow (6.7 per thousand) and St. Petersburg (4.7 per thousand). With the exception of Sakhalin, infant

mortality in Asian Russia remained almost twice as high as in Moscow. Only Sakhalin, which received large investments in health and social infrastructure from international oil companies, enjoyed a Western-style improvement in infant survival.

[Insert Graph: Change in Infant Mortality 1990 and 2009]

6. Resource-Based Development: Mining, Forestry, and Fisheries

The Impact of Transition in Russia's Far Northeast: Chukotka

The story of tiny Chukotka in the Far North provides a glimpse of the impact of post-Soviet transition in a once-strategic and now neglected corner of Russia's Far East. Covering an area the size of the UK and France, more than half of Chukotka's territory lies above the Arctic Circle. It is located in a region of permafrost and tundra in a landscape of plateaus and low mountains. A multitude of rivers empty into the ocean, including the large Anadyr River, which flows into the Bering Sea.

Soviet administration of the region proved devastating to the indigenous people. The reindeer-herding Chukchi were organized into collectives, their village leaders sent to labor camps. The maritime Chukchi initially continued their sea-based ways—fishing and hunting seals, walrus and whales-- but in 1941, whale hunting was forbidden. After that, a factory ship called the *Zvezdny* harvested gray whales for the villages (Hurst, 2011). In the early 1950s, Moscow designated many of the Chukchi villages as “villages without a future.” Their residents were removed to larger Soviet-style towns far from their traditional settlements where their concrete housing gradually sunk into the permafrost.

The post-Soviet era saw the region collapse. When this author's Alaska Airlines flight stopped for fuel at a military airbase outside Anadyr, the acres of barracks in the barren landscape appeared totally empty. It seemed as if Russian power had abandoned its Siberian North, leaving it in the hands of a few poorly clad caretakers.

Population present in the region fell from 158 thousand to 48 thousand between 1990 and 2009, leaving a population about one-quarter of which were indigenous Siberian people. The major native people, the Chukchi, are related to the neighboring Koryak as well as to the Inuit people of Alaska. Their main agricultural activities are reindeer herding, fishing, and hunting of marine mammals.

Although Soviet factory whaling collapsed in 1992, the native people resumed fishing in traditional wood-framed boats covered with walrus skin, manned by six or seven-man crews. Shortly, they received subsistence whaling permits to harvest about 120 grey whales and two bow whales annually. Today, the International Whale Commission has allocated a shared harvest of 280 bowhead and 620 grey whales to Chukotka's native people and Alaska's Inuit for non-commercial subsistence whaling.

Until recently, Chukotka's industry was poorly developed. Industrial production relied on mining, mainly gold mining. In 1998, the territory produced 6 tons of gold. However a special regime, introduced by then-Governor Roman Abramovich that gave foreign investors secure property rights to explore and develop precious metal deposits has brought in substantial new investment in the past five years, raising the region's gold production in 2010 to 30 tons.

Chukotka's decline and survival provides a lesson in how policies made in Moscow and carried out by bureaucratic elites determine the welfare of people in Siberia's north. From 1991 until 1999, the regional governor of Chukotka was Alexander Nazarov. Born in 1951 in Pavlodar, Nazarov graduated from a civil engineering institute and the Khabarovsk Higher Party School. After serving on a submarine in the Navy, he was sent to the Bilibino power station in Chukotka. In 1990, he was elected to the Soviet of People's Deputies of Chukotka and became chairman of the Chukotka Executive Committee. In November 1991, a decree of the RF president appointed him administrative head of Chukotka.

Chukotka has always been dependent on central subsidies. In 1997, federal transfers to the region accounted for 39.5 percent of government expenditures. In that era, Chukotka received both a line item in the federal budget and substantial in-kind subsidy that included a fishing quota from the State Fisheries Committee and export rights for oil, although the territory, itself does not produce oil.

In 1995, the regional leadership created the Chukotka Fishing Company. Shareholders of the firm were the Chukotka Trading Company, the Development Fund of Chukotka, the Association of Indigenous Peoples of Chukotka, and the Far Eastern Investment Company (Moscow), a company managed by the regional authorities. The State Fisheries Committee granted the Chukotka Fishing Company a quota of 50,000

metric tons, although only 25,000 tons of fish were actually caught. Almost two-thirds of that catch was caught by a large trawler-processor managed by Alaska Ocean of Anacortes, Washington on a profit-sharing basis. Revenues from fishing were to go into the Development Fund of Chukotka, managed by the governor.

In addition, Moscow gave Chukotka the right to export up to 1 million metric tons of state-owned crude oil per year to Western Europe, exempt from excise taxes. Far Eastern Investment Company, the territory's investment arm, invested these proceeds.

Chukotka Trading Company was the purchasing arm of the administration, responsible for the importing of food, coal, and mining machinery. It also held rights to develop the offshore oil deposits in the East Siberian and Chukotka Seas. A commercial office based in Washington State made purchases for the territory on the international market, but Chukotka companies were managed from Moscow because most of its payments---payments to gold producers, subsidies for provisioning, and oil export rights--originated in Moscow. During the first decade of transition, the World Bank urged the Russian Finance Ministry to shift all in-kind subsidies to explicit budget funding, arguing that the opaque arrangements in Chukotka resulted in relatively little benefit to people in the region.

The status of the region changed sharply when Roman Abramovich, the billionaire owner of oil company, Sibneft, became Chukotka's representative to the Federation Duma in 1999 and governor in 2000. Abramovich was a self-made entrepreneur who became co-owner of Sibneft with Boris Berezovsky under the loans-for shares agreement with Boris Yeltsin. Subsequently, Abramovich emerged as a winner in the "aluminum wars," a period of oligarchic competition for Russia's non-ferrous metals industry. The implicit payment required of Abramovich was his support for the devastated region. Abramovich was governor of Chukotka from 2000 until 2008. According to his spokesperson at Millhouse Capital, Sibneft and Abramovich, personally, spent more than \$2 billion to maintain and improve the region.

He offered relocation grants to pensioners seeking to leave the region. Living standards improved and infrastructure, schools, and housing were improved. Anadyr became a cheerful town whose Soviet-era apartments were repainted in primary colors—red, blue, and yellow.

After Gazprom Neft purchased Sibneft for \$13 billion, Abrabovich sought to resign as governor. However, Putin reappointed him until 2008 when he was allowed to retire with the promise that Chukotka would continue to receive funding from Millhouse.

The funding that emerged was attracted, not by the prospects of oil development, but, rather, by the mining of gold and precious metals. In 2009, a large new gold mine opened in central Chukotka, employing 1,400 people. Named Kupol, or “dome,” it more than doubled the share of mining in Chukotka’s income, delivering 30 tons of gold to the Russian Central Bank (Paxton 2009). Kupol is owned 75 percent by Canadian Kinross Gold and 25 percent by the Chukotka government. In 2010, Kinross purchased a second deposit located north of Kupol, and in 2011, the governor of Chukotka, Roman Kopin, announced a further discovery of deposits containing 1,500 tons of gold located near Bilibino in the Far North. Thus, foreign investment in Chukotka’s mineral resources required negotiation of a special investment regime in Moscow by a wealthy and well-connected governor and billionaire. Elsewhere, in oil and gas, forestry, and fisheries, investors still reported high levels of political risk.

State Ownership and Administration of Russian Forests

Today, Asian Russia’s comparative advantage in the Pacific market is, first, energy—oil, natural gas, coal—and secondly, metals. However, these sectors are capital-intensive, providing modest long-run employment. Siberia’s other resource industries, forest products, agriculture, and fishing, will continue to play major roles as employers in Siberia and the Far East, although both forestry and fisheries face rapid draw-down of stocks.

The timber and forest products industries have been a source of long-run employment. Yet, a look at government management in forestry tells us that the current arrangements fail to provide incentives for efficient resource use and long-run sustainability, fail to safeguard protected forests and watersheds, and provide ample opportunity for illegal logging and self-dealing by administrative authorities.

Under the revised Forestry Code of 2006, forest lands are the property of the Federation government, although responsibility for the management of forest lands is divided between the territorial agencies of the RF Ministry of Natural Resources and the Natural Resource Departments of the territories themselves. High levels of illegal

logging in provinces with access to international markets tell us that the existing management of forests is not working.

More seriously, recent policies of the central government to foster domestic value added processing of wood by imposing an export tax on round wood have increased the flow of illegal timber across the Russian-Chinese border. If Russia's future development is to benefit from harvest of its vast forest resources, then its framework of land laws will need to be re-drafted to provide long-term stability for harvesters. Further, the capacity of all of the state agencies empowered to implement forest law will need substantial improvement.

Russia contains almost 25% of the world's forests. Along with Indonesia and Malaysia, it retains forest lands in government control. In the Soviet era, the forest products industry enjoyed stable, high levels of production and produced mainly for the domestic market.

In the command era, administration of forests provided for centralized assignment of rights of use from Moscow, thousands of kilometers distant, centralized investment from the state budget, and transfer of workers to Siberia from other regions. The output targets of harvesters focused on quantity at the expense of quality and variety. The absence of stumpage costs and focus on labor and fuel costs led harvesters to deliver to final users only a small share of the timber actually felled and left in the woods. Production bases, called *lespromkhoz*, used obsolete technologies and provided few amenities to workers.

With transition, the Russian government adopted the Forest Code of the Russian Federation in 1997 and a revised Forest Code in 2006. The 1997 Code did not give property rights to sub-national territories but it gave them many rights to manage forest lands. The 2006 Code assigns ownership to the Federation government but directs the territories to draft sub-national codes to implement the RF framework law, a step that is still underway (*Lesnoi Kodeks* 2006). The Code divides lands into three categories: *lesnoy fond*, the primary category, refers to forests under control of the Ministry of Natural Resources (90 to 100 percent of forest lands). A second category is forest land controlled by the Ministries of Defense and Interior and municipal forests. A third category, *drevesno-kustarnikovaya rastitel'nost*, includes forests on agricultural or other

settled land. The Code defines several types of forest uses that might be licensed: timber harvesting, extraction of by-products, such as mushrooms and berries, hunting, scientific study, and recreational and tourist use. It states that protected forests should be provided to safeguard rivers and watersheds. However, the indigenous peoples of the territories have no property rights or administrative authority to oversee forest use in their traditional lands. Rather, Article 48 of the RF Code provides that “the endemic habitats and traditional life styles of indigenous peoples of the North, Siberia, and the Far East shall be safeguarded when using the forests.”

In 1992, with the emergence of markets, the provincial Forestry Administrations organized themselves into joint-stock holding companies and transferred all of the control rights to forests to themselves. Ownership of the holding companies was shared between the State, the agency administrators, and the subordinate production units. *Lespromkhoz* themselves became joint-stock companies as well, with their ownership shared between the State, the superior holding company, and the operating personnel of the original production units. In practice, the State shares, which varied from 15 to 51 percent of the total, were managed by officials of the provincial government and the provincial resource ministries.

As administrative agencies took over the control of resources from the subordinate production units, many of the underlying production organizations disintegrated. Their equipment and personnel were decentralized to small logging enterprises linked to individual towns and villages. Today, this structure of a few large timber holding companies with hybrid private and state control combined with many small, inefficient logging firms persists in most regions. With the exception of Irkutsk, where processing of wood products remains important, the share of domestic wood processing fell steadily.

Thus, today, Russia is the world’s largest exporter of round wood, accounting for 43% of coniferous and 42% of non-coniferous exports in international markets. The industry employs almost 900,000 workers, with more than three-quarters of its employees in Siberia and the Far East. In 2010, the largest purchasers of timber were China (37% of round wood), Finland (32%), and Japan (14%). The structure of the industry is decentralized, with many small logging companies operating in each region. Some of

these companies sell directly to foreign producers; others deliver round wood to the large intermediaries, described above (Makela 2009).

[Insert Table: Potential for Export of Forest Products in Asian Russia]

The management of forest use is carried out by two vertical authorities: a provincial administration and the federal administration subordinate to the Ministry of Natural Resources. The provincial administration implements the licensing of forest stands, the collection of use fees, and the enforcement of social obligations, but its processes are subject to oversight by the federal authorities.

Siberia has the largest stands of timber and the largest potential physical harvest of any of Russia's regions (Eastin and Turner 2009). Yet, only half of potential harvest is actually cut in Siberia and 42% in the Far East. The disparity reflects many factors that increase costs, including lack of infrastructure, high transport costs to bring logs to markets, short harvesting seasons in the North, and a lack of processing capacity to turn round wood into processed products (Simeone 2011). Costs of felling round wood in Siberia are approximately two times higher than in Northwest Russia (Sheingaz 2002). On the other hand, illegal felling of timber, which is widespread, means that actual harvests in the region exceed reported harvest, sometimes by vast amounts.

With weak governance, Moscow's strategy to foster higher value added processing of round wood by imposing export taxes on the export of logs, instead creates incentives for evasion. Export taxes were set at 20% of value in 2007, rising to 25% in 2008. Export taxes were scheduled to escalate to 80%, but a drastic fall in official export quantities and an escalation of illegal exports put further tax increases on hold.

A few Chinese firms are beginning to invest in wood processing mills in the Russian Far East, encouraged by a formal Russian-Chinese agreement. However, a more noteworthy development has been the emergence of illegal harvesting and illegal export of logs to China. Timber industry experts estimate the value of illegal exports at about 25 billion rubles, or \$1 billion, annually. In spite of a proliferation of documentation and formal monitoring, industry observers estimate that 50 to 70 percent of timber exported from Primorye and southern Khabarovsk has been felled illegally (Lebedev 2005, Wikileaks 2010).

Illegal logging may be carried out by small, informal groups of loggers or it may supplement the income of legal license holders. In either case, illegally-cut wood is generally mixed with legally-cut material to avoid detection. Estimating costs in the informal economy in 2004, Sheingauz writes that payments to rogue harvesters for felling timber were \$10 to \$15 per cubic meter. The sum of transport costs to the border plus bribes roughly doubled the cost at the border to \$20 to \$30 per cubic meter, while the official average price of a cubic meter of Russian round wood was \$61 at the border and \$97.7 in Central China. Bribes were mostly standardized: \$100 to get a truck through a police control point and \$300 to \$500 to get a truckload of timber through customs (Sheingaus 2005).

Weak governance also figures in the difficulties that the downstream forest products mills face in generating investment in modern technology. Irkutsk is home to two of the largest Russian pulp and paper producers, Ilim Pulp of St. Petersburg with pulp and paper mills at Bratsk and Ust-Ilimsk, and Continental Management's Baikal Pulp and Paper on Lake Baikal. Continental Management is a sub-unit of Oleg Deripaska's RUSAL aluminum group. Between 2000 and 2004, two groups of oligarchs battled for control of forest products mills in Siberia in a contentious process called "the forest wars," drawing on all the levers of central government ministries, security services, and the courts.

PriceWaterhouseCoopers notes that the use of the state apparatus as a weapon threatens investment (PriceWaterhouse 2006). They write, "Some of the key factors currently impeding foreign investment in the forest-based industries include:

- Legislation, both industry-specific (the Forestry Code) and general (shareholder rights protection, taxation)...particularly regarding interpretation and application of the rules by the authorities;
- Underdeveloped infrastructure that hampers both the construction/ reconstruction of a mill as well as transportation of raw materials and finished products, making potential investments expensive and potentially nonviable;
- Perceived political risks, driven by recent renationalization trends in other industries as well as bad publicity from the 'forest wars'."

Today, we see state ownership of forest lands combined with production by large, politically-connected conglomerates towering over thousands of small harvesting entities that operate in the informal economy. Thus, the current institutions governing Siberia's forest resources are unlikely to provide sustainable resource stocks and prosperous communities.

7. Siberia in the International Economy; Trade and Commercial Links with Asian Countries

In spite of their heterogeneity, the territories of Asian Russia share some common features. First, they are in the midst of a mammoth adjustment process as their local economies adapt to market signals; secondly, their adjustment is driven directly and indirectly by forces from the international market; and, finally, their ability to respond to opportunities in the growing Pacific markets is impeded by the governmental management of state-owned land and resources and the absence of predictable property rights in resources.

Structural change in Siberia and the Far East lags adjustment in European Russia because the size of the initial distortion was larger and because Moscow's policies of imposing protectionist tariffs and export taxes and subsidizing loss-makers all slow adjustment. When adjustment requires new, state-of-the-art technology in a new location, then Russia's uncertain economic environment for investment remains an important barrier to growth.

A major driver of recovery is promised investment in railways, roads, electricity, and pipeline networks to deliver primary materials to burgeoning Asian markets. The *Strategy of Social-Economic Development of the Far East and Baikal Region to the Year 2025* promises that the first stage of development will be based on public investment in infrastructure, including the Trans Siberian and BAN mainlines, road networks, pipelines, power systems, and ports to move Siberia's resources to Pacific markets and improve the social infrastructure for population.

There are recent signs that Asia's growth could, indeed, impel growth in Siberia. Depreciation of the ruble after 1999 aided import-competing activities and made export of Russian primary products to the world market more profitable. Responding to strong demand, Russia's Western-oriented trade patterns began a gradual shift toward the

Pacific. The share of the EU in total two-way trade in goods with Russia has fallen from 56.5 percent of total trade in goods in 2006 to 46.8 percent in 2010, while the share of Asia-Pacific Countries now is 23.3 percent (*European Trade* 2011).

Today, China is Russia's largest trading partner (9.5%), leading the Netherlands (9.3%), Germany (8.3%, and Ukraine (6.9%). Within Asia, Russia's top three trading partners are China, Japan, and South Korea, with China playing the dominant role.

[Insert Table: Russian Trade with Northeast Asia 2010]

The commodity mix of Russia's exports has become increasingly resource-based. In 2010, fuel and energy accounted for 67.5 percent of exports followed by ferrous and non-ferrous metals (10.6%), chemicals (6.2%), and machinery and equipment, including military equipment, (5.4%). Turning to the structure of exports from Siberia and the Far East, the largest reported exports from Siberia's 2010 total of \$30.8 billion were fuels, metal and metallurgy, chemicals, forest products, and machinery.

[Insert Table: Commodity Exports from Siberia and the Far East]

Most of the total export from the Far East of almost \$12 billion was accounted for by oil and liquefied natural gas (\$7.4 billion). The fishing industry accounted for \$1.6 billion.

Some commodities produced in Asian Russia, such as gold and diamonds are not listed in trade accounts. In 2009, Sakha's diamond production was 34.9 million carats, of which about 22 million carats were gemstones. This output was notionally valued at \$2.3 billion. According to De Beers, China surpassed Japan as the world's second-largest buyer of diamonds, after the US (White *Alrosa* 2011).

The largest trading partner of Asian Russia is China. In 2010, the Siberian Federal District reported that China accounted for 18.8 percent of its exports and 28.8 percent of its imports. China received coal, metals and metallurgical products, timber and forest products. The share of military hardware, which was once a leading export, is dwindling as China expands its domestic production. (In any case, military exports are reported at the center, but not in the regions.) In return, China sent Siberia and the Far East food products, apparel, footwear, machinery, and electronics. Heilongjiang province, which shares a 3000 kilometer border with the Far East reported deliveries to Russia across its borders of approximately \$8 billion in 2008 (Hiraizum 2010). In 2009, the

Vladivostok Customs District, alone reported imports from China of \$3 billion (*Tovarnaya Struktura 2010*).

Dependence of territories in the Far East on trade with China is still higher than in Siberia. For example, in 2010, shares of imports from China were: Khabarovsk (51%), Primorye (62%), Amur (90%) and Jewish Autonomous Okrug (96%).

In the past decade, the ports of Vladivostok and Nakhodka in Primorye became major importers of Japanese and South Korean vehicles and parts. In December, 2008, the imposition of high tariffs on foreign automobiles led to violent protests on the streets of Vladivostok.

8. Development Initiatives from the Center

The Russian Federation government promises that Asian Russia will receive a vast in-flow of resources from Moscow in the coming decade. Both President Medvedev and Prime Minister Putin make frequent cameo visits to Sakhalin, Krasnoyarsk, and Vladivostok. In August, 2010, Vladimir Putin drove a yellow Lada Kalina automobile from Khabarovsk to Chita to mark the completion of a highway along the Chinese border. Russia has announced construction of the Vostochny Cosmodrome in Amur territory beginning in 2011. A total of 24.7 billion rubles (\$800 million) is allocated for the first three years of construction at the facility, which is expected to employ 20,000-25,000 personnel (Popovkin *Space Center* 2011).

In 2009, the Russian government published, *Strategy of Social-Economic Development of the Far East and Baikal Region to the Year 2025*, committing the Federation government to provide infrastructure investment from the federal budget and from the planned investment of national energy companies, such as Gazprom, Rosneft, and UES Electric Power. Completion of the Eastern Siberia-Pacific Ocean pipeline to deliver oil to China is an example of the scale of the proposed commitment. On the other hand, economists point out that revenues from such investments accrue to the center and do not trickle down to the regions. For example, UES owns the Zeya Hydroelectric Plant in Amur. It sells Zeya's power directly to China and, then, charges Amur province for the higher costs of importing coal-fired electric power from Sakha.

Currently, Moscow is signaling its commitment to Pacific Russia though a mammoth investment in the city of Vladivostok, where Russia will host the 24th meeting

of APEC in the summer of 2012. Construction of conference facilities, a bridge to the meeting site on Russkiy Island, a federal university, and a new five-star hotel in downtown Vladivostok all provide the core of an effort to upgrade the region's infrastructure. Improvements to the ports of Vladivostok, Nakhodka, and Vostochny link transport from the Pacific to the Trans-Siberian railroad. Two smaller ports, Pos'et and Zarubino provide direct links to local Chinese markets. Development of Gazprom's capacity to deliver liquefied natural gas to users in Asia and Rosneft's export of oil from Khabarovsk will give Russia a growing presence in Pacific energy trade.

The Primorye territory is the largest region of the Far East. It is home to a large fishing fleet, serves as the center for Russia's military forces in the Pacific, and provides Russia's main transportation links with the Pacific.

Primorye's main city, Vladivostok, is located on the Golden Horn Bay, a deep natural harbor surrounded by steep hills. In the Soviet era, Vladivostok was a closed city, not only to foreigners, but to Soviet citizens as well. The Pacific Fleet was based in the city, nuclear submarines were built in a nearby town, and a major submarine base occupied the beachfront a few miles northeast of town.

Perestroika turned the region upside down. New organizations, foreign trading companies and export cooperatives, sought access to the Trans-Siberian and the ports in order to move raw materials offshore onto the world market. Gangs of toughs hung around the ports and the airport, watching over the movement of contraband.

Vladivostok was the center of the Wild East. With the collapse of the Soviet Union, thousands of troops were demobilized. Coming home without jobs or money, they found employment in "mafias," local protection rackets that preyed on the new small businesses or national mafias that exported resources, imported Japanese cars, and controlled domestic trade.

After economic reform, Primorye suffered through a decade of conflict over ownership and control of economic assets and political conflict with the center. With the onset of privatization, networks of officials in Moscow sent teams to the territory to assure central control of regional assets, while local officials sought to separate local factories and facilities from ministerial subordination to assert local control. Governor Evgeniy Nazdratenko, earned the enmity of the Center by seeking to gain local control

over local facilities. President Yeltsin cancelled Primorye's gubernatorial elections in 1994, but Nazdratenko was re-elected in 1995 and, again, in 1999.

When federal authorities negotiated a border settlement with China that transferred land along the Tuman River to the Chinese, Nazdratenko again came into conflict with the Yeltsin administration. Finally, in 1997, President Yeltsin, unable to replace a popularly elected governor who enjoyed the support of the Federation Council, transferred most of the governor's authority to the President's Representative in the region, Viktor Kondratov, head of the Federal Security Service. In addition to budget control, Kondratov had authority over assignment of quotas for fish, seafood, and timber in the region. However, in 1998, Kondratov found himself siding with the region, lobbying Moscow for federal payments that were long over-due (Challenge 1994).

Primorye's ports and its strategic location in Northeast Asia are the territory's most valuable assets. The Commercial Seaport at Vladivostok, located on Golden Horn Bay is open year round. To the east, the city of Nakhodka has four ports, including a large containerized port, Vostochny. In 2010, the imposition of high import tariffs on foreign automobiles generated riots in Vladivostok, where sales and service of Japanese and Korean autos are an important source of employment.

In the Soviet era, Primorye's largest industries were fish and seafood (43 %) and machine building (24%), largely military production. However, after reform, only one of the Far East's 32 military enterprises managed to develop civilian products for the domestic market, although some survived by exporting. In the fishery, the large Russian fishing fleet ceased using Far East ports in Russia in the face of risk of hold-up. Instead, catcher-processor vessels put in at Busan, in South Korea, for maintenance.

Today, Primorye's future is linked to its role as a maritime province. Yet, private economic activity will depend on its ability to function as a trade and transport node and on the contribution that the Pacific fishery makes to its economy.

Management of Russia's Pacific fishery presents a paradoxical picture. On the one hand, regional producers have acquired large modern trawling fleets built in the shipyards of Norway and Spain, financed through long term leases with Western banks. On the other hand, the most valuable commercial stocks of fish have been reduced through over-fishing so that production has stabilized at about half of the levels of the

1980s. Procedures for access to fishing quotas have changed repeatedly and remain opaque.

Before reform, Far East fishing organizations were enormous, self-sufficient bureaucracies that controlled their own fishing ports, ship repair yards, construction organization, housing, and social overhead facilities. Privatization converted these bureaucracies into a mixture of joint stock companies and state enterprises. On Sakhalin, small, entrepreneurial fishing firms emerged. On Kamchatka, the former state fishing administration retained its organizational structure. Individual independent firms participated as members of territorial associations in lobbying for access to quotas.

Until 2004, the State Fishing Committee controlled access to fishing quotas, with about one-third of the rights to total allowable catch sold at auction and the rest acquired through negotiated procedures. Then, control of quotas was transferred to the Ministry of Agriculture and regulations were adopted to increase the role of on-shore processing.

As the industry re-directed its sales to the international market, there were allegations of huge under-reporting of harvest, tax evasion, corrupt allocation of quotas, and illegal transfer of ships owned by state-controlled enterprises to private firms controlled by insiders. Russian firms managed a large but ageing fleet that engaged in open-sea expeditions using large fish-processing “mother ships” supplied by a fleet of smaller seiners or trawlers (Allison 2002). Catcher-processor vessels could off-load their catch on the high seas for transport and sale directly to purchasers in Japan or South Korea. Reported quantities and values of catch in Russia remained a fraction of the reported purchases of their trading partners.

Attempts by the government to enforce sales to domestic processors misfired since uncertainty blocked investment in domestic on-shore processing facilities, while both Russian and foreign fishing interests moved their assets and activities to the international market. Thus, with uncertainty about the procedures and costs of gaining long-run rights to fish, in an environment with high political risk, today, fishing enterprises focus on short-run profits, held off-shore, rather than having incentives to build a stable domestic industry.

Institutional arrangements in the west to limit over-fishing and foster efficient harvesting establish long-term tradable rights to harvest shares of a total allowable catch

as a solution to common pool resource problems. These property rights, called individual tradable quotas (ITQs) capture resource rents by reducing the race to fish and move property rights to the more efficient harvesters. Using evidence from international fisheries in developed countries, Grainger and Costello show that that stronger property rights lead to higher potential asset values and generate a more efficient structure of investment in resource use (Grainger and Costello 2011).

Establishment of ITQs in Russian fisheries would give the Far Eastern economy a secure framework for maintaining a valuable fishing industry, but, at present, they are far from that goal. Large amounts of illegal harvest promoted by corrupt enforcement and risks of hold-up replicate the disarray in governance of other publicly-managed resources.

9. Conclusions: the Future of Asian Russia

Development of each of the industries discussed here requires secure access to Siberia's resources and close links to the international market. But, today, access to resources depends on close personal relationships to political authorities who may or may not remain in office to provide privileged access in the long-run. Thus, in the short-run, the government management of resource wealth creates opportunities for corruption and incentives for theft of resources and weakens the motivation to invest in efficient technologies and conserve stocks for future use.

The obvious solution in each case is the design of stable, long-term property rights in resource stocks. However, the opposition to private property comes from all sides. There is the myriad of authorities whose jobs and opportunities for self-dealing would be at risk, the existing insider firms that enjoy privileged access to valuable stocks, and the citizens who observe that past privatizations put assets in the hands of insider elites with little benefit to the general population. For villagers without access to alternatives, illegal logging is viewed as their only short-run survival strategy.

Even with stronger property rights legislation and more consistent application of the rules by the authorities, and even with better physical infrastructure and reliable social services, there is likely to be a continued outflow of people to European Russia and a retreat from the Far North.

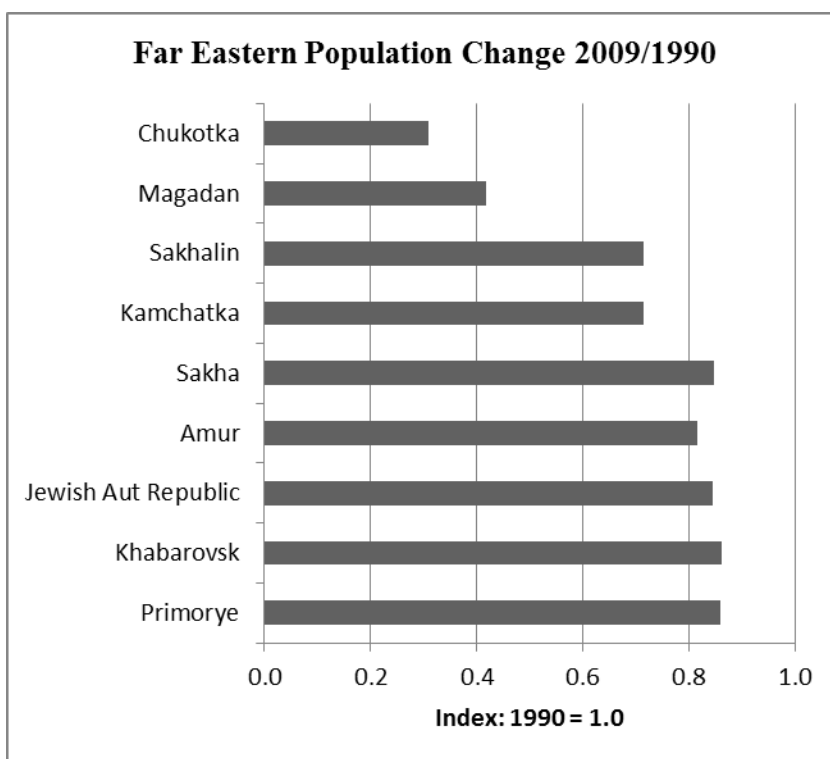
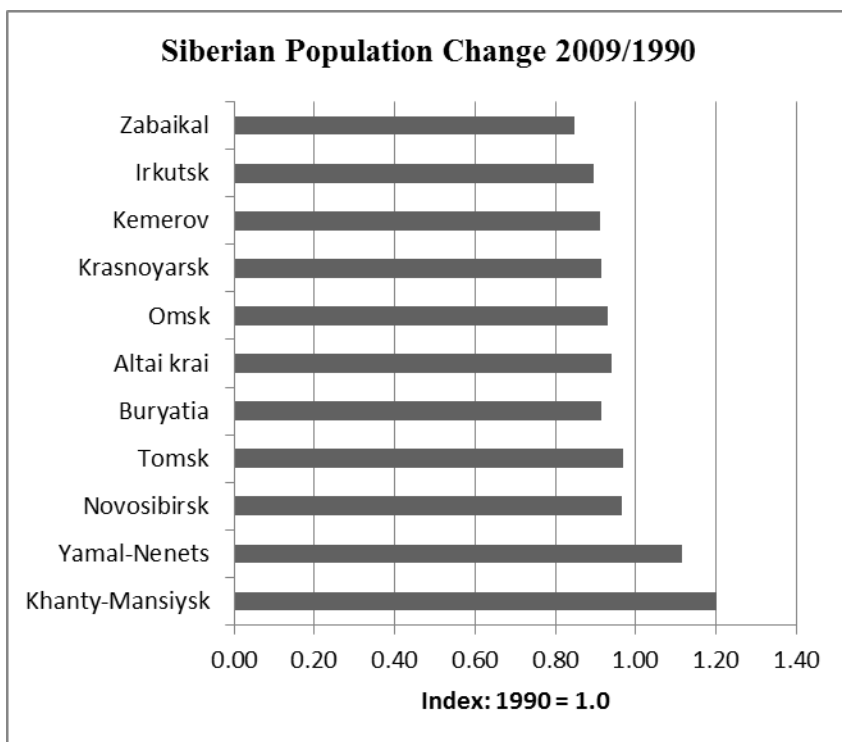
If Siberia's residents hope to rely on rapid growth of Asia as a locomotive for Russian growth, then the government will need to establish stronger links for business

cooperation with all of the countries of Asia and, particularly, with China, Japan, and South Korea. Federal policies to support domestic manufacturing in European Russia, such as high import tariffs and export taxes place an impossible burden on citizens in remote Asian Russia. An alternative federal policy, modeled on the Chinese example, would be establishment of free-trade economic zones in the Far East that would encourage producers on the Pacific to integrate their economies with their Asian neighbors and give them control over local tax revenues to build local infrastructure.

Russia's main impediment to fuller integration into world markets outside of its role as an energy supplier remains the weakness of its institutional governance. Perhaps, as the recipient of vast resource rents, the Russian Federation government has less need to build the complex institutions of a well-functioning society in order to collect tax revenue, but in failing to build the legal and administrative capacity to enforce contracts, support markets, and protect property rights, it is unable to respond to the opportunities of Asian growth. Centralizing tax and tariff revenues in Moscow creates incentives for evasion.

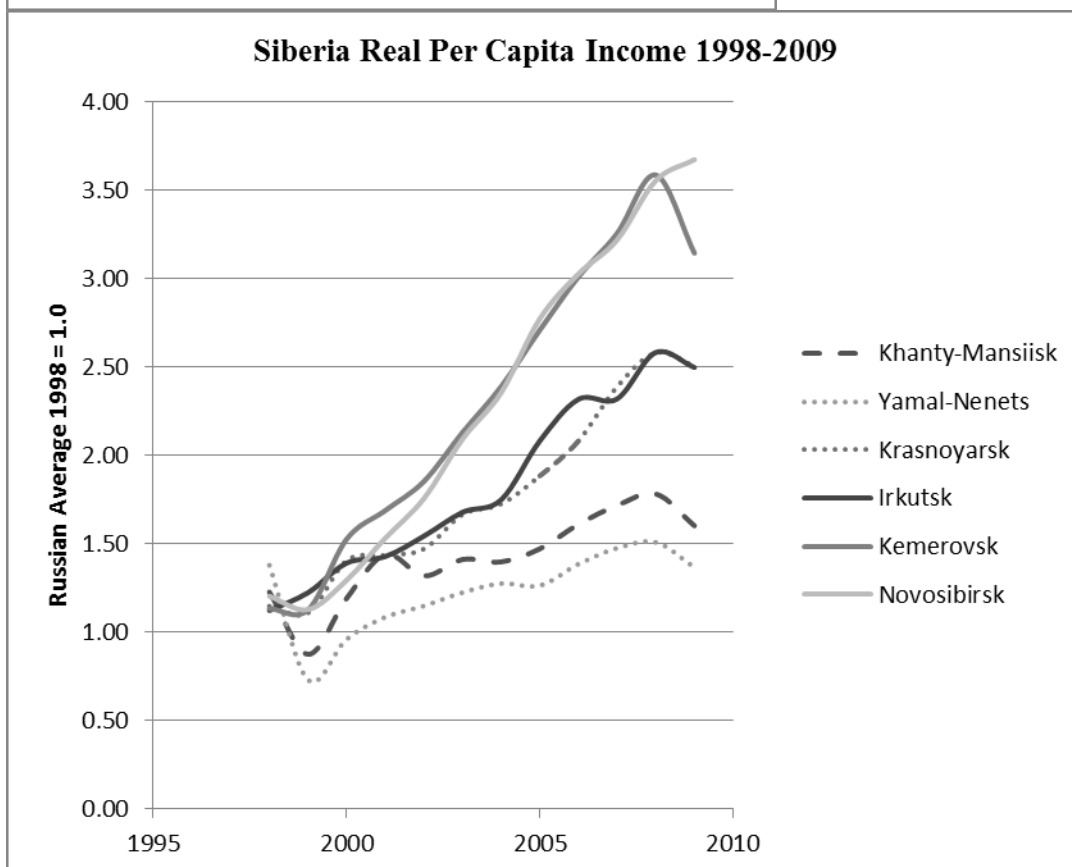
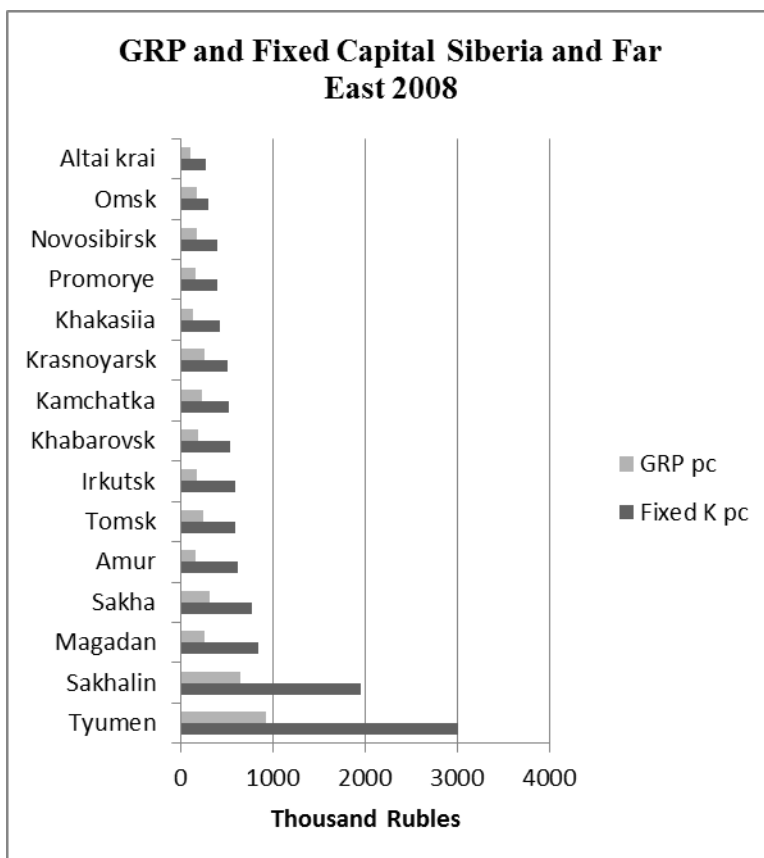
Can Russia build the capacity to participate in expanding Pacific markets? Its fuel and energy will flow to Asian markets in growing quantities. However, if the surpluses from oil and gas flow to Moscow, then Asian Russia may remain a relatively underdeveloped colony with an obsolete, decaying infrastructure, poor social services, and staggering corruption. Thus, Moscow's vulnerability in seeking to manage its Asian periphery results not from foreign threats but, rather, from its own institutional weaknesses and its own failure to strengthen its underlying governance of economic activity.

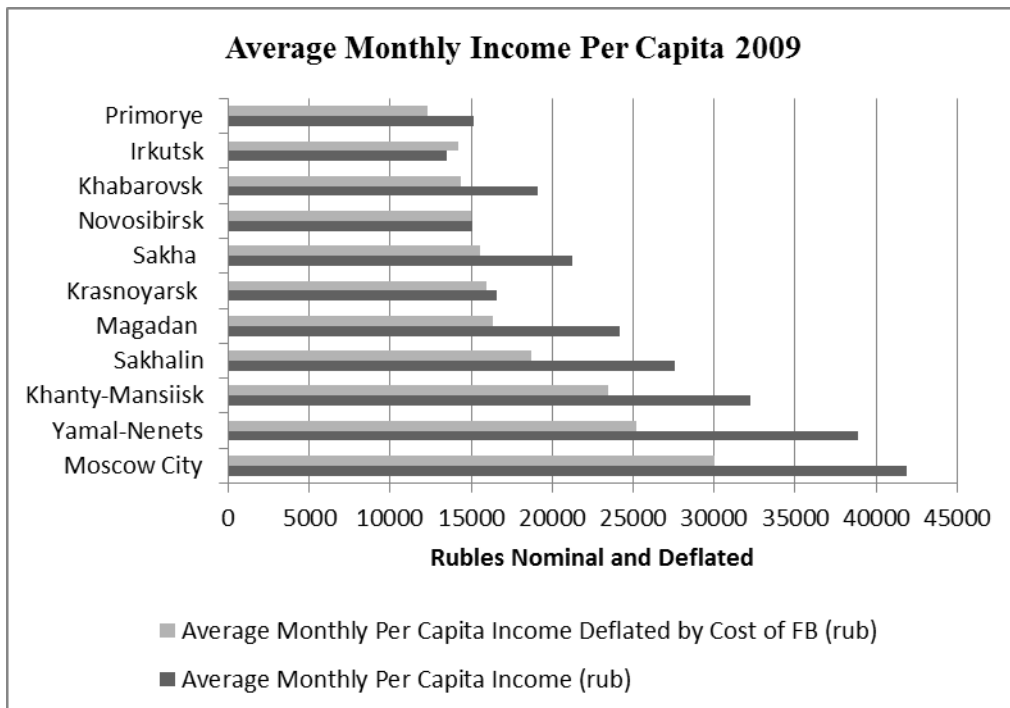
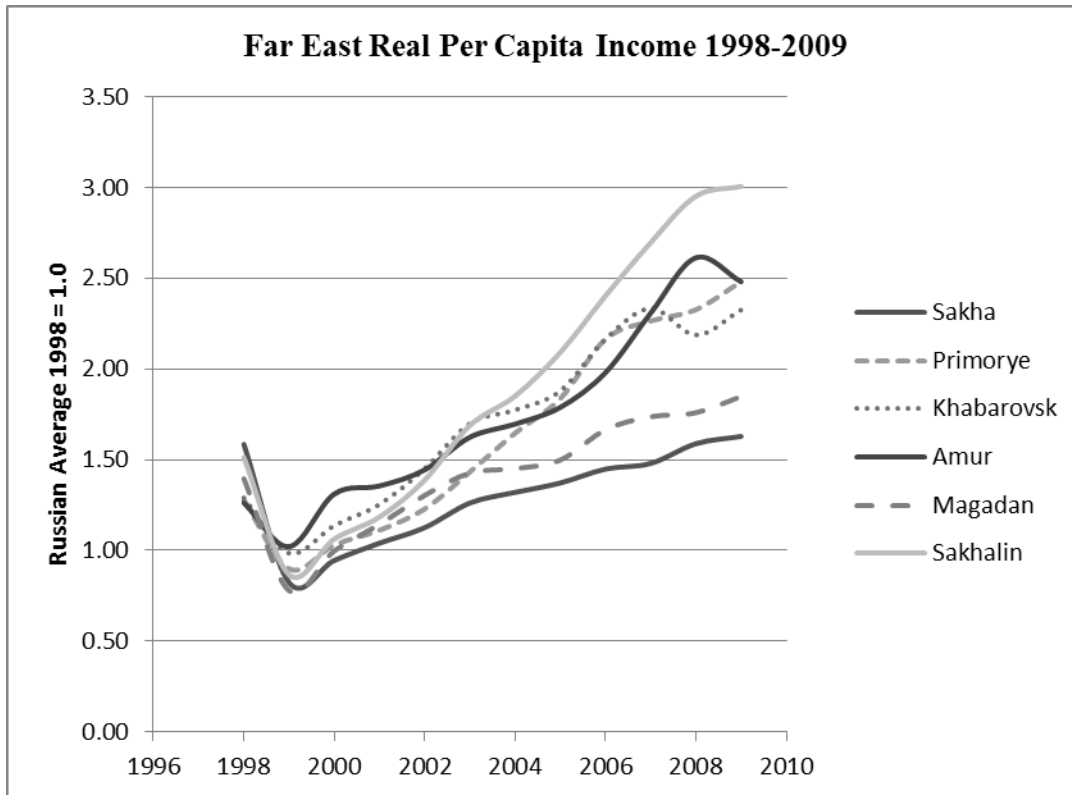
Appendix

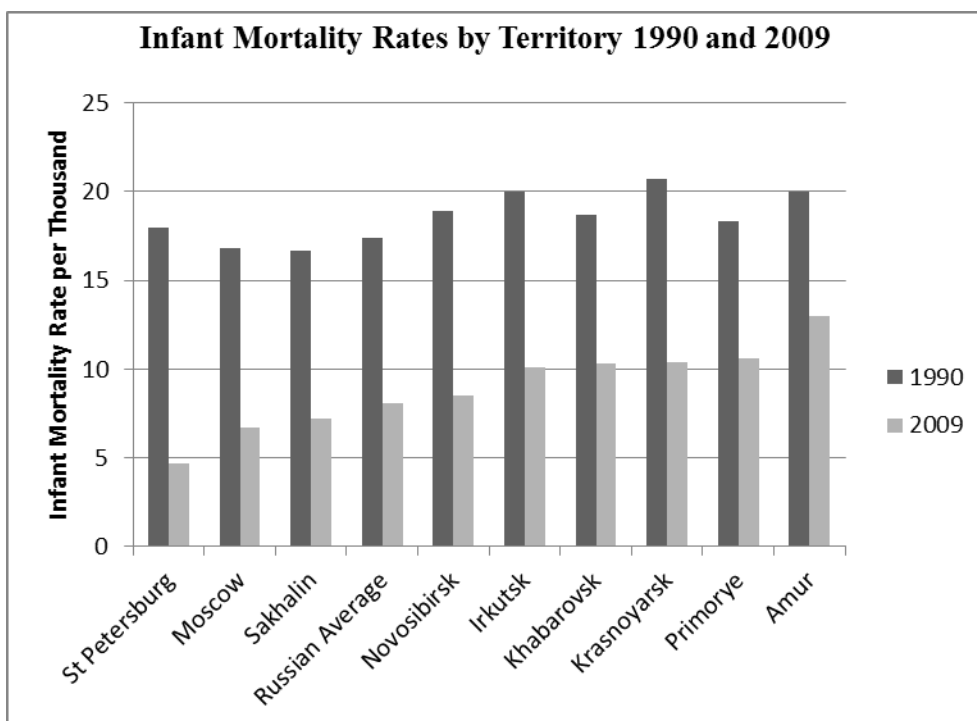
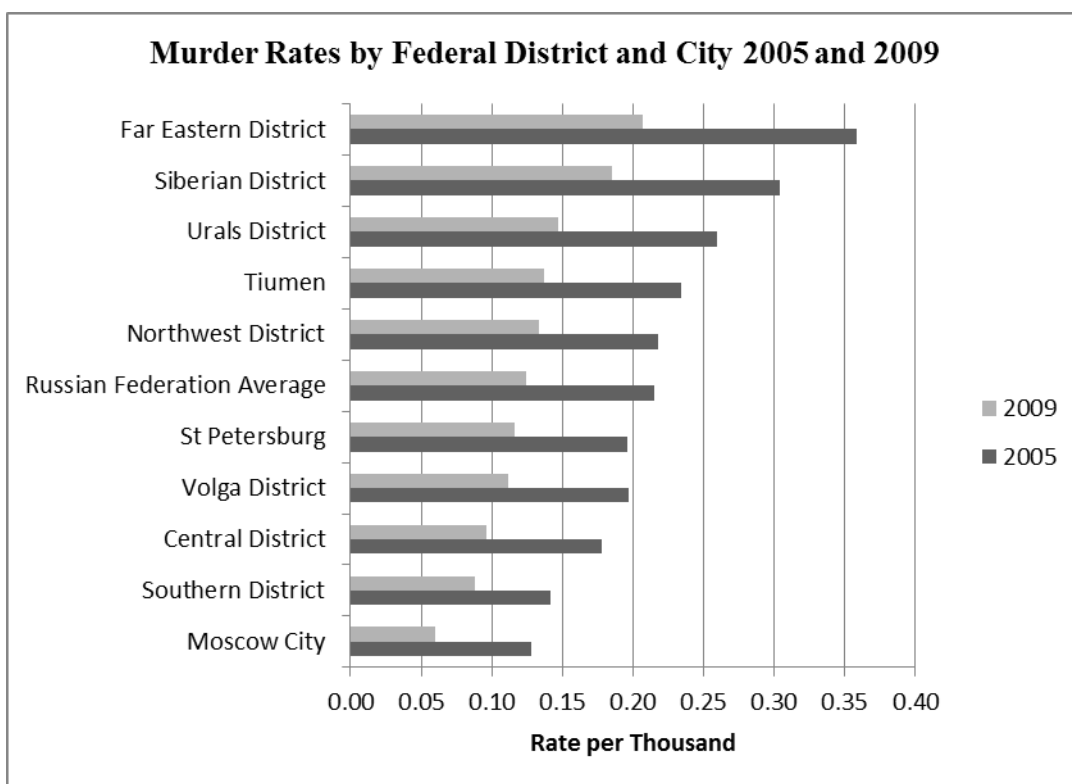


Ratio of Per Capita GRP to All-Russian Average

	1990	1994	2008
Tyumen		295	384
Siberian Federal District			74
Krasnoyarsk		142	106
Tomsk		115	100
Kemerovsk		123	84
Irkutsk		122	75
Omsk		87	72
Novosibirsk		90	72
Khakasia		113	57
Buratiya		99	55
Altai krai		62	44
Altai Republic		54	37
Tuva		50	32
Far Eastern Federal District	123		99
Sakha	148	225	133
Primorye	76	91	66
Khabarovsk	112	107	81
Amur	100	114	65
Kamchatka	218	157	94
Magadan	264	211	106
Sakhalin	164	131	269
Jewish AO	87	79	60







Russian Trade with Northeast Asia 2010

Value of Exports and Imports 2010 \$ million	Russia to Partner Export	Partner to Russia Import
Russian Federation Total	427,800	260,000
Russian Federation Comtrade	373,056	217,415
China	19,781	39,033
Including		
Crude oil	7,303	
Natural gas liquified	65	
Japan	12,501	10,300
Including		
Crude oil	5,338	
Natural gas liquified	2,203	
Republic of Korea	10,404	7,267
Including		
Natural gas liquified	629	
Mongolia	937	79
DPR Korea	46	16
Germany	15,860	26,616
USA	12,033	9,840

Commodity Exports from Siberia and the Far East

\$ million	Total Export	Ag, Fish	Fuels	Chemicals	Forest Products	Metallurgy, Metals	Machinery
Russian Federation 2009	301751	9954	201081	18683	8437	33637	17946
Moscow City 2009	113761	1585	100504	2162	207	520	5512
Siberian Federal District 2009	25541	345	7218	2348	2992	10316	1427
Siberian Federal District 2010	30837	263	10710	3365	3198	9869	2567
Far East Federal District 2009	11970	1648	7424	59	900	347	257

Table: Commodity Imports to Siberia and the Far East

\$ million	Total Import	Ag	Fuels	Chemicals	Forest Products	Metallurgy	Machinery
Russian Federation 2009	167457	30062	2399	27876	5108	10891	72649
Moscow City 2009	70881	10519	280	14739	2376	2586	32614
Siberian Federal District 2009	5824	777	249	1693	57	362	2258
Siberian Federal District 2010	6242	664	314	1939	50	474	2157
Far East Federal District 2010	4962	890	82	393	91	452	1952

Potential for Development of the Asian Forest Products Sector

Actual Harvest	Available Harvest	Ratio of Actual to Available	Ratio of Processing Capacity to Harvest

	million cubic meters	million cubic meters	%	%
Russia Total	130.3	248.5	52.4	
Northwest	44.0	59.0	74.6	38.0
Central	10.0	19.0	52.6	13.0
South	0.3	0.5	60.0	2.0
Volga	20.0	36.0	57.2	11.0
Urals	10.0	37.0	27.0	5.0
Siberian	32.0	64.0	50.0	25.0
Far East	14.0	33.0	42.4	2.0

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