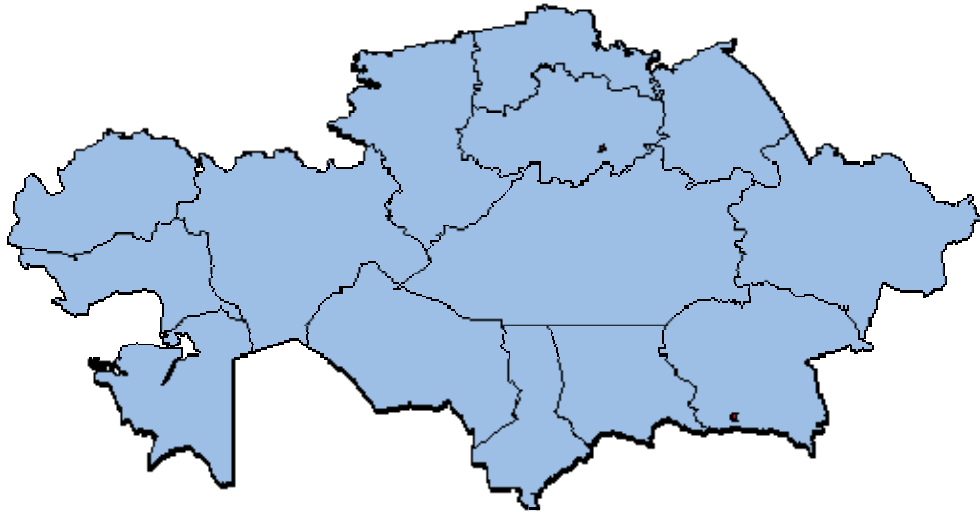




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# Kazakhstan Regional Disparities Economic Performance by Oblast



**May 2006**

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# **Kazakhstan Regional Disparities Economic Performance by Oblast**

## **DISCLAIMER**

The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Sponsored by the Economic Growth office of USAID's Bureau of Economic Growth, Agriculture and Trade (EGAT), and implemented by Nathan Associates Inc. under Contract No. PCE-I-00-00-00013-00, Task Order 004, the Country Analytical Support (CAS) Project, 2004-2006, has developed a standard methodology for producing analytical reports to provide a clear and concise evaluation of economic growth performance in designated host countries. A report on Kazakhstan (Kazakhstan Economic Performance Assessment) was produced for USAID/CAR in November 2005.

Under the CAS Project, Nathan Associates is also to respond to mission requests for in-depth sector studies to examine more thoroughly particular issues identified by the data analysis in these country reports. USAID/CAR had asked Nathan Associates to examine the data available to identify regional disparities in Kazakhstan and the reasons that may explain the differences. This report is produced in response to this request.

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## HIGHLIGHTS OF REGIONAL PERFORMANCE

Economic Growth	National growth has been largely oil-based, so oil-extracting oblasts have increased their share of national gross regional product (GRP), which is the sum of gross regional products. The new capital, Astana, is also a major growth center. Regional disparities in per capita GRP and fixed investment are large and rising, yet most regions have posted strong growth and rising investment, showing that non-oil regions are sharing in the surging economy.
Living Standards, Poverty and Inequality	Poverty rates have declined rapidly in nearly every region, providing further evidence that economic gains are broad-based. Surprisingly, poverty rates are highest in oil-rich regions.
Economic Structure	Three major structural issues at the national level are also reflected in the regional breakdown of output and employment: (1) a declining share of services in total output, (2) high employment in low-productivity agriculture, and (3) low development of manufacturing.
Demography and Environment	<p>Migration has been heavy to high-income regions, particularly the oil-extracting oblasts and the new capital, Astana. Out-migration helped to reduce labor supply growth in lower income regions, contributing to better outcomes in unemployment and poverty.</p> <p>Environmental problems are serious nationwide, but especially in non-oil industrial oblasts. Toxic waste and air pollution have significantly increased, while investment in environmental protection (relative to GRP) has declined.</p>
Gender	Gender wage inequality is worst in oil-extracting oblasts. Women also face disadvantages in finding employment, particularly in Astana. In general, women make up a higher share of the unemployed in regions with high rates of in-migration (such as Astana). Another serious gender issue is poor health for men, as revealed by a very low life expectancy relative to that of women.
Fiscal Policy	Inflation has declined nationally but remains higher in urban areas. Regional government expenditure and revenue are substantially lower, relative to GRP, in oil-rich regions than in agricultural oblasts. There may be opportunities, then, for oil-rich regions to mobilize more revenue for programs to alleviate their elevated poverty rates.
Business Environment and SME Development	The economic crime rate is highly correlated with urbanization and with access to the financial system. This suggests that economic crimes are driven by opportunities for abuse as well as poor enforcement of the laws. The quality of the business climate may be associated with the prevalence of activities of small and medium-sized enterprise (SME) in Atyrau, Mangistau, and the two municipal districts.
Financial Sector	Access to credit is heavily concentrated in municipal districts. Although it is normal for major cities to serve as banking centers, there is a need to improve the availability of financing in other parts of the country, particularly the oblasts of Almaty, Akmola, and North Kazakhstan, where the shares of bank credit are low and declining.
External Sector	The external sector has played a vital role in the development of the economy, with oil-extracting oblasts having the greatest advantage. At the same time, international competitiveness in non-oil regions seems to be low, possibly because of the appreciation of the tenge resulting from oil exports and large inflows of foreign investment.
Economic	The density of paved roads (relative to population density) has risen most in East Kazakhstan, Kostanai, and Mangistau, which have very different economic

Infrastructure	characteristics. Development of the communications infrastructure is low and recent progress unimpressive. Telephone density is highest in more urbanized regions and in regions with higher per capita income.
Science and Technology	Recent trends in R&D spending and R&D employment do not raise hope for a technological breakthrough in the country. Promising signs of progress can be observed, though, in the city of Almaty and in Mangistau and East Kazakhstan.
Health	Recent economic growth has been accompanied by rising life expectancy. It is highest in the municipal districts, where medical care is most accessible, and in the southern oblasts, where the climate is more equable. The accessibility of health care in rural areas is a high-priority concern.
Education	Clear differences in aggregate enrollment rates are observed between urban and rural regions, and rural enrollment rates actually declined in most oblasts. To improve the quality of the labor force, Kazakhstan urgently needs to focus on rural education.
Employment and Workforce	The labor participation rate has been rising, and the unemployment rate declining, in nearly every region. The municipal district of Astana and the oil-extracting oblast of Mangistau attracted large in-migration, helping reduce unemployment throughout the country. Indeed, agricultural oblasts saw the largest drop in unemployment rates, despite having the largest gains in labor force participation. These are signs of very favorable labor market dynamics.
Agriculture	Labor productivity in agriculture is very low nationwide. The highest rates of labor productivity in this sector occur in the agricultural oblasts, as might be expected, but also in one oil-extracting oblast.

# 1. Introduction

The objective of this report is to provide USAID/CAR in Almaty with (1) an evaluation of development disparities and trends in relative performance among the regions of Kazakhstan; and (2) a practical, data-based methodology for monitoring regional disparities, including data resources and data analysis techniques.

This report is a follow-on to an economic performance assessment of Kazakhstan that Nathan Associates completed in November 2005 for USAID/CAR and the Bureau for Economic Growth, Agriculture and Trade (EGAT). The assessment was one of a series of reports prepared for the EGAT Bureau applying an analytical template designed as a standardized tool for identifying issues, constraints, trends, and opportunities relating to economic growth performance in designated countries, using comparative benchmarking as the basic methodology. The template covers approximately 100 indicators on 15 topics under three broad headings: overview of the economy (including growth); the private sector enabling environment; and the pro-poor growth environment. Nathan Associates has applied this methodology to produce assessments for 20 countries.

The economic performance assessment for Kazakhstan reached broadly favorable conclusions about the country's economic development. Among other things, the report highlighted that:

- Kazakhstan's growth has been strong in recent years, stimulated in large part by the oil sector. Real GDP growth averaged 10.4 percent from 2000 to 2004, a major improvement from negative or sluggish growth in the 1990s.
- Kazakhstan has made substantial progress in reducing poverty. Poverty rates, as defined by the national poverty line, have fallen by half in just the past five years.
- Fiscal policy is sound, as demonstrated by a budget surplus. Inflation is moderate but needs to be monitored closely in light of large planned increases in government spending and rapid money supply growth.

A subsequent report by Kazakhstan's Agency on Statistics revealed that, in 2005, GDP and fixed investment increased by 9.4 percent and 22.1 percent, respectively, while consumer price inflation was 7.5 percent (for the 12 months to December 2005). This confirmed the generally bright picture of macroeconomic development described in the economic performance assessment.

Kazakhstan is a large and diverse country in terms of natural resources, climate, and population. Administratively, the country is divided into 14 provinces (oblasts) and two municipal districts

(Almaty and Astana). Although Kazakhstan's macroeconomic success is undeniable, beneath the aggregate indicators are serious questions about whether the favorable resource-driven trends are associated with growing disparities across regions. The statistics available show substantial regional differences in industrial growth, investment, income, and prices. For example, oil-extracting Atyrau oblast accounted for a mere 3.1 percent of the population at the beginning of 2005, but attracted 26.3 percent of total fixed investment in the country in 2004. From this high base, fixed investment in that oblast rose a further 47.7 percent in 2005.

An analysis of how strong growth in particular regions affects other parts of the country is of special interest. If rapid growth in the regions that are attracting the most investment has important positive effects on growth in poorer regions, then a strategy of focusing on the more successful may in fact be an effective approach to improving economic conditions more widely.

The analysis of regional growth performance is organized around the goals of transformational growth and poverty reduction. These goals are mutually supportive. On the one hand, rapid and broad-based growth is the most powerful instrument for poverty reduction. On the other hand, measures aimed at reducing poverty and lessening inequality can help to underpin rapid and sustainable growth. These interactions create the potential for achieving a virtuous cycle of economic transformation and human development.

Transformational growth, itself, requires a high level of investment and rising productivity. This is achieved by establishing a strong enabling environment for private sector development involving multiple elements: macroeconomic stability, a sound legal and regulatory system; a sound and efficient financial system; openness to trade and investment; investment in education, health, and workforce skills; infrastructure development; and sustainable use of natural resources.

In turn, the impact of growth on poverty depends on policies and programs that create opportunities and build capabilities for the poor. We call this the pro-poor growth environment. Here, too, many elements are involved, including effective education and health systems; policies facilitating job creation; agricultural development (in areas where the poor depend predominantly on farming); dismantling barriers to micro and small enterprise development; and progress toward gender equity.

The present evaluation of these conditions must be interpreted with caution, because a concise data analysis such as this cannot provide a definitive diagnosis of economic problems or simple answers to questions about programmatic priorities. Instead, the aim of the analysis is to spot signs of serious problems on the basis of a careful review of selected indicators, subject to limits of data availability and quality. The results should provide insight about potential paths for USAID intervention to complement on-the-ground knowledge and in-depth studies.

The set of indicators used in this report is similar to that used in the regular template for economic performance assessments. Some of the standard indicators, however, are not relevant for analyzing regions (e.g., indicators for the exchange rate), and others are not available at the subnational level. At the same time, this report includes indicators that are pertinent to the present study but are not found in the economic performance assessments (for example, several environmental indicators).

The methodology is analogous to examining an automobile dashboard to see which gauges are blinking. Sometimes a blinking light has obvious implications—such as the need to fill the fuel tank. In other cases, it may be necessary to have a mechanic probe more deeply to assess the source of the trouble and determine the best course of action. Similarly, this report is based on an examination of key economic and social indicators, to see which ones are signaling problems. In some cases a “blinking” indicator has clear implications, although in other instances a detailed study may be needed to investigate the problems more fully and identify an appropriate course for programmatic action. The report itself then focuses on the indicators that are signaling problems or pointing to successes.

Given the difficulty of providing a concise summary of the findings for each oblast and municipal district, this report often analyzes performance indicators for groups of regions. The following four groups, based on the production structure, are used:

1. ***Oil-extracting oblasts.*** These oblasts produced 99.97 percent of the crude oil in the country in 2004. Their individual shares in total oil extraction ranged from 12.2 percent to 28.9 percent.
  - Aktobe
  - Atyrau
  - West Kazakhstan
  - Kyzylorda
  - Mangistau
2. ***Agricultural oblasts.*** Agriculture accounted for at least 20 percent of value added in each of these oblasts. In other oblasts, agriculture was much less important.
  - Akmola
  - Almaty
  - Zhambyl
  - Kostanai
  - North Kazakhstan
  - South Kazakhstan
3. ***Non-oil industrial oblasts.*** These are oblasts with relatively low agricultural production and strong industrial sectors, including coal, copper, aluminum, steel, and electricity.
  - East Kazakhstan
  - Karagandy
  - Pavlodar
4. ***Municipal districts.*** The two municipal districts, the new capital of Astana, and the old capital of Almaty, make up the final group.

The oblast groups are geographically compact. Specifically, the oil-extracting oblasts are in the west of the country. The non-oil industrial oblasts are in the northeast and the center. The agricultural oblasts can be divided geographically into two subgroups, northern and southern, each consisting of three oblasts.

The main sources of data for this report are *The Regions of Kazakhstan*, published by the Agency on Statistics of Kazakhstan, and *Living Standards and Poverty in Kazakhstan: Statistical*

*Monitoring* by the Agency on Statistics of Kazakhstan and the Expanded UN Theme Group on Poverty Alleviation, Employment and Social Safety.<sup>1</sup>

The structure of the report generally follows the format used in the standard CAS reports, with variations according to the subject focus and data constraints. The report consists of the sections outline in Table 1.

Table 1  
*Topic Coverage*

Overview of the Economy	Private Sector Enabling Environment	Pro-Poor Growth Environment
<ul style="list-style-type: none"> <li>• Growth Performance</li> <li>• Living Standard, Poverty and Inequality</li> <li>• Economic Structure</li> <li>• Demographic and Environmental Conditions</li> <li>• Gender</li> </ul>	<ul style="list-style-type: none"> <li>• Fiscal Policy</li> <li>• Business Environment and SME Development</li> <li>• Financial Sector</li> <li>• External Sector</li> <li>• Economic Infrastructure</li> <li>• Science and Technology</li> </ul>	<ul style="list-style-type: none"> <li>• Health</li> <li>• Education</li> <li>• Employment and Workforce</li> <li>• Agriculture</li> </ul>

The separate Data Supplement provides a full tabulation of the data for Kazakhstan by region (14 oblasts and two municipal districts), including indicators not discussed in the text, as well as technical notes for each indicator.

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<sup>1</sup> These sources are different from the ones used for the environmental performance assessment report on Kazakhstan. Some country-level data therefore differ from data in the Kazakhstan report.

## 2. Overview of the Economy

This section reviews basic information on macroeconomic performance; living standards, poverty and inequality; economic structure, demographic and environmental conditions, and indicators of gender equity for the regions of Kazakhstan. Some indicators cited here are descriptive rather than analytical and are included to provide context for the performance analysis.

### **GROWTH PERFORMANCE**

The key measure of the size of a regional economy is gross regional product (GRP), which is analogous to gross domestic product (GDP). The methodology used in Kazakhstan for compiling national accounts does not allow for attributing some items (such as value added in the defense sector) across regions. Therefore, the regional GRP values do not add up to national GDP. (In 2004, the difference was about 10 percent.) In this report, we refer to the sum of regional GRPs as the “national GRP.”

In recent years, Kazakhstan has achieved impressive economic growth, boosted by the booming oil sector. This growth is clearly linked to strong performance in exports, fixed investment, and labor productivity. Because national growth has been based to a large extent on oil, it is no surprise to see that the oil-extracting oblasts significantly increased their share in the national GRP. The new capital, Astana, was another growth center. In Astana, growth was stimulated by construction and the transfer of administrative functions from the former capital, Almaty.

Regional disparities in per capita GRP have been large and rising, as have disparities in the regional distribution of fixed investment. At the same time, non-oil regions benefited from the surge in oil revenues, because growth has become more broad-based, with almost all regions posting a strong increase in GRP and fixed investment, which improves prospects for sustaining this growth.

Spillover effects may occur when the fast-growing regions increase demand for the output of other regions. Spillover effects may also occur through the provision of public goods and services, infrastructure investment, and transfer payments to residents of the lagging regions funded by central government revenues collected disproportionately from the high-growth regions. In addition, residents of slow-growth regions may migrate to fast-growth regions, which increases the supply of labor in the most dynamic areas and helps reduce unemployment in areas where job creation lags.

## Gross Regional Product

In 2000–2004, national GRP increased by an estimated 12.8 percent a year in constant-price terms.<sup>2</sup> Astana, thanks to its new status as the national capital, expanded fastest—25.5 percent per year. The main oil-extracting oblast of Atyrau grew almost as fast—24.6 percent per year—in large part because of high world oil prices, which stimulated oil extraction and exports, as well as international investment in the hydrocarbon sector. GRP in the municipal districts<sup>3</sup> grew at a staggering average of 19.1 percent while GRP in the oil-extracting group climbed 18.9 percent per year. The non-oil industrial and agricultural oblasts lagged far behind, posting growth rates of 9.8 percent and 8.8 percent, respectively. The slowest growth rate (4.4 percent) was in agricultural North Kazakhstan.

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**Economic growth was especially strong in the municipal districts and the oil-extracting oblasts.**

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Although the municipal districts and oil-extracting oblasts were the leaders in economic growth during the period under consideration, growth disparities declined sharply; the standard deviation of real economic growth fell from 16.4 percent in 2000 to 5.3 percent in 2004. Indeed, all but one of the agricultural and non-oil industrial oblasts posted double-digit GRP growth rates in 2004. This indicates that the spillover effect from surging oil revenues described above may be occurring.

As Figure 2-1 shows, the share of national GRP derived from the oil-extracting oblasts increased dramatically between 1999 and 2004, while the share of the non-oil industrial and agricultural groups declined substantially. In 1999, non-oil industrial oblasts produced 28.3 percent of GRP and the agricultural oblasts 27.9 percent. The municipal districts and the oil-extracting oblasts produced 22.0 percent and 21.9 percent, respectively. From 1999 through 2004, every oil-extracting oblast increased its share in national GRP, with offsetting declines in the shares of all the agricultural oblasts and two of three non-oil industrial oblasts. For the municipal districts, an increase in the GRP share for the city of Astana was offset in large part by a decline in the share of Almaty city. Overall, the oil-extracting group produced 32.3 percent of national GRP in 2004, while the remainder was divided equally among municipal districts (22.6 percent), agricultural oblasts (22.6 percent), and non-oil industrial oblasts (22.5 percent). Despite the decline, the city of Almaty remained the largest individual region, accounting for 16.1 percent of national GRP in 2004.

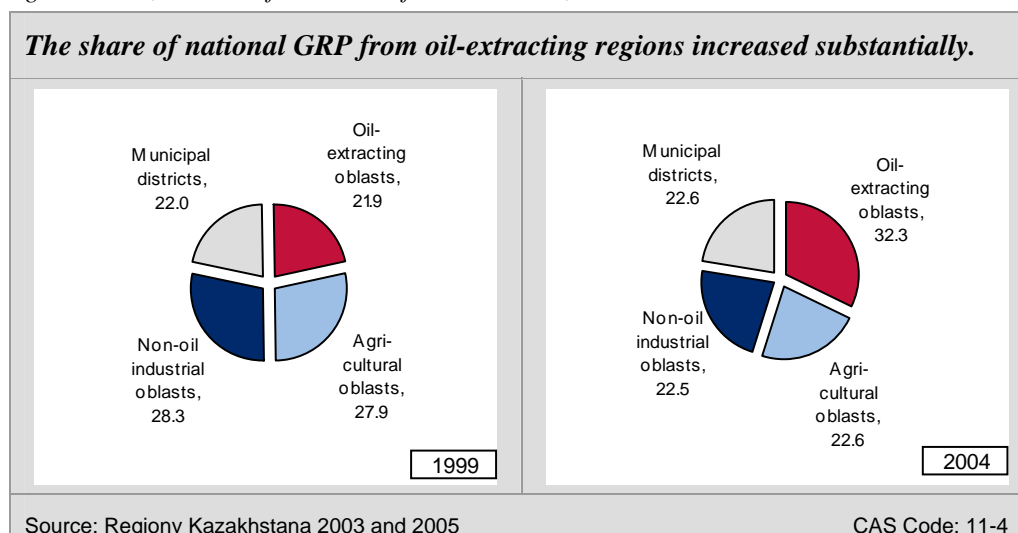
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<sup>2</sup> Real GDP growth averaged 10.4 percent during this period. The discrepancy between GDP and GRP growth results partly from the fact that “national GRP” is different from GDP. More importantly, the Agency on Statistics of Kazakhstan does not report GRP in constant prices, or provide an estimate of GRP deflators. In this report, we use sectoral price indices as proxies for sectoral deflators. For example, the industrial producer price index is used as a proxy for the deflator of industrial value added.

<sup>3</sup> Regional group averages in this report are non-weighted.



Figure 2-1  
*Regional GRP, Percent of Total GRP for Kazakhstan, 1999 and 2004*



As a result of rapid growth measured in constant prices and the real (inflation-adjusted) appreciation of the national currency, the country’s per capita GRP in current U.S. dollars surged 141 percent between 1999 and 2004, reaching \$2,543. This indicator rose rapidly throughout the country, though the increase was strongest in oil-extracting oblasts. Thus, per capita GRP skyrocketed 324.6 percent to \$10,264 in Atyrau. On average, in the oil-extracting oblasts, per capita GRP in current U.S. dollars rose 244.6 percent during this period. The agricultural group posted the smallest increase (98.4 percent).

Regional disparities in per capita GRP were high and rising. Measured in U.S. dollars, per capita GRP in the oil-extracting oblasts and the municipal districts stood at almost twice the national level in 2004—97.0 percent and 95.3 percent higher, respectively. The average indicator for the non-oil industrial oblasts was virtually the same as the national average. For the agricultural oblasts, however, per capita GRP was barely half the national level. Despite some decline in the divergence of growth rates (as noted above), the standard deviation of per capita GRP in U.S. dollars surged from \$674 in 1999 to \$2,430 in 2004.

It is important to bear in mind that GRP measures production, not income. A portion of profits, interest, wages, and taxes generated in a region may accrue to entities in other regions, foreign entities, and the central government. Similarly, residents of a region may receive income generated elsewhere. In Kazakhstan, a significant portion of income generated in the oil-extracting regions was transferred to the central government, other regions, and/or abroad. GRP therefore does not necessarily reflect performance in terms of income.

Indeed, regional disparities in per capita household income, although substantial, are not as large as disparities in per capita GRP. Assuming that the national level equals 100, in 2004, the standard deviations for per capita GRP and per capita household income equaled 99.1 and 62.0, respectively.

Per capita household income of the municipal districts was 96.7 percent above the national

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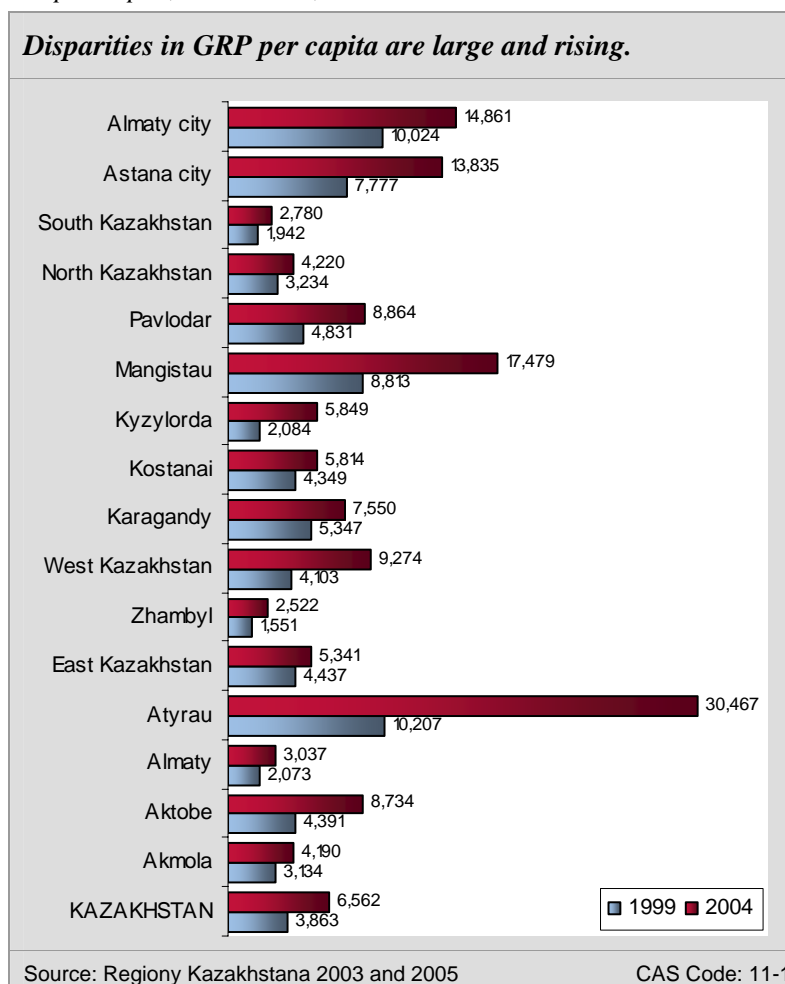
**Regional disparities in per capita household income are smaller than disparities in per capita GRP.**

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average, and the income of the oil-extracting group was 52.9 percent above the national average. For the non-oil industrial group, per capita household income exceeded the national average by 3.4 percent. For the agricultural oblasts, average incomes were 33.0 percent below the national level.

Another perspective on per capita GRP can be obtained using measures that adjust for differences in the actual purchasing power of the tenge. Per capita GRP in purchasing power parity (PPP) is a more accurate measure of output and living standards, for international comparisons, than figures based on the market exchange rate. In 2004, Kazakhstan's per capita GRP in PPP terms was \$6,562, nearly three times the estimate based on the exchange rate. On this basis, the most prosperous region, Atyrau, achieved per capita GRP of \$30,467, respectable even for a developed country. Three other regions—oil-extracting Mangistau and the two municipal districts—exceeded \$10,000. The lowest output per capita, in PPP terms, was in agricultural Zhambyl, at \$2,552 (Figure 2-2).

Figure 2-2  
GRP per Capita, PPP dollars, 1999 and 2004



## Labor Productivity and Investment

Kazakhstan has benefited from growth in both employment and labor productivity<sup>4</sup>: employment rose by 3.3 percent a year between 2000 and 2004 while labor productivity grew much faster, 9.2 percent a year.<sup>5</sup> Productivity rose in all regions, and productivity growth outpaced employment growth in all regions except agricultural Kostanai and North Kazakhstan and the city of Astana. The strong economic expansion in the new capital was based almost equally on employment and productivity growth.

Productivity grew fastest, 14.6 percent a year, in the oil-extracting oblasts. In the municipal districts, labor productivity rose by 12.8 percent a year, while the non-oil industrial and agricultural groups lagged behind, with annual productivity growth rates of 8.3 percent and 4.5 percent, respectively. Atyrau posted the fastest productivity growth rate, 19.6 percent a year, as well as the second-fastest GRP growth rate. In North Kazakhstan, the rise in labor productivity, 0.3 percent a year, was the slowest in the country, as was GRP growth.

Both economic growth and labor productivity were driven by high levels of fixed investment<sup>6</sup> and rapid expansion of exports. On the negative side, capital-intensive investment in some of the rapidly expanding regions apparently contributed to slow declines in unemployment and poverty (see the Living Standards, Poverty and Inequality, and Employment and Workforce sections). Thus, there is not a close correlation between the size of a regional economy and the population, the labor force, or employment. In 2004, the correlation between GRP and fixed investment, by region, was a very high 0.81, and the correlation with merchandise exports was 0.55, but the correlations with population, labor force, and employment were negligible, at less than 0.10. (See the Demography and Environment section for the population breakdown and the Employment and Workforce section for the labor force breakdown.)

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**Fixed investment and exports have driven economic growth and rising labor productivity.**

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There have been large disparities in the regional shares of fixed investment, and these differences are correlated with disparities in growth. The second-fastest growing oblast, Atyrau, attracted much more fixed investment than any other region—31.1 percent of the total in 2005. The oil-extracting regions absorbed nearly half of all fixed investment in the country. The municipal districts accounted for 25.5 percent of the total, with the slow-growing agricultural and non-oil industrial oblasts far behind, at 12.9 percent and 11.6 percent, respectively (Figure 2-3).

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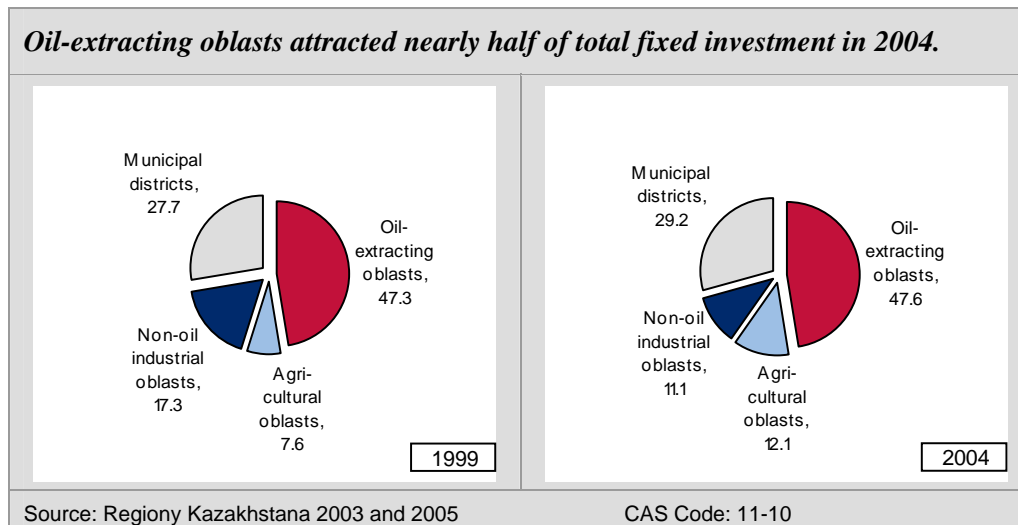
<sup>4</sup> Labor productivity here is the ratio of constant-price GRP to the number of employed.

<sup>5</sup> Our estimate of labor productivity growth based on national GRP, in constant prices, is higher than the figure obtained from using real GDP. This is because the real growth of national GRP, as calculated for this report, exceeded real GDP growth. The difference is likely due to the price index used for computing constant-price GRP. It may also reflect slower growth in components of GDP that are not included in the GRP data, as explained above.

<sup>6</sup> Fixed investment contributes to economic growth both on the supply side, through the accumulation of capital and a rise in labor productivity, and on the demand side.

Figure 2-3

*Share of Gross Fixed Investment, Percent of Total Gross Fixed Investment, 1999 and 2004*

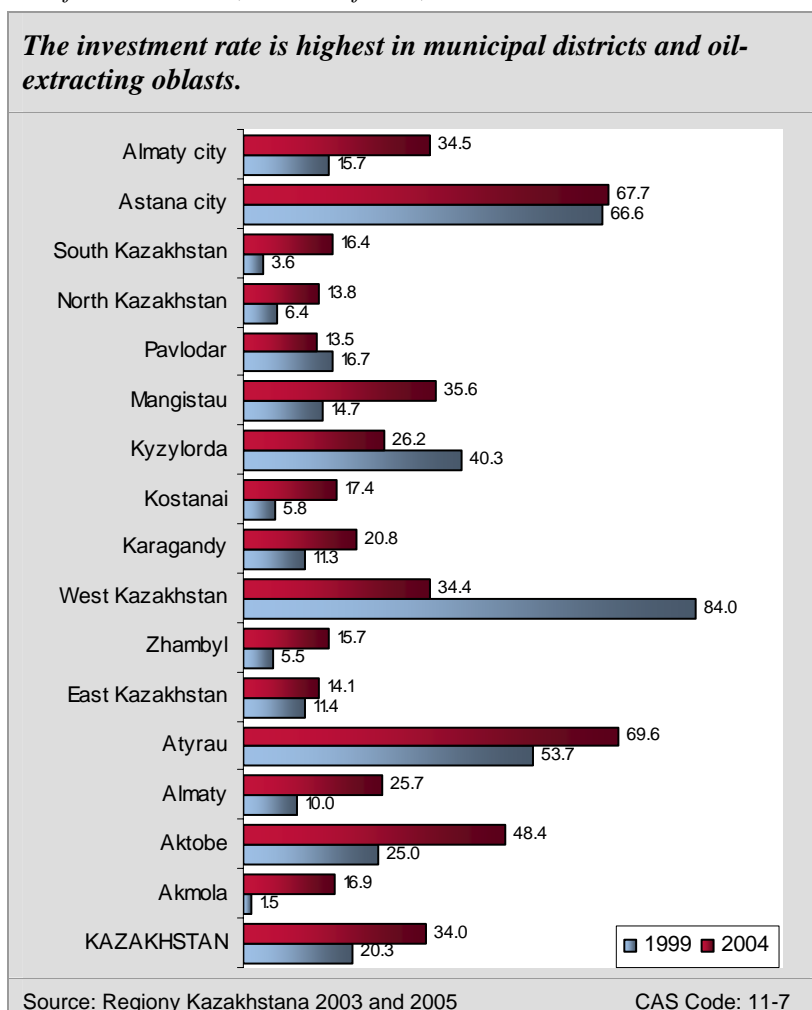


Overall, fixed investment rose from a moderate 20.3 percent of national GRP in 1999 to a high 30.4 percent in 2004, a positive development. This investment ratio increased in all but three regions (Figure 2-4). (For West Kazakhstan and Kyzylorda, this indicator was extremely high at the beginning of the period.) The investment ratios were particularly high in the oil-extracting oblasts and municipal districts. Atyrau led, with a ratio of fixed investment to GRP of 69.6 percent in 2004. The agricultural oblasts and non-oil industrial oblasts trailed with averages of 17.7 percent and 16.2 percent, respectively. Despite recent improvements in these areas, investment levels are still insufficient to support sustained rapid growth.

Though regional disparities in the investment rates are large, they have been declining. The standard deviation of investment rates across regions fell from 24.7 percent in 1999 to 18.3 percent in 2004. This decline was due in part to a major increase in the ratio of fixed investment to GRP in agricultural oblasts, from an extremely low 5.5 percent in 1999. The investment share also grew, though less substantially, in the non-oil industrial group. Rising investment undoubtedly contributed to the acceleration of GRP growth in these regions toward the end of the period.

Fixed investment in Kazakhstan comes mainly from private sources. In 2004, the ratio of private fixed investment to GRP was 29.4 percent, which is 86.5 percent of total (private plus public) investment. Here, too, regional disparities are substantial. On the one hand, fixed private investment in Atyrau accounted for an astonishing 67.2 percent of GRP in 2004. On the other hand, in the agricultural and non-oil industrial oblasts, with two exceptions, the ratio was low, between 11 percent and 14 percent.

Figure 2-4  
Gross fixed investment, Percent of GRP, 1999 and 2004



Private investment exceeded public investment in all regions, amounting to 96.5 percent of the total in Atyrau. Not surprisingly, the share of private investment in the total was lowest in Astana, (66.0 percent), because of the government’s prominent role in developing the new capital. In agricultural oblasts, on average, private investment accounted for a smaller portion of the total (75.0 percent) than in any other regional group. Thus, government capital formation tended to reduce the degree of regional inequality.

Investment productivity, as measured by the incremental capital output ratio (ICOR)<sup>7</sup>, has been high, contributing to growth. Over the past five years, the national average for the ICOR was 2.5. At the regional level, the indicator value ranged from 1.0 in

**Investment productivity is especially high in agricultural and non-oil industrial oblasts.**

<sup>7</sup> The ICOR shows the amount of capital investment incurred per extra unit of output. A high value represents low investment productivity (because it indicates that a large amount of capital is needed per unit of extra output). The ICOR is calculated here as the ratio of the investment share of GRP to the growth rate of GRP, using five-year averages for both the numerator and the denominator. Countries with efficient investment typically have ICOR values below 4.0.

Pavlodar and South Kazakhstan (highest investment productivity) to 4.4 in West Kazakhstan (lowest investment productivity, but still very good). Non-oil industrial oblasts and agricultural oblasts, on average, had higher investment productivity than the other two regional groups. Indeed, higher levels of investment productivity compensated somewhat for relatively low investment rates in these oblasts, because investment has been less capital intensive. Thus, disparities in economic growth are smaller than differences in the investment ratio.

If the world oil price remains high, and if inter-regional spillover effects are substantial, then investment in oil-extracting oblasts may be, in fact, the most efficient path for promoting broad-based growth, and special programs to divert investment to lagging regions may not be warranted. Although the evidence suggests that spillover effects are present, estimating their magnitude would require a more sophisticated analysis than the present assessment. Furthermore, because the country specializes in few export commodities—primarily oil—Kazakhstan is vulnerable to downturns in the world oil price. Other industrial activities are underdeveloped, and a large portion of the labor force is employed in low-productivity agriculture. Because the agricultural and non-oil industrial oblasts account for an overwhelming portion of workers in agriculture and because labor in these oblasts is relatively inexpensive, the agricultural and non-oil industrial oblasts may be more suitable than the oil-extracting oblasts for the development of non-traditional products. Thus, market forces may determine that regional diversification is an efficient path for diversifying production and exports, developing new industrial activities, and shifting agricultural labor to more productive occupations.

## LIVING STANDARDS, POVERTY, AND INEQUALITY

Throughout Kazakhstan, poverty rates have been declining. Although growth has benefited some regions more than others, poverty declined in nearly every region between 2000 and 2004. This decline is further evidence that growth has had a broad impact on poverty rates and not just in the growth poles. What is surprising is that poverty rates are highest in oil-rich regions. Atyrau is of most concern, but Kyzylorda and Kostanai oblasts also lag behind the national average, to a lesser degree. As poverty has declined, income inequality has also fallen in most regions. In addition, income inequality among regions declined between 1999 and 2004.

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**Economic growth is having a broad-based impact on poverty rates.**

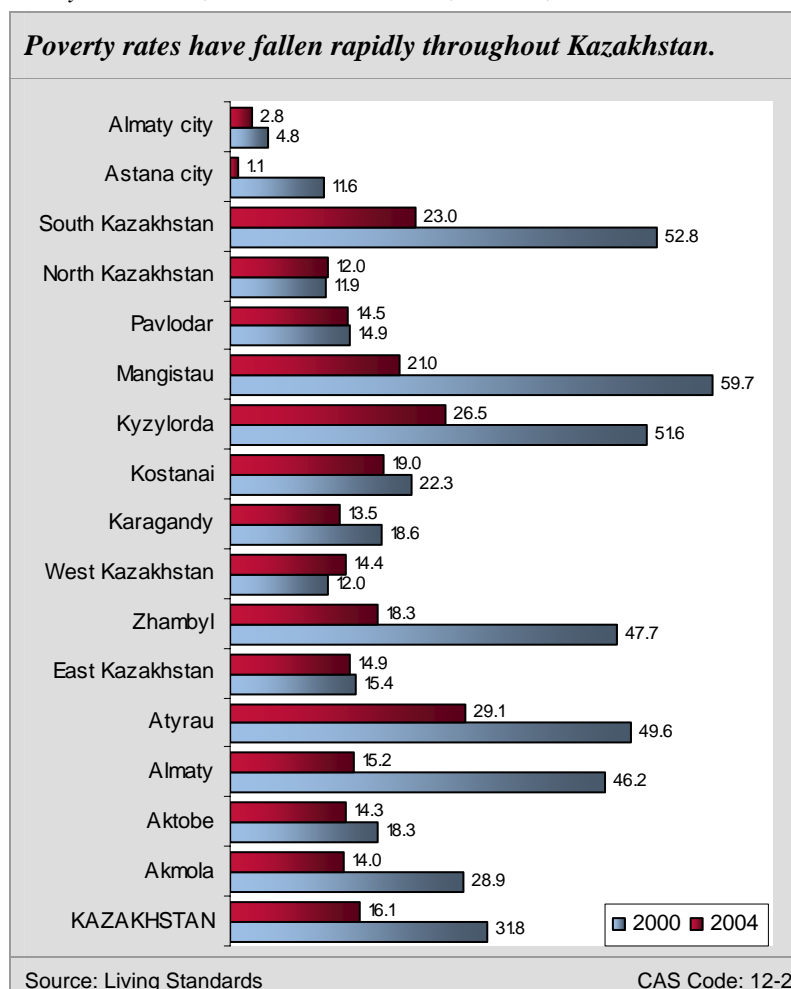
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The recent decline in the poverty headcount (gauged by minimum subsistence) is impressive.<sup>8</sup> Nationally, the poverty rate fell from 34.5 percent in 1999 to 16.1 percent in 2004. The disparity of poverty rates across regions, as measured by the standard deviation, has also declined, and the gap between the highest and lowest regional poverty rates has shrunk. Reduced disparity serves as further evidence of the positive nationwide impact of growth (Figure 2-5).

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<sup>8</sup> Poverty by subsistence minimum is defined as the share of households with incomes below a required monetary income per person equal to the consumption basket cost. Non-foods and services account for a fixed share of thirty percent of the consumption basket.

Figure 2-5  
 Poverty Headcount, Subsistence Minimum, Percent, 2000 and 2004



Looking at poverty rates by region, the worst performers in 2004 were Atyrau (29.1 percent), Kyzylorda (26.5 percent), and South Kazakhstan (23.0 percent) oblasts. Astana and Almaty cities had the least poverty (1.1 percent and 2.8 percent, respectively). In the worst-performing regions, Atyrau and Kyzylorda oblasts, economic activity is heavily focused on oil-extraction—a highly capital-intensive industry that offers limited employment opportunity. Looking at trends, poverty rates increased slightly in West Kazakhstan and North Kazakhstan from 2000 to 2004, though in neither region is the rate high. The most substantial improvements took place in Mangistau oblast (from 59.7 percent to 21.0 percent), Almaty oblast (from 46.2 percent to 15.2 percent), and Zhambyl oblast (from 47.7 percent to 18.3 percent).

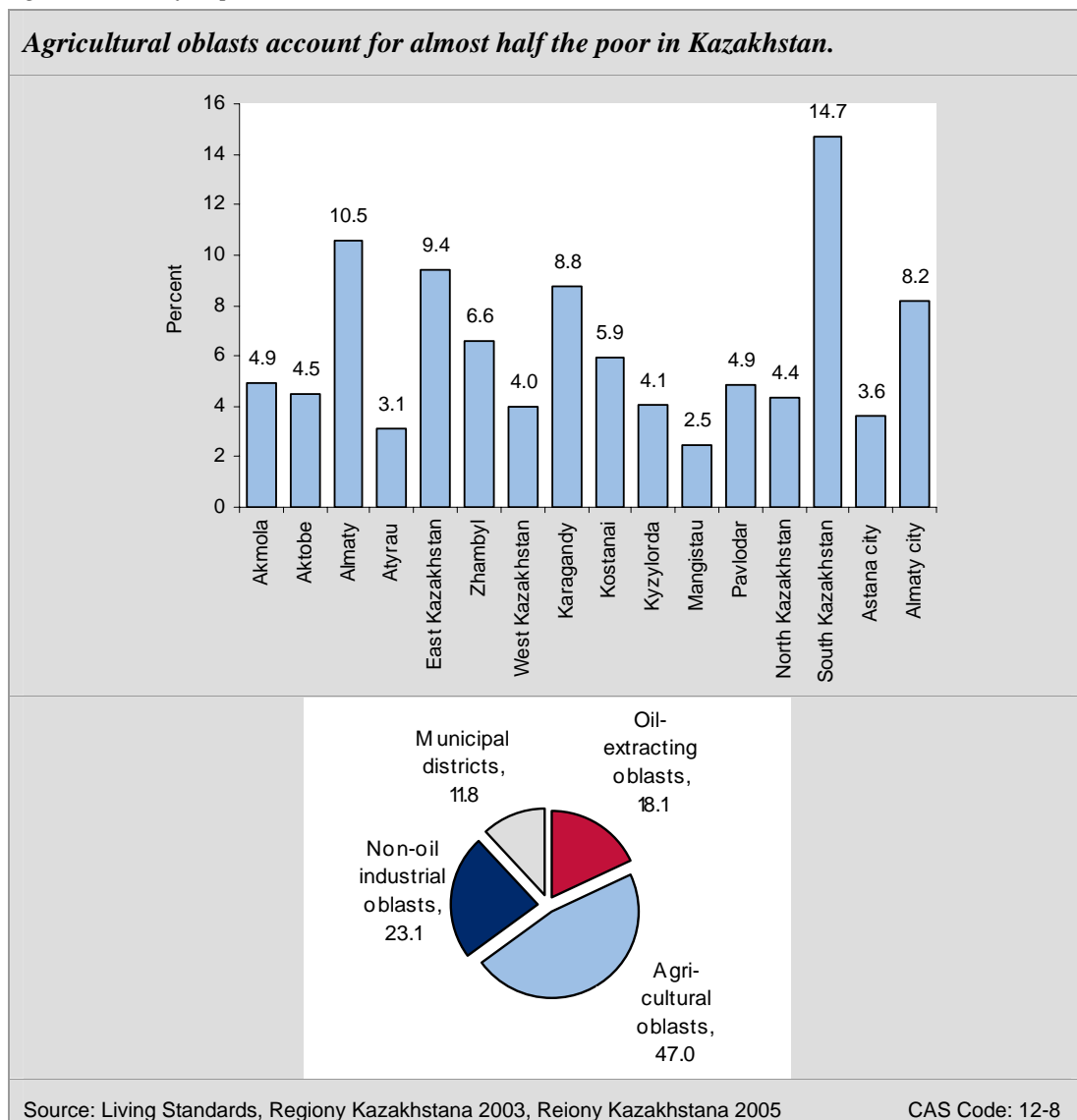
**The oil-extracting regions are lagging behind in poverty alleviation.**

There are notable differences in urban and rural poverty rates, which partially explain the variance outlined in the previous paragraph. In 2004, urban poverty rates by region ranged from 1.1 percent to 21.4 percent, while rural rates varied from 16.8 percent to 47.0 percent. Rural poverty is worst in Mangistau (47.0 percent), Atyrau (41.8 percent), Karagandy (38.9 percent), and Kyzylorda (35.7 percent) oblasts. All are industrial oblasts, and all but Karagandy are heavily

dependent on oil, which creates few high-income opportunities for rural residents. Kyzylorda, Mangistau, and Karagandy also have low population density, again restricting opportunities for those in remote areas. Atyrau and Kyzylorda oblasts have not only high rural poverty rates, but also the highest urban poverty rates.

Almaty and Akmola oblasts, combined, account for a quarter of the population living below the poverty line (by subsistence minimum) in the country as a whole (Figure 2-6). Although poverty rates are highest in the oil regions, because of the low population size, each of these regions accounts for less than 5 percent of the total population living in poverty. Agricultural regions, which are generally larger, account for 47 percent of the poor.

Figure 2-6  
Regional Share of Population below Subsistence Minimum, 2004



The Human Poverty Index (HPI), which includes measures of deprivation in education, health, and employment, as well as monetary poverty, also showed a marked decline. On a scale from 0



(for no deprivation) to 100 (for extreme deprivation), in 2004 HPI scores ranged from 23.6 in Atyrau (the worst) to 15.1 in Astana city (the best). The disparity among regions appears to be on the decline—the standard deviation of the HPI fell from 6.1 in 1999 (and 6.7 in 2000) to just 2.1. Here, too, the oil-extracting regions are doing worse than the national average. The agricultural regions in the north (Kostanai, North Kazakhstan, and Akmola) also perform poorly on this index, particularly in comparison to agricultural regions in the south (Zhambyl, South Kazakhstan, and Almaty). This may reflect a more favorable climate in the south and thus more productive agriculture.

Poverty depth, which measures the average shortfall of household incomes from the poverty line, is an issue for the poorer regions. The deepest poverty—by far—is in Atyrau, Kostanai, and Kyzylorda oblasts—the same regions where poverty headcounts are high. The poverty depth indicator shows that progress in these regions will be harder to achieve and will require concerted effort. Atyrau and Kostanai oblasts also face the highest rates of poverty severity (a measure of poverty depth that gives greatest weight to the poorest households), again reinforcing the need for action focused in these regions.

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**Poverty depth is greatest in regions where the poverty headcounts is high.**

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These findings show that one cannot judge poverty rates or progress in poverty alleviation just by looking at average incomes by region. Indeed, no significant correlation can be observed across regions between rising income and reduced poverty.<sup>9</sup> This shocking result may partially be explained by remittances between oblasts, and possibly by regional differences in income inequality. Policy makers and donors need to examine more carefully the experience in regions where poverty rates declined the most, and apply the lessons throughout the country, making poverty alleviation a more prominent priority.

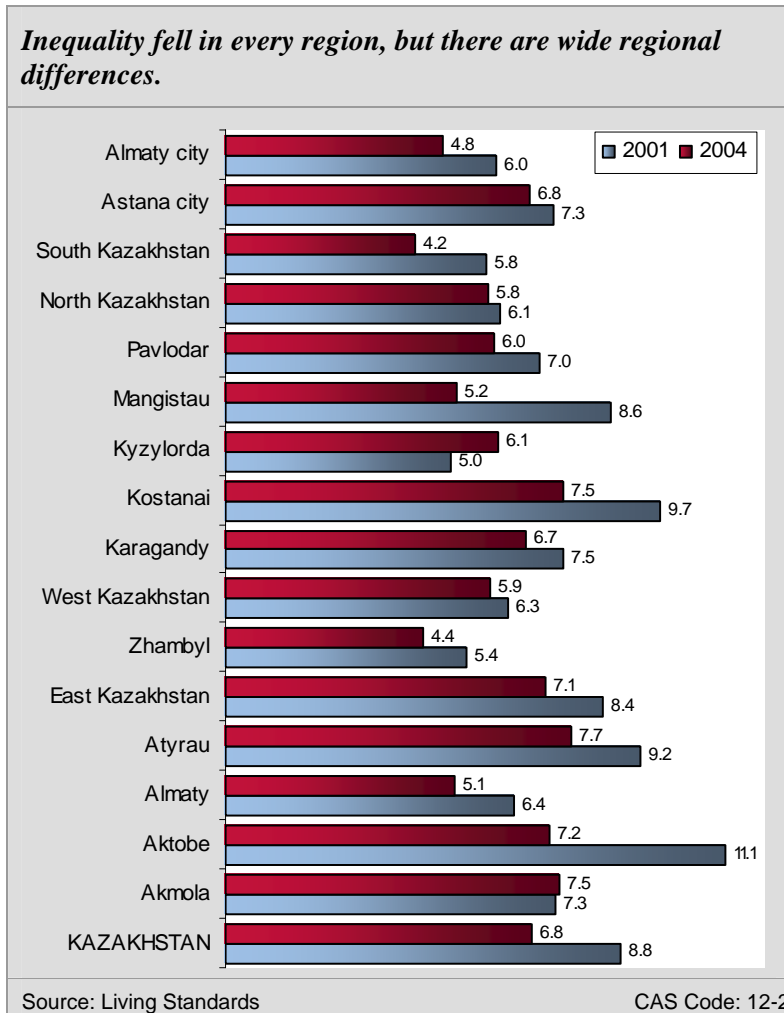
Turning to income inequality (as distinct from poverty), the ratio of incomes accruing to the richest 10 percent versus poorest 10 percent, nationally, fell from 9.4 in 1999 to 6.8 in 2004 (Figure 2-7). Atyrau stands out as having the worst inequality, followed closely by Kostanai and Akmola oblasts. Because richer households tend to be underrepresented in household surveys, the exact numbers are unlikely to be accurate, but relative differences are meaningful, as are the trends, which have not changed discernibly in the past five years. Inequality fell in some regions (most notably Aktobe and Mangistau), and increased in others (such as Akmola and Kyzylorda).

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<sup>9</sup> The correlation coefficient between the growth of real income and percentage points of change in the poverty rate (by subsistence minimum) between 2000 and 2004 was only -0.20.

Figure 2-7

*Ratio of Income Accruing to the Richest 10 Percent to the Income Accruing to the Poorest 10 Percent, 2001 and 2004*



Economic growth clearly has translated into declining poverty throughout Kazakhstan, not just in a select few oblasts. But poverty has not declined at the same rate throughout the country. Oblasts with large oil endowments tend to be more impoverished; poverty alleviation in those regions, particularly in Atyrau oblast, should be a higher priority. The experience of Mangistau, Zhambyl, and Almaty oblasts can be instructive in this regard. These oblasts are still relatively poor, yet their poverty rates have declined drastically, and inequality has declined as well. Zhambyl and Almaty enjoy a balanced, broad-based GRP structure including agriculture, industry, and services, while Mangistau, whose economy is driven by oil, has been much more successful in reducing poverty than other resource-dependent oblasts. What is more, the vibrant municipal districts of Almaty and Astana, where poverty rates are very low, could have poverty-reducing spillover effects on neighboring oblasts. Other sections of this report attempt to identify opportunities for USAID to alleviate poverty in the poorer regions.

## ECONOMIC STRUCTURE

The main economic structure indicators at the national level show three major economic issues: (1) a declining share of services in total output, (2) high employment in low-productivity agriculture, and (3) insufficient development of manufacturing. Because of a high degree of regional specialization, these problems are reflected in the regional breakdown of output and employment.

### Services

The share of services in national GRP declined from 52.4 percent in 1999 to 50.2 percent in 2004 (with a low of 48.0 percent in 2000). This is a troubling development, because a successful transition to a market economy is normally accompanied by a relatively fast expansion of services. Not only output, but employment as well, declined in the services sector, from 51.1 percent in 2000 to 49.1 percent in 2004. In absolute terms, employment in the services sector rose 11.2 percent in this period, but this was slower than employment growth in industry (15.6 percent) or agriculture (23.5 percent).

The share of services in GRP shrank between 1999 and 2004 in 11 regions, from all four regional groups. The oil-extracting and non-oil industrial group averages declined dramatically, from 46.8 percent to 39.2 percent, and from 49.1 percent to 40.0 percent, respectively. In contrast, the share of the services sector rose in the municipal districts (from 63.9 percent to 79.7 percent) as well as in the agricultural regions, although much more slowly (from 43.0 percent to 44.5 percent). The enormous increase in the share of services in Astana, from 42.6 percent to 75.1 percent, is not surprising in light of the transfer of the administrative functions of the capital to that city.

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**The share of services in GRP shrank in most regions.**

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The declining share of services in the oil-extracting oblasts mirrors the explosive growth of industrial added value. Still, the decline of services in non-oil industrial oblasts and the slow growth of services in agricultural oblasts do raise concerns. In the oil-extracting group, actual employment in services grew by 20.0 percent between 2000 and 2004, and in absolute terms, more jobs were created in services than in any other sector. By contrast, in the non-oil industrial regions, employment in services dropped by 6.4 percent while employment in agriculture increased rapidly, at 20.1 percent. For the agricultural regions, employment in the services sector rose substantially, but not as much as in the agricultural sector, where employment increased 28.1 percent. In a transitional market economy, a shift of employment into agriculture and out of the services sector, which should be rapidly expanding, or even a slow rise in services employment, signals problems. The business environment in non-oil industrial and agricultural oblasts therefore warrants closer attention.

### Agriculture

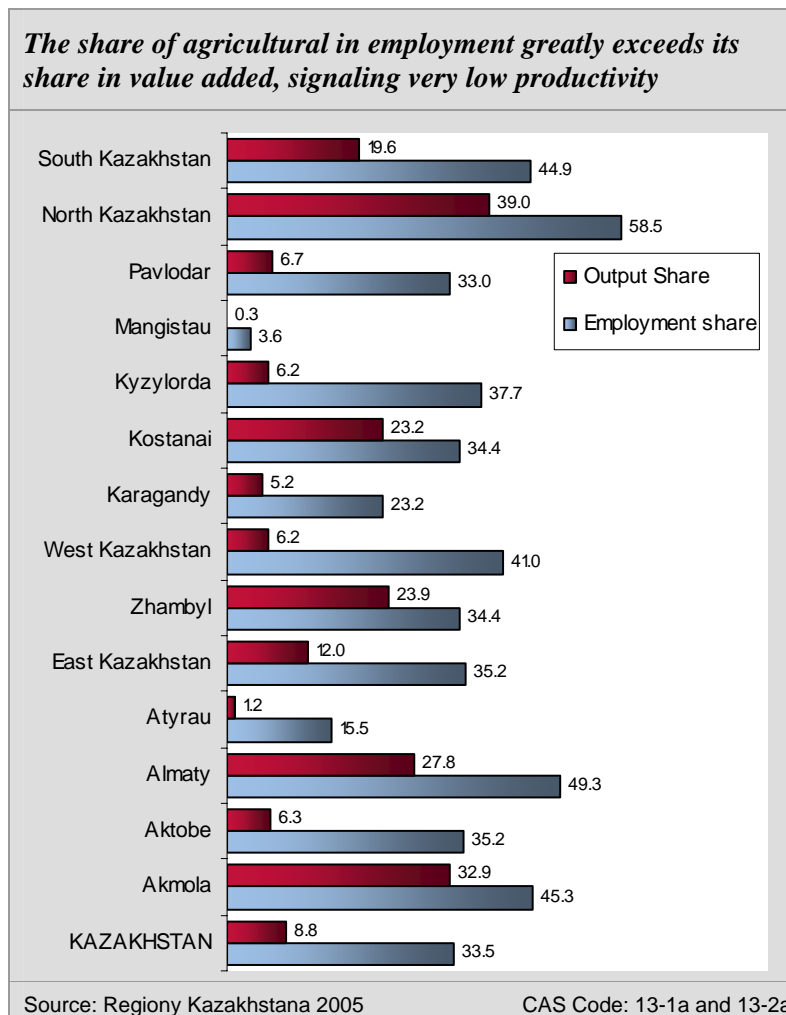
Productivity in agriculture is very low compared to productivity in other sectors and also compared to absolute standards (see the Agriculture section): agriculture accounted for 33.5 percent of total employment in 2004 (up from 31.4 percent in 2000) but produced just 8.8 percent of national GRP (down from 11.1 percent in 1999). Given the low relative level of

labor productivity, it is astonishing to see that the share of national employment in agriculture has been rising.

The six agricultural oblasts produced most of the agricultural value added in Kazakhstan, 68.0 percent, in 2004 (Figure 2-8). The share of agriculture in GRP ranged from 19.2 percent in South Kazakhstan to 39.0 percent in North Kazakhstan. In nonagricultural oblasts, the contribution of agriculture to GRP was much smaller, although in East Kazakhstan it was a non-negligible 12.0 percent.

Figure 2-8

*Share of Agricultural Employment in Total Employment and Share of Agricultural Output (Value Added) in Total Output, 2004*



The declining share of agricultural value added in national GRP between 1999 and 2004 occurred mostly because of the rapid growth of petroleum production in the oil-extracting oblasts, where the share of agriculture fell from 7.5 percent to 4.0 percent of GRP. In the same period in several agricultural oblasts, the share of agriculture in GRP also dropped, but on average, the decline was minor, from 28.4 percent to 27.7 percent. By contrast, in each of the non-oil industrial oblasts, this indicator rose, with the group average rising from 6.6 percent to 8.0 percent.

As mentioned earlier, the share of employment in agriculture rose substantially in the agricultural and non-oil industrial oblasts between 2000 and 2004: from 42.3 percent to 44.4 percent of total employment in agricultural oblasts, and from 26.4 percent to 30.1 percent in non-oil industrial oblasts. The increasing share of jobs in agriculture and agriculture's fast growth in absolute terms suggest serious constraints on private investment in more modern activities in these regions.

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**The share of employment in agriculture rose in the agricultural and non-oil industrial oblasts.**

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## Industry

Industry is a large and growing sector in Kazakhstan. The problem lies in its concentration on the extraction and processing of raw materials. Given commodity prices and the country's abundant natural resources, the high contributions of mining and of oil in particular are justifiable. Such a strong dependence on natural resources, however, makes the country susceptible to price shocks.

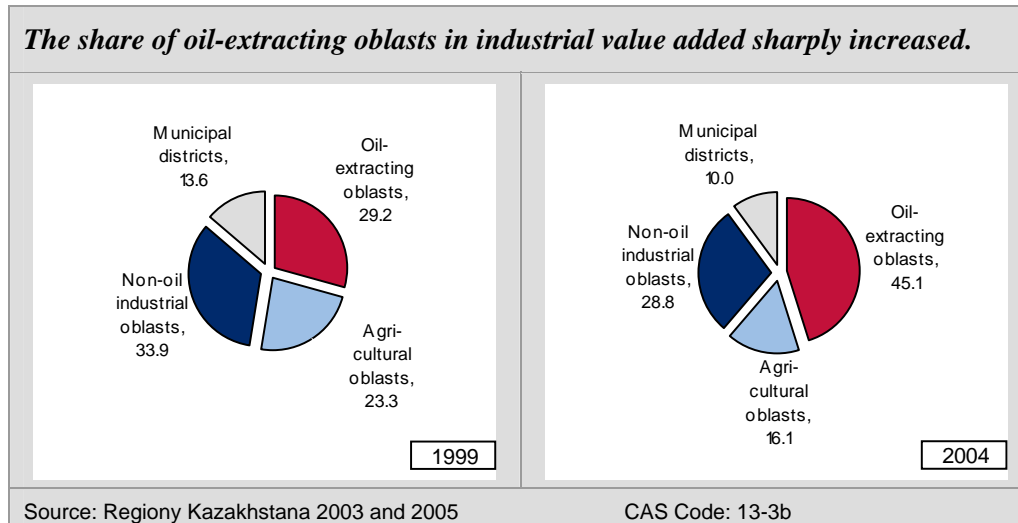
In 2004, industry accounted for 41.1 percent of total value added, up from 36.6 percent in 1999. This rapid expansion was, to some extent, a result of rising oil prices, in addition to higher production. Indeed, in the same period, industry's share of total employment remained unchanged, at 17.4 percent. Industry is an important economic activity in nearly every region. Even in the four oblasts defined as agricultural for this report, industry contributed more to value added than did agriculture.

Between 1999 and 2004, the rising share of industry nationwide was driven especially by the large increase in oil-extracting oblasts, with smaller gains in the non-oil industrial oblasts (Figure 2-9). Within these two groups, the only region where the share did not increase is Atyrau, where it was already the highest in the country in 1999. For the oil-extracting group, the share increased from 45.7 percent to 56.8 percent. For the non-oil industrial group, the average rose from 44.3 percent to 52.1 percent. In the agricultural group, however, the indicator fell, on average, from 28.6 percent to 27.7 percent, with declines in half the oblasts in that group. For the municipal group, the share of industry plunged from 56.3 percent to 24.7 percent, with the sharpest drop in Astana, because of the city's development as the center of administrative services.

Kazakhstani industry is oriented toward the extraction and processing of raw materials. Its backbone is crude oil, the main export commodity (see the External Sector section). From 1999 through 2004, crude oil and gas condensate extraction almost doubled nationally, from 30.1 million metric tons to 59.5 million metric tons. The five oil-extracting oblasts accounted for 99.97 percent of the total. The shares of individual oblasts in total oil extraction ranged from 12.2 percent in Aktobe to 28.9 percent in Atyrau.

Figure 2-9

*Share of Regional Industrial Value Added in Total Industrial Value Added, 1999 and 2004*



The oil-extracting oblasts also produced 99.2 percent of the country's natural gas in 2004. During the period under consideration, natural gas production surged from 9.9 billion cubic meters to 22.1 billion cubic meters. However, natural gas remains much less important than oil.

The share of mining in industrial production (excluding construction) nationally<sup>10</sup> grew from 44.3 percent in 2001 to 55.3 percent in 2004 while the share of manufacturing declined from 46.9 percent to 37.6 percent.

There is a clear distinction between regions that specialize in mining and those that specialize in manufacturing. Only in one non-oil region, agricultural Kostanai, was mining more important than manufacturing, accounting for 64.7 percent of industrial production. In the other non-oil regions the share of mining did not exceed 12 percent. By contrast, there was little manufacturing in the oil-extracting oblasts; they jointly accounted for only 12.7 percent of overall manufacturing production in the country.

Most manufacturing branches in Kazakhstan suffer from low productivity and lack international competitiveness. One exception is metal production.<sup>11</sup> Overall, employment in manufacturing was almost three times higher than in mining: 59.8 percent of total industrial employment (excluding construction) compared to 21.4 percent—despite the much higher contribution of mining to overall industrial production. Indeed, employment was higher in manufacturing than in mining even in two oil-extracting oblasts, West Kazakhstan and Kyzylorda. One factor underlying low productivity in manufacturing is low investment. On average, in 2001–2004,

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**Manufacturing suffers from low productivity throughout the country.**

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<sup>10</sup> A regional breakdown of industrial value added into mining, manufacturing, and utilities is not available.

<sup>11</sup> A large part of manufacturing is the processing of raw materials. In 2004, machine building made up only 3.3 percent of industrial production.

mining received 38.8 percent of total fixed investment in the country, while manufacturing received only 10.2 percent (see the Growth Performance section for the share of the oil-extracting oblasts in total fixed investment).

International donor organizations may help Kazakhstan diversify its industrial production to make the country's economy less vulnerable to downfalls in world commodity prices and to focus on sectors with greater potential for increasing the value added. Kazakhstan would also benefit from identifying and removing obstacles to the development of services, especially in non-oil industrial oblasts. The growth of services and manufacturing may be accompanied by relocation of some agricultural workers to these sectors. This will also likely lead to an increase in the contribution of non-oil regions to Kazakhstan's economy.

## DEMOGRAPHY AND ENVIRONMENT

Demographic factors have first-order effects on growth performance, labor markets, poverty reduction, and other socioeconomic variables. This section covers two important aspects of population developments: the total population (size and growth) and migration.

Rapid economic development in Kazakhstan is clearly associated with problems of toxic waste pollution and air pollution. Many other environmental problems, such as water pollution and the shrinking of the Aral Sea, are also major concerns, but indicators are not readily available for a comparative regional analysis of these problems.

### Population Size and Migration

The total population of Kazakhstan grew only slightly between 1999 and 2005, with a small natural increase partially offset by emigration. At the regional level, the new capital, Astana, experienced explosive population growth from migration.

The population expanded moderately in the oil-extracting group and contracted in the non-oil industrial group. On a net basis, migration rates were higher in regions with high incomes, such as the oil-extracting oblasts. Out-migration from oblasts with lower incomes helped reduce the supply of labor in those regions, contributing to better outcomes in unemployment and poverty.

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**Immigration is highest into regions with high per capita household income.**

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After nearly a decade of decline caused by emigration, a sharp fall in the birth rate, and an increase in the death rate, Kazakhstan's population reached a low of 14.9 million in 2001. Net emigration started to decline in the late 1990s, and in 2004, immigration finally exceeded emigration. Thanks to the reversal of external migration trends and a rise in the birth rate, the country's population increased to 15.2 million in 2005. Overall, from 1999 through 2005, the population rose slightly, by 2.1 percent. The growth rate would have been higher but for net emigration amounting to 1.8 percent of the 1999 population size.

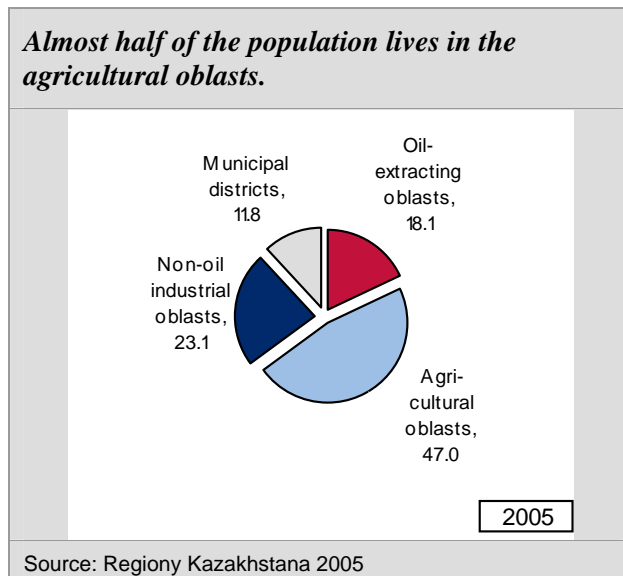
The regions of Kazakhstan vary greatly in population size, and the differences are not correlated with the size of GRP.<sup>12</sup> The largest region, South Kazakhstan, with 14.7 percent of the total

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<sup>12</sup> The correlation between these two indicators was a mere 0.09 in 2004.

population in 2005, has a medium-sized economy. Atyrau, the least-populated region with just 3.1 percent of the total, has the second-largest economy. Almost half the population, 47.0 percent in 2005, lived in relatively poor agricultural oblasts, while the non-oil industrial oblasts and oil-extracting oblasts accounted for 23.1 percent and 18.1 percent of the total, respectively. The two municipal districts were home to 11.8 percent of the population in 2005 (Figure 2-10).

Figure 2-10  
*Share of Regional Groups in Total Population, 2005*

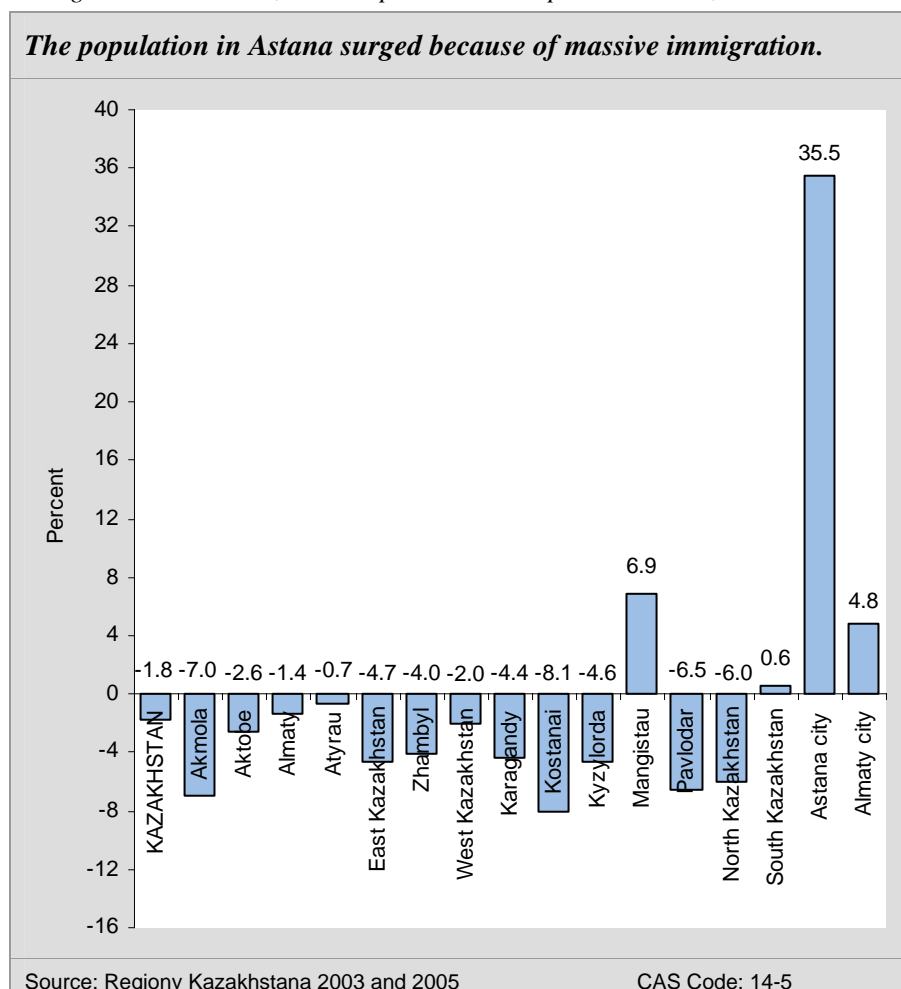


Although the population for the country as a whole was relatively stable, substantial changes occurred in many regions. Migration played the key role in these changes and helped to reduce unemployment rates in slow-growing regions (see the Employment and Workforce section). On a net basis, only Mangistau, South Kazakhstan, and the two municipal districts experienced net immigration during this period. In the municipal districts, the population rose 19.0 percent between 1999 and 2005, with Astana posting spectacular growth of 44.4 percent. The population also increased in all the oil-extracting oblasts (though in West Kazakhstan the growth was negligible). Overall, the population in these oblasts rose 4.5 percent. The population declined in half of the agricultural oblasts. For this group overall, the population expanded by 1.4 percent, slightly less than in Kazakhstan as a whole. Finally, the population shrank in all of the three non-oil industrial oblasts, with an overall decline of 5.1 percent for the group.

Migration was clearly the impetus for the population surge in Astana—on a net basis, the number of people who moved there in 2000–2004 equaled 35.5 percent of its 1999 population (Figure 2-11). In general, net migration tended to be higher in regions with high per capita household incomes. The correlation between the 2000–2004 net migration rate and per capita household income in 2004 was 0.59. With Astana excluded because of its unique status as the new capital, however, the correlation between these two indicators was 0.66.



Figure 2-11  
*Net Migration 2000–2004, with Respect to 1999 Population Levels, Percent*



For the two municipal districts together, the 2000–2004 net migration rate with respect to the 1999 population was 12.1 percent. For the oil-extracting oblasts, the rate was -1.5 percent. This relatively small net outflow, combined with the highest rate of natural increase among the regional groups (in 2004, this group had the highest birth rate and the lowest death rate), allowed for the moderate rise in the population size. In the agricultural oblasts, the natural increase barely compensated for the population outflow—the 2000–2004 net migration rate was -3.3 percent. In the non-oil industrial oblasts, the population declined because of the relatively rapid population outflow—the net migration rate was -5.0 percent—more than offset the minuscule natural increase (in 2004, the group had the lowest birth rate and the highest death rate).

While helping reduce unemployment rates in the migrants’ home regions, migration may have boosted the unemployment rate, hindered poverty reduction, and exacerbated women’s disadvantage in obtaining employment in the recipient regions (see the Gender section and the Employment and Workforce section). Donor assistance may alleviate domestic migration problems, for example, by developing more effective institutions and programs to match migrants and their family members to jobs and by broadening access to financing for housing.

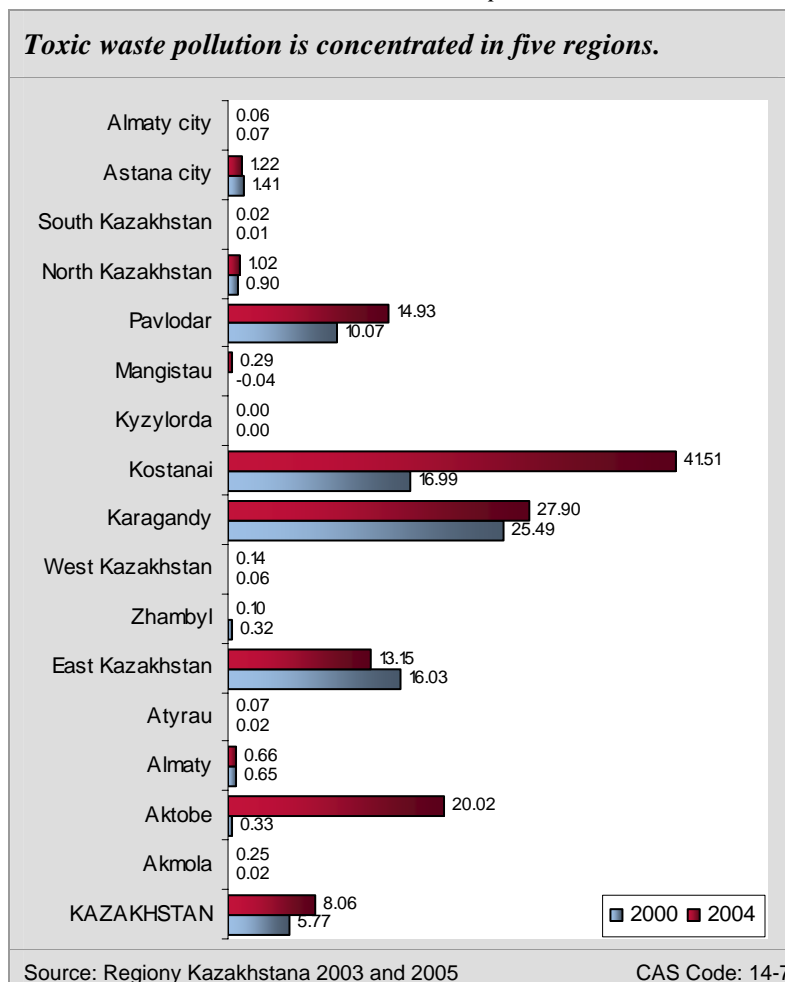
## Environment

Trends in the environmental indicators considered for this assessment are worrisome. In the past several years, per capita toxic waste and air pollution have increased significantly, while investment in environmental protection as a percentage of GRP has declined. Environmental problems are especially serious in non-oil industrial oblasts. Indeed, regional differences in pollution levels may be a factor behind the variation discussed below in some health indicators.

Kazakhstan saw a large increase in non-utilized toxic waste per capita, from 5.8 metric tons in 2000 to 8.1 metric tons in 2004. This pollution is associated almost exclusively with a few types of non-oil industrial production. It is heavily concentrated in five regions: Kostanai, with 41.5 metric tons per capita in 2004, was the worst polluter, followed by Aktobe and the three non-oil industrial oblasts. In these five oblasts, the indicator was in double digits, while in the other regions it did not exceed 1.2 tons. Between 2000 and 2004, toxic waste pollution increased in four of the five major polluting oblasts (East Kazakhstan was the exception) (Figure 2-12).

Figure 2-12

*Toxic Waste Not Utilized, Metric Tons Per Capita, 2000 and 2004*



Only a small fraction of toxic waste is utilized in Kazakhstan—16.8 percent in 2004. This utilization rate improved only marginally compared to 2001. Most troubling, the utilization rate declined in four of the five major polluting oblasts. In Kostanai and Aktobe, toxic waste utilization in 2004 was virtually nonexistent, at 0.2 percent and 1.7 percent, respectively. In East Kazakhstan, the toxic waste utilization rate rose from 27.7 percent in 2000 to 50.5 percent in 2004, allowing the oblast to reduce the release of nonutilized toxic waste per capita, even though the overall amount of formation of toxic waste was rising. Three oil-extracting oblasts—Atyrau, West Kazakhstan, and Mangistau—had toxic waste utilization rates in 2004 that were high by Kazakhstani standards, ranging from 27.4 percent to 54.9 percent. However, in these oblasts, the overall formation of toxic waste was already very low—at most, 0.4 metric ton per capita.

The emission of atmospheric pollution from stationary sources also increased in recent years.<sup>13</sup> As with toxic waste pollution, air pollution is strongly related to regional specialization. In 2004, for the country as a whole, air pollution emissions stood at 200 metric tons per 1,000 people, up a staggering 29.1 percent from 1999. By far the worst polluter was Karagandy, with 1,100 metric tons in 2004. On average, air pollution emission per 1,000 people was 659 metric tons in the non-oil industrial oblasts in 2004, far higher than in any other regional group (Figure 2-13). For the oil-extracting group, the average was 148 tons. The indicator was also in double digits in all agricultural oblasts except Kostanai, and in the municipal districts, with an average of 62 tons for the former group, and 48 for the latter. Air pollution emissions was lowest in the city of Almaty, at 10 tons per 1,000 people.

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**Air pollution has worsened in most regions.**

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The emission of air pollution increased in the majority of regions between 1999 and 2004. The most significant increases took place in oil-extracting Aktobe and West Kazakhstan. Two other oil-extracting oblasts, Atyrau and Kyzylorda, however, were the most successful in reducing emissions. In all three of the non-oil industrial oblasts, the indicator rose, while in both municipal districts, it declined. There is no apparent overall pattern to the changes.

Of the total emission of harmful substances, only a small portion actually reaches the atmosphere in Kazakhstan. Some substances are caught during the purification process and some are utilized. The share of substances that reach the atmosphere was relatively stable in 1999–2004 and equaled 12.4 percent of the total at the end of the period.

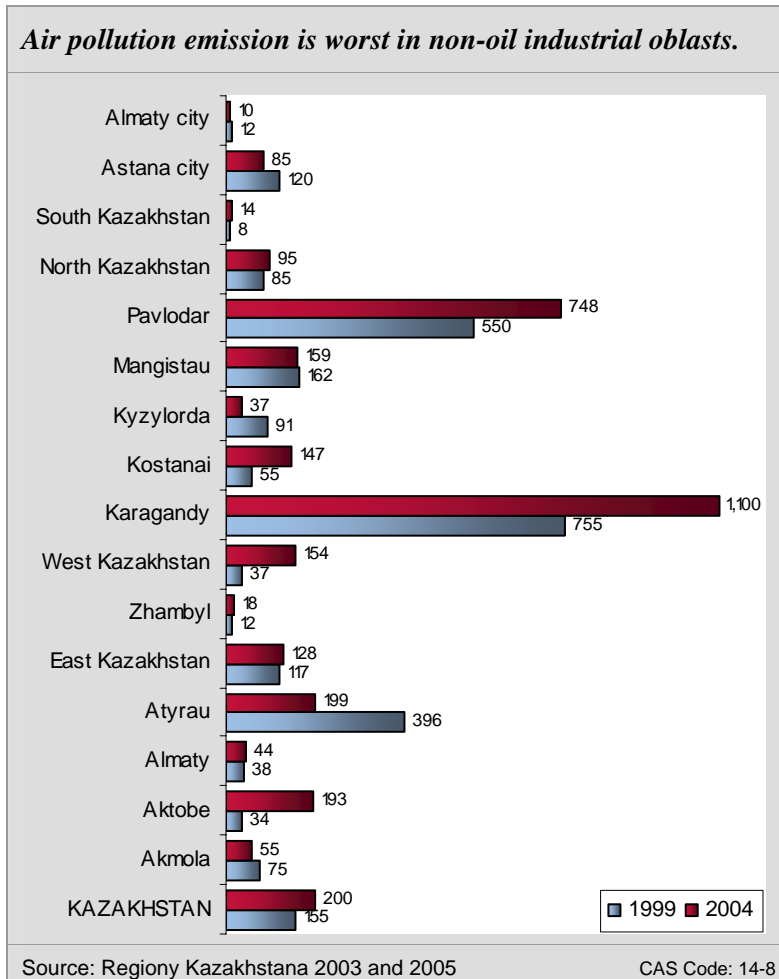
Regional disparities in the share of harmful substances reaching the atmosphere are huge. In Pavlodar, the share in 2004 was very low, at 4.9 percent, while in Mangistau nearly all of the emissions, 99.8 percent, passed into the air. As a group, the municipal districts were best in preventing harmful substances from reaching the atmosphere—the average was 10.3 percent. The share was only slightly higher in the agricultural and non-oil industrial oblasts, 12.9 percent and 13.2 percent, respectively. By contrast, the oil-extracting oblasts emitted 90.3 percent of pollutants without purification. This was the only group for which the situation worsened between 1999 and 2004.

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<sup>13</sup> The release of air pollution from automobiles, a major source, is not included in these statistics.

Figure 2-13

*Air Pollution Emission, Metric Tons per 1,000 People, 1999 and 2004*



Despite increased toxic waste and air pollution, investment in environmental protection in Kazakhstan declined from 1.24 percent of GRP in 2001 to 1.11 percent in 2004. Relative to GRP, this investment fell in all regions except East Kazakhstan, Mangistau, and the city of Astana.<sup>14</sup> In East Kazakhstan this ratio rose by more than two-thirds to 1.76 percent of GRP, consistent with the observed increase in toxic waste utilization for the oblast.

Pollution in some regions appears to have a negative impact on health. In 2004, the correlations between the per capita toxic waste and air pollution levels, on the one hand, and the death rate, on the other hand, were significant, at 0.50 and 0.40, respectively. Similarly, the correlations between per capita toxic waste and air pollution levels, on the one hand, and life expectancy, on the other hand, equaled -0.41 and -0.44 respectively. Moreover, the average death rate was highest, and average life expectancy lowest, in the non-oil industrial group, which was the most polluted (judging by the indicators examined here). Karagandy, which had by far the highest level

<sup>14</sup> Data on Akmola and the city of Almaty are not available.

of air pollution and the second-highest level of toxic waste pollution, also had the lowest life expectancy and the second-highest death rate in 2004.

Kazakhstan could therefore benefit from international assistance in reversing the worrisome trends of growing toxic waste and air pollution, with the non-oil industrial oblasts, particularly Karagandy, receiving special attention. Kostanai and Aktobe may need assistance in raising the toxic waste utilization rate. All oil-extracting oblasts may require help in reducing the share of harmful substances reaching the atmosphere in the total amount of emitted harmful substances. Donor organizations may also consider supporting government agencies in improving budget programming for environmental protection and developing programs to attract the private sector's attention to the environment.

## GENDER

Women in Kazakhstan earn much less than men and are at a disadvantage in finding jobs. Wage inequality is especially severe in oil-extracting oblasts, but it is serious in all regions. In Astana, whose population has surged because of immigration, women are at a particular disadvantage in finding employment. In general, women represent a higher share of unemployment in regions with higher net migration rates. Despite wage and employment inequalities, the national share of women living in poverty, relative to the total number of poor, is roughly the same as the share of women in the total population. At the regional level, though, this indicator seems to be linked to inequality in finding employment.

Some gender gaps also work in the other direction. In particular, life expectancy for women is much higher than for men. Poor health for men is a big problem in all regions, but it is especially worrisome in the non-oil industrial oblasts.

Despite some recent improvement in women's wages, they remain much lower than men's wages. Moreover, the ratio of women's wages to men's wages declined from 67.6 percent in 1999 to 61.9 percent in 2004. In every region of the country, women earn less than men; more troubling, their relative wage also dropped between 1999 and 2004, in every region except the city of Almaty and East Kazakhstan.

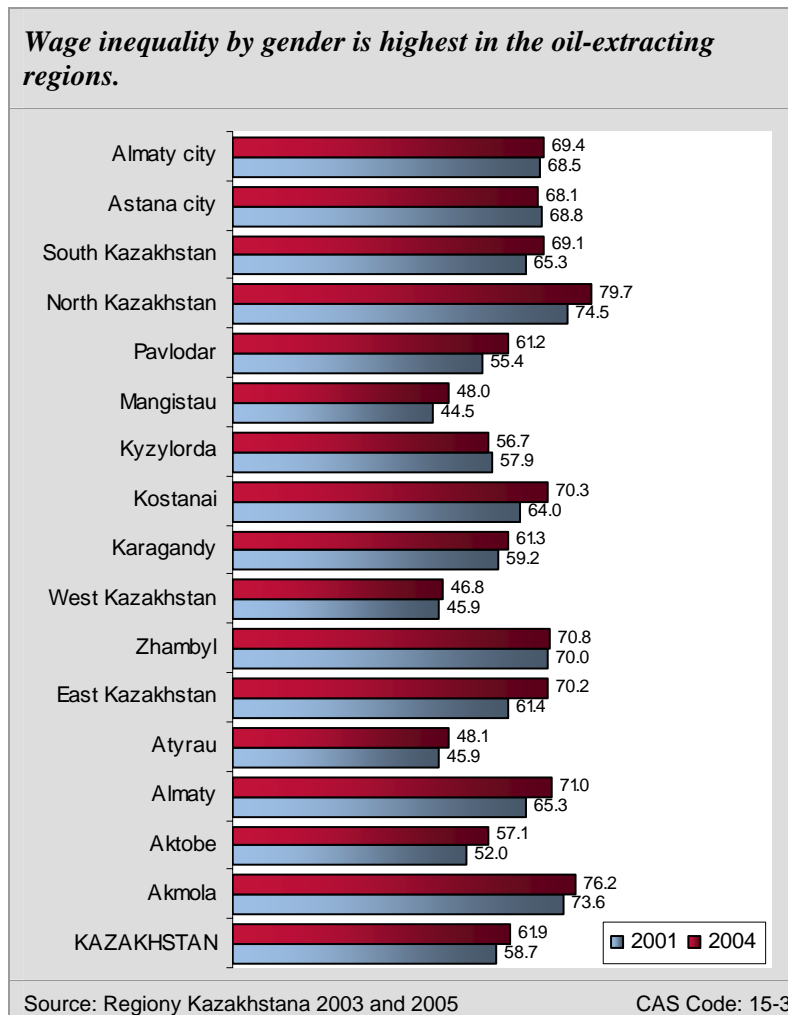
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**Gender wage inequality rose across the country.**

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Wage inequality was clearly the highest in oil-extracting oblasts and the lowest in agricultural oblasts, although even in the latter it was substantial (Figure 2-14). Between 1999 and 2004, the ratio of women's wage to men's wage declined most sharply in oil-extracting West Kazakhstan, Kyzylorda, and Mangistau. In 2004, the five oil-extracting oblasts ranked lowest in terms of this ratio. West Kazakhstan was the worst region—the ratio stood at just 46.8 percent in 2004. By contrast, the five regions with the narrowest wage differential were agricultural oblasts. The situation was best in North Kazakhstan, where women earned 79.7 percent of men's wage.

Figure 2-14  
*Women's Wage as Percent of Men's Wage, 2001 and 2004*



Excluding municipal districts, there was a strong positive correlation (0.90) between the wage differential and the share of agricultural value added in GRP in 2004. This suggests that relatively high-paying jobs in mining and transportation in oil-extracting oblasts are usually filled by men. The wage gap is also be linked to wide differences in the average wage (men and women) between oil-extracting and agricultural oblasts. In general, the correlation between the gender wage ratio and the average wage was  $-0.68$  in 2004; that is, the difference between men's wages and women's wages is higher in regions with a higher average wage.

There were more unemployed women than men in Kazakhstan. Specifically, women represented 57.3 percent of total unemployment in 2004, edging up from 56.7 percent in 2001. In 2004, the number of unemployed women exceeded the number of unemployed men in all regions except Kyzylorda and Zhambyl (Figure 2-15).<sup>15</sup>

<sup>15</sup> There are more women than men in Kazakhstan as a whole and in each region, but for most regions this cannot explain why the number of unemployed women is so much higher than the number of unemployed men. For the country as a whole, women made up 51.9 percent of the total population in 2004. The share of

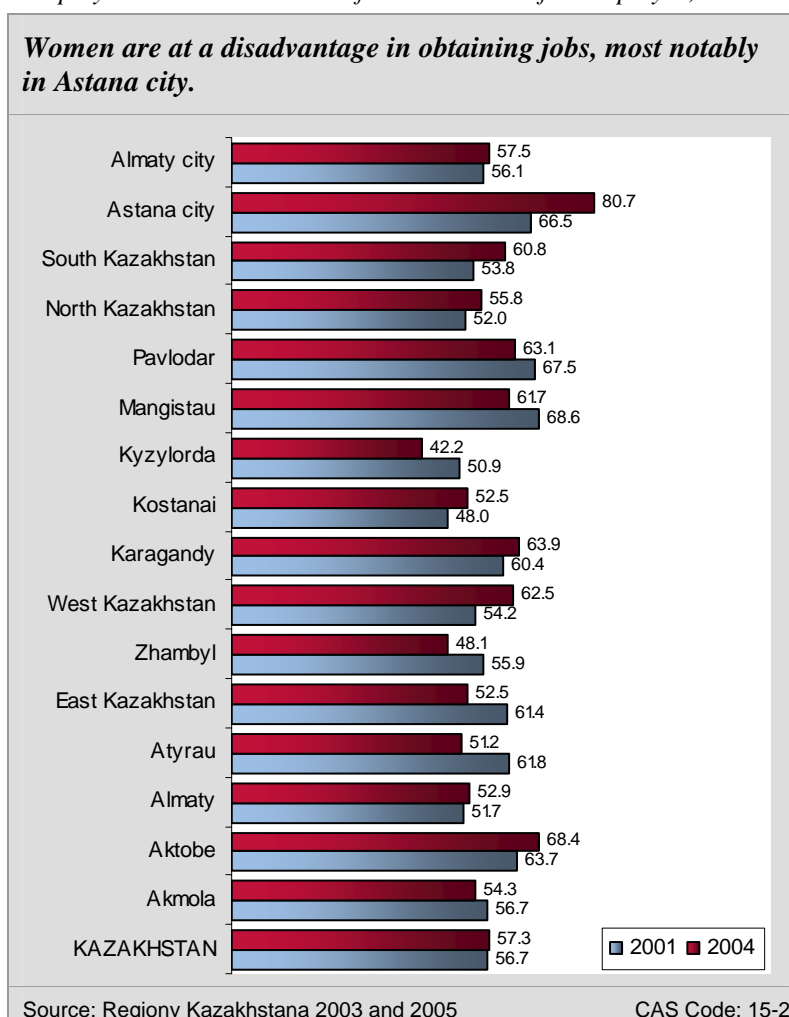
Women were most seriously disadvantaged in obtaining employment in Astana. There, the share of women in the total number of unemployed climbed from 66.5 percent in 2001 to a shockingly high 80.7 percent in 2004, well above the level in the second-worst region, Aktobe (68.4 percent). Considering that migration was especially high in Astana (see the Demography and Environment section), one possible explanation is that men are more mobile in seeking employment outside their home regions. This hypothesis is supported by a strong correlation (0.64 percent) between the regional share of women in unemployment and the net migration rate in 2004.

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**Women have been most seriously disadvantaged in obtaining jobs in regions attracting large in-migration**

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Figure 2-15  
*Unemployed Women as Percent of Total Number of Unemployed, 2001 and 2004*



women in the number unemployed was 5.4 percentage points higher. By region, the highest share of women in the population was 54.6 percent, in the city of Almaty. In three oblasts—Atyrau, East Kazakhstan, and Kostanai—the difference between the shares of women in the number unemployed and in the population was negligible. But in most of the remaining regions, the difference was at least 2 percentage points. The highest difference was 29.3 percentage points, in Astana.

Although Kazakhstani women earned much less than men and face disadvantages in finding jobs, the share of women in the total number of people living in poverty, 52.2 percent in 2004, was only marginally above the share of women in the total population. This is probably a result of income transfers within families. In two regions, Atyrau and Zhambyl, women made up less than 50 percent of the total number of people living in poverty.

Although the share of women in the poverty population is similar to women's share in the total population, regional disparities in this indicator are strongly linked to differences in unemployment. The correlation between the share of women in the poverty population and women's share in unemployment equaled 0.70 in 2004. Zhambyl oblast was an example of a region with relatively low unemployment and relatively low poverty among women. Astana, however, the region with the highest share of unemployment for women, had the highest share of women in the poverty population—66.7 percent in 2004. Astana also posted the most significant increases in both indicators between 2001 and 2004.

Another serious gender issue for Kazakhstan is poor health for men. As in many other former Soviet Union countries, men have a substantially shorter life expectancy than women. Moreover, it has not been improving. In 2004, male life expectancy stood at 60.6 years, the same as in 1999. Over the same period, life expectancy for women rose from 70.9 years to 72.0 years. This may be a result of differences in life-style and work environment (men may be more often employed in hazardous occupations).

Women's life expectancy substantially exceeded men's life expectancy in every region. Also, women's life expectancy rose in every region between 2001 and 2004, while men's life expectancy dropped in five regions. The ratio of women's to men's life expectancy increased in 13 regions. The highest ratio in 2004 was 121.5 percent, in non-oil industrial Karagandy and in the city of Almaty. The lowest ratio was in oil-extracting Kyzylorda, at 114.0 percent. The average ratio for the non-oil industrial oblasts (120.7 percent) was higher than for any other regional group. This may be related to work conditions in industrial enterprises.

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**Life expectancy is substantially higher for women than for men.**

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To reduce gender employment inequality, donor assistance may be warranted in promoting jobs for women in regions that attract migrants, especially in the city of Astana. Measures to help women obtain higher-paying jobs may be especially needed in the oil-extracting oblasts. Dismally low life expectancy for men, in absolute and relative terms, requires steps to improve men's health in all regions, but special attention should be paid to non-oil industrial oblasts.



# 3. Private Sector Enabling Environment

This section reviews indicators for key components of the enabling environment for encouraging rapid and efficient growth of the private sector. Sound fiscal policies are essential for macroeconomic stability, which is a necessary (though not sufficient) condition for sustained growth. Financial institutions play a major role in mobilizing and allocating saving, facilitating transactions, and creating instruments for risk management. Access to the global economy is another pillar of a good enabling environment, because the external sector is a source of potential markets and modern inputs, technology, and finance, as well as competitive pressure for efficiency and rising productivity. Equally important is development of the physical infrastructure to support production and trade. Finally, developing countries need to adapt and apply science and technology to attract efficient investment, improve competitiveness, and stimulate growth in productivity.

## FISCAL POLICY

Price stability is an important factor contributing to a healthy environment for both sustainable growth and poverty alleviation. Kazakhstan's national inflation rate (in terms of the consumer price index, or CPI) fell from 18.0 percent in 1999 to 7.5 percent in 2005. This improvement corresponded with a decrease in the disparity of inflation rates among regions, as the standard deviation of the inflation rate fell from 2.9 percent in 1999 to 0.8 in 2005 (Figure 3-1). Inflation is highest in the municipal districts of Astana and Almaty. More generally, the correlation between urbanization and inflation was high (0.69) in 2004 (latest data), but not in the previous years—signaling a change in the source of inflation from monetary impetus to localized demand effects that affect rural and urban areas differently.

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**Recent inflation has been largely an urban concern.**

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On the federal level, revenue mobilization and expenditure management have improved in the past few years (as reported in the *Kazakhstan Economic Performance Assessment*, November 2005). Regional data on government expenditure must be examined with caution, however, because federal expenditure figures are not disaggregated geographically, and figures for regional government do not paint a full picture of public sector

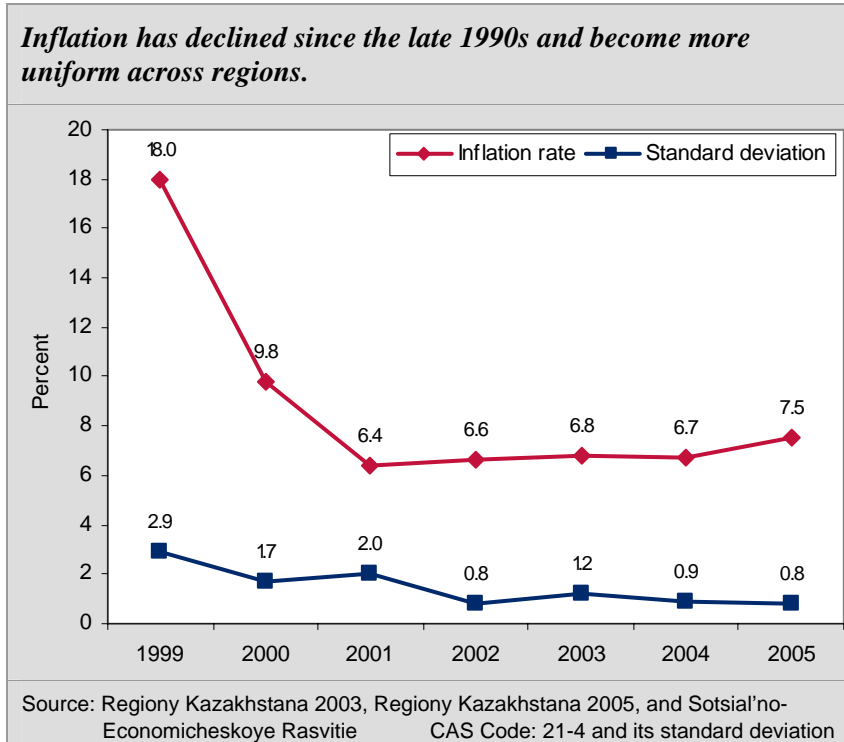
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**The oil-rich regions have the lowest ratio of regional government expenditure to GRP, but the highest level of expenditure per capita**

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activities in a given oblast or municipality. Nonetheless, the division of responsibility between regional and federal levels of government is well defined, so data on expenditure are comparable among regions.

Figure 3-1  
Inflation Rate and its Standard Deviation, Percent, 1999–2005



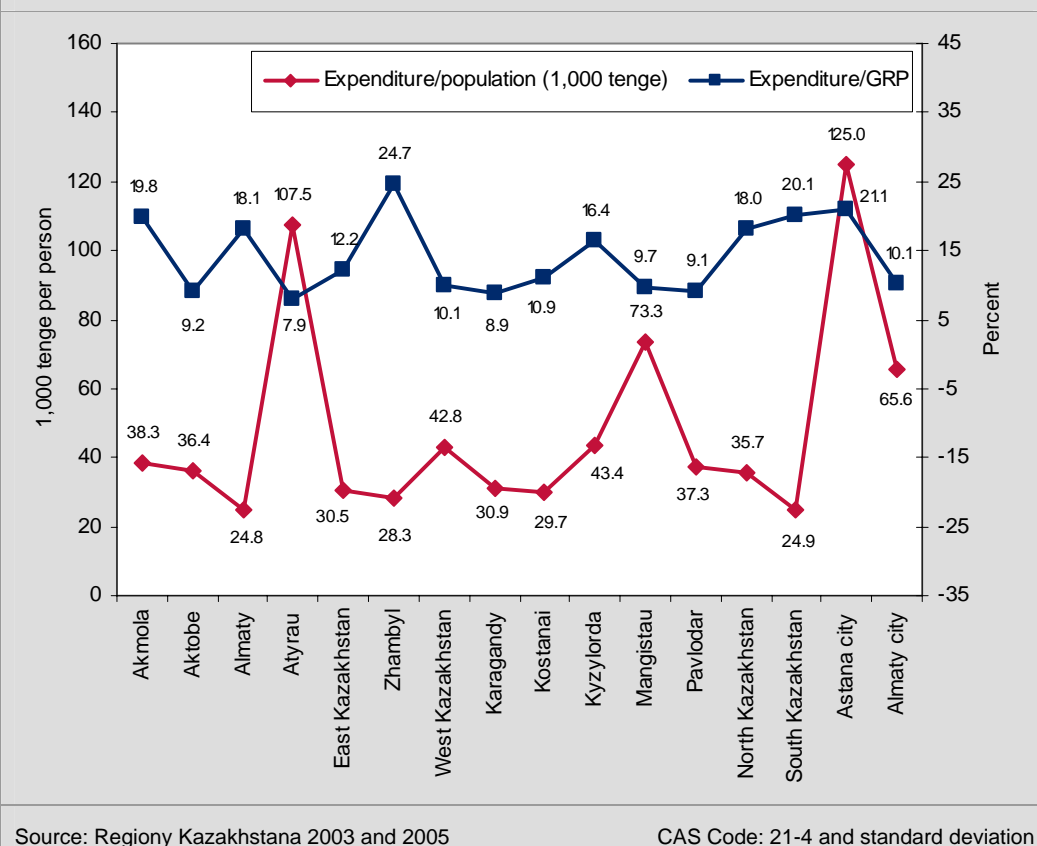
Budget figures for the regional governments show that the ratio of expenditure to GRP is much lower in the oil-rich oblasts (with the exception of Kyzylorda) than in the agricultural oblasts (with the exception of Kostanai) or the municipal districts. There is also a large spread among regions; in 2004, expenditure ranged from 7.9 percent of GRP in Atyrau to 24.7 percent in Zhambyl. Furthermore, the disparity among regions on the measure of public service provision did not improve between 1999 and 2004. Disparities in the expenditure ratio appear to be driven by differences in growth rate: in the fast-growing oil regions, the ratio fell, whereas in agricultural oblasts, it rose (Figure 3-2).

Although the ratio of expenditure to GRP is a common measure of fiscal effort and the size of government, regional disparities in this ratio may reflect differences in the provision of public services, because the regions differ so greatly in GRP per capita. A high-income region can have a high level of expenditure per person, despite a low ratio of expenditure to GRP. Indeed, this is the case in Kazakhstan. Expenditure per capita in 2004 was by far the highest in Atyrau (107,503 tenge per person) and Astana city (124,984 tenge) and lowest in South Kazakhstan (24,822 tenge) and Almaty (24,846 tenge). As with the percentage measure, expenditure per

capita shows a clear dichotomy between the oil region and agricultural regions, but from this perspective, the oil regions are in the lead.<sup>16</sup>

Figure 3-2  
Regional Government Expenditure, 2004

*There are large differences in regional government expenditure, measured either as a percentage of GRP or in expenditure per person.*



In Kazakhstan, if a regional government runs a surplus, the excess is transferred to the federal government; regions can also run deficits (in terms of local revenue and expenditure) with funding from federal subventions. The relationship between federal and regional budgets is therefore of great importance, as is the question of how the central government budgets funds by region and function. Though it is outside the scope of this study to analyze the budgets in detail, the information available indicates that federal budget allocations are determined on a functional basis, by agency; it is not clear whether much attention is given, in the process, to using the federal budget to reduce regional disparities (though the pattern of subventions does favor lower-income oblasts).

<sup>16</sup> Local government expenditure and revenue for the municipal districts is not comparable to that of the oblasts and thus discussed separately from the rest of the regions in this section.

Looking briefly at the allocation of regional government expenditure, the share devoted to education and health is particularly low in Atyrau, Mangistau, and the municipal districts. Because expenditure (and GRP) per capita is high in these regions does not mean that spending on these services is meager in absolute terms. Nonetheless, because these regions are in need of improvements in health and education, devoting a larger share of expenditure to social programs may be worthwhile (see sections on Health and Education).

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**The share of regional government expenditure on social education and health is low in Atyrau, Mangistau, and the municipal districts—regions in need of improvement in these areas.**

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The revenue side of the budget picture broadly parallels the discussion on expenditures, with differences resulting from transfers to and from the federal level. In particular, the share of the regional revenue in GRP is substantially lower in the oil-producing regions than in other areas. This is to be expected, because the denominator for this ratio (GRP) is greatly increased by oil production. Even so, the low ratio may indicate that there are opportunities to boost revenue mobilization in these fast-growing regions, which could allow the governments to pursue more active programs to alleviate poverty. As discussed earlier, the poverty rates are actually higher in the oil-rich regions; those regions may therefore have a lot to gain from an increase in funding (which might be achieved by allowing more oil revenues to be used at the local level).<sup>17</sup>

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**Stronger revenue mobilization in oil-extracting regions could allow for more government programs to alleviate poverty.**

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## BUSINESS ENVIRONMENT AND SME DEVELOPMENT

Survey-based data of the type used in the World Bank's Doing Business reports and the World Economic Forum's Global Competitiveness Reports are not gathered separately on a regional basis in Kazakhstan. This narrows the scope for analyzing regional differences in the quality of the regulatory environment for doing business. The authorities should consider investing in data of this sort. The present assessment, however, has to be based on other data.

One of the few indicators available by region is the rate of economic crimes. Economic crimes are defined as actions in production, distribution, and consumption (including abuse of one's position) that are punishable by law. A high rate of economic crimes could increase the costs and risks of doing business and undermine the investment climate.

The number of economic crimes per 100,000 people declined in Kazakhstan from 105.0 in 2000 to 66.5 in 2004. In general, economic crimes are an urban phenomenon in Kazakhstan. Indeed, the correlation between the urbanization rate and the rate of economic crimes was 0.77 in 2004. This is to be expected, because there are more opportunities for economic crime in the cities. The ratio is highest in the two municipal districts and the four most

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**Economic crimes are a serious problem in the major urban areas.**

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<sup>17</sup> This statement can not be fully assessed without a more thorough analysis of the federal budget, a task which is not within the level of effort allotted for this study.

urbanized regions (Karagandy, Mangistau, Pavlodar, and Kyzylorda), with the greatest incidence in Almaty city (107.3 crimes per 100,000 people in 2004). The rate in Almaty stands out in comparison to that of Astana city (74.1). The disparity between regions, measured by the standard deviation, was high throughout the period, ranging from 19.1 to 25.6 in the six years to 2004. This suggests that the regions where economic crimes are most prevalent have not made noticeable progress in reducing the performance gap.

The economic crime rate is also strongly related to the level of development of the financial system; the correlation between bank credit as a percent of GRP and economic crimes rate was 0.57 for 2004. This suggests that economic crimes may become more pervasive with the expansion of financial markets. Effective prudential regulation and crime enforcement are essential as preventive measures.

An indirect gauge of the climate for doing business is the incidence of loss-making enterprises. Interpretation of this indicator is not clear-cut, because a high prevalence of loss-making can indicate either a weak business environment, or difficult economic fundamentals and a lack of opportunities for profitable operations. Given the rapid growth rates throughout the country, however, the latter condition is not a likely explanation for the observed high incidence of losses. For the country as a whole, the share of loss-making enterprises fell from 47.8 percent in 1999 to a still very high 36.9 percent in 2004 (Figure 3-3). The largest declines occurred in Aktobe (by 29.5 percentage points), Almaty (by 24.7 percentage points) and Kyzylorda (by 23.2 percentage points) oblasts. Municipal districts and oil-producing regions (with an exception of Kyzylorda) have relatively low rates of loss incidence, as does Pavlodar, where coal production is the main industry. Enterprises in agricultural regions are significantly more likely to make a loss. The loss incidence is highest in the oblasts most dependent on agriculture—reaching 53.4 percent in Akmola and 49.1 percent in North Kazakhstan. Indeed, the loss incidence in these two areas, as well as in Atyrau, has actually been rising.

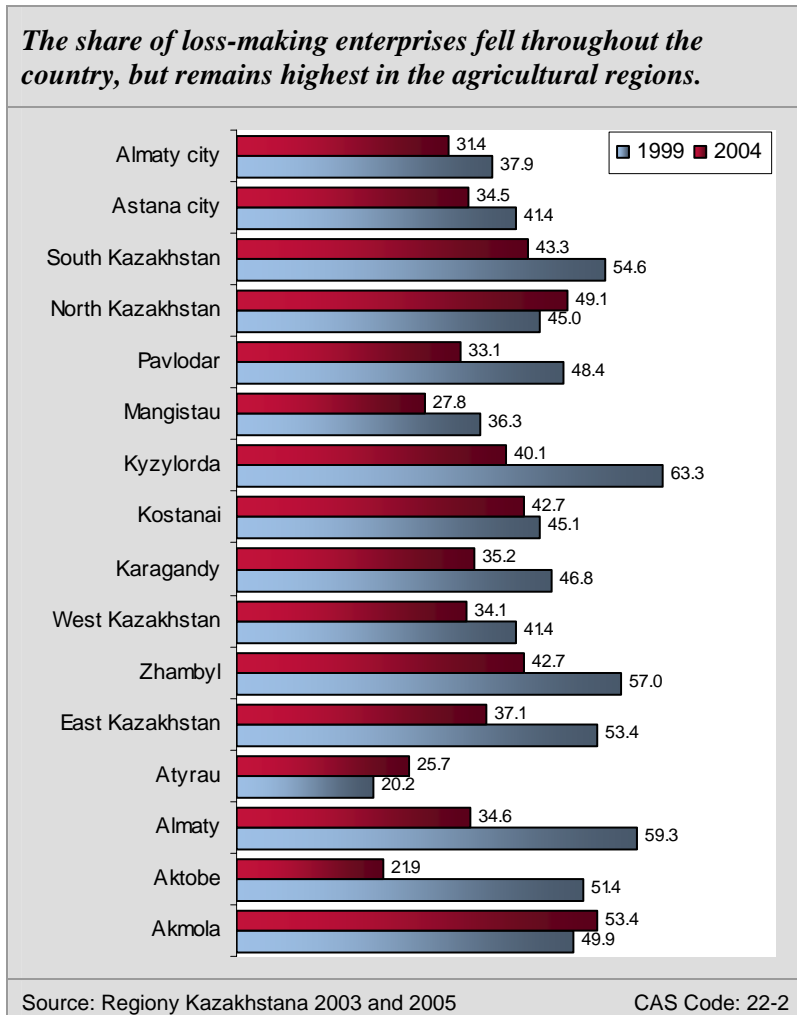
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**The proportion of loss-making enterprises is very high in agricultural regions. Municipal districts are the centers for SME employment.**

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Figure 3-3

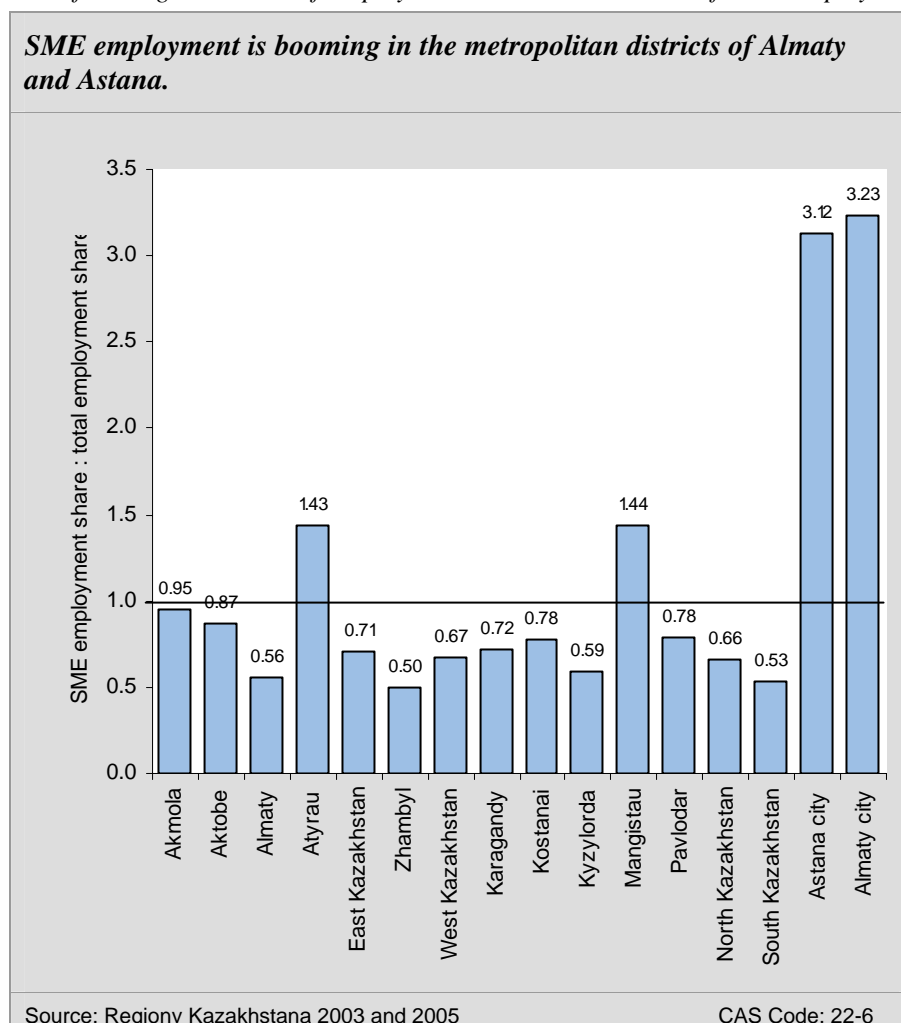
*Loss-making Enterprises, Percent of Total Enterprises in the Region, 1999 and 2004*



The quality of the business climate is also associated with the prevalence of small and medium-sized enterprise (SME) activities, which can be gauged by looking at data on each region's share of SME employment relative to its share of total employment; a ratio above one indicates above-average importance of SME employment. On this basis, there appear to be well-defined epicenters of SME activity (Figure 3-4). Atyrau (with a ratio of 1.4), Mangistau (1.4), and the two municipal districts (both with ratios above 3) are the dominant sources of SME employment. These are also the regions where SME employment has grown most rapidly in the past five years. The ability of (registered) SMEs to grow and flourish signals a friendly business environment. SMEs play the least important role in South Kazakhstan, Zhambyl, Almaty and Kyzylorda oblasts (with a ratio below 0.6 according to 2004 data). SME employment actually fell in Pavlodar and Kyzylorda between 1999 and 2004, suggesting that these may be priority areas for donor attention to promoting SME growth.

Figure 3-4

*Ratio of the Regional Share of Employment in SMEs to the Share of Total Employment, 2004*



SME employment growth has increasingly been correlated with net migration into a region. In 2000, the correlation was slightly negative (and statistically insignificant), but in 2004 the correlation was a very strong 0.83. Causation between these two indicators could go both directions, in that SME growth could attract migration, or migration could feed the growth of SME activities.

There is also a strong correlation between bank credit (discussed in the Financial Sector section) and the SME employment concentration ratio.<sup>18</sup> In 2004, the correlation was 0.74. Availability of proper financing—either directly from the banking system or indirectly through businesses linked in the value chain—is undoubtedly an important factor in allowing SMEs to flourish. To see further growth of the SME activity in the regions that are lagging behind, improvements in the business climate must be accompanied by deepening of the financial markets.

<sup>18</sup> With the exception of data for 2003, in which the correlation is weak.

## FINANCIAL SECTOR

As with the business environment indicators, many key measures of the performance of the financial sector are not available at the regional level in Kazakhstan (for example, possible differences in the real interest rate, interest rate spreads, the legal and regulatory environment). The compilation and distribution of more complete data on regional financial markets are tasks worthy of the government's and donors' attention.

For the country overall, bank finance has been expanding rapidly. This is evidenced by a huge increase in the ratio of bank credit to national GRP—11.9 percent in 2000 to 29.6 percent in 2004. The provision of credit, however, is uneven across regions. The bank credit ratio is low in both oil-producing regions (with exception of Aktobe) and the agricultural oblasts (with exception of South Kazakhstan) (Figure 3-5).

**Bank credit is concentrated in the two municipal districts.**

Bank credit is relatively high in the non-oil industrial oblasts and especially in the municipal districts. This measure may be misleading, however, because credit extended in one region may go to enterprises in another.

Figure 3-5

*Bank Credit, Percent of GRP, 2000–2004*

*The accessibility of bank credit relative to GRP in the oil-producing and agricultural regions is well below the national average.*

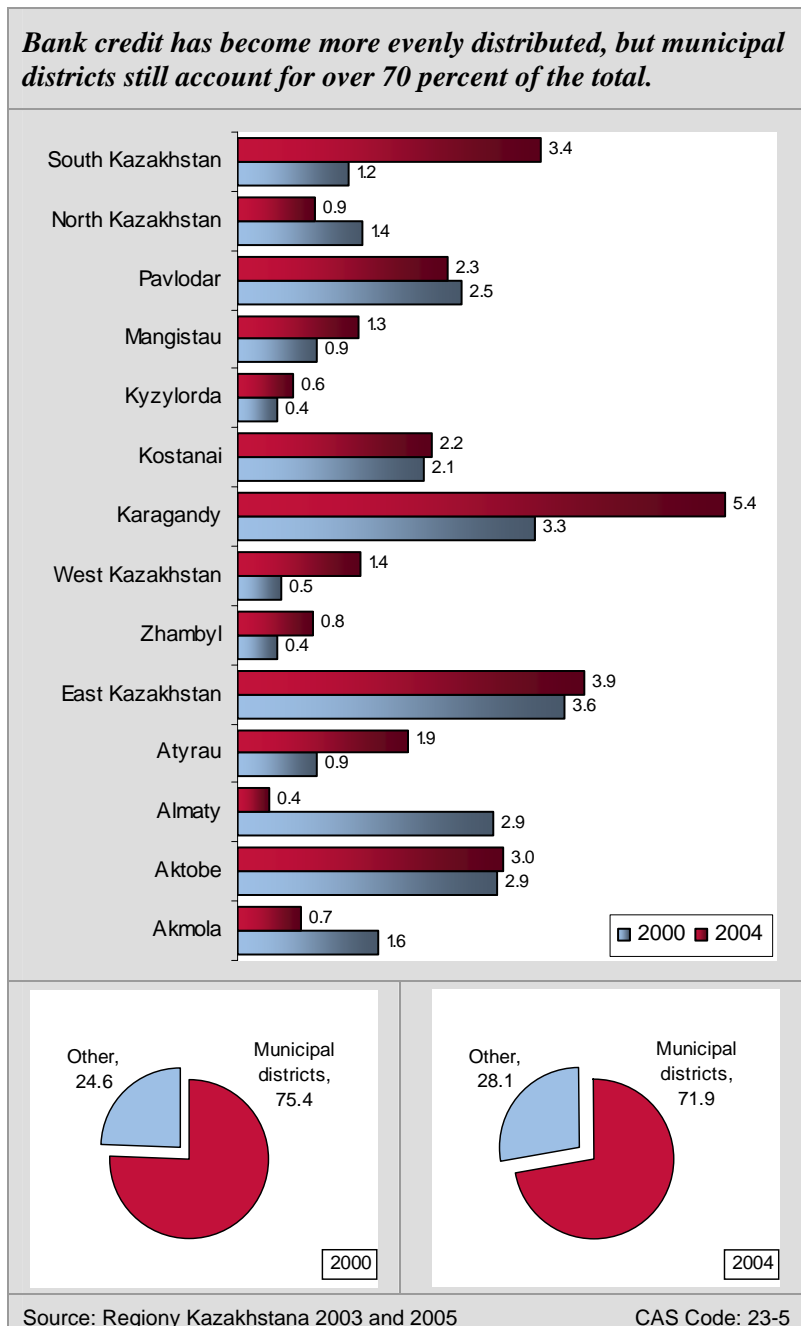
Regional Grouping	2000	2001	2002	2003	2004
Kazakhstan	11.9	17.0	20.0	23.6	29.6
Oil-producing regions	2.5	3.6	4.6	5.7	7.5
(without Aktobe)	1.4	2.8	3.8	4.3	5.8
Agricultural regions	4.4	4.8	7.1	8.8	10.9
(without S. Kazakhstan)	5.2	5.1	5.6	6.7	8.5
Municipal districts	43.8	57.6	60.7	69.1	94.2
Other	4.2	7.7	10.1	11.8	15.3

Source: Regiony Kazakhstana 2003 and 2005 CAS Code: 23-4

The observed imbalances do seem to be declining, as the regional share of bank credit is on the rise in all oil-producing oblasts and some agricultural regions (Figure 3-6). Nonetheless, bank credit is heavily concentrated in the municipal districts. Astana and Almaty cities together account for over 70 percent of total bank credit. This statistic shows that the major municipal areas are serving as national centers of banking, which is normal. At the same time, there may be a need to improve the availability of finance in other parts of the country. Of particular concern are the oblasts of Almaty, Akmola, and North Kazakhstan, where the regional shares of bank credit were low at the beginning of the period and then declined.



Figure 3-6  
*Allocation of Bank Credit (Regional Bank Credit, Percent Total Bank Credit for Kazakhstan), 2000 and 2004*



The level of large enterprise arrears is a sign of potential financial instability. Here, the signs are very favorable. Throughout Kazakhstan, enterprise arrears declined substantially from an average of 28.6 percent of GRP in 1999 to just 3.1 percent in 2004. The decline occurred in all regions, some of which had an arrears-to-GRP ratio of over 50 percent at the beginning of the period. By 2004, Mangistau and Karagandy oblasts had high arrears compared to other regions, with a ratio of 10.2 percent and 7.6 percent, respectively. Although not alarming, these rates are high enough to warrant concern about possible problems with the soundness of the banking system in these

regions, particularly because banking failure can have a heavy adverse impact on growth and poverty.

Foreign investment is another source of funds to stimulate industrial development, job creation, and economic diversification. In Kazakhstan, enterprises with foreign capital are most prominent in the municipal districts. Among the oblasts, Atyrau has the largest number of such enterprises. In the 1999–2004 period, this indicator increased most rapidly in non-oil industrial East Kazakhstan and in the agricultural oblasts Kostanai, North Kazakhstan, and South Kazakhstan. However, rapid growth in the number of enterprises with foreign capital does not necessarily translate into a high value of foreign capital. Although Atyrau and Astana are among the leaders in the volume of foreign fixed investment,<sup>19</sup> the absolute amounts are still miniscule in East Kazakhstan, Kostanai, North Kazakhstan, and South Kazakhstan. Nevertheless, the rising number of enterprises with foreign capital in the latter oblasts is still a favorable sign, because these businesses can play an instrumental role in the development of new industries and the creation of productive jobs outside traditional agriculture.

In short, the limited information on financial markets, by region, suggests that (1) the prosperous municipal districts serve as national banking centers; (2) the availability of bank credit needs to improve in both the agricultural and oil-extracting regions, and (3) the agricultural oblasts are attracting foreign investors.

## EXTERNAL SECTOR

The external sector has played a vital, and possibly a decisive, role in the development of the Kazakstani economy, with the oil-extracting oblasts obtaining the greatest advantage from integration into the world economy. Exports have been soaring on the strength of rising production and rising world prices for oil. As a result, merchandise exports from the oil-extracting oblasts more than doubled in 2000–2004, accounting for almost three-fifths of total exports by the end of the period. At the same time, international competitiveness in many non-oil regions is low, possibly because of the appreciation of the tenge as a result of strong exports and large inflows of foreign investment. According to the National Bank of Kazakhstan, the tenge appreciated from a rate of 153 to the U.S. dollar in 2002 to 133 in 2005, which translates into a real (inflation-adjusted) appreciation of more than 20 percent. This appreciation causes imports to become more competitive in the domestic markets and exports to become less profitable (because each dollar of earnings translates into fewer tenge of revenue).

The growth of exports from non-oil industrial oblasts and especially from agricultural oblasts has generally been slow, and in some of these oblasts, exports have actually contracted. Foreign fixed investment as a percentage of GRP also declined in the period but remained substantial. The two oil-extracting oblasts accounted for about two-thirds of total foreign fixed investment in the country, while the share of agricultural oblasts was miniscule. In general, if there is any inter-

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<sup>19</sup> A high level of foreign capital is often associated with a substantial share of the income on capital accruing to non-residents. This can help to explain the observation that regional disparities in per capita GRP are bigger than disparities in household income.

regional spillover effect on lagging oblasts from the dynamic external sector, it appears to be negative.

Merchandise exports accounted for 43.9 percent of national GRP in 2001 and rose to 54.6 percent in 2004. Merchandise exports measured in U.S. dollars surged 128.0 percent from 2000 through 2004. Export growth in the oil-extracting oblasts was 212.8 percent, far outpacing that for the country as whole. In agricultural and non-oil industrial oblasts, exports increased by 26.6 percent and 42.8 percent, respectively.

Kazakhstani merchandise exports have been increasingly concentrated in mineral product exports, particularly crude oil.<sup>20</sup> Between 2000 and 2004, the share of mineral products in total merchandise exports climbed from 54.4 percent to 68.3 percent. At the same time, the share of base metals, another key export category, contracted from 25.8 percent to 19.4 percent. Agricultural and processed food products represented only 4.1 percent of total exports, dropping from an already low 6.9 percent in 2000. The share of machines and equipment was negligible, at 1.5 percent in 2004. Overall, export earnings are highly concentrated, with the top three commodities accounting for about two-thirds of total merchandise exports.

In the oil-extracting oblasts, with the exception of Aktobe, mineral products accounted for at least 98.5 percent of total merchandise exports in 2004. In Aktobe, the share was 58.4 percent. Base metals dominated the export basket in East Kazakhstan and Karagandy. In agricultural oblasts, agricultural and processed food exports accounted for between 19.5 percent of exports (in South Kazakhstan) and 72.6 percent (in Zhambyl). Akmola was the only agricultural oblast where the share of machines and equipment exports reached double digits—39.4 percent in 2004.

Between 2000 and 2004, the oil-extracting oblasts and municipal districts became more export-oriented, while agricultural oblasts and non-oil industrial oblasts have become less export-oriented, as measured by the ratio of exports to GRP (Figure 3-7). In agricultural Akmola and South Kazakhstan, exports actually fell in absolute terms. As a result of these divergent trends, the standard deviation of this indicator (which measures disparity among regions) climbed from 32.5 percent in 2000 to 42.2 percent in 2004.

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**The oil-extracting oblasts and municipal districts are leaders in export growth.**

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The oil-extracting oblasts are now critically dependent on foreign markets. The ratio of merchandise exports to GRP in 2004 was highest in Kyzylorda, at 136.5 percent. The average ratio for this group equaled 105.7 percent. Corresponding averages for the non-oil industrial oblasts and the municipal districts were much lower, at 44.4 percent and 39.1 percent, respectively. In the agricultural oblasts, the export-to-GRP ratio averaged just 17.2 percent, with Zhambyl having the lowest value, 7.8 percent.

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<sup>20</sup> The share of the exports of crude oil and gas condensate in total merchandise exports was 57.1 percent in 2004. At the regional level, a commodity breakdown of mineral product exports is not available.

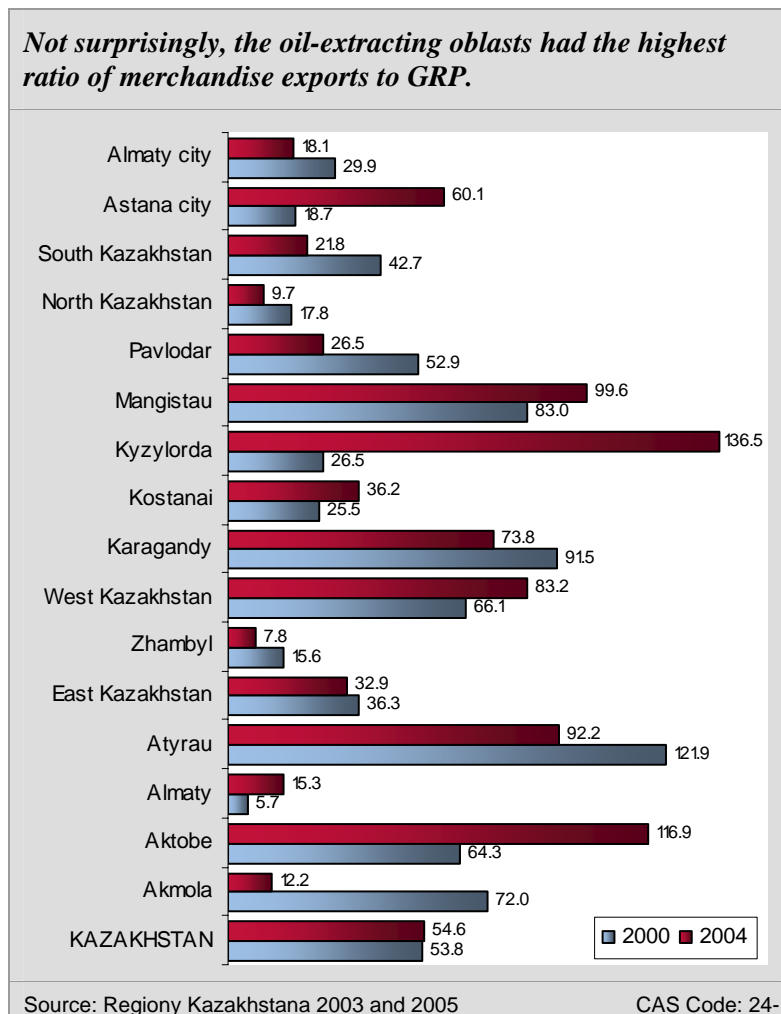
The decline in the role of exports in the agricultural and non-oil industrial oblasts probably reflects a loss of competitiveness because of the appreciation of the national currency. This common condition for mineral exporters often is called the Dutch disease. It is also a sign that market forces are redistributing export activities geographically in line with efficiency considerations. This may be accompanied by a production reorientation from oblasts with lagging exports to rapidly expanding and geographically close domestic markets in oil-extracting oblasts and municipal districts. At the same time, the increasing concentration of exports in a handful of commodities increases the vulnerability of the economy to external shocks.

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**Rapid growth of mineral exports and FDI has made the tenge appreciate, which could impair competitiveness for other sectors and regions.**

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Figure 3-7  
Merchandise Exports, Percent of GRP, 2000 and 2004



For a relatively small economy, imports into Kazakhstan are not high. Between 2000 and 2004, the ratio of imports to national GRP rose from 30.8 percent to 34.7 percent. At the regional level, the growth of imports is strongly linked to the growth of exports. The correlation between the growth of imports and exports in the period 2001–2004 and the respective values in 2000 was

0.81. This high correlation is probably related to a strong derived demand for imported inputs to support rapidly growing export activities. But it could also be a reflection of weaker income growth in many agricultural and non-oil industrial oblasts, which translates into lower capacity to afford imports, despite the strength of the tenge. The low ratio of imports to GRP in these lagging oblasts—24.4 percent for agricultural oblasts and 22.6 for non-oil industrial oblasts on average in 2004—may place these regions at a serious disadvantage in accessing foreign capital goods and advanced foreign technology, as well as a variety of foreign consumer goods.

Thanks to its vast reserves of oil and natural gas, Kazakhstan has attracted large flows of foreign direct investment (FDI). Yet investment has largely derived from domestic sources, and reliance on foreign investment has declined recently. Specifically, the share of FDI in GRP fell from 9.3 percent in 2002 to 6.0 percent in 2004; in the same period the share of FDI in total fixed investment fell from 28.3 percent to 17.7 percent.

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**Export growth, by oblast, is highly correlated with foreign investment.**

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FDI has been concentrated in two oil-extracting oblasts, West Kazakhstan and Atyrau, which jointly accounted for 65.0 percent of total FDI in 2004 (Figure 3-8). West Kazakhstan alone was primarily responsible for the national decline in the ratio of FDI to GRP. The next two largest destinations for FDI were the non-oil industrial Karagandy and the city of Astana, with 8.9 percent and 8.2 percent of the total, respectively. The agricultural oblasts attracted a mere 2.5 percent of FDI. Also, only 2.7 percent of total fixed investment in the agricultural group came from foreign investors in 2004.

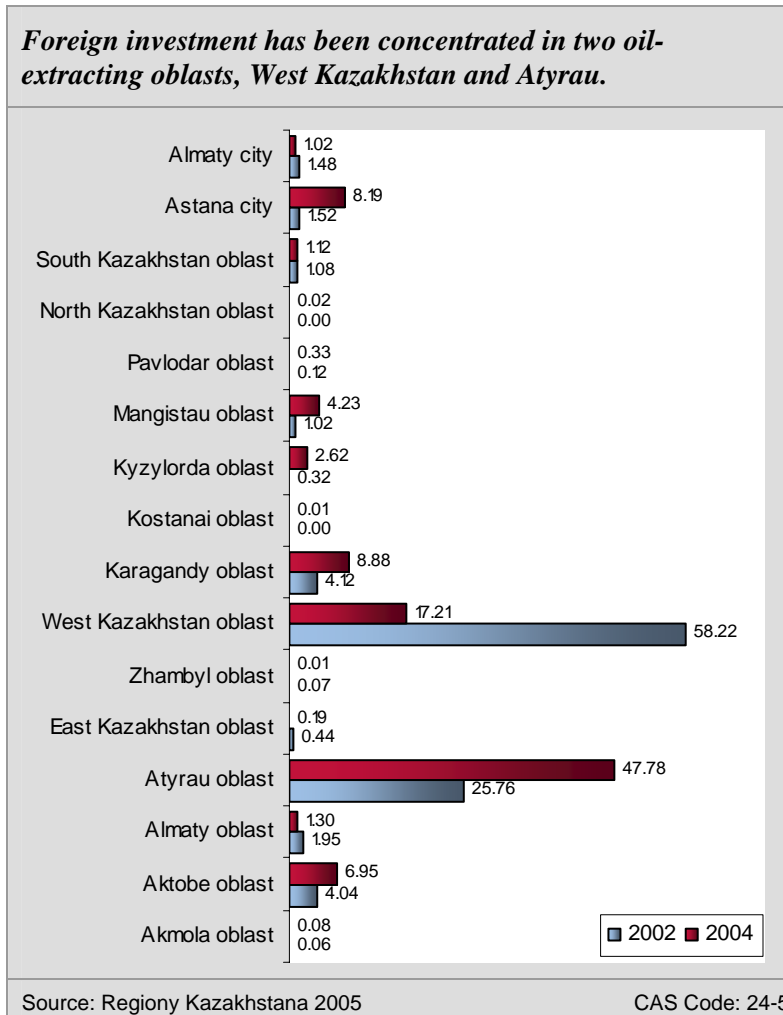
Merchandise exports have been strongly correlated with fixed investment and, especially, foreign investment. The direction of causality in this relationship probably works both ways. On the one hand, the development of internationally competitive businesses requires capital, although on the other hand, major investors are more attracted to outward-oriented sectors. Foreign investment is especially important because it is a major source of new technology and knowledge of international markets. In 2004, the correlation between merchandise exports and total fixed investment was 0.76. The correlation between merchandise exports and foreign fixed investment was higher, at 0.84.

The recent decline in FDI relative to GRP does not appear to be a problem, because FDI remains substantial and the ratio of total fixed investment to GRP was high and rising (see the Growth Performance section). Nevertheless, the reasons for the decline in the share of FDI are worth investigating because this trend could signal that foreign investors see growing problems in the business environment.

On balance, the evidence suggests that non-oil exporters have suffered from the strong tenge. Kazakhstan may need assistance in promoting the diversification of exports and FDI inflows among sectors. This assistance may be focused on strengthening competitiveness in selected non-oil sectors—for example through infrastructure and R&D investments, as well as through targeted educational programs. This process may also lead to greater geographical diversification in exports and foreign investment. Policies to manage foreign exchange reserves to maintain a more competitive national currency could also help diversify exports across sectors and regions.

Figure 3-8

*Share of Regional Foreign Investment in Total Foreign Investment, 2002 and 2004*



## ECONOMIC INFRASTRUCTURE

The physical infrastructure in any national or regional economy is the backbone supporting the growth of investment, production, employment, and trade. Regional comparisons of transportation infrastructure are complicated by differences in requirements that arise from differences in regional production specializations. For instance, not all regions may need oil pipelines. The data available are also limited. For both reasons, this section focuses on transportation and communications infrastructure.

One way to gauge the development of transportation infrastructure is to examine the ratio of paved automobile road density to population density.<sup>21</sup> In Kazakhstan, this ratio improved

<sup>21</sup> Paved automobile road density is the length of paved automobile roads in a region, measured in kilometers per 1,000 square kilometers of the area of the region. Population density is the number of residents in the region per 1,000 square kilometers of the area of the region. The ratio of these two variables

slightly between 1999 and 2004, from 5.4 to 5.6. It is difficult to determine a systematic pattern in regional changes for this indicator. Strong growth occurred in three oblasts from three different groups: non-oil industrial East Kazakhstan, agricultural Kostanai, and oil-extracting Mangistau.

Other useful indicators relate to the volume of freight and public passenger transport. Both indicators show that transport activity for the nation as a whole has grown moderately. From 2002 to 2004, freight transportation (by truck and rail) increased 7.9 percent a year, which is less than the economic growth rate. Unfortunately, the regional breakdown of this indicator is not informative because most of the freight volume is not attributed in the statistics to particular regions.

Passenger transportation (by bus and rail) grew even more slowly, at 6.0 percent a year. This indicator rose in all regions. The most significant increase, 21.3 percent per year, occurred in Astana, reflecting the large inflow of migrants. The growth of passenger transportation in the agricultural group averaged 6.9 percent a year, slightly above the national average, and faster than in other regional group except the municipal districts. The growth of passenger transportation is apparently associated with regional government spending.

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**The growth of passenger transportation is correlated with government spending on this sector.**

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The correlation between the annual growth of passenger transportation from 2002 to 2004, and regional government spending on transportation and communications as a percentage of GRP during the same period, was 0.84.

The level of communications infrastructure development in Kazakhstan remains low, and recent progress has been unimpressive. From 1999 through 2004, national telephone density, measured as the number of fixed and mobile lines per 1,000 residents, rose by 37.8 percent, to 165.1. This translates into a moderate annual average increase of 6.6 percent, which lagged behind economic growth. Telephone density improved in every region, with the fastest growth in oil-extracting Aktobe (13.9 percent a year).

Telephone density was generally higher in the more urbanized regions and in regions with higher per capita household incomes: the respective correlations are 0.67 and 0.47, for 2004. The indicator was by far the highest in the old capital city of Almaty, at 407.1 lines per 1,000 residents. Although the new capital of Astana had slightly higher per capita income, telephone density was still much less developed, at 186.1, possibly because the telephone system could not keep pace with the surge in population. Phone density in the non-oil industrial oblasts was lower than in the municipal districts, at 200.0 lines per 1,000 residents. In the less urbanized oil-extracting and agricultural groups, the line density averaged only 144.2 and 133.7, respectively, with the lowest density (74.8) in agricultural South Kazakhstan.

Between 1999 and 2004, telephone density grew most rapidly in the two groups with the lowest density, suggesting a trend towards regional convergence. Nonetheless, the lagging

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**Telephone density has grown faster in regions where it was low, so disparities are narrowing.**

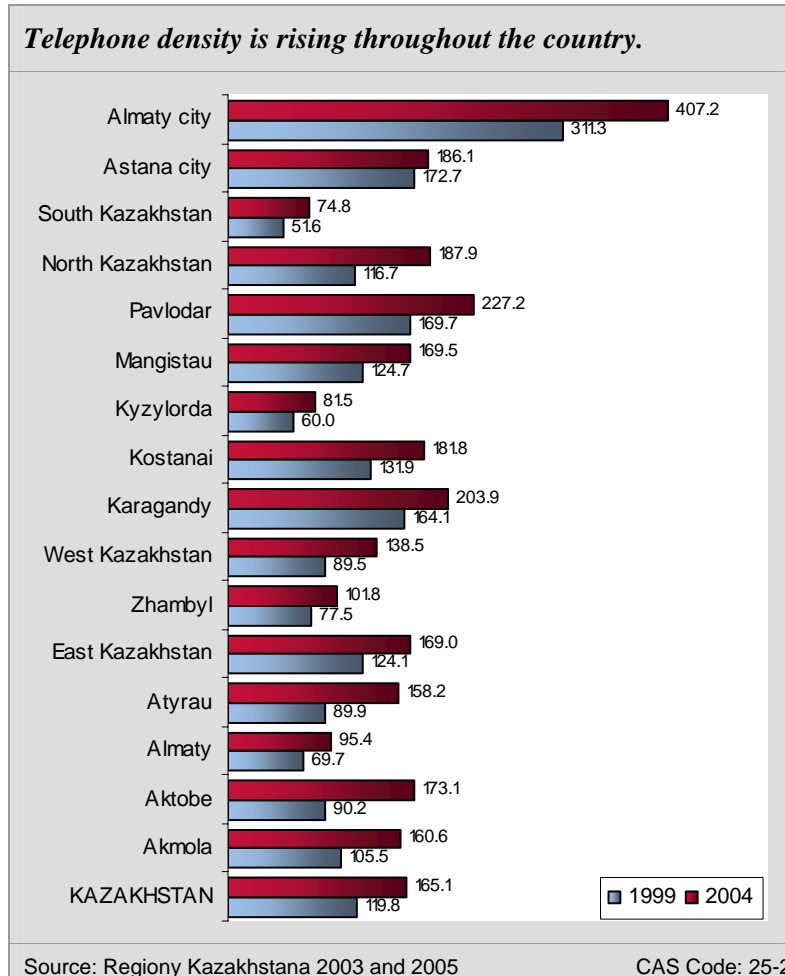
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is a better indicator than the road density by itself, because different regions have different road needs, depending on the topography and population density.

regions still remained far behind the more advanced municipal districts and non-oil industrial oblasts (Figure 3-9). Compared to 1999, telephone density in 2004 was 58.7 percent higher in the oil-extracting oblasts and 45.1 percent higher in the agricultural oblasts. The rapid rise in this indicator in oil-extracting oblasts is not surprising in light of the surge in GRP and in export revenues. The strong increase in the agricultural group may reflect transfers from regions with higher income levels and stronger growth.

Figure 3-9

*Telephone Density, Fixed Line and Mobile, per 1,000 People, 1999 and 2004*



Another critical communications issue is the Internet infrastructure. In 2004, the number of registered Internet users per 1,000 people in Kazakhstan was a meager 1.4. The pattern across regions for this indicator was very similar to the regional breakdown of telephone density. Indeed, the correlation between these two indicators was 0.91. Here, too, the city of Almaty was the leader, but with a mere 6.3 users per 1,000 people. Clearly, the whole country is far behind many other transitional economies in adopting Internet technology.

Kazakhstan may benefit from the support of international donor organizations, particularly in the development of communications in all regions. Support to agricultural oblasts may be especially



needed because of the very low levels of communications infrastructure despite improvement in recent years.

## SCIENCE AND TECHNOLOGY

Kazakhstan's economic growth has been based largely on the extraction and processing of raw materials. To reduce its dependence on commodities and to make higher-value-added manufacturing more competitive, Kazakhstan has a pressing need to develop and adopt new technology. However, recent trends in R&D spending and employment, at both the national and the regional levels, do not raise hope for a technological breakthrough in the country. R&D spending with respect to GRP has been rising slowly, and employment in R&D as a percentage of total employment has been stagnant. At the same time, promising signs can be observed in several regions, including Almaty city, Mangistau, and East Kazakhstan.

In 2004, spending on R&D equaled 0.37 percent of national GRP, up from 0.27 percent in 1999. This R&D spending was concentrated in several regions. East Kazakhstan stood out with a ratio of R&D spending to GRP of 1.19 percent, though this is not particularly high by international standards. Only Almaty city and Mangistau oblast had ratios above the national level. At the same time, R&D spending in many regions was minuscule. In six regions, the ratio was below 0.10 percent, and in Pavlodar, spending on R&D was virtually nonexistent. Between 1999 and 2004, the city of Almaty posted the most substantial increase, in percentage points of GRP. By contrast, despite very low levels to start with, this indicator actually dropped in four regions. In four others, it grew by less than 0.05 percentage point (Figure 3-10).

The ratio of R&D personnel to total employment has been fairly stable for the nation as a whole, and also for most of the individual regions. At the national level, the ratio was just 0.24 percent in 2004. Regional disparities are high. In general, the regional pattern for R&D personnel resembles the breakdown for R&D spending. The correlation between these indicators was 0.66 in 2004. The city of Almaty has by far the highest share of R&D personnel, at 1.58 percent. The old capital city was followed by Mangistau and Atyrau. The lowest share, 0.01 percent, was in Pavlodar, which also spent the least on R&D (Figure 3-11).

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**R&D employment is relatively high in the city of Almaty and oblasts specializing in mining.**

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Excluding the municipal districts, R&D employment tended to be higher in oblasts that employed more workers in the mining sector. The correlation between R&D employment as a percentage of total employment and mining employment as a percentage of total employment was 0.59. At the same time, links between R&D employment and manufacturing appeared much weaker. The correlation between the shares of R&D and manufacturing in employment was only 0.28. Given the importance of the mining sector for economic growth, relatively close ties between R&D and mining are understandable. However, a weak R&D-to-manufacturing link is a serious problem, because manufacturing relies more on technological innovations and less on natural resources than mining. Equally, the establishment of a competitive manufacturing sector is vital for success in transformational development, as distinct from growth based on resource extraction.

Figure 3-10  
*Expenditure on R&D, Percent of GRP, 1999 and 2004*

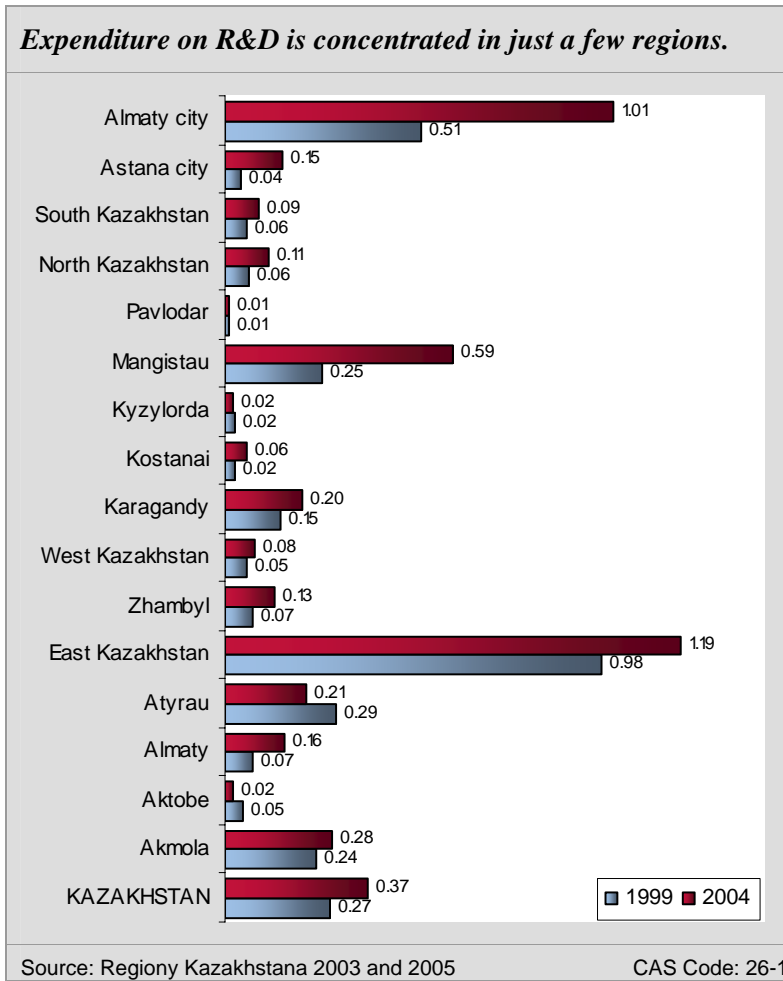
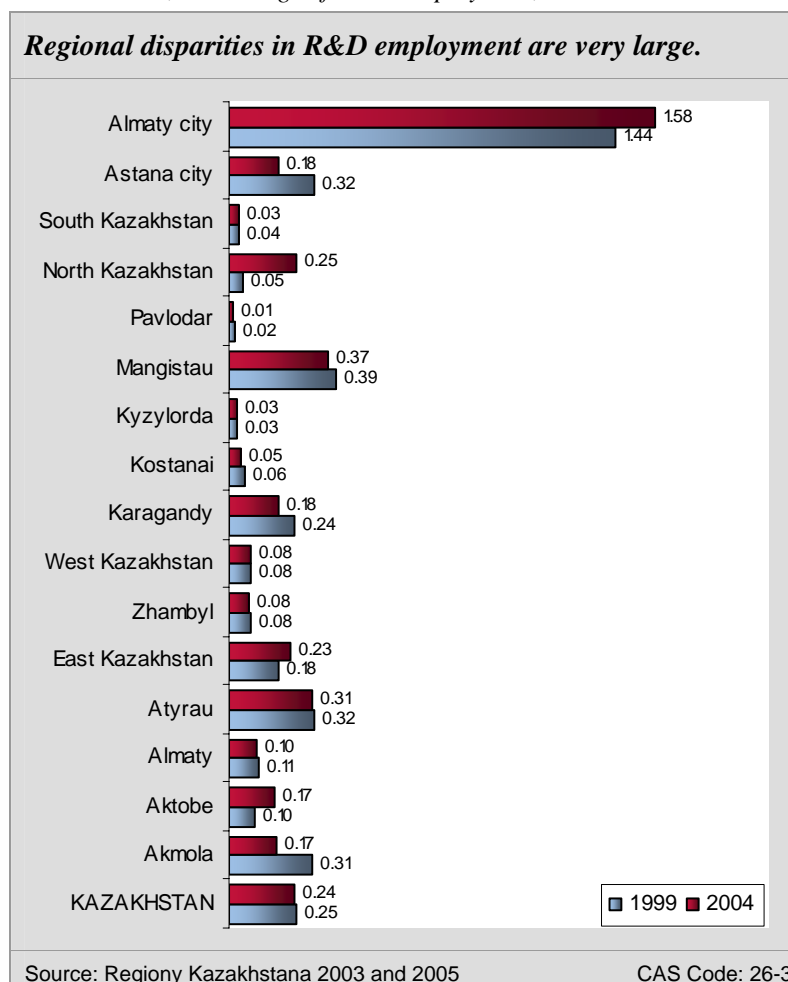


Figure 3-11  
*R&D Personnel, Percentage of Total Employment, 1999 and 2004*



The country relies heavily on the government to finance R&D. Government budget spending on R&D stood at 0.15 percent of national GRP in 2004, nearly 40 percent of total R&D expenditure. Nongovernment financing was an important factor in only a few oblasts. In the two main oil-extracting oblasts, Atyrau and Mangistau, the government budget share of R&D financing was negligible, below 3 percent. It was also relatively small in West Kazakhstan, another oil-extracting oblast, and in East Kazakhstan. In all other regions, public sector spending made up more than half of total R&D spending.

Donors may help Kazakhstan's budget planners find resources to increase spending on R&D. Even more important, given the relatively high share of the budget financing of R&D, Kazakhstan must develop a policy environment that provides stronger incentives for the private sector to investment in R&D. The city of Almaty, where more than a third of the country's higher education establishments are located, will undoubtedly remain a national center for R&D, but Kazakhstan may consider shifting some R&D activities or developing R&D capacity in other regions, with promising prospects for manufacturing development.



# 4. Pro-Poor Growth Environment

Rapid growth is the most powerful and dependable instrument for poverty reduction. Yet the link from growth to poverty reduction is not mechanical. In some cases, income growth for poor households exceeds the overall rise in per capita income, while in other conditions growth benefits the non-poor far more than the poor. A pro-poor growth environment stems from policies and institutions that improve opportunities and capabilities for the poor while reducing their vulnerability. Pro-poor growth is associated with improvements in primary health and education, the creation of jobs and income opportunities, the development of skills, microfinance, agricultural development, and gender equality.<sup>22</sup> This section focuses on four of these issues: health, education, employment and the workforce, and agricultural development.

## HEALTH

The provision of basic health service is a major form of human capital investment and a significant determinant of growth and poverty reduction. Although health programs do not fall under the EGAT bureau, an understanding of health conditions can influence the design of economic growth interventions.

Recent economic growth has been accompanied by an increase in life expectancy, from 65.5 years in 1999 to 66.2 years in 2004. This is a substantial increase in such a short time. Life expectancy is highest in the municipal districts, where medical care is most accessible, and in the southern oblasts, at least partially because of a more equable climate. Although the disparity between regions (as measured by the standard deviation) did not increase, life expectancy fell in three of the six agricultural regions, while in the other three it rose less than the national average (Figure 4-1). Thus, the accessibility of health care in rural areas is a high-priority concern.

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**Life expectancy fell in three agricultural regions and increased less than the national average in three others.**

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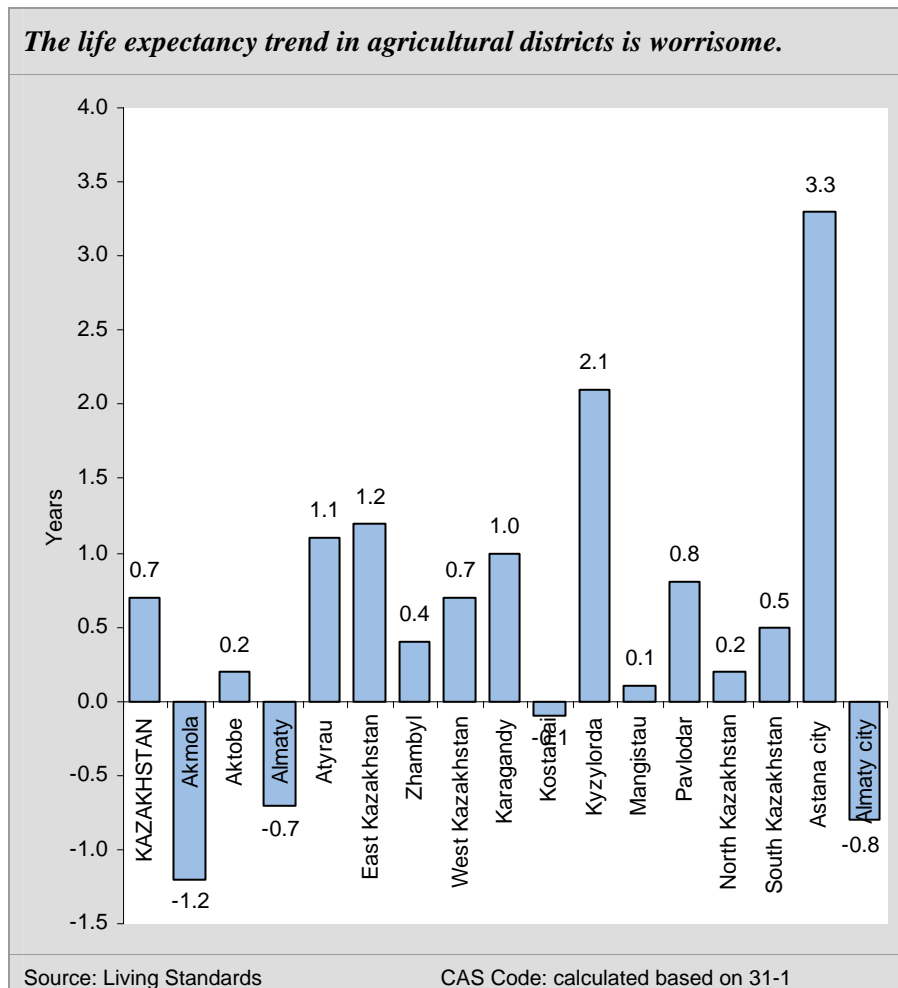
To reduce disparities in health outcomes, larger fiscal transfers to poorer oblasts appear to be needed. This can be seen in the data on health expenditure per capita. Mangistau, Pavlodar, and the city of Astana stand out with over \$200 PPP in health expenditure per person in 2004. Even the difference between Almaty (with \$163.5 PPP) and Astana (with \$207.5 PPP) cities is

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<sup>22</sup> This report does not cover emergency relief because it focuses on economic growth performance.

surprisingly large. Agricultural oblasts, especially in the south, have the lowest per capita expenditure, despite spending more than the national average as a percentage of GRP. This shows that resource constraints are a barrier to the provision of better health services in the poorer oblasts. There does seem to be movement in the direction of redressing the imbalances, because there has been a significant negative correlation (equal to -0.45) between the change in life expectancy between 1999 to 2004 and the change in public health expenditure as a percentage of GRP. This shows that health expenditure has risen in relative terms in regions where health services are needed most. Even so, glaring regional disparities in health expenditure on a per capita basis remain.

Figure 4-1  
Change in Life Expectancy between 1999 and 2004, Years



Maternal mortality rates (MMR) vary greatly by region. The average MMR for 2001–2004 in Kazakhstan was 44.5—ranging from 29.4 in Kostanai oblast to 75.1 in Mangistau oblast.<sup>23</sup> In general, the MMR has been highest in oil-producing regions. For the period 2001–2004, the

<sup>23</sup> 2001–2004 average instead of 1999–2004 is considered here to provide the analysis of the current standing and regional differences, in view of a substantial overall decline since 1999,.

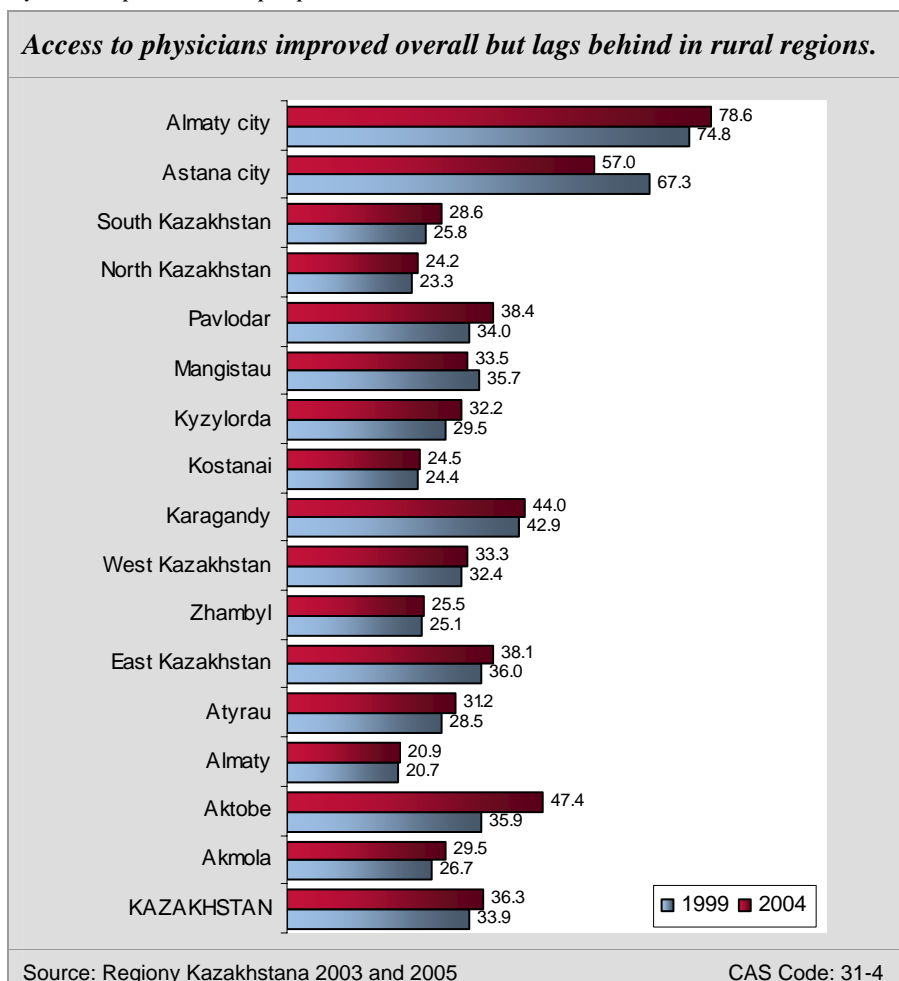
MMR for these regions averaged 57.7, compared to just 36.0 for the agricultural regions. Further investigation into the cause of this disparity could pay large dividends in terms of better health. More recently, the MMR in the municipal district of Astana has also risen to high levels. This is likely due to transitional strains on health services resulting from rapid population growth.

Access to medical care (as measured by the physician/population ratio) has remained steady since the late 1990s, as has the disparity between regions. In 2004, there were 36.3 physicians per 100,000 people nationwide. Access is far better in more urbanized regions. In fact, the correlation coefficient between the physician/population ratio and the urbanization rate is 0.87 for the 1999–2004 averages.

**Access to physicians is highly correlated with urbanization.**

The ratio ranges from a high of 76.3 physicians in Almaty city to 20.9 physicians in the adjoining Almaty oblast. Access to physicians improved the most in Aktobe oblast, a sign of the oblast’s investment in improving living standards (Figure 4-2). Progress has also been impressive in Almaty oblast, Atyrau, Kyzylorda, Pavlodar and South Kazakhstan. But access to doctors has deteriorated in Mangistau, which may indicate future problems in sustaining recent improvements in the human poverty index (see the section on Poverty and Inequality). Development of the rural health system remains the main target for equalizing access to care for everyone in Kazakhstan.

Figure 4-2  
Physicians, per 100,000 people, 1999 and 2004



In many countries, the HIV/AIDS epidemic is a critical health problem, but in Kazakhstan the prevalence rate is still low. Nonetheless, Central Asia is considered to be a region at risk because the disease is spreading at troubling rates. For Kazakhstan, the greatest concern is in Pavlodar, where the number of new registered cases per 100,000 people in 2002 was the highest by far, at 23.2 (versus 4.9 for Kazakhstan as a whole). One cannot overemphasize the importance of dealing with this problem at the earliest possible juncture to prevent the epidemic from taking hold, given its devastating effects on personal welfare and broader adverse effects on labor productivity and economic growth potential.

The incidence of another major disease, tuberculosis, has not shown improvement since 1999. The number of new cases per 100,000 varies by region between 141 and 165. TB prevalence is highest in the oil-producing regions, and in Pavlodar, suggesting that TB (as well as other respiratory diseases) may be linked to mining. More generally, the incidence rate for this disease, as a proxy for broader health problems, is weakly correlated with life expectancy (the correlation coefficient averaged -0.51 for the period 1999–2004). Increasing government expenditure on health may therefore be an important element of the solution to better health care, though it is surely not sufficient; rather, the authorities in health-deficient regions need to couple an increase in expenditure with better targeting of health programs and greater efficiency in health service delivery. Kyzylorda oblast is an excellent example of how higher public health expenditure (3.6 percent of GRP in 2004) can pay off: despite substantial mining activity, life expectancy is high and rising, and TB incidence is declining.

Overall, the indicators paint a clear picture of health status in rural regions lagging far behind that of the urbanized areas. Furthermore, combating respiratory diseases and HIV in regions of high incidence should improve the national health status along with regional equity.

## EDUCATION

As with health, there is a large rural–urban divide in education in Kazakhstan. One of the main educational problems in Kazakhstan is therefore limited rural access to education.<sup>24</sup>

Kazakhstan achieved its Millennium Development Goal of universal primary education in 2002, but secondary education is a concern. Although secondary education in Kazakhstan is compulsory, many youngsters do not attend school because of poverty, lack of access to school, and other factors.<sup>25</sup> According to the World Bank publication *Dimensions of Poverty in Kazakhstan*—the only available publication providing region-level data on secondary enrollment<sup>26</sup>—there was a large gap in the net secondary enrollment rate in 2002 between the regional leaders (Kyzylorda, with 83 percent,

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**Available data show large regional disparities in the secondary enrollment rate.**

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<sup>24</sup> The MCC goal of universal primary education has already been achieved in Kazakhstan. This section therefore focuses on higher levels of education.

<sup>25</sup> See UN System in Republic of Kazakhstan and the Government of the Republic of Kazakhstan, *Millennium Development Goals in Kazakhstan 2005*, Almaty 2005.

<sup>26</sup> The absolute figures on net secondary enrollment in this section should be viewed with skepticism, because there is large discrepancy between the cited reference and other data sources in the rate for the



and South Kazakhstan, with 81 percent) and the nonperformers (Mangistau oblast, with 33 percent, and Astana city, with 41 percent). To ensure that all regions achieve a sustainable growth path, an educated labor force is essential. Therefore, efforts to close this gap are a must. The level in Astana city, in particular, is surprisingly low and not acceptable.

The low enrollment rates in Mangistau and Astana city could be related to a low allocation of public expenditure to education, at 2.0 percent and 1.8 percent of GRP, respectively. However, this measure of commitment to education masks the fact that education spending is not particularly low in absolute terms in these regions, because they have high levels of per capita GRP. Indeed, education expenditure per capita (in PPP dollars)<sup>27</sup> is higher in the oil regions than in the rest of the country, despite the ratios to GRP. Conversely, regions with lower levels of income spend substantially less on education, despite allocating a larger share of GRP to this sector. One startling difference is that Almaty city spends only \$178 PPP per capita, while Astana city spends \$249 PPP (2004 data). Nonetheless, Almaty city performs substantially better on several education indicators.

In broad terms, one observes clear differences in aggregate enrollment rates between urban and rural areas (Figure 4-3). In 2004, the aggregate enrollment rate for urban areas ranged from 75.9 percent to 122.5 percent,<sup>28</sup> while rural rates dragged far behind, ranging from just 48.9 percent to 63.6 percent. In fact, the rural enrollment rates are low in every region of the country—with just two oblasts reporting aggregate enrollment rates in rural areas above 60 percent. Not surprisingly, the least urbanized oblasts (as measured by the urbanization rate) also have the lowest aggregate enrollment rates (Almaty oblast and North Kazakhstan oblast).

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**Kazakhstan urgently needs to focus on rural education above the primary level.**

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To achieve a substantial improvement in the quality of the labor force, Kazakhstan urgently needs to focus on rural education. Particularly troubling is that rural aggregate enrollment rates actually declined in most oblasts from 1999 to 2004. For Kazakhstan overall, rural enrollment fell from 58.9 percent to 56.3 percent during this time. A notable exception is South Kazakhstan oblast, where rural enrollment jumped from 59.8 to 63.6 percent. Notably, public expenditure in that oblast has been on the rise, increasing from 5.9 percent of GRP in 1999 to 8.3 percent in 2004.

Experience in South Kazakhstan and Kyzylorda oblasts, both of which reported high net secondary enrollment rates (81.0 percent and 83.0 percent, respectively), bears close examination. These two regions shared notable achievements in improving access to education despite distinctly different conditions. South Kazakhstan is a largely rural oblast but has the highest rural

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nation as a whole. In particular, the *Dimensions* study cites a national rate of 59 percent in 2002, whereas the World Development Indicators for 2006 give a rate of 87 percent for that year, and 92 percent in 2004. Unfortunately, the *Dimensions* study is the only source of data on regional disparities.

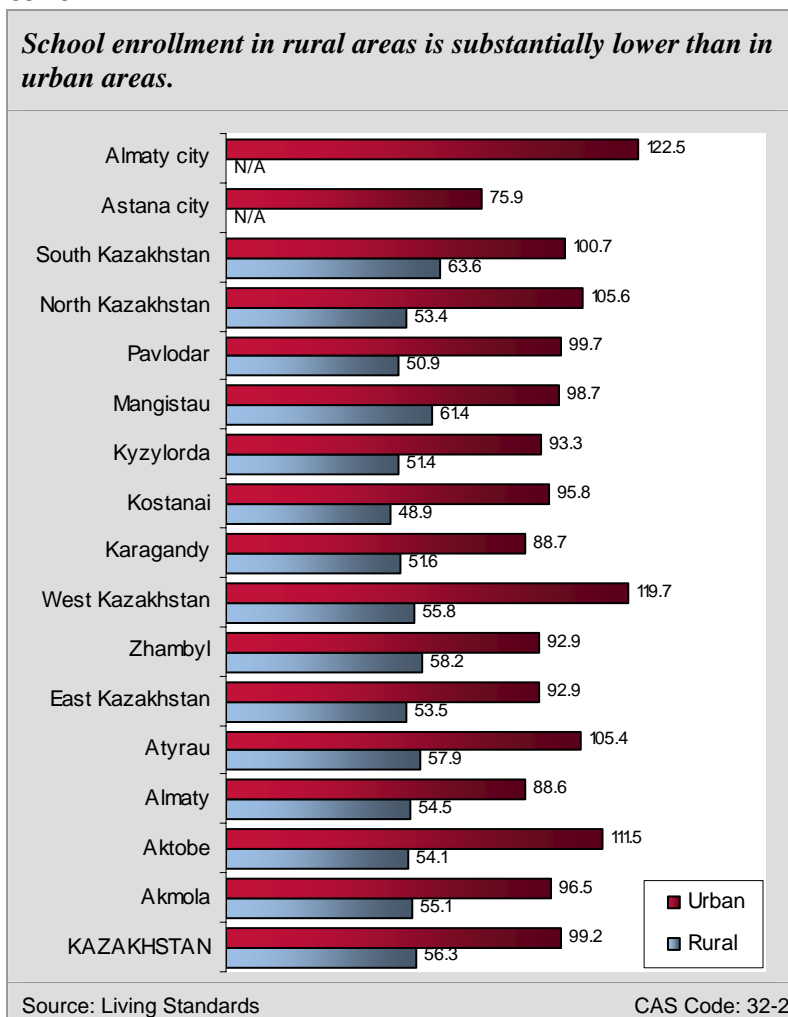
<sup>27</sup> Public expenditure per pupil, separated by the level of education, is a more useful indicator. Such data are not available for Kazakhstan. Public expenditure per capita is used as a proxy.

<sup>28</sup> The gross enrollment rate can exceed 100 percent if many of the registered students are beyond the usual age for being in school. At the regional level, a rate above 100 percent may also reflect the enrollment of students who are not counted in the resident population.

aggregate enrollment rate (and it is rising). Kyzylorda, on the other hand, has a high urbanization rate along with a high urban aggregate enrollment rate (which is also rising).<sup>29</sup>

The quality of education is of equal, if not greater, importance than the enrollment rate. The pupil–teacher ratio in primary plus secondary schools, a crude proxy for education quality, improved slightly from 11.9, which is already very good, to 10.2 between 1999 and 2004. Both Although the ratio declined slightly for all regions, the standard deviation (a measure of inequality among regions) increased. Looking at recent trends, the pupil–teacher ratio declined most in Zhambyl, Pavlodar and South Kazakhstan oblasts, and least in Astana city and Atyrau oblast.

Figure 4-3  
Aggregate Enrollment Rate, Urban and Rural, 2004, Percent



<sup>29</sup> We use the urbanization rate to distinguish between mostly urban and mostly rural regions, not population density.

USAID does not have any educational programs in Kazakhstan. If such programs are considered, the Agency may want to prioritize access to secondary education in the oblasts that have low enrollment rates, particularly in rural areas. Currently, each oblast has its own rural education strategy; a coherent nationwide approach may be needed to solve the problem.<sup>30</sup>

## EMPLOYMENT AND WORKFORCE

The Kazakhstani labor force increased 11.1 percent between 1999 and 2004. Most of the increase resulted from a rise in the labor force participation rate, from 66.0 percent to 69.9 percent, because the population itself rose by just 1.2 percent. This expansion of the labor force was accompanied by a large fall in the unemployment rate, from 13.5 percent to 8.4 percent, indicating that employment opportunities expanded rapidly. Even so, the unemployment rate remains high for a country with a booming economy.

These trends have been widespread, with the labor force rising and the unemployment rate declining in most regions. The municipal districts, primarily Astana, as well as the oil-extracting oblast of Mangistau, attracted large numbers of migrants from the rest of Kazakhstan, helping reduce unemployment throughout the country. In agricultural oblasts, the population was virtually stable, but the labor force grew substantially between 1999 and 2004, boosted by the largest regional gains in labor force participation. Agricultural oblasts also saw the most substantial fall in the unemployment rate. Rising labor force participation and lower unemployment unquestionably contributed to the alleviation of poverty nationwide. This is evidence that strong economic growth, driven by the oil-extracting oblasts and Astana, has been beneficial for other regions.

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**Astana and Mangistau attracted large numbers of migrants.**

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In only two regions did the labor force contract between 1999 and 2004: Pavlodar oblast and the city of Almaty (Figure 4-4). In Almaty, the labor force declined by 7.5 percent, despite a marked population increase, because labor force participation shrank by a remarkable 9.7 percentage points. This was the only region experiencing such a decline. The cause cannot be determined from the data available, but the anomalous behavior of this indicator may be related in part to the movement of workers to the new capital city. Since the population did not decline, there may also be an element of statistical error.

Although population growth did not have a substantial impact on the size of the labor force in Kazakhstan as a whole, in some regions its role was significant and sometimes dominant. Population growth was especially important in the new capital of Astana, which saw a 69.8 percent increase in the labor force between 1999 and 2004, by far the largest expansion in the country. This growth was driven by the rising population, almost exclusively

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**The labor force grew especially fast in Astana and the oil-extracting regions.**

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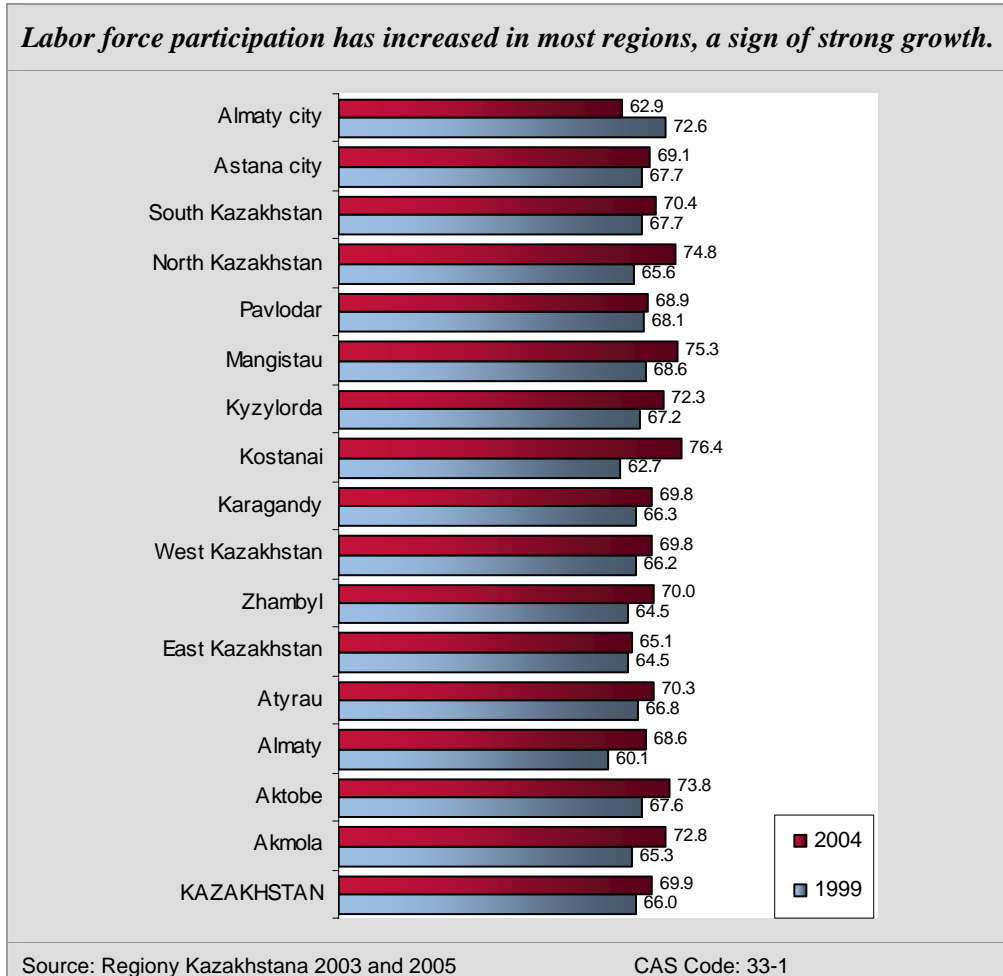
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<sup>30</sup> UN System in Republic of Kazakhstan and the Government of the Republic of Kazakhstan, *Millennium Development Goals in Kazakhstan 2005*, Almaty 2005.

through migration; indeed, the labor force participation rate in Astana rose by just 1.4 percentage points.

Figure 4-4

*Labor Force Participation Rate, Percent, 1999 and 2004*



The oil-extracting oblasts, the backbone of Kazakhstan's economy, posted strong labor force growth between 1999 and 2004—15.4 percent, on average. Labor force growth exceeded the Kazakhstani average in four of the five oil-extracting oblasts. Mangistau registered the second-largest increase in the country, 22.5 percent. Here, too, population growth due to migration played a dominant role in the labor force expansion.

At the same time, three of the oil-extracting oblasts experienced a rise in labor force participation in excess of the national average. Mangistau was again the leader among the oil-extracting oblasts, with an increase of 6.6 percentage points in its participation rate. On average, for the oil-extracting group, this indicator rose by 5.0 percentage points.

Five of the six agricultural oblasts had labor force growth above the national average; for the group as a whole, the labor force grew by 14.6 percent in the five years to 2004. A surge in labor force participation—an average of 7.9 percentage points—played the key role; the population

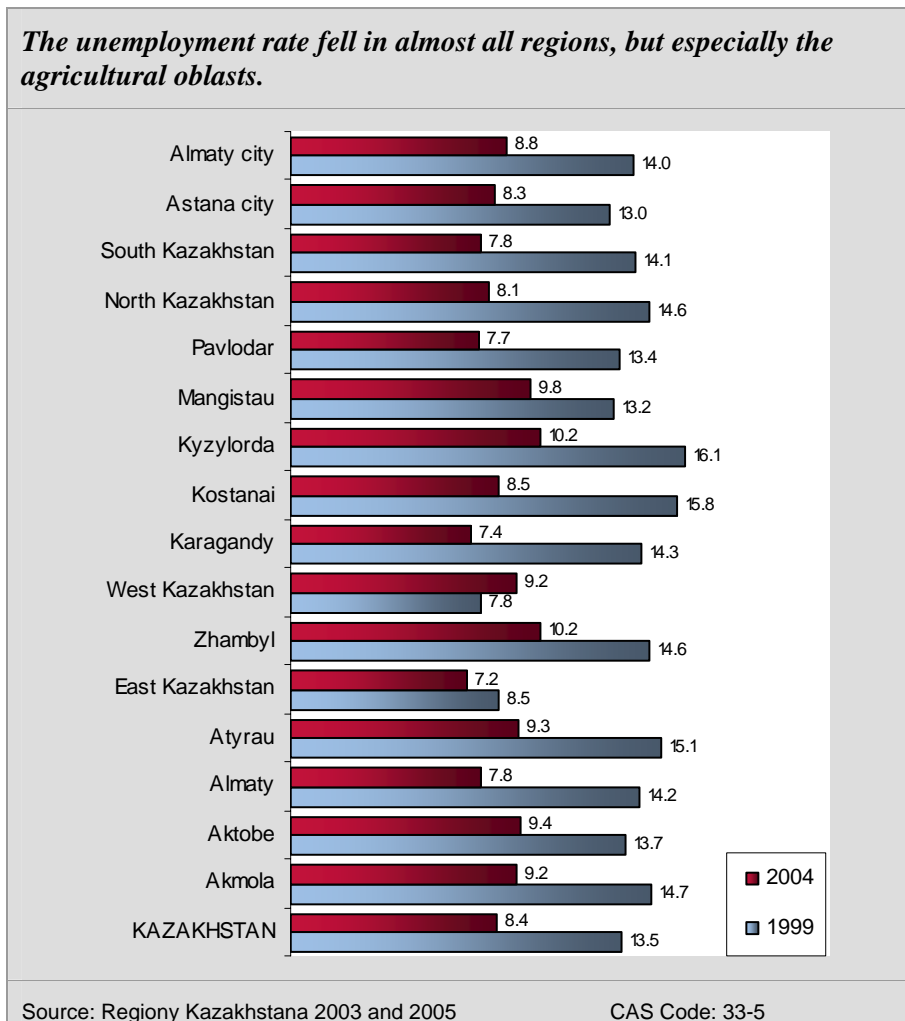
increased only marginally. Labor force participation in Kostanai climbed by 13.7 percentage points to 76.4 percent, leading the country on both indicators. By 2004, the participation rate exceeded the national average in five of the agricultural oblasts.

In the non-oil industrial oblasts, the labor force grew a mere 1.6 percent during this period. A slight population decline was barely compensated by a small increase in workforce participation. In 2004, workforce participation was below the national average in each of these oblasts.

As a result of these divergent trends, the agricultural and the oil-extracting oblasts increased their shares in the national labor force, from 44.9 percent to 46.8 percent, and from 17.2 percent to 17.7 percent, respectively. The share for the municipal districts narrowed from 11.7 percent to 11.4 percent, while the share for the non-oil industrial oblasts dropped from 26.2 percent to 24.1 percent.

Unemployment declined in every region except West Kazakhstan between 1999 and 2004. Nevertheless, unemployment rates in 2004 were still high throughout the country (Figure 4-5). The unemployment rate tended to decline more substantially in regions where it was high at the beginning of the period, helping reduce regional disparities. (The correlation between the unemployment rate in 1999 and its decline over the next five years, measured in percentage points, was 0.91). This convergence is reflected in the standard deviation of the indicator, which fell from 2.3 percent in 1999 to a mere 1.0 percent in 2004.

Figure 4-5  
 Unemployment Rate, Percent, 1999 and 2004



These trends in unemployment are a sign of strong job creation and flexible labor market adjustment to real growth differentials. Migration evidently helped lower unemployment in the agricultural regions while dampening declines in the oil-extracting oblasts. Thus, the unemployment rate fell most substantially in the agricultural group (6.1 percentage points). Kostanai posted the largest drop of any region (7.3 percentage points), in large part because it had the largest population outflow in the country. In the same period, the oil-extracting group posted an average decline of just 3.6 percentage points in unemployment in the face of a rapid rise in the size of the labor force. Indeed, all of the oil-extracting oblasts had an unemployment rate in 2004 above the national level. The highest unemployment rate was in Kyzylorda and in the agricultural oblast Zhambyl—10.2 percent. By contrast, unemployment was below the national level in every one of the non-oil industrial oblasts. For this group, the unemployment rate averaged 7.4 percent. Low unemployment for this group was partly due to a low labor force participation rate,<sup>31</sup> but

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**Out-migration helped lower unemployment in agricultural oblasts.**

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<sup>31</sup> The denominator in the unemployment rate is the size of the labor force.

migration also played an important role. The lowest unemployment rate in the country was 7.2 percent in East Kazakhstan, which also saw a significant population outflow.

Because unemployment remains high in all regions, Kazakhstan may benefit from the support of international donor organizations to foster job creation by improving the business climate, stimulating small enterprise development, and ensuring that the regulatory system and tax system do not unduly favor capital-intensive activities. Special efforts should be made to accommodate the increase in the labor force in oil-extracting oblasts and to examine the reasons for the fall in labor force participation in the city of Almaty. The relatively low labor force participation rates in the non-oil industrial oblasts may also merit programmatic attention, particularly in view of the disadvantage faced by Kazakhstani women in finding jobs (see the Gender section).

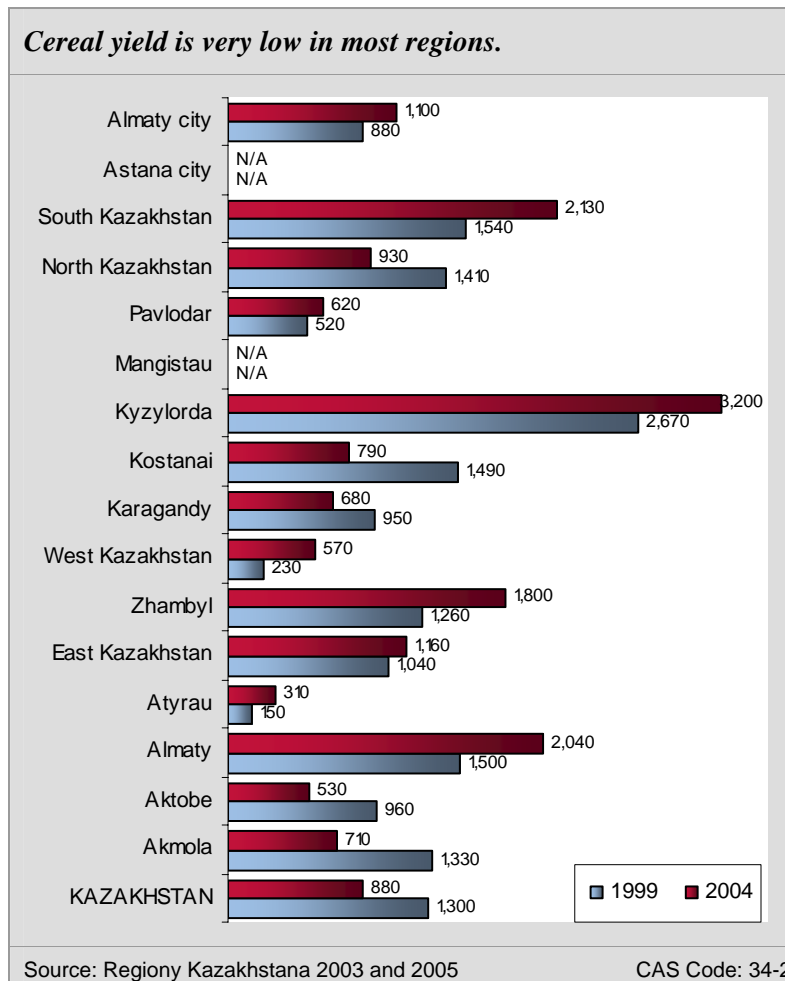
## **AGRICULTURE**

Agriculture in Kazakhstan generated just 8.8 percent of total value added for the nation in 2004, but the sector accounted for 33.5 percent of total employment. These two figures demonstrate that labor productivity in agriculture is extremely low. It is therefore very troubling to see that employment in agriculture rose by nearly 25 percent between 2000 and 2004, while value added per worker increased only 3.8 percent—giving an overall growth in value added (at constant prices) of 28.2 percent. Agricultural productivity was also very low by absolute standards; in 2004, value added per worker stood at just \$762 (in constant 2000 dollars). Another absolute measure of productivity, cereal yield, declined by 6.4 percent during this period, to 880 kilograms per hectare. (Using 1999 as the starting date, this indicator fell by 32.3 percent).

Labor productivity in agriculture was better than the national average in the agricultural oblasts as well as one oil-extracting oblast, and below the national average in all non-oil industrial oblasts. Even in the most productive oblasts, productivity levels were not impressive in absolute terms. The leader was agricultural Kostanai, with \$1,464 in 2004.

Cereal yield was also generally high in the agricultural oblasts and low in almost all of the oil-extracting and non-oil industrial oblasts. A notable exception is oil-extracting Kyzylorda, which posted the highest cereal yield in the country in 2004, at 3,200 kilograms per hectare, evidently reflecting more mechanized farm practices (Figure 4-6).

Figure 4-6  
Cereal Yield, Kilograms per Hectare, 1999 and 2004



Low productivity and sluggish growth in agriculture have been, to a great extent, a result of low investment. In 2004, agriculture accounted for just 2.0 percent of total fixed investment in the country; in 1999, this figure was a miniscule 0.7 percent. The share of regional investment going to agriculture was highest in the agricultural oblasts, which, of course, are the regions best suited for these activities. For this group, the agricultural sector accounted for 16.0 percent of total investment in 2004, on average. Even so, the share of investment in agriculture did not match the sector's share in GRP.

**Agricultural productivity suffers from low investment.**

With the country enjoying lucrative investment opportunities in mining, and underdeveloped manufacturing and service sectors, the relatively low levels of investment in agriculture may well be an efficient response to market opportunities. Nonetheless, without higher levels of investment agricultural productivity and incomes for agricultural workers are not likely to improve much. Kazakhstan may benefit from programs aimed at improving the productivity of small-scale farmers, including investment in agronomic research. But the most important element of a solution to this problem is to accelerate the shift of agricultural workers to more productive



sectors through transformational growth. This requires programs to identify and remove obstacles to private sector development throughout the economy, not least in services and manufacturing, especially in non-oil industrial oblasts (see the Economic Structure section).



## 5. Conclusion: Key Findings

Kazakhstan has achieved impressive economic growth in recent years, stimulated by the booming oil sector. To a large extent, national growth has been oil-based. It is no surprise then to see that the oil-extracting oblasts significantly increased their share in national GRP.<sup>32</sup> The new capital of Astana was another growth center, with economic activity boosted by construction and the transfer of administrative functions from the old capital of Almaty. On average, between 2000 and 2004, real GRP grew at a staggering rate of 18.9 percent per year in the oil-extracting oblasts and municipal districts, more than twice as fast as in the agricultural and non-oil industrial oblasts. The result has been rising regional disparities in per capita GRP. In 2004, this indicator in the oil-extracting oblasts and municipal districts was almost twice the national level.

GRP growth in the oil-extracting oblasts and municipal districts has been driven primarily by gains in labor productivity, which far outpaced labor productivity improvements in the agricultural and non-oil industrial oblasts. With the exception of Astana, employment growth was much less important than labor productivity in determining growth differentials. In the high growth regions, both rapid expansion and rising labor productivity were driven by high levels of fixed investment, including foreign investment, and the rapid expansion of exports.

At the same time, there are indications that slower-growing regions are benefiting from the economic boom in the oil-extracting oblasts and municipal districts:

- By 2004, economic growth became more broad-based, as regional growth disparities narrowed significantly. With but one exception, even the agricultural and non-oil industrial oblasts posted double-digit GRP growth rates in 2004.
- Regional disparities in fixed investment growth declined, and investment-to-GRP ratios increased substantially in agricultural oblasts.
- Disparities in per capita household income are much smaller than disparities in per capita GRP. This may indicate that a significant portion of the value added in the rapidly growing energy sector accrues to nonresidents through income repatriation by foreign companies. It may also

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<sup>32</sup> As discussed in the Growth Performance section, this report uses the term “national GRP” to refer to the sum of the GRP for each of oblast and municipal district. The GRP is the sub-national analogue to GDP. In Kazakhstan, the national accounts do not attribute some items, such as value added in the defense sector, across sub-national regions. The national GRP is smaller than national GDP by about 10 percent (in 2004).

reflect a redistribution of income from faster-growing regions to slower-growing regions through household remittances or fiscal transfers.

- Poverty rates have declined in almost every region. Indeed, in 2004, the incidence of poverty was generally lower in non-oil regions. This may reflect the prevalence of capital-intensive production in oil-extracting regions, which limits employment opportunities. But it may also be a result of positive spillover effects from the growth centers to other regions through the labor markets and the fiscal system.
- Agricultural oblasts saw the most significant fall in the unemployment rate along with a rapid rise in labor force participation. Out-migration clearly helped reduce unemployment in this group of regions. The rapidly growing municipal district of Astana and the oil-extracting oblast of Mangistau attracted large numbers of migrants from other regions.
- Telephone density grew faster in agricultural oblasts than in the country as a whole, though from a very low level. This is an indication that infrastructure disparities are diminishing.

Although there are signs that the agricultural and non-oil industrial oblasts have benefited from spillover effects of rapid growth in the oil-extracting oblasts, they also may be facing negative effects from the rapid growth of exports and foreign investment in the leading regions. This is because the large inflow of foreign currency has resulted in an appreciation of the tenge, which reduces the competitiveness of domestic producers outside the mineral sector. The adverse cost effects are felt not only by exporters, but also by producers that face import competition in the domestic market. Between 2000 and 2004, agricultural and non-oil industrial oblasts became less export oriented, and in two agricultural oblasts exports actually declined in absolute terms.

Even though economic conditions in the agricultural and non-oil industrial oblasts have improved significantly in the past several years, it is not clear whether these areas can sustain strong growth. The squeeze in trade competitiveness due to a strong exchange rate is likely to persist as an obstacle to rapid growth. In addition, the level of investment remains insufficient to support rapid growth in these oblasts, despite recent gains. Foreign investment is minuscule in agricultural oblasts. A relatively difficult business climate may also jeopardize growth. An important gauge of the business climate is SME development. Currently, the centers of SME activity are oil extracting Atyrau and Mangistau, as well as the municipal districts. Access to credit is also heavily concentrated in the municipal districts. Problems with the business environment in the agricultural and non-oil industrial oblasts are also suggested by a slow rise of employment in the services sector, which should be expanding rapidly in a transitional economy; in some of these oblasts, employment is even shifting from services to low-productivity agriculture.

On balance, oil-based growth has had a favorable impact on non-oil regions. A thorough assessment of these impacts would require a rigorous statistical and econometric analysis. This can be an important topic for future research on regional economic development in Kazakhstan. Another very important area for research is the potential for economic diversification. Currently, world oil prices are high, and positive spillover effects are substantial, which justifies the prevalence of investment in oil-extracting regions. However, specialization in a few commodities makes the Kazakhstan economy vulnerable to world price downturns. Finally, our understanding of regional development patterns in Kazakhstan would benefit from more detailed study of labor

market trends, including inter-regional migration and intersectoral shifts in employment. Particularly important would be further study of the employment shift from services to agriculture in agricultural and non-oil industrial oblasts. Because these oblasts are not endowed with mineral wealth, constraints on investment and productivity due to problems with the business climate may seriously impair growth and accentuate regional income disparities.



# Appendix

## DATA SOURCES

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## INDICATORS

Indicator	CAS Code
<b>ECONOMIC OVERVIEW</b>	
<b>Growth Performance</b>	
Per capita GRP, \$PPP	11-1
Per capita GRP, current US\$	11-2
Real GRP growth	11-3
Share of regional GRP in total GRP	11-4
Growth of labor productivity	11-5
Investment Productivity - Incremental Capital-Output Ratio (ICOR)	11-6
Gross fixed investment, % GRP	11-7
Gross fixed private investment, % GRP	11-8
Real growth of fixed investment, %	11-9
Share of regional fixed investment in total investment	11-10
<b>Living Standards, Poverty and Inequality</b>	
Human poverty index (HPI)	12-1
Poverty headcount, by subsistence minimum (total, rural, urban)	12-2
Ratio of income share held by highest 10% to lowest 10%	12-3
Poverty headcount, by food basket	12-4
Poverty depth, by subsistence minimum	12-5
Poverty severity, by subsistence minimum	12-6
Index of real income, in percent of previous year	12-7
<b>Economic Structure</b>	
Employment structure	13-1
Output structure	13-2
Share of regional value-added in total value-added	13-3
Oil production, metric tons	13-4
Share of regional oil production in total oil production	13-5
<b>Demography and Environment</b>	
Population size	14-1
Share of regional population in total population	14-2



Indicator	CAS Code
Population growth	14-3
Urbanization rate	14-4
Net migration rate	14-5
Investment in environment protection, %GRP	14-6
Toxic waste, metric tons per capita	14-7
Amount of air pollutants reaching atmosphere, metric tons per 1,000 people	14-8
Share of air pollutants reaching atmosphere in total amount of air pollutants	14-9
<b>Gender</b>	
Women below subsistence minimum, % of all people below subsistence minimum	15-1
Unemployed women, % total number of unemployed	15-2
Women's wages, % men's wages	15-3
Women's life expectancy, % men's life expectancy	15-4
<b>PRIVATE SECTOR ENABLING ENVIRONMENT</b>	
<b>Fiscal Policy</b>	
Local government revenue, % GRP	21-1
Local government expenditure, % GRP	21-2
Overall local government budget balance, % GRP	21-3
Inflation rate	21-4
Composition of local government revenue	21-5
Composition of local government expenditure	21-6
Composition of money supply growth	21-7
<b>Business Environment and SME development</b>	
Economic crimes, per 100,000 people	22-1
Loss making enterprises, % total enterprises in the region	22-2
Loss making enterprises in a given region, % total number of loss making enterprises	22-3
Private industrial production, % industrial production	22-4
Employment in small enterprises, employees and growth rate	22-5
Ratio of regional share of small enterprise employment to regional share of total employment	22-6
<b>Financial Sector</b>	
Private debt, % GRP	23-1

Indicator	CAS Code
Total arrears of private enterprises, % GRP	23-2
Enterprises with foreign capital, number and growth rate	23-3
Bank credit, % GRP	23-4
Allocation of bank credit	23-5
<b>External Sector</b>	
Merchandise trade, % GRP	24-1
Share of regional merchandise exports in total exports	24-2
Merchandise exports, % GRP	24-3
Merchandise exports growth	24-4
Share of regional foreign fixed investment in total foreign fixed investment	24-5
Foreign fixed investment, % GRP	24-6
Merchandise trade surplus, % GRP	24-7
Structure of merchandise exports	24-8
<b>Economic Infrastructure</b>	
Internet users per 1,000 people	25-1
Telephone density, fixed line and mobile per 1,000 people	25-2
Ratio of paved automobile density to population density	25-3
Freight transportation growth	25-4
Passenger transportation growth	25-5
Transportation and communication value added, % GRP	25-6
Local government spending on transportation and communication, % GRP	25-7
<b>Science and Technology</b>	
Expenditure for R&D, % GRP	26-1
Government expenditure on R&D, % GRP	26-2
R&D personnel, % employment	26-3
Share of regional innovation output in total innovational output	26-4
<b>PRO-POOR GROWTH ENVIRONMENT</b>	
<b>Health</b>	
Life expectancy at birth	31-1
Public health expenditure, % GDP	31-2

Indicator	CAS Code
Maternal mortality rate	31-3
Physicians, per 10,000 people	31-4
Child measles immunization rate	31-5
HIV prevalence, number of new registered cases per 100,000 people	31-6
TB prevalence, number of new cases per 100,000 people	31-7
Quality of drinking water, % samples not complying with standards	31-8
<b>Education</b>	
Net secondary enrollment rate	32-1
Aggregate enrollment rate (total, urban, rural)	32-2
Pupil-teacher ratio, primary and secondary schools	32-3
Public education expenditure, % GRP	32-4
<b>Employment and Workforce</b>	
Labor force participation rate	33-1
Size of labor force	33-2
Share of regional labor force in total labor force	33-3
Labor force growth rate	33-4
Unemployment rate	33-5
<b>Agriculture</b>	
Agriculture value added per worker, constant 2000 tenge	34-1
Cereal yield , kilograms per hectare	34-2
Agricultural production index	34-3
Share of regional crop production in total crop production	34-4
Share of regional livestock production in total livestock production	34-5

## SELECTED CORRELATION COEFFICIENTS

Variable 1	Year	Variable 2	Year	Corr. Coef.
GRP, tenge	2004	Gross fixed investment, tenge	2004	0.81
GRP, U.S. dollars	2004	Merchandise exports, U.S. dollars	2004	0.55
GRP, tenge	2004	Population	2004	0.09
GRP, tenge	2004	Labor force size	2004	0.07
GRP, tenge	2004	Employment, people	2004	0.07
Percentage points change in poverty headcount, subsistence minimum	2000–04	Cumulative increase in the index of real income	2000–04	-0.20
Net cumulative migration rate, %	2000–04	Household income per capita, tenge	2004	0.59
Net cumulative migration rate, % (excluding Astana)	2000–04	Per capita household income, tenge (excluding Astana)	2004	0.66
Toxic waste, per capita	2004	Death rate, %	2004	0.50
Air pollutants emission, per capita	2004	Death rate, %	2004	0.40
Toxic waste, per capita	2004	Life expectancy, years	2004	-0.41
Air pollutants emission, per capita	2004	Life expectancy, years	2004	-0.44
Ratio of women's wages to men's (excluding municipal districts)	2004	Share of agricultural value-added in total value-added	2004	0.90
Ratio of women's wages to men's	2004	Average wage, tenge	2004	-0.68
Share of women in the number of unemployed	2004	Net migration rate, %	2004	0.64
Share of women in the number of people below subsistence minimum	2004	Share of women in the number of unemployed	2004	0.70
Cumulative merchandise exports growth, %	2001–04	Cumulative merchandise exports growth, %	2001–04	0.81
Inflation rate, %	2000	Urbanization rate, %	2000	0.02
Inflation rate, %	2001	Urbanization rate, %	2001	0.07
Inflation rate, %	2002	Urbanization rate, %	2002	0.13
Inflation rate, %	2003	Urbanization rate, %	2003	0.23
Inflation rate, %	2004	Urbanization rate, %	2004	0.69
Economic crimes, per 100,000 people	2004	Urbanization rate, %	2004	0.77
Economic crimes, per 100,000 people	2004	Bank credit, % GRP	2004	0.57

Variable 1	Year	Variable 2	Year	Corr. Coef.
SME employment growth rate, %	2000	Net migration rate into a region, %	2000	-0.24
SME employment growth rate, %	2001	Net migration rate into a region, %	2001	0.08
SME employment growth rate, %	2002	Net migration rate into a region, %	2002	0.23
SME employment growth rate, %	2003	Net migration rate into a region, %	2003	0.45
SME employment growth rate, %	2004	Net migration rate into a region, %	2004	0.83
Ratio of the share of SME employment to the share of all employment	2004	Bank credit, % of GRP	2004	0.74
Merchandise exports, U.S. dollars	2004	Gross fixed investment, tenge	2004	0.76
Merchandise exports, U.S. dollars	2004	Foreign fixed investment, tenge	2004	0.84
Telephone density, lines per person	2004	Urbanization rate, %	2004	0.67
Telephone density, lines per person	2004	Per capita household income, tenge	2004	0.67
Number of internet users per residents	2004	Telephone density, lines per person	2004	0.91
Passenger transportation growth	2002–04	Average local government's transportation expenditure, % GRP	2002–04	0.84
Share of R&D personnel in employment	2004	Share of R&D investment in GRP	2004	0.66
Share of R&D personnel in employment	2004	Share of mining personnel in employment	2004	0.59
Share of R&D personnel in employment	2004	Share of manufacturing personnel in employment	2004	0.28
Change in life expectancy, years	1999–04	Change in public health expenditure, % of GRP	1999–04	-0.45
Physicians per 100,000 people	2000	Urbanization rate, %	2000	0.90
Physicians per 100,000 people	2001	Urbanization rate, %	2001	0.83
Physicians per 100,000 people	2002	Urbanization rate, %	2002	0.83
Physicians per 100,000 people	2003	Urbanization rate, %	2003	0.82
Physicians per 100,000 people	2004	Urbanization rate, %	2004	0.85
Physicians per 100,000 people	Avg. 1999–04	Urbanization rate, %	Avg. 1999–04	0.87
TB prevalence, new cases	2004	Life expectancy, years	2004	-0.54
TB prevalence, new cases	Avg. 1999–04	Life expectancy, years	Avg. 1999–04	-0.51
Decline in the unemployment rate, %	2000–04	Unemployment rate, %	1999	0.91