Chapter 6. Openness and Employment
Sabit Khakimzhanov

6.1. Introduction
This chapter inspects the effect of international trade and investment on labor markets in Kazakhstan during 1992-2003. It begins with the descriptive analysis of the labor market response to the political and economic perturbations that occurred during the period and places them in the context of developments in international trade and trade policy. The discussion of the various theories of international trade and labor markets and their relevance in the context of Kazakhstan follows the descriptive part. The econometric panel data analysis focuses on the effects of FDI and trade on employment and wages during the more recent period. The effect of foreign direct investment on labor market is analyzed in a case study of tobacco processors. The chapter analysis proceeds by placing the findings in the context of international experience and existing research. Finally, empirical analysis will be presented in attempt to support the hypotheses presented earlier.

Two events in 1991, the declaration of independence and the collapse of the centrally planned economy, were the main drivers of transitional processes followed. As a result, the adjustment process had also developed in two dimensions. On the one hand, Kazakhstan had to move from a centrally planned economy to a market one. On the other hand, it had to transform itself from a constituent republic of the USSR to an independent state. Interestingly, the process did not involve significant changes in the government. In fact, the government initiated the policies of economic liberalization.

The main challenge of the transition was Kazakhstan’s dependence on inter-republican trade within Soviet Union and inability to maintain it in new environment. Kazakhstan was tightly linked in the production process with other republics and when these were hit by the recession, the economy responded by collapsing to almost half of its size within four years. The economic collapse had dire consequences for the working classes and population in general when wages and jobs declined precipitously.

Figure 34. Labor Market Adjustments in 1991-2003

However, the unemployment numbers do not demonstrate the magnitude of the economic losses and the impact on population and their incomes. Decline in hired employment better illustrates the full extent of the economic shock that afflicted the economy. In 1991, most employment was in the form of work for hire, and if the unemployment was present, it was hidden and unregistered. In 1999, the number of jobs for hire was less than half of what it was in 1991. After 1999, hired employment began to increase gradually and in 2003 stood at 57 percent of what it used to be in
Job losses in the early 1990s initially forced people to leave the work force, which is evidenced in declining labor force participation rate during 1991-1993 (Figure 35). We do not know how many of those who lost jobs during 1991-1993 could be considered unemployed because unemployment statistics was not collected. However, in 1994, first year the unemployment data was collected, the unemployment rate stood at 7.5 percent. It grew steadily since then until 1999 when it reached 13.5 percent. As the economy began to grow in 1999, unemployment rate declined to 8.7 percent in 2003.

The labor market response to the transition in Kazakhstan was similar to that of the economies of Central and Eastern Europe. In almost all of CEE economies the unemployment rate increased from zero to 10-16 percent within 4-5 years of the transition on the background of declining LFPR.

Another notable development in the labor market was an increase in self-employment from 370 thousands to 2,751 thousands in the period 1993-99.

Figure 35. Labor Force Participation Rate and Unemployment Rate in 1991-2003

In the wake of hyperinflation of 1991-94 real wages declined precipitously. When inflation came under the control of the monetary authorities, enterprises began to use other means of cutting the cost of labor: by reducing working hours, benefits, and accumulating wage arrears. Real wages, which were decreasing until 1994, began to climb in 1995 despite the fact that formal employment continued to decline until 1998.

Wage growth made Kazakhstan less attractive for export oriented, labor intensive producers and more attractive to the producers of consumers goods for the domestic market. Several consumer-good producing TNCs set up their affiliates with the purpose of distributing and advertising their goods produced in other countries. Such FDI may also be considered as an entry strategy when the company analyzes the market for several years before embarking in the more ambitious and massive investments in production facilities.

For Kazakhstan with its rapidly growing wages and shortage of labor it was becoming increasingly difficult to compete for foreign investments with next-door neighbors such as China and Russia. Both these countries were several times the size of Kazakhstan in terms of the domestic market, both offered relatively cheap and better skilled labor than in Kazakhstan, and enjoyed economies of scale in production and marketing – none of the advantages Kazakhstan could offer.
In 2000s, real wages continued to grow at a faster rate than labor productivity. Abisheva and Tutushkin\textsuperscript{ccxiii} find that “during 2001-2003 wages, both real and nominal, grew slightly faster than labor productivity, real and nominal, respectively.” Based on their numbers, the average excess growth of wages was 2.55%. Our computations of labor productivity and wage suggest that in the period 1994-2003 real wages grew on average 3.5% faster than labor productivity.

The gap between wage and productivity growth after 1994 may have several explanations. It may be interpreted as a reversal of the wage decline during the hyperinflation of 1991-1994, when real wages declined by more than 50% by some estimates. It is also common for developing countries to exhibit a wage-productivity growth gap. As a result of the trend, the originally low labor share in the national product, which in 2001 stood at 34 percent, may grow to the levels of OECD countries where labor share varies between 60-70 percent depending on the country.

The developments described above coincided with the period of government reforms. By the late 90s, many market oriented reforms brought about changes in the economic environment that allowed for the reversal of job losses experienced in the 90s. The economy, which bottomed out in the mid-90s, began to slowly recover. However, the most important contribution to the later growth was an increase in exports made possible by massive foreign investments in the oil sector during the early 90s.

With oil revenues, came the Dutch disease with all the accompanying syndromes. Real appreciation of Tenge vis-à-vis Ruble and USD, the growth of real wages not accompanied by an increase in productivity, an increase in domestic demand were the first signs of the Dutch disease. These were only partially mitigated by the accumulation of oil revenues in the National Oil Fund and in the foreign currency reserves of the National Bank of Kazakhstan. Growing consumer demand, which could not be completely satisfied by import of tradable goods, produced growth in non-tradable goods and services. It was accompanied by rising relative prices of non-tradable goods as well as wages and employment in the corresponding sectors.

Industrial employment declined with the decline in industrial output. Agricultural employment as a share of total workforce, however, increased during the 90s demonstrating resilience of agricultural employment to economic disturbances. Many unemployed and underemployed in the early 90s became self-employed. The extensive coverage of the transition process in the labor market in early 90s can be found in Verme.\textsuperscript{ccxiv} This study de-emphasizes the importance of sectoral redistribution in the adjustment of the labor markets and brings to the forefront the structural changes of the labor market per se. Verme documents several labor market adjustments to massive job losses. One is a decrease in labor force participation rates that disguised the extent of job losses in the Kazakh labor market. Second is an unprecedented reduction in labor productivity and real wages. As mentioned before, massive emigration of laid-off workers also dampened the impact of job losses on the unemployment rate.

According to Verme, the contract relationships between the workers and the employers became rather nominal. The employers who experienced difficulties with supplies of intermediate inputs wanted to have labor on demand and yet retained those who were sufficiently experienced and qualified. As a result, younger workers were fired and more experienced remained technically employed but were idle most of the time, thus suffering real wage declines.

Among the fired workers, younger, urban, better educated, and from relatively well-off households were able to adapt to the new environment faster by voluntarily
moving into self-employment, predominantly in the service sector. However, the
demand for services provided by the self-employed was limited by the incomes of the
rest of the population, which declined for the reasons just mentioned. Verme maintains that this type of labor market adjustment can hardly be assessed using the
traditional labor market models of unemployment. Instead, a framework based on the
differential between the real wage and non-wage incomes in formal and informal
sectors was adopted to study its effect on the workers’ decision.

Typical workers, who did not end up among self-employed, relied more on
traditional employment and tried to maintain it despite measly wages. Failing that,
they applied for even smaller unemployment benefits. After several months of
unemployment, they became discouraged and left the labor force, and many
emigrated.

6.3. Commercial and Industrial Policy after 1998

Kazakhstan trade policy has been relatively open since declaration of
independence in 1991. However, the openness did not prevent huge losses in terms of
employment, output and real wages in trading sectors. Especially hard hit was the
trade-intensive machine-building sector. By the early 2000s this sector virtually
disappeared. Agriculture, services, construction and mining fared better and
eventually recovered to the 1990 level by 2003. These sectors grew in absolute terms
in the late 90s and early 2000s, benefiting from high oil prices, Dutch disease, and
economic reforms.

The relatively open trade policy of Kazakhstan upon independence can be
explained by the fact that before the break-up of the Soviet Union Kazakhstan, as well
as almost all other republics, specialized in some economic activities, and inter-
republican movement of intermediate and final goods was absolutely critical to the
economy of each constituent republic. Kazakhstan specialized in extracting sectors,
agriculture and primary processing, heavy machine building, while final and high
value-added goods were imported to Kazakhstan from the other parts of the Soviet
Union, mainly from Russia. Kazakhstan’s producers were tightly interwoven into a
production network with enterprises in Russian Urals and Western Siberia. Some of
them supplied Kazakhstan with intermediate and investment goods, while the others
purchased components and intermediate goods from Kazakhstan enterprises. The
whole production network operated rather like a large multinational with inter-
republican specialization of labor.

This historical dependence on trade in intermediate goods and imports of final
products made it impossible for the Kazakhstan government to attempt any serious
import substitution and industrialization policy in the early years of independence.
However, despite the open trade policy the trade and general economic activity
decreased precipitously over the first 6 years of independence. Thus, the decline in
cross-border trade was largely responsible for the decline in production, and reduced
production required less trade. But the underlying cause was the failure of
manufacturing and machine building enterprises to transact, because of institutional
incapacity of the financial sector. The traditional supplier-processor linkages, which
relied heavily on central planning organizations (GosPlan), could no longer be
maintained. The bilateral arrangements between the enterprises could not develop
because the payment system could not ensure reliable transactions not only across the
border, but also within the boundaries of Kazakhstan. Inherently limited and costly,
barter transactions flourished, but could help only a few well-connected enterprises or
enterprises with unsophisticated production processes with few suppliers. Commodity
exchanges, which quickly appeared in the early 90s and disappeared in the late 90s,
could help only mining, metallurgical and agricultural producers. These producers could market their output to the traders and eventually sell it on the world commodity markets. More sophisticated and higher up the value-added ladder producers were historically incorporated into a long production chain and depended heavily on the established linkages among the suppliers. These linkages could not function in the absence of a reliable payment system and began a rapid descent. By the time the payment system was created in Kazakhstan in 1995, GDP declined by 50%, real wages by more than 50% and employment by almost 20%.

These developments affected welfare of Russia and Kazakhstan to approximately the same extent, albeit for different reasons. The manufacturing sector’s share was larger in Russia than in Kazakhstan. As a result, the decline in manufacturing hit Russian workers and the poor especially hard. However, Russian manufacturing, because of its sheer size, was relatively independent from their partners abroad and thus had a better potential for surviving. It also helped that the industrial workforce in Russia was relatively more skilled and had a higher proportion of engineers. Although Kazakhstan manufacturing occupied a smaller share of the economy, it virtually disappeared during the 1990s. Kazakhstan’s manufacturers were heavily dependent on Russian linkages. Absence of a payment system and inability of Kazakhstan’s authorities to enforce barter across the border made the demise of Kazakhstan manufacturing inevitable and the scale of jobs losses in the manufacturing North unprecedented.

Commodity producers such as agricultural producers and the mining sector fared slightly better because they did not depend as much on the payment system and could directly export to the world markets. Agricultural labor even then was predominantly composed of Kazakhs and, therefore, did not see the same opportunities in migration as Russian workers employed mostly in machine building and other manufacturing sectors.

Mass departure of skilled workers to Russia and Germany occurred at approximately the same time. During the 90s more than one million people left Kazakhstan. The causes of migration were multiple, but the economic decline and job uncertainty were among the major factors. Migration causes to Germany were arguably dominated by economic reasons. However, migration to Russia was related to what sociological research refers to as the loss of “feeling of being at home”. Prior to independence, administrative and technocratic positions were occupied by Russian speakers only. There were managers of the Soviet economy on enterprise level who could be assigned to positions in any of the constituent republics. They migrated freely, while the uniformity of laws, education system, administrative structure, architecture, and of many other details of the social environment made the cost of cultural adjustment minimal. With the collapse of the Soviet Union, the Russian-speaking managers and the workers no longer felt comfortable in an independent Kazakhstan, which, they felt, was no longer part of the Russian domain. Increased emigration to Russia weakened Kazakhstan’s manufacturing even further. It is difficult, however, to determine what was first, the emigration of the workers or the collapse of manufacturing. What is certain is that the two trends reinforced each other and both were the immediate response to the collapse of the Soviet empire.

Traditional two-way trade in intermediate goods between Russia and Kazakhstan virtually disappeared. Imports from Russia were declining and bottomed out in 1998. Imports from Russia rebounded in the wake of the Ruble devaluation of 1998, but they never since reached the pre-independence levels.

By 1998 Kazakhstan’s domestic producers became sufficiently organized to
affect the policy, or at least to make their opinion heard by the policymakers. The Tenge devaluation that followed Russian crises of 1998 was in part a response of policy makers to the international competition and an attempt to preserve domestic jobs in agricultural and food processing sectors. However, because of the half-year lag in response of Kazakh monetary authorities to the Russian crisis, Kazakh producers suffered unnecessarily in terms of output, domestic employment and exports.

This episode led to a change of the exchange rate regime of the National Bank of Kazakhstan (NBK). In fact, the NBK’s response to Russian crises was more consistent than the response of the Russian central bank in that NBK declared floating exchange rate as its official policy and since used Real Effective Exchange Rate (REER) as a target. The real effective exchange rate is the inflation adjusted and trade weighted index of currency basket. This policy allowed the monetary authorities to reduce fluctuations in the terms of trade, one of the factors affecting domestic exporters adversely.

Currently, Kazakhstan trade policy is relatively open with low import tariff rates and no import quotas. The main barriers to international trade are the bureaucratic red tape and the poorly developed infrastructure. Kazakhstan’s economy is even less diversified than it was in 1990. The increasing share of the oil sector in aggregate output diminishes the prospects for diversifications and manufacturing growth by raising the wages and reducing competitiveness of the domestic manufacturing producers. Thus, the likelihood that Kazakhstan manufacturing sector will be able to influence trade policy so as to protect domestic manufacturing is very low. Agricultural and especially wheat producers have developed stronger ties with the government, but their influence may be limited in the future by the anticipated accession of Kazakhstan to the WTO.

Relative openness of trade policy is illustrated by Figure 36. Trade openness index varied during the 1994-2003 period from .42 to .34.

6.4. Transmission Mechanisms of FDI Effect on Labor Markets

During the privatization program of 1992-96 foreign investors acquired a number of blue-chip companies, while the domestic investors settled for smaller companies. The largest FDI inflows were registered in the oil sector, with metal mining and metallurgy sectors attracting the rest. Respectively, the number of people employed in oil and mining increased noticeably. However, these sectors’ share in total employment makes the effect of employment to appear much less than what it probably was. In this section we demonstrate how FDI in capital-intensive sectors generates greater effect on total employment through indirect effects.
The nature of foreign direct investment (FDI) in Kazakhstan differs from what
came a traditional notion of FDI in the emerging markets and transition economies. FDI to
Kazakhstan is primarily motivated by the availability of petroleum and other
mineral resources. Three quarters of FDI to Kazakhstan are made into oil exploration
or oil extraction sectors. Unlike in Kazakhstan, FDI to oil importing developing
countries is motivated by the availability of relatively cheap well-educated workforce
combined with investment-conducive government regulation and attractive
investment climate in general. The bulk of the world FDI inflows in the developing
world are received by relatively populous countries or countries with a good
education system, such as China, South Korea and Malaysia in Asia; Brazil and
Mexico in Latin America, Russia and Poland in Central and Eastern Europe.

Kazakhstan during the last 15 years experienced shortage of skilled labor. Many skilled workers migrated during early years of independence. But even if they
stayed, the economy experienced structural mismatch between the demand for skills
and the supply of those skills by training institutions. The skills acquired before
transition at best could serve as a basis for learning marketable skills. More often,
qualifications and knowledge supplied by the education system were only marginally
useful. The shortage of labor immediately accelerated real wage growth.

We distinguish several channels of FDI effect on employment and wages. One
is the increase in the amount of productive assets, thus increasing the demand for
labor and the marginal product of labor. These are usually associated with the green-
field FDI and less obviously in the case of M&A, allegedly due to more efficient
management. A potentially greater indirect effect on employment includes the
secondary and tertiary effects. The secondary effects on employment include the
positive effects of jobs created by local suppliers and technological spillovers
increasing productivity of local firms and the negative effects due to stronger
competition, that puts the local firms out of business, and proliferation of labor saving
technologies.

6.5. Empirical Assessment of the Effect of FDI on Employment

One of the main forces shaping the labor markets in Kazakhstan was the
inflow of foreign capital, which at 30 bln. USD over the last thirteen years was by far
the largest in CIS in per capita terms. As a result of these developments, the
penetration of foreign capital into Kazakhstan’s economy has increased significantly.
By the end of 2003 foreign-held or joint stock companies (JSFC) employed almost 10
percent of hired labor.

This section presents panel data analysis of the effects of foreign direct
investment on labor market. The analysis was based on several quarters of data on
JSFC activity for each of the sixteen administrative units of Kazakhstan. The data
used in the analysis is panel data of joint stock (JSC) and foreign owned (FE)
companies, which together are referred to as JSFC. The share of the foreign capital in
JSFC varies with oblast. The data spans quarterly observations for the period from
1999Q4 to 2003Q2 and aggregations of JSFC either by oblast or by economic
activity. Since the research agenda in large part is dictated by the availability of data,
the list of available variables is presented at this point, in which the time and oblast
indices are suppressed. The list of oblasts is presented in Section 1.4.

<table>
<thead>
<tr>
<th>Variable</th>
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<td>N</td>
<td>Number of JSFC</td>
<td>Number</td>
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<tr>
<td>NF</td>
<td>Number of FE</td>
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<tr>
<td>KF</td>
<td>Capital of JSFC</td>
<td>Ths. current tenge</td>
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This section presents some evidence that the foreign investment and foreign capital have a significantly different effect on employment from that of the domestic investment and capital.

The total number, the total employment and the total capital of the JSFC in Kazakhstan grew at average rates of 40, 14 and 17 percent per year, respectively. The growth rates were not uniform throughout the oblasts. The number of JSFC grew the slowest in Zhambyl, Almaty, Pavlodar and Akmola oblasts at 12 percent per year. In North Kazakhstan the number of JSFC grew the fastest at more than 60 percent per year.

Employment at JSFC grew slowly in Akmola (5.4 percent per year) and almost explosively in West Kazakhstan (72 percent). Capital growth rates varied from virtual zero growth in Zhambyl, Akmola and North Kazakhstan to 54 percent per year in Astana City and 107 percent per year in South Kazakhstan.

The oblasts also differed greatly in the technologies that FDI are using. The amount of capital per worker at JSFC varied considerably. For example, marginal capital per worker62 was as high as 88,000 USD per worker in Mangystau and as low as 3,500-4,000 USD per worker in South Kazakhstan and Kyzyl-Orda. Average capital per worker varied from 47,000 USD in Mangystau to 3,000 USD per worker in Pavlodar.

The effects vary from region to region, with territories hosting export-oriented activities claiming the bulk of the foreign direct investment. However, the rate of growth of foreign capital inflows has been roughly uniform in all regions with the notable exception of two wheat-growing oblasts in the North and one agricultural oblast in the South. The rapid increase in capital resulted in an increase in employment by foreign and joint stock companies. The effects of FDI on employment were observed in most oblasts and in all mining oblasts.

In order to estimate the indirect effects on oblast employment, we used series on Large and Medium Enterprises (LME), which include JSFC. The JSFC appear to have significantly higher share of labor in the cost structure compared to the LME.

These facts illustrate the wide disparities across the oblasts in their attractiveness to foreign investors as well as the variation in the technologies used and the availability of labor.

6.5.1. Labor Demand by JSFC

The estimated equations in Table 43 could be interpreted as the conditional demand Derived from cost minimization for Cobb-Douglas technology $YF = A \times KF^\alpha L^\beta$.

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62 Marginal capital per worker is determined as the inverse of coefficient in an individual regression of employment in JSFC on capital of JSFC.
\[ \log(LF_{it}) = C + (\alpha + \beta)^{-1} \log(YF_{it}) - \alpha (\alpha + \beta)^{-1} \log(WRF_{it}) + \epsilon_t \]

The equations differ in the use of estimation method and in the use of AR(1) term. The individual series on capital stock and output of JSFC were non-stationary in most of the oblasts.\(^{63}\)

The tests of the employment series were less conclusive because employment growth is limited by the size of the labor force in any given oblast unlike the capital, growth of which is not limited in the same way. JSFC employment was stationary in oblasts with originally deep penetration of foreign capital, such as Karaganda oblast, where JSFC employs 130,000 people, while the total employment by large and medium enterprises is 330,000. However, in oblasts with low levels of FDI the series were individually non-stationary, consistently with the fact that these series exhibited strong growth.\(^{64,65}\)

The equations were estimated using pooled LS method and pooled EGLS method with cross-section weights. The weights were determined using the White procedure. The use of cross-section weights did not affect the estimates significantly. The first two equations have the estimated coefficients with the signs consistent with some degree of increasing returns in the JSFC. The effect of increased demand on employment is much higher in the longer run (.855), while the immediate effect is much smaller (.142).

The estimates for the effect of wages on employment are also consistent with the theory. Wages appear to have a much stronger negative effect in the long run, (equations 1 and 2); these findings are consistent with the fact that the JSFC may need some time to adjust the employment to the desired level.

Table 43 reports the results.

<table>
<thead>
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<th>Equation</th>
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<td>LOG(LF)</td>
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\(^{63}\) The logs of individual series for JSFC capital were first-difference stationary according to augmented Dickey-Fuller tests, but not common-process first-difference stationary according to Hadri Z-statistic.


\(^{65}\) The non-stationarity of the series plagued the regressions with heavy autocorrelation. However, the results of the stationarity tests should be discounted because of the shortness of the series. For example, the ADF tests are hardly conclusive with only 16 quarters of observations.
6.5.2. Effect of FDI on JSFC Employment

In our analysis we distinguish the direct and indirect effects of foreign capital formation on employment. The direct effect includes the changes in employment at JSFC only. The indirect effects include job creation outside JSFC, which are in turn separated into secondary and tertiary effects. The secondary effects refer to the job creation in the enterprises that are part of the supply chain associated with the JSFC. Tertiary effects act through the increased wages and incomes of the population, which increase the aggregate demand.

The results of employment at the oblast JSFC (variable LF) were compared with the regressions of employment at oblast large and medium size enterprises (variable L). The direct effect of foreign capital and investments at JSFC is estimated and reported in Table 44. Equations 1 and 2 suggest that the increase of capital of JSFC by approximately 1.9-3.9 mln. tenge (12.6-26 ths. USD)\(^66\) creates one additional job at the JSFC. The higher estimate corresponds to the estimation with AR(1) term and the lower estimate corresponds to the estimation without AR(1) term.\(^67\) In what follows we will be loosely referring to equations with AR terms as those estimating short-run relationship as they identify high-frequency comovements. Equations without the AR term will be referred to as long-run relationships.

Equations 3-5 reveal the partial effects of an increase in domestically owned and foreign owned capital of JSFC. The difference between equations 3 and 4 is the same as between 1 and 2 – the response time. The effect of domestic capital of JSFC appears to be either negative in the long run or insignificant in the short run. The effect of an increase in foreign owned capital on jobs at JSFC is stronger than that of an increase in total capital of JSFC, 3.5 ths. USD per job in the long run and 22 ths. USD per job immediately.

The negative effect of domestic capital in the long run (equation 3) may be observed because investment of domestic capital acts to prevent the foreign partners from acquiring a controlling share. Lacking a controlling share, the foreign partners may not be able or may not be willing to commit the firm to further expansion.

Regressions 5 and 6 reveal that the effect of the total oblast capital on employment at JSFC is neither statistically nor economically significant. Equation 7, which regresses the number of enterprises on their employment and autoregressive term, suggests that a newly opened JSFC employs approximately 12 people. However, the oblasts are widely different in terms of average size of JSFC, varying

\(^{66}\) Determined as the inverse of the coefficient .00051-.000254 jobs/ths.tenge at 155 tenge/USD exchange rate prevalent in 2002.

\(^{67}\) Extremely low DW statistics combined with high capital is a result of a rapid growth of both, the capital and the employment at JSFC. The two series were tested to be cointegrated for almost every oblast. This suggests that both regression with and without AR(1) are valid.
from almost 800 people per JSFC in Karaganda and Pavlodar to some 20 workers per JSFC in Almaty.

### Table 44. Employment at JSFC

<table>
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<th>Equation</th>
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<td>1.002</td>
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<tr>
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<td>177</td>
<td>178</td>
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<tr>
<td></td>
<td>199</td>
<td>232</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Weighted Statistics</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>R^2</td>
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<td>0.994</td>
<td>0.667</td>
<td>0.9943</td>
<td>0.9943</td>
<td>0.9943</td>
<td>0.996</td>
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<tr>
<td>DW</td>
<td>0.06</td>
<td>1.58</td>
<td>0.097</td>
<td>1.54</td>
<td>1.56</td>
<td>1.63</td>
<td>1.59</td>
</tr>
</tbody>
</table>

1 - Pooled EGLS (cross-section weights)

1 LF - employment at JSFC in oblast j time t, people

1 KF - capital at JSFC in oblast j time t, ths.tenge

1 KFD - domestic capital of JSFC in oblast j time t, ths.tenge

1 KFF - foreign capital of JSFC in oblast j time t, ths.tenge

1 KO - total capital of the oblast in oblast j time t, ths.tenge

1 NF - number of JSFC in oblast j time t

1 Numbers in small type below coefficients are t-statistics.

1 Total number of observations is 240=15 quarters x 16 oblasts

#### 6.5.3. Effect of FDI on Oblast Employment

The total effect of FDI on employment in a host economy includes the indirect effects in addition to direct effects. The direct effects that refer to the change in the employment at the recipient enterprises (variable LF) were significant both in the short-term correlations (equations with the AR term present) and in the long-run relationships (without AR term). The indirect effects refer to the change in employment in the recipient oblast, that is in variable L. Our results confirm that the indirect effects were significant and, in fact, much greater than the direct effects. However, they were observed only in equations without autoregressive term. We interpret this as indicating that these effects take longer to develop, before the shock to the capital stock at the JSFC is transmitted to the employment growth at non-JSFC enterprises.

The total effect of total oblast capital on oblast employment at large and medium companies is shown in equations 1 and 2 of Table 45. Equations 1 and 2 suggest that the effect of a capital increase on employment is very small both in the

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68 Karaganda oblast FDI is dominated by Mittal Steel Temirtau Co, which privatized Temirtau Steel Plant and Karaganda Coal Mines in 1995 and was employing some 150,000 workers, of which 26,000 were coal miners. The reduction of the average size of JSFC is due to increase in the number of small JSFC and also due to the planned reduction of the workforce at Mittal Steel Temirtau.
short and longer runs. For example, in order to create one working place in the oblast, the stock of oblast capital must increase by the amount of 234 ths. USD in the long run and by 332 ths. USD in the short run, an order of magnitude more than the direct effect of foreign capital. One explanation for this difference is in the size of the workforce that remains fixed in any given oblast. Also, since the dependent variable is not the total employment in the oblast but only hired workers at large and medium enterprises, we may speculate that the increase in capital occurs mainly in the small companies, with staff less than 20 workers.

The effect of JSFC capital on oblast employment is much greater than the effect of total capital as equations 3, 4 and 5 demonstrate. These findings are consistent with the concept of how the indirect effects are transmitted over time. As the JSFC increases the stock of its capital and hires its own workers, it increases the demand for the product of the local firms. An increase in demand for local products creates employment among local suppliers, subcontractors and service outsourcing firms.

Equations 4-5 also reveal that the effects of real wages and output observed in the long run reverse their signs in the short run, suggesting complex dynamics. The long-run effects of wages and demand for output are both statistically highly significant and both are consistent with the theory, which suggests that the increase in demand for JSFC output (YF) increases demand for labor at JSFC and the increase in real wages (WR) reduces demand for labor at JSFC.

A rather paradoxical reversion of the sign in the short-run could be explained by the effect of the capitalization and investment in JSFC on employment. During the periods that the investment is made, both the wages and the employment at JSFC rise. This correlation has been picked up by equation 5.

### Table 45. Employment at Large and Medium Enterprises

<table>
<thead>
<tr>
<th>Equation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Method</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Intercept</td>
<td>148801.9</td>
<td>-92171.7</td>
<td>-228491</td>
<td>191601.5</td>
<td>-106636.9</td>
</tr>
<tr>
<td>KO(-1)</td>
<td>114</td>
<td>-0.75</td>
<td>-1.03</td>
<td>144</td>
<td>-1.17</td>
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<tr>
<td>KF(-1)</td>
<td>0.0000275</td>
<td>0.0000194</td>
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<td></td>
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</tr>
<tr>
<td>KO(-2)</td>
<td>3.56</td>
<td>1.82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YF</td>
<td></td>
<td></td>
<td>0.000467</td>
<td>-0.0000388</td>
<td></td>
</tr>
<tr>
<td>WR</td>
<td>-3.51</td>
<td>0.2921</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AR(1)</td>
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<tr>
<td>Unweighted Statistics</td>
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<td></td>
<td>526</td>
<td>512</td>
<td>546</td>
</tr>
<tr>
<td>R^2</td>
<td>0.008</td>
<td>0.998</td>
<td>0.998</td>
<td>0.365</td>
<td>0.998</td>
</tr>
<tr>
<td>DW</td>
<td>0.075</td>
<td>2.01</td>
<td>2.16</td>
<td>0.14</td>
<td>2.12</td>
</tr>
</tbody>
</table>

1 - Pooled EGLS (cross-section weights)
L - total employment at large and medium firms in oblast j time t, people
KF - capital at JSFC in oblast j time t, ths.tenge
KO - total capital in oblast j time t, ths. tenge
WR - real wage at large and medium co-s, tenge/month
The relationship between oblast employment at LME and oblast capital was very weak and disappeared altogether between their first differences as equations 1-3 of Table 46 indicate. Equations 4-5 include all explanatory variables that could affect the employment, including oblast capital, JSFC capital, exports and imports by JSFC, and output of JSFC, of which exports by JSFC and oblast capital appear not to be significant. The negative short-run impact of output on LME employment in all equations 4-7, Table 46, is statistically significant, but economically is very small.

Imports have also strong negative effect on LME employment for similar reasons that local suppliers cannot compete with imports and thus have to shut down. JSFC investment and changing capital affect LME employment with a lag of half a year.

### Table 46. First Difference in Employment at Large and Medium Enterprises

<table>
<thead>
<tr>
<th>Equation</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent variable</td>
<td>D(L)</td>
<td>D(L)</td>
<td>D(L)</td>
<td>D(L)</td>
<td>D(L)</td>
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<tr>
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<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Intercept</td>
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<td>1360.7</td>
<td>1458.4</td>
<td>1014.9</td>
<td>1000.5</td>
<td>1085.7</td>
<td>1105.3</td>
</tr>
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<td>4.1</td>
<td>3.96</td>
<td>4.67</td>
<td>2.23</td>
<td>2.97</td>
<td>2.78</td>
<td>3.82</td>
</tr>
<tr>
<td>D(KO)</td>
<td>1.08E-05</td>
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<td>1.94E-05</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>1.12</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>D(KO(-1))</td>
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<td>0.67</td>
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<tr>
<td>D(KO(-2))</td>
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<td>-0.18</td>
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<tr>
<td>D(KF(-2))</td>
<td>0.000604</td>
<td>0.000354</td>
<td>0.000622</td>
<td>0.000392</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.76</td>
<td>2.91</td>
<td>2.94</td>
<td>3.18</td>
<td></td>
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<tr>
<td>INF(-2)</td>
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<td>3.66E-05</td>
<td>3.52E-05</td>
<td>3.58E-05</td>
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<tr>
<td></td>
<td>3.04</td>
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</tr>
<tr>
<td>D(MF)</td>
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<td>-0.002074</td>
<td>-0.003753</td>
<td>-0.002024</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>-17.5</td>
<td>-2.03</td>
<td>-14.9</td>
<td>-3.47</td>
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<tr>
<td>D(XF)</td>
<td>0.000948</td>
<td>-0.000436</td>
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</tr>
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<td></td>
<td>0.77</td>
<td>-0.198</td>
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<tr>
<td>D(YF)</td>
<td>-9.41E-05</td>
<td>-6.17E-05</td>
<td>-8.16E-05</td>
<td>-5.72E-05</td>
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<td>-4.2</td>
<td>-3.01</td>
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<td>Weighted Statistics*</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R^2</td>
<td>0.12</td>
<td>0.11</td>
<td>0.11</td>
<td>0.167</td>
<td>0.18*</td>
<td>0.162</td>
<td>0.162*</td>
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<td>DW</td>
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<td>1.93</td>
<td>1.92</td>
<td>2.15</td>
<td>2.03*</td>
<td>2.16</td>
<td>2.02*</td>
</tr>
</tbody>
</table>

* Unweighted for method 2

1 - Pooled EGLS (cross-section weights)
2 – Pooled LS
L - employment by large and medium companies in oblast j time t, people
KO - total capital of oblast j time t, ths.tenge
KF - capital at JSFC in oblast j time t, ths.tenge
INF - investment by JSFC in oblast j time t, ths. tenge
MF - imports by JSFC in oblast j time t, ths.USD
XF - exports by JSFC in oblast j time t, ths.USD
YF - output of JSFC in oblast j time t, ths.tenge

The results of the regressions reported in Tables 42-46 revealed that foreign capital investments have statistically discernible direct and indirect effects on the
employment with different timing and magnitude. The direct effect registered almost immediately, that is in the same quarter the investment was made, but was relatively small in terms of employment and strong in terms of its effect on average wage. The indirect effects were greater in magnitude, more robust, had little impact on average wages, and were mainly observed several quarters after the investment.

The immediate effect of foreign capital formation was observed only in the JSFC (the direct effect) and had no effect on employment outside JSFC (the indirect effect). In the long-run the direct effect would roughly double its size while indirect accumulated effect on oblast employment was approximately 8-10 times greater than the immediate effect on JSFC employment. To put things in perspective, each 12,000 USD of FDI into any given oblast in the course of several quarters creates one additional job in the joint-stock and foreign-held companies and four more jobs in the other companies of the same oblast.

Unlike foreign capital, domestic investments in JSFC had negative effect on employment at JSFC itself. This paradoxical effect of capital increase on employment could have been observed for a number of reasons. Among the most plausible explanations of the effect was the theory that JSFC have more chances to expand if the foreign partners own the controlling share of the company. Imports by JSFC have a negative but small effect on employment, both in the long run and in the short run. Exports by JSFC have no statistically discernible effect on employment either at JSFC or in the oblast.

6.6. Case Study: Tobacco Processing

FDI inflows in agriculture are virtually nonexistent. However, a number of foreign companies entered the sector of processing agricultural commodities. The most notable and controversial example is the acquisition of the Almaty Tobacco Company by Philip Morris in 1993. This was the first cash acquisition of a state-owned enterprise in Kazakhstan. Before the acquisition, Kazakhstan’s tobacco brands were locally known and popular. However, by 1992 the producers of tobacco products faced the challenges of growing import competition.

Shortly after the acquisition, production facilities were upgraded and modernized. Currently, the Almaty factory produces 18 bln. cigarettes per year, of which approximately 1 bln. units is exported. Philip Morris significantly contributed to the growth and revival of the tobacco farming in Kazakhstan. Tobacco crop yields have increased from 1,500 tons in 1994 to an estimated 10,300 tons in 2003.

Currently, Philip Morris produces some 59 percent of all tobacco products in Kazakhstan.

In 1994 the company worked with 28 collective farms – the main suppliers of tobacco back then. In 2003 more than 4,500 individual farmers were growing tobacco in Kazakhstan. Philip Morris was one of the first to cultivate special relationships with the producers of raw materials. Production links between the company and the individual farmers are more than the relations between the input supplier and processor. The need for better quality tobacco requires that Phillip Morris provide the farmers with the training, education, and technologies. The farmers grow tobacco under the supervision of Philip Morris’ agronomy specialists. Such arrangements extend to informal financing of the farmers by the processor. For example, the farmers receive inventory capital in the forms of seeds and materials. The contract between the farmer and the company specifies the price the company will pay for the tobacco of various qualities at the end of the season. Such contracts allow the company to control the supply chain and the quality of the locally supplied tobacco.
As other TNCs, Phillip Morris Kazakhstan regularly trains up to 200 operators, mechanics, and technicians to operate new equipment. Professional training includes programs of international certification in finance and accounting, the skills that are easily transferable to non-tobacco sectors. Since 1993, the company spent $12.5 ml. on training and development of local personnel. As a result, 99% of production and administrative personnel and 83% of management are citizens of Kazakhstan. Some of these local specialists trained under the Phillip Morris professional development program are working in Phillip Morris affiliates in other CIS countries and at the headquarters.

The effect of Phillip Morris on the local labor market is also registered in wage rates paid at the company. The company, being in effect the monopolist in the market for tobacco processing in Kazakhstan, makes the tobacco sector the highest paying sector in the economy. The average monthly wage in the first quarter of 2001 in the tobacco sector was 97.5 ths. Tenge, which was more than the wages in the oil and gas extraction sector at 81.2 ths. Tenge and three and half times higher than the industrial average wage.

The wages in tobacco processing sector does not include the wages in the tobacco agriculture. The effect of Phillip Morris investment on agricultural employment is much larger, as indicated by the number of individual farms growing tobacco for the company. The company prefers to deal with small individual farmers, with the optimal size of tobacco farm being limited to 2-3 hectares. At this size the household can manage the harvest season without hiring less qualified seasonal workers.

<table>
<thead>
<tr>
<th>Year</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
<th>Export</th>
<th>Import</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>11,073</td>
<td>44,428</td>
<td>10,986</td>
<td>864</td>
<td>87</td>
<td>43,564</td>
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<td>2000</td>
<td>17,939</td>
<td>44,104</td>
<td>17,399</td>
<td>9,934</td>
<td>540</td>
<td>34,169</td>
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<td></td>
</tr>
<tr>
<td>2001</td>
<td>23,852</td>
<td>44,707</td>
<td>21,957</td>
<td>9,504</td>
<td>1,895</td>
<td>35,202</td>
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</tr>
<tr>
<td>2002</td>
<td>20,143</td>
<td>49,063</td>
<td>19,240</td>
<td>6,671</td>
<td>903</td>
<td>42,392</td>
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<tr>
<td>2003</td>
<td>20,003</td>
<td>41,429</td>
<td>17,908</td>
<td>5,915</td>
<td>2,095</td>
<td>35,514</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Production, mln. cigarettes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>12,485</td>
</tr>
<tr>
<td>1991</td>
<td>9,536</td>
</tr>
<tr>
<td>1992</td>
<td>8,997</td>
</tr>
<tr>
<td>1993</td>
<td>10,664</td>
</tr>
<tr>
<td>1994</td>
<td>9,383</td>
</tr>
<tr>
<td>1995</td>
<td>12,080</td>
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<td>1996</td>
<td>19,121</td>
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<td>1997</td>
<td>24,109</td>
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<tr>
<td>1998</td>
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<tr>
<td>1999</td>
<td>18,773</td>
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<td>2000</td>
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<td>2001</td>
<td>21,395</td>
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<td>2002</td>
<td>23,453</td>
</tr>
<tr>
<td>2003</td>
<td>25,715</td>
</tr>
</tbody>
</table>

Also, exports of tobacco have increased noticeably over the recent years, especially to the non-CIS countries. However, the main market for the company is domestic. Currently, tobacco is mainly imported from non-CIS countries, and these amounts remained virtually unchanged since 1999. This suggests that Phillips Morris’ decision to set up an affiliate in Kazakhstan was mainly motivated by the access to the
local market. The company has also established four other plants on the territory of the former Soviet Union.

The second major producer of tobacco products is Gallaher Kazakhstan that in 2003 was producing 37.3 percent of all tobacco products. Both producers are located in the Almaty region.

The effect of tobacco smoking on the health of the population is often listed among the downsides of such FDI. However, the government should compare the benefits and the costs of FDI in tobacco sector with alternative in which domestic tobacco sector is not acquired by the TNC. In this counterfactual scenario the sector would not be able to achieve the quality of products necessary for exporting. Furthermore, most of the quality tobacco products would most likely be imported, depriving Kazakhstan of several thousand jobs in agriculture, not to mention the technological and organizational expertise that comes with the TNC.


The policies that could optimize the effect of openness on employment are no different in Kazakhstan from the policies the governments throughout the world are engaged in. However, the national priorities and long-term considerations should shape the government policy so as to facilitate sustainable economic development of Kazakhstan.

6.7.1. Job Creation

One of the government’s intermediate objectives is creation of the jobs capable of providing the population with adequate income. This objective can be achieved by various policies related to FDI treatment. In particular, the government may provide incentives for the foreign investors to expand or at least preserve employment of the domestic workers on the plants that were transferred to the foreign owners. Alternatively, the government may simply stipulate as part of the privatization contract or management transfer contract that the company invest in the fixed capital of the acquired plant, which would presumably lead to preservation of workplaces. The government could also require that the foreign owners train local workers, preserve their jobs or create new ones. The foreign owners may also be required to limit the number of foreign workers in order to force the company to hire local specialists, if available, or to train them, if there are none with sufficient qualification. However, these policies have their drawbacks as they limit investors’ options and reduce their return on investment. Such policies are bad because they decrease the attractiveness of a country to FDI inflows.

Thus, the government policies should avoid the temptation of immediate gain in employment at the expense of reputation and international ratings and, ultimately, jobs and wages. Instead, the government should strive to create an economic environment that encourages foreign direct investment in general.

Traditionally popular policies are those that encourage FDI in labor-intensive sectors, such as textiles in Turkey and China. Such policy, if successful, could resolve the economic and social problems in areas with high unemployment. For example, in South Kazakhstan the unemployment rate among the young is high and women labor force participation rate is low. FDI in labor-intensive sectors could reduce poverty among the groups of particularly vulnerable people and provide them with sustainable incomes. Similar policies could be beneficial in one-company towns in the industrial north.

However, any policy in which the government selects the winners is fraught with potential corruption and inefficiency. For example, provision of fiscal incentives
to “greenfield” investment as opposed to mergers and acquisition may lead to preservation of inefficient enterprises. Also, the fiscal costs may be significant while the incentives of tax reductions are usually less important than the governments may believe. For a TNC making a decision on location of an affiliate, the role of other factors such as availability of infrastructure, cheap and educated workers, business services, proximity to the suppliers, and investment climate, usually weigh more than fiscal incentives.

This consideration brings to the forefront the importance of developed infrastructure and the availability of the educated workforce. For infrastructure development, the government may attract the investors into special economic zones or technological parks where infrastructure and business services can be provided at lower cost. However, high technology zones will attract FDI only if the affiliates can be staffed with well-trained workforce.

6.7.2. Education Policies

Human capital development is one of the priorities the government can and should set in the policy agenda. The lack of better skilled workforce is one of the factors hampering economic development and job growth in Kazakhstan. Since the skilled labor and unskilled labor are complementary in production, the shortage of managers, engineers, technicians, and other white-collar workers reduces employment and the productivity of the unskilled workers.

Basic high school education is largely a public good. Usually it is provided by the government. The benefit of general education is in the flexibility that it provides to the worker to acquire new skills, including learning skills. Examples of China, Russia, South Korea, Hong Kong, Singapore, and Central European countries that attract proportionately more FDI and experience rapid growth of jobs and wages, demonstrates the role of education.

For Kazakhstan, where basic education traditionally provided good training in natural sciences, the current task is to restore the education system without repeating the mistakes of Soviet schools. The Soviet schools emphasized knowledge and basic science within a rigid curriculum at the expense of development of independence, initiative, responsibility and social skills. Over the years of independence, the primary and high school education has declined in quality in every respect, especially in higher education. At the same time, private schools with specialized curriculum mushroomed in urban areas. Quality of education in rural schools deteriorated at a faster rate than in urban schools. The system of teacher training was in crisis as the teacher’s education institutions were transformed into universities.

6.7.3. FDI Policy

Three quarters of FDI inflows to Kazakhstan are directed to the oil sector, the sector where the technological and organizational expertise of the international corporations is not critical. Besides, oil extraction is not labor- or skill-intensive. Thus, the sector does not generate much employment and is not likely to, even if production increases several times. The shortage of skilled labor is another factor that limits FDI inflows in the technologically more advanced sectors. The government’s role should be to restore and improve the current system of general and specialized education.

The effect of FDI on employment can be separated into a direct effect of increased employment in the recipient company and indirect effect of increased employment in the companies that are interrelated with the recipient company through the production linkages. Both effects are statistically significant, but not large. Neither
affects the wages much. A number of other mechanisms are at work in transmitting FDI into labor markets. These are monetary channel, which has only transient effect, credit channel, which increases employment by providing credit to businesses, and real incomes channel, direction of which depends on the use of FDI funds.

The positive impact of globalization on Kazakhstan’s labor market is mainly limited not by the protectionist policies of the government, but by the geographical and demographic disadvantages that are amplified by poorly developed system of transportation and communication. Among the other factors that impede deeper integration of Kazakhstan into the global economy are the shortage of human capital and structural mismatch of workers’ skills with the demands of the market. In order to capitalize on the benefits of international trade in goods and factors of production the government must develop a set of policies that address the problems of economic and institutional environment rather than providing investors, domestic or foreign alike, with costly fiscal incentives. The government may try to develop the transportation and communication infrastructure with the aim of reducing the costs of trade. Rather than trying to replace the market in production and provision of private goods and services, the government should focus its resources on development of better educational system capable of making Kazakhstan’s labor force competitive on the world markets.

Improving transportation infrastructure is critical. Even though located on the main trading routes from China to Europe, Kazakhstan lost its importance as a transit country shortly after the great geographical discoveries made waterways the preferred option for east-west trades. Today, landlocked and with poorly developed transportation infrastructure, Kazakhstan faces enormous hurdles in delivering its goods to the world markets. The goods that Kazakhstan traditionally produced for consumption with the economic system of Soviet Union are the same goods that are currently exported with the notable addition of petroleum. The problem is exacerbated by the fact that these are primary commodities with little value added, bulky and costly to transport.

6.7.4. Migration Policy

Government’s internal migration policy is spelled in the Program for Development of Agricultural Territories. The program identified all rural settlements by the development potential. The residents of areas with negative potential will be encouraged to relocate to more perspective areas. More significant migration occurs in the direction of two major cities. The population of Astana increased by nearly 200 thousand people over the last 5 years through migration from Almaty and adjacent urban areas. Continuing migration from rural areas to urban centers shifts the balance of labor markets and adds to the urban work force and structural unemployment.

However, the government appears to be more concerned with the external migration. In order to deal with the migrants, Kazakhstan government set up an Agency on Demographics and Migration, which mainly deals with the repatriation of ethnic Kazakhs. Despite the need for skilled labor, the government has not developed a plan to address the problem.

Presidential address to the nation made in April 2003 targets 20 mln. for year 2025 as an optimal for economic development population size. Apparently, with population of 15 mln. and low fertility, the only way this number could be achieved is through massive immigration. The influx of migrant workers alleviates the need for unskilled workers in construction and agriculture. It also slows down the wage growth.
6.8. Conclusions

One of the main forces shaping the labor markets in Kazakhstan was the inflow of foreign capital, which at 30 bln. USD over the last thirteen years was by far the largest in CIS in per capita terms. As a result of these developments, the penetration of foreign capital into Kazakhstan’s economy has increased significantly. By the end of 2003 foreign-held or joint stock companies (JSFC) employed almost 10 percent of hired labor.

This chapter presented panel data analysis of the effects of foreign direct investment on labor market based on several quarters of data on JSFC activity for each of the sixteen administrative units of Kazakhstan. The effects vary from region to region, with territories hosting export-oriented activities claiming the bulk of the foreign direct investment. However, the rate of growth of foreign capital inflows has been roughly uniform in all regions with the notable exception of two wheat-growing oblasts in the North and one agricultural oblast in the South. The rapid increase in capital resulted in an increase in employment by foreign and joint stock companies.

In our analysis we distinguish the direct and the indirect effects of foreign capital formation on employment. The direct effect includes the changes in employment at JSFC only. The indirect effects include job creation outside JSFC, which are in turn separated into secondary and tertiary effects. The secondary effects refer to the job creation in the enterprises that are part of the supply chain associated with the JSFC. Tertiary effects act through the increased wages and incomes of the population, which increase the aggregate demand. Unlike employment by JSFC, which mainly depends on FDI, wages at JSFC also depend on the degree of export and import intensity in production, and have fixed cross-section and trend effects.

These effects were observed in most oblasts and in all mining oblasts. The econometric analysis revealed that foreign capital investments have statistically discernible direct and indirect effects on the employment with different timing and magnitude. The direct effect registered almost immediately, that is in the same quarter the investment was made, but was relatively small in terms of employment and strong in terms of its effect on average wage. The indirect effects were greater in magnitude, more robust, had little impact on average wages, and were mainly observed several quarters after the investment.

The immediate effect of foreign capital formation was observed only in the JSFC (the direct effect) and had no effect on employment outside JSFC (the indirect effect). In the long run the direct effect would roughly double its size, while indirect accumulated effect on oblast employment was approximately 8-10 times greater than the immediate effect on JSFC employment. To put things in perspective, each 12,000 USD of FDI into any given oblast in the course of several quarters creates one additional job in the joint-stock and foreign-held companies and four more jobs in the other companies of the same oblast.

JSFC appear to utilize labor more efficiently, which is indicated by essentially same number of workers per capital as in domestic Large and Medium Enterprises (LME), but significantly higher share of labor in the cost structure.

Unlike foreign capital, domestic investments in JSFC had negative effect on employment at JSFC itself. This paradoxical effect of capital increase on employment could have been a result of a number of reasons. Among the most plausible explanations of the effect was the theory that JSFC have more chances to expand if the foreign partners own the controlling share of the company. Imports by JSFC have a negative but small effect on employment, both in the long run and in the short run. Imports by JSFC have no statistically discernible effect on employment either at JSFC.
or in the oblast.

The negative effect of output of JSFC on host oblast employment is seen only in the short run. In the longer run it reverses the sign. Such dynamics hints at possibility of a scenario in which the increased competition from the JSFC forces the local producers to slash some jobs initially only to create new jobs later. In order to check the validity of this claim, further research is needed with the use of micro enterprise level data.