Regional disparities as determinants of Internal migration in Kazakhstan

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Master Thesis

July, 2007

Acknowledgements

I would like to express my gratitude for all people who made my study at the University of Groningen successful, exciting, pleasant and special experience and who helped me in so many different ways.

I would like to thank UNFPA Kazakhstan team supervisor Aida Alzhanova who encouraged me to study demography and undertake this opportunity to open new prospects in my career.

Of course, my study would not be possible without the International Scholarship "Bolashak" of President of the Republic of Kazakhstan. Also I am grateful for the assistance of the Agency of Statistics for kindly provided statistical data.

The special words of appreciation go to my supervisor Prof. dr. L.J.G. van Wissen whose high professionalism, dedication to his work, invaluable expertise motivated me very much and made the work on the thesis both interesting and challenging journey.

My special words of appreciation go to Prof. Inge Hutter for her great personality and support that keeps me going during hard times.

I would like to thank all my teachers for their time, patience, and hard work. You were always there to help and share knowledge and ideas.

I am grateful to my friends for their friendship.

Finally but foremost I would like to thank my family for their love and support.

Abstract

The report is aimed to contribute to the study of population movements in Kazakhstan where the attention and interest to the issues of internal migration has been greatly increased during recent years. The research focuses on internal migration phenomena within the Kazakhstan context during and after transition period 1991-2006. Using vital statistics data and based on economic theories of migration, the research describes and explains the level, directions and factors of internal migration in Kazakhstan taking into account regional economic disparities. Besides, the research highlights the variations in migration behaviour on different life stages of individuals using the 1999 national census data. Quantitative methods such as correlation analysis, spatial interaction model and age migration schedules are applied to test our research hypotheses. Economic motives proved to be a primary driving force of recent migration within Kazakhstan. The results suggest that the fluctuations of the national economy, gaps in regional output, unemployment and wage levels influence significantly the population mobility in country. Besides, the size of the region and distance appeared to be significant factors of inter-regional migration proving that flows between regions are proportional to the population size of the respective regions and inversely proportional to the distance between them. The internal migration in Kazakhstan is selective in terms of age, sex, place of residence and education. The case study of Astana city demonstrates the effect of capital relocation on population growth and huge south-north population shift with the highest in-migration and net migration rates observed for new capital during 1999-2006.

Key words: Kazakhstan, Internal migration, Regional disparities

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1. Introduction

1.1. Purpose of the research on internal migration in Kazakhstan and research questions

Much attention has been devoted to the study of international migration and it's consequences on demographic transformation in Kazakhstan during transition period (Becker et al, 2003; Sadovskaya, 2005; CMAR and UNFPA, 2006). However, with stabilization of emigration processes and the country's economic development there is a shift of attention from external migration to internal movements being one of the important components of population change and redistribution over the country's territory. Moreover, internal migration is not only a part of the migration and labour policies, but it can be seen as a measure of advancement of regional economics that still characterised with inequalities and biased towards main cities and oil-producing regions. Apparently, population moves within country are predominantly triggered by economic motives, though, it must be admitted, that it is less known about consequences and other causes of internal migration. Certainly, people migrate internally because of various reasons and under different circumstances. It can be residential mobility for family reasons, housing and study purposes or migration because of environmental pollution. Nevertheless, the desire of people to improve their wellbeing in terms of better jobs, higher salaries and occupation possibilities are among the most important and obvious reasons to change a place of residence within country. Taking this and diverse regional economics in Kazakhstan into account, the present study therefore is focused on describing and explaining internal migration during and after transitional period 1991-2006 from economic point of view. We, therefore assume, that economic factors are the main driving force of migration in Kazakhstan. The research is aimed to give insight into the influence of economic factors like regional output, wages, unemployment, and overall economic development on the movement of people within Kazakhstan. The migration triggered by regional economic disparities affects not only structure and size of population within a region but also changes spatial distribution of population across country. Furthermore, internal migration is a complex phenomenon which involves also demographic (e.g. age, sex) and geographic (e.g. place of residence) dimensions (Willekens,1984). Personal characteristics of migrants such as age, sex, ethnicity, marital status and education are very important demographic aspects influencing propensity to migrate. Distance is also a significant factor of migration as short distances enhance relocation from one locality to another whereas long distances could be a serious obstacle to migrate. The distribution of cities through Kazakhstan's huge territory makes the distances between them quite extended, which makes commuting almost impossible. Finally, migration is a highly contextual phenomenon rather than the isolated, objectively rational act that it was initially thought to be (Boyle et al, 1998, p. 75). Kazakhstan has undergone a number of economic, structural, social and demographic changes since it's independence in 1991. Particularly, collapse of USSR converted previously internal movements across republican boundaries into international migration. Moreover, the complex mechanism of economic relationships that linked Kazakhstan to Soviet economy has been broken and hence made underdevelopment of some regions more visible. Since independence, intra-republic differentials appear to have widened. Besides, transition to market economy and very different social environment was not an easy one for most of the population. It was a challenge to adopt themselves to the absence of jobs and non-payments of salaries, limited access to education and housing, and changing social values. The guarantee of work, an apartment, free health care, and higher education have been replaced by unemployment, decaying health care and expensive higher education. Being used to the planning and centralized

system of social and welfare distribution, citizens of a newly independent state had to face and resolve enormous problems by themselves. In those circumstances, internal migration was perceived as a chance to improve family's opportunities in income earning and overall wellbeing. There were movements of people from depressive regions with the absence of social and economic infrastructure to more developed regions, from rural to urban areas in order to escape poverty and unemployment. Though there were no direct restrictions to migrate within country, high costs of moving and uncertainty about future results of migration sometimes stopped people from relocating. Another political decision in the end of 1997 on relocation capital city from southern Almaty to northern Astana had a significant effect on migration flows within country. Thus, with stabilization of economy in the beginning of 2000s, the reasons for internal migration and characteristics of migrants have also changed. For instance, among the main motives for residence change became the contracted labour migration or movements of skilled professionals and civil servants, migration of young adults for studying purposes, seasonal migration, and residential mobility due to a boom in the construction sector. Obviously, despite different types of migration, mobility of people within Kazakhstan is mainly driven by economic motives and embedded into country's economic situation enabling or restricting people's ability to migrate. Moreover, large regional demographic, geographic, social and economic disparities play significant role in levels and directions of internal migration. Thus, the purpose of the present research is to explore the multifaceted nature of internal migration in Kazakhstan and describe how the macro-level economic factors such as business cycle and GDP growth, gross regional production, income levels, unemployment rates as well as educational level and migrants characteristics in terms of age and sex influence internal flows between different provinces of Kazakhstan. Based on the economic and human capital theories of migration, the research is intended to discuss and answer the following research questions in this paper:

Research questions:

- *What is the size and direction of migration flows between regions in Kazakhstan?*

- What are the age and sex patterns of internal migration? How do they differ in urban and rural areas?

- What has been the effect of changing capital city on internal migration?

- Does internal migration increase during economic growth and decline in times of downturn?

- How do the disparities in regional outputs affect migration flows to and from provinces?

- Do high-wage regions attract migrants and low-wage areas lose population?

- Do high unemployment rates lead to intense outward migration from the region?

- What is the effect of education on internal migration?

- What is the effect of regional population and distance between origin and destination on migration flow?

Quantitative methods will be applied to measure the scale of migration streams between different regions of Kazakhstan and assess the relationship between economic factors and internal migration. The 1999 population census and data from national vital statistics will be the basis of analysis. Graphs and mapping technique will be used to support statistical analysis. The statistics on internal migration is collected on a regular basis though the level of disaggregation still requires further improvements. Currently, most of the papers on internal migration are limited only to descriptive analysis that is partially related to data limitations but mostly to the absence of technical expertise in demographic research. In this regard, the innovation of the present paper is concluded in application of statistical methods of correlation analysis and the spatial interaction model to test relationships between internal migration and non-demographic factors that have not been applied previously in the study of internal migration in Kazakhstan. Moreover, we used migration rates instead of absolute figures of migration flows for the purposes of inter-regional comparison that is considered a more appropriate demographic measure. Finally, the results of research can be used as a basis for further policy-driven research of inter-regional migration based on a scientific approach that further can be extended and tested with the adjustments to rural/urban residence, gender, ethnicity, age specific migration and study of residential mobility. The projections of migration flows between particular origins and destinations can be calculated based on the spatial interactions model, which is required for labour force and housing consumption planning. Thus, understanding of causes and consequences of inter-regional migration may lead to further recommendations for efficient implementation of the territorial development strategy, labour and migration policies in Kazakhstan and contribute to the preparation for the national Census in 2009. The findings of the research may give a better understanding of migration phenomena in Kazakhstan.

1.2. Background of Kazakhstan migration processes

The history of residential movements in Kazakhstan started in the beginning of the 21st century, with the Soviet collectivization and industrial modernization in the thirties. The country's population was involved voluntarily or unwillingly to intensive migratory processes. The 1926 census reports that less than 10 percent of the Kazakh population migrated year-round, although two-thirds of the population was classified as semi-nomads because they migrated with their herds in summer (Olcott, 1981, p.124).

Soviet collectivization forced large groups of Kazakh to stop their nomadic live and start collective agriculture. It was estimated, that during the campaign one million people died from starvation. According to estimates, 15-20 percent of the Kazakh population fled the republic during 1930-1931. The vast majority of those who left Kazakhstan stayed within the borders of the Soviet Union, migrated to Uzbekistan and Turkmenistan. The collectivization drive brought nomadism in the steppe to an end and by late 1936 only about 150,000 nomadic households remained, mostly located in the deserts of Central Kazakhstan. It did lead to the destruction of the Kazakh livestock breeding economy and to an incredible loss of human life (Olcott, 1981).

In 1930s the process of industrialization and construction of rail roads across the country took place. During that period over 500 thousand people arrived in Kazakhstan according to centralized plan. They worked on construction of Turksib rail road, on non-ferrous and ferrous metallurgy and coal industry enterprises in Central and South Kazakhstan.

The second World War caused new types of immigration such as deportation and evacuation of thousands of people from different regions. The country received thousands of people deported by Stalin's regime and sent to Kazakhstan. Among them were Russians, Ukrainians, Soviet Koreans, lived in Far East, Volga Germans, Crimean Tatars, Polish, Lithuanians and many of the peoples of the North Caucasus. Also during war years 536 thousand people were evacuated to Kazakhstan from the occupied territories of the Soviet Union. Thus, due to historic circumstances under which migration to and from the country had taken place, the ethnic composition was also significantly influenced by the multinational entity of people living on the territory of Kazakhstan. The post-war years were characterized by insignificant in-migration, moreover, there was outward movement of deported people to their homelands.

Later on, there was the largest immigration wave to Kazakhstan due to virgin and long-fallow lands developing and large scale industrial construction. During the years of 1954-1962 about 1,7 million people came to Kazakhstan from the European part of the USSR (Tereschenko, 2002). The agricultural Virgin Lands Campaign led to an increase of rural population, particularly of Northern Kazakhstan. The comparison of 1939 and 1959 censuses shows that the rural population of Kazakhstan increased by 19%. Up until the year 1968, there was observed positive net migration, i.e. number of people arrived to Kazakhstan was higher than those who left the country. As Grandstaff (1975, p.484) indicates that as an area of soviet economic development during the 1950's and 1960's in connection with agricultural, coal-mining, and ferrous metallurgy campaigns, Kazakhstan had a higher than expected level of population mobility, most likely due to the high proportion of prior movers in its population. For instance, according to the Agency of Statistics during the periods of 1950-1959 and 1960-1967 the annual net migration gain per 1000 population equaled 12 and 5 people respectively. However, during the 1960s the inflow of population to Kazakhstan began to decrease and finally stopped. And starting from the end of 1960s the balance of migration with other republics of USSR became negative. Particularly, for the periods 1970-1979 and 1980-1989 the net migration loss made up -5 to -7 per 1000 people. As a result, 28 % of natural growth was lost due to emigration in 1970s and 38% in 1980s appropriately.

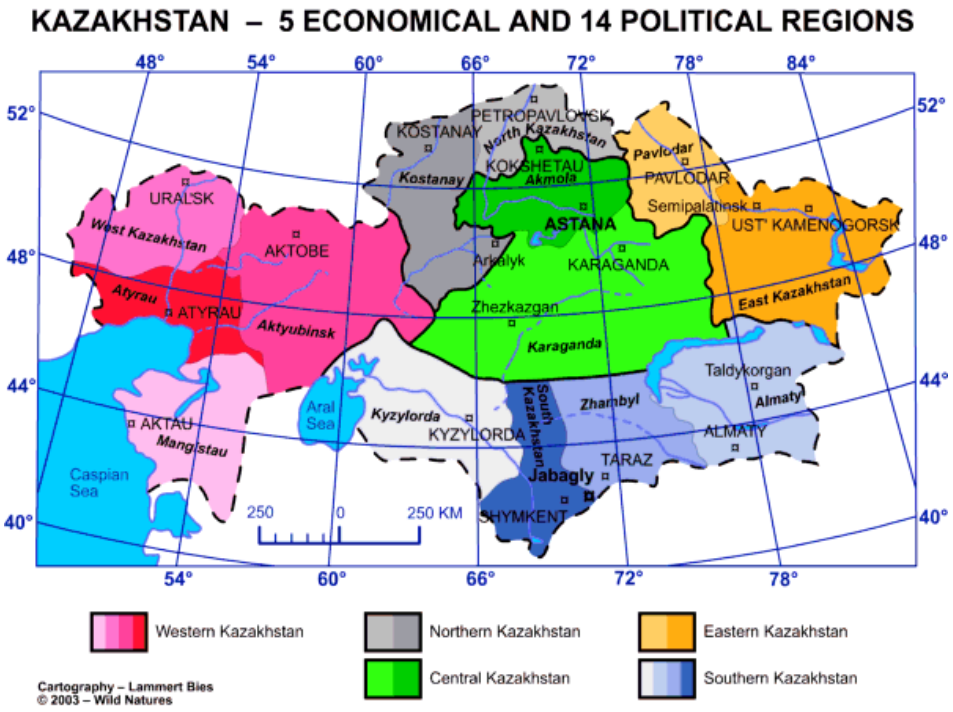
It should be noted that "because of Kazakhstan's diverse, multi-ethnic population, and because it has tended to be relatively easy to move from one former Soviet republic to another, the distinction between internal and international migration is not as great as in much of the world" (Becker et al., 2003 p.231). Indeed, population movements within the Soviet Union were quite intensive and free of substantial limitations compared to strict restrictions with respect to external migration abroad. The special permission was required to reside only in capital cities like Moscow and St. Petersburg (former Leningrad), such named 'closed cities' represented by Bakonur cosmodrome, scientific research centers and towns with military objects. Another regulation related to internal migration was implemented through agreement or special order from state enterprises to educational institutions. For that reason, after completion of education, young specialists were obliged to spend one to two years at the destination workplace according

to the agreement. There were of course exclusions for married people and women with children. Another in-direct restriction to internal movements was the absence of private ownership for housing since all dwelling stock belonged to the state and citizens rented their flats, rooms and houses from the state. The soviet internal passport system required that persons changing places of residence to register with municipal authorities in areas of arrival. Therefore, in order to move from one place of residence to another one should register at the new address which was necessary both for housing purposes and for employment, as without registration workers couldn't expect to find a job.

1.3. Demographic situation

The country has undergone various transformations due to a complex set of administrative, structural, political and economic factors during the last century. These changes influence both population size, structure and distribution of population over a huge territory of Kazakhstan. As can be seen on Map 1, administratively, the country's territory is divided into five regions (Central, North, East, West and South), 14 oblasts (provinces) each having it's administrative center, and two municipal districts (Almaty and Astana cities).

Map 1_ Administrative map of Kazakhstan

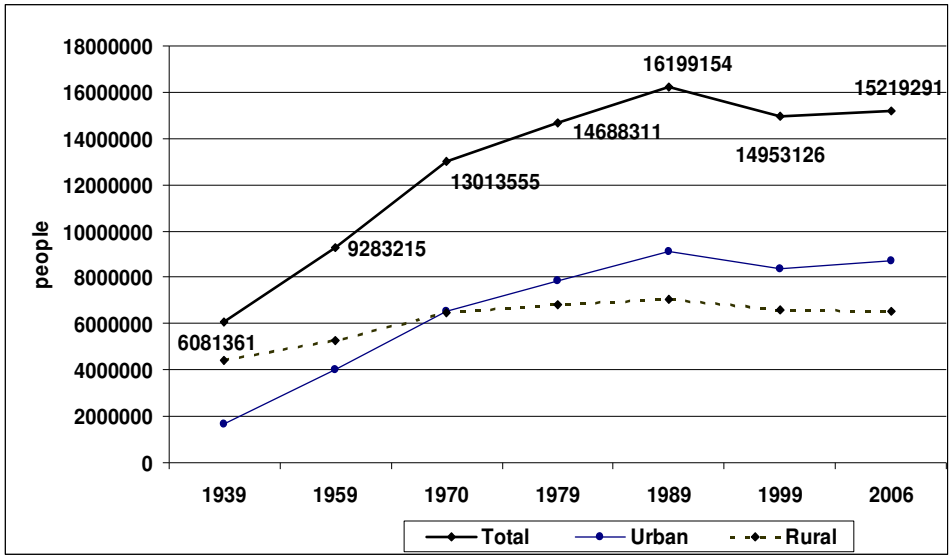


Source: www.wildnatures.com

Having extensive territory it is one of the most sparsely populated countries in the world with average population density of 5,6 people per sq. km. Southern, Eastern and Northern regions of

the country are more populated, while Central and Western regions have a very low population density. Particularly, the most densely populated is South-Kazakhstan oblast - 17.1 people per sq.km and the least populated Mangistau oblast - 2.2 people per sq. km. The capital of Kazakhstan is Astana city (since 1997) with population of 550.4 thousand people, the former capital – Almaty is the biggest city with 1247.9 thousand inhabitants.
Though, as Figure 1 shows, the total population of Kazakhstan had increased, it's growth was affected by historical events taken place in the previous century: famine in 1920s, collectivization of 1930s, political repressions, Second World War, industrialization and finally collapse of the USSR.

Figure 1_ Population of Kazakhstan, 1939-2006



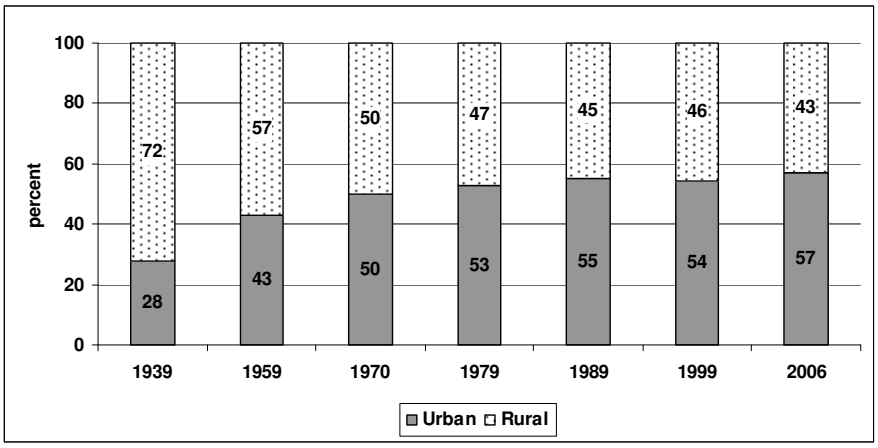
Source: Agency of Statistics

Between 1939 and 2006 Kazakhstan's population increased from 6,1 millions to 15,2, that is by the factor of 2.5. Up to the end of 1980s, the large families were a common thing mainly thanks to the state subsidies ensured by the social and economic policy of the soviet government. Particularly, citizens were provided with free secondary and higher education and medical care, different child allowances. Consequently, all these social benefits considerably reduced family expenses for child bearing and rearing. At the same time, improvement of public health has also resulted in increase of child survival. Nevertheless, the gradual change of fertility behaviour was determined by a growing level of urbanization, alteration in people's aspirations and change of women role in society. In other words, it was a transition from a traditional type of reproduction to a modern one. Thus, TFR for Kazakh women decreased to 3,6 in 1989 compared to 4,8 in the end of 1970s. With independence gained in the year 1991, Kazakhstan has inherited a huge number of social, economic and political problems. Among the negative outcomes of transition from the command-and-administrative economy to the market economy were the acute economic problems that led to social depression and instability. Together with high unemployment, delayed payments of pensions and wages, that period was characterized by dramatic deterioration and stagnation of major social domains: health care, education and science. All these processes naturally generated demographic depopulation represented by an enormous

increase of emigration and decrease of natural population growth due to high mortality and low birth rates (10.4 and 16.3 per 1000 in 1996 respectively). The unstable political and socio-economic environment led to further decreases in fertility rates whereas mortality rates particularly among men significantly increased. As a consequence, the total population decreased by 12% from 16.9 million in 1991 to 14.9 million in 1999. The total fertility rate declined from 3.3 in 1990 to 1.8 in 1999. The health situation also worsened which resulted in dramatic declines in life expectancy for both men and women. The 6.5 year decline (from 64.5 to 58.0) in life expectancy for males and 5.6 year decline for females (from 75.0 to 69.4) during the period 1990-1995 is exceptional – almost unique for peacetime societies not facing a dramatic epidemic (Becker et al., 2003, p. 14). Currently these rates have slightly recovered in 2005 to 61 for males and 72 years for females, also indicating a substantive gender difference of more than 10 years. Kazakhstan also entered the stage of ageing of population. According to the Agency of Statistics the share of the population aged 65 and over was 7.7% in 2005 compared to 6.9% in 2000. At the same time, the proportion of children, adolescents and youth (age group of 0-29) continues to decline: for instance, in 1989 this age groups accounted for 58.2%, in 1999 - 53.9% and by 2005 it declined to 52.2%. As a result, the mean age persistently increases: in 1989 the mean age was 28.5 years, in 1999 – 29,9 years, and in 2004 it was 31,5 years. The average household size remains rather high and equal to four people.

As can be observed from Figure 2, the proportion of the rural population has declined from 72% in 1939 to 43% in 2006. This fact can be explained by transition of nomadic economy to a modern production through industrialization and urbanization processes. The rural population was represented by native Kazakhs who comprised the majority of population in the past. With joining to the Soviet Union and industrial development, the urban population has grown from 28 % in 1939 to 57% in 2006.

Figure 2_ Population structure, 1939-2006

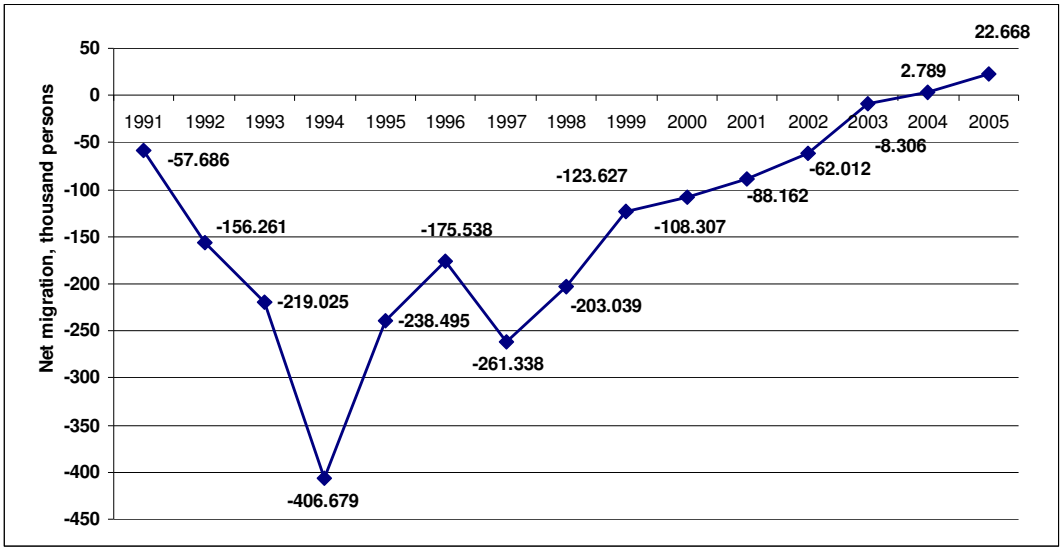


Source: own calculations based on the data of the Agency of Statistics

Between two previous censuses in 1989 and 1999, the rural population decreased from 7,06 million people in 1989 to 6,58 million people in 1999, or by 491 thousands though the proportion of rural inhabitants increased by one percent from 45% to 46%. This exceptional shift can be explained by large outflow of urban population abroad in that period.

During nine years from 1991 through 1999 the gross number of migrants involved in international migration process amounted 3,4 million (including emigration and immigration flows) taking into account the total population of just 14,5 million people at that period (Figure 3). It should be noted that while the immigration stream consisted from ethnic Kazakhs (oralman) repatriated from China, Mongolia, Turkey and Central Asian republics, emigration was represented mainly by ethnic Germans and Russians leaving for permanent living to Russia and Germany.

Figure 3_ Net international migration, 1991-2005



Source: Agency of Statistics

As a result, the ethnic composition of the multinational population has altered notably. According to the official data, 130 nationalities lived in Kazakhstan at the time of the Census. In 1999 there were eight nationalities with the largest shares in total population: Kazakhs, Russians, Ukrainians, Uzbeks, Germans, Tatars, Uigurs and Byelorussians which jointly accounted for 95.7% of the country's population. Compared to 1989 the share of Kazakhs increased by 13.3%, Uzbek people by 0.5% and Uigurs by 0.3%. The following nationalities decreased in numbers: Russians by 7.4%, Germans by 3.4%, Ukrainians by 1.7%, Byelorussians by 0.4% and Tatar by 0.3%. At the present time (01.01.2007) the proportion of Kazakhs made 59,2%, Russians - 25,6%, Ukrainians and Uzbeks - by 2,9%, Uigurs and Tatars - by 1,5%, Germans - 1,4% and other ethnic groups made up 5%.

Since independence, regional differentials appear to have widened. In general, the people in cities were best able to benefit from the opportunities of the market economies and be able to protect themselves from the destabilization. Therefore, among the most important factors of rural-urban migration are unemployment in rural areas and lack of social infrastructure. According to the Ministry of Labour and Social Protection, on average there were 36 unemployed urban citizens per job vacancy compared to 285 unemployed per available job in rural areas, which is eight time higher (Mustafaev, 2001). As the authors of the Poverty report

(2004) indicate, there was remarkable migration of rural residents to urban areas because of the lack of employment and prospects for securing a job (85.8 percent of respondents) as well as difficulties in running a private business (34.5 percent). In addition to the lack of employment opportunities, rural migrants were also more motivated by poor quality of education in rural schools which is significantly worse that in the cities. These factors have a strong influence on the continuation of migration flows from rural to urban areas.

The sex composition of Kazakhstani population represents interesting information. The data of 1939 census shows that male accounted for 52% of total population. But after the second world war the situation reversed and the proportion of female population achieved 52% (according to 1959 census) and this has remained on the same level until now. If we look at the sex distribution by urban and rural areas from Table 1, the sex structure of urban citizens reflects the general structure of the total population, which was 47% for men and 53% for women in 1999. As for the rural citizens, it can be seen that the proportion of rural male increased from 48% in 1959 to 50% in 1999 whereas the percentage of rural females decreased from 52% to 50% consequently. In a word, the over-representation of females is particularly present in the urban areas, whereas since the 1980s it is balanced in rural areas.

Table 1_ Structure of population, 1939-1999, percent

	1939	**1959**	**1970**	**1979**	**1989**	**1999**
Total	**100**	**100**	**100**	**100**	**100**	**100**
Male	52	48	48	48	48	48
Female	48	52	52	52	52	52
Urban	**100**	**100**	**100**	**100**	**100**	**100**
Male	52	47	48	47	48	47
Female	48	53	52	53	52	53
Rural	**100**	**100**	**100**	**100**	**100**	**100**
Male	52	48	48	49	50	50
Female	48	52	52	51	50	50

Source: Agency of Statistics

The spatial distribution of the population over the territory of Kazakhstan (Table 2) reveals significant disproportions. Out of 2724.2 thousand sq. km, 27% is occupied by the Western region where according to 1999 census lived only 13.7 % of total republican population. Consequently, this region has the smallest population density, about 3 people per sq. km. The second largest region – Southern Kazakhstan with the territory of 711.9 thousands sq .km which constitutes 26% of total area, was a place of residence for 41.8% of citizens. Though the Southern region is the most sparsely populated area, Kyzylorda province has a very low population density of only 2.2 people per sq. km (due to dry climate and poor ecological situation) compared for instance to 19 people in South-Kazakhstan region and 4159.6 in Almaty city belonging to the same region.

Table 2_ Spatial distribution of population, 1999 and 2006

region	area, thousand sq. km	area, %	1999 Total,%	1999 Urban, %	1999 Rural, %	2006 Total, %	2006 Urban, %	2006 Rural, %
Southern	711.9	26.0	41.8	37.5	47.3	44.1	39.5	50.1
Eastern	408.0	15.0	15.6	17.0	14.1	14.3	15.4	12.8
Central	574.2	21.0	17.2	22.2	10.8	17.3	23.3	9.2
Northern	294.0	11.0	11.7	10.0	13.9	10.3	8.1	13.2
Western	736.1	27.0	13.7	13.3	13.9	14.1	13.6	14.8
	2724.2	100	100	100	100	100	100	100

Source: own calculations based on the data of the Agency of Statistics

Looking at the structure of urban and rural population distribution and it's changes over time, particularly from 1999 to 2006, we can observe that the total population has significantly increased in two regions: in the Southern region from 41.8 to 44.1% and in the Western part from 13.7 to 14.1%. This fact can be explained by influx of migrants from other parts of Kazakhstan as well as immigration of native Kazakhs (oralman) arriving from abroad after commence of repatriation policy in 1990s. It is important to note, that 50.1% of the rural population in 2006 resided in the Southern region of the country. The Eastern and Northern regions suffered from depopulation, that is the proportion of population declined from 15.6% to 14.3% in the East and from 11.7% to 10.3 % in the North.

As for the Central region, where the new capital is situated, the proportion of total population remained almost unchanged during 1999-2006, whereas share of urban population increased by 1.1%, but rural population declined by 1.6 %. Central Kazakhstan had the second after Southern region proportion of urban population equal to 23.3% in 2006. In the same time, it has the smallest proportion of rural population, equal to 9.2% in 2006. It can be explained by the fact that Central region consists of highly urbanized Karaganda province where proportion of urban population constituted 82.2% in 2000 and 83.8% in 2006 and Akmola province, which is also known as agrarian oblast. The proportion of Akmola oblast urban population slightly increased from 46% in 2000 and 47.5% in 2006. Moreover, the large inflow of migrants to Astana city after 1998, particularly arrived from other regions of Kazakhstan, increased significantly the city's population from 380.9 thousand citizens in 2000 to 550.4 thousand people in 2006.

1.4. Geographic, ecologic and economic situation

Kazakhstan is the ninth largest country in the world. The total area of Kazakhstan is equal to 2,717,300 sq. km, with 2,669,800 sq. km of land area and 47,500 sq. km of water area. Kazakhstan is a landlocked country situated in the Central Asia (see Map 2).

Map 2_ Map of Kazakhstan

Source: http://www.state.gov

It is bordered by Russia in the north and west, Turkmenistan and Uzbekistan in the southwest, Kyrgyzstan in the south and China in the southeast with a total border length of 12 187 km. The country has rich natural resources that heavily directed industrial and economic development during soviet and present times. Various metals and minerals, especially iron, coal, oil and gas are available. Due to the Soviet past and rapid economic development in post-soviet era the environmental situation has become very serious in Kazakhstan. Toxic waste and air pollution is concentrated in East-Kazakhstan, Pavlodar, Karaganda, Kostanay, Aktobe, Atyrau and Mangistau regions. The drying up of the land-locked Aral sea as a result of the ill-considered usage of the water basin has caused serious ecological problems in the southern and western parts of Kazakhstan. Among them are removal of huge areas from the agricultural production, drop of productivity, deserting, difficulties with water supply and food products, high mortality rates and levels of diseases among the population. Another example of ecologic catastrophe is the Semey nuclear testing polygon in the East-Kazakhstan region. During half of the last century, Kazakhstan was the site of the former Soviet Union's nuclear testing programs, and areas of the country have been exposed to high levels of nuclear radiation. These problems have not only worsened the environment and severely weakened the health of many residents and their children, decreasing life expectancy and increasing child mortality, but also led to the forced migration of thousands of people. In 1991 after the collapse of the Soviet Union, the Republic of Kazakhstan became an independent state. Since that time a set of complex structural changes have taken place in all domains of Kazakhstani society - economic, social, political and

demographic. The government had to tackle not only the provinces' substantial differences in economic livelihood but also with their diverse geography and ethnic make-up. The provinces range from the sparsely-populated, energy-rich lowlands of the west to the densely populated provinces of the east. From the south with its predominantly ethnic Kazakh population Kazakhstan extends through the arid central zone to the industrial north with a predominantly ethnic Russian population (Cummings, 2002). The transition period was characterized by economic crisis accompanied by high unemployment, low wages, and absence of social security system. A lot of people left the country searching for a better life abroad. During the transition period more people emigrated from Kazakhstan than immigrated to, making a serious issue of concern for the largest country in the Central Asia with a population of just 15 million. Important and timely economic and social reforms undertaken by the government together with foreign investments to oil industry development had extensively improved the economic situation. Economic development, urban growth and other processes involving socio-economic transformations are reflected in the growing mobility of the population and increasing internal migration.

In the past, the Kazakhstan economy existed as a highly integrated part of the former Soviet Union production system, specializing in agriculture, metallurgy, and oil and mineral extraction (ADB, 2001). Kazakhstan's rail and road transportation systems were designed to serve the Soviet economy and connect its primary commodity industries with the northern manufacturing markets. As a consequence, the breakup of the USSR in December 1991 and the collapse in demand for Kazakhstan's heavy industry products resulted in reduction of the economy. During the past decade of transition, Kazakhstan has made significant progress in stabilizing its economy and carrying out structural reforms designed to establish a free market economy through privatization of state enterprises and extensive reforms of the banking sector, creation of a national mortgage system to support the development of the private housing market and the creation of private pension funds in 1997-1999. According to International Monetary Fund Kazakhstan's economy has performed strongly during 2000-2005. The energy sector has driven economic growth, thanks to an energy boom that began in 2000. An average rate of GDP growth achieved 10.36%, per capita incomes have grown from $1,229 in 2000 to $3,717 in 2005. A rapid expansion in oil production has led to major economic and social gains. Key social indicators improved further and unemployment continued to decline. According to the Agency of Statistics unemployment rate decreased from 9,3 per cent in 2002 to 7,8 per cent in 2006 of the economically active population. Along with national progress, there has been a growing disparity in the country between resource-rich regions with growing industries (such as oil and natural gas) and agricultural regions, as well as between rural and urban areas.

The structure of Gross Domestic Product by main economic sectors and employment in these sectors have changed considerably between 1988-2005 as can be seen from the Table 3. For instance, the share of the service sector has increased from 22.1% in 1988 to 55.9% in 2005, whereas the contribution of agriculture to GDP dropped down from 34.5% to only 6.5% consequently. Apparently, the main goals of current structural policy are diversification and the strengthening of the non-oil sector as the country's economy is now heavily dominated by oil and gas, mining, and metals production.

Table 3_ Structure of Output and Employment by sectors, 1988-2005

	1988	1990	1995	1996	1997	1998	1999
Labour force, million	-	-	7.4	7.5	7.4	7.1	7.1
Employed, million	6.6	6.5	6.6	6.5	6.5	6.1	6.1
Structure of employment by sectors, % of employed							
Agriculture	19.6	18.8	22.0	21.3	24.0	22.2	22.0
Industry and construction	21.6	21.0	22.2	20.6	18.3	18.4	18.3
Services sector	58.8	60.2	55.8	58.1	57.8	59.4	59.8
Structure of output % of GDP at current prices							
Agriculture	34.5	34.0	12.3	12.2	11.4	8.6	9.9
Industry and construction	43.4	32.6	30.0	27.9	28.7	29.3	32.9
Services sector	22.1	33.4	57.7	60.0	59.9	62.1	57.2

	2000	2001	2002	2003	2004	2005
Labour force, million	7.1	7.5	7.4	7.6	7.8	7.9
Employed, million	6.2	6.7	6.7	7.0	7.2	7.3
Structure of employment by sectors, % of employed						
Agriculture	31.4	35.5	35.5	35.3	33.3	32.2
Industry and construction	17.4	16.3	16.3	17.0	12.1	12.3
Services sector	51.1	48.1	48.2	47.8	54.6	55.5
Structure of output % of GDP at current prices						
Agriculture	8.1	8.7	8.0	7.3	7.1	6.5
Industry and construction	38.5	34.3	35.8	35.7	35.4	37.6
Services sector	53.4	57.0	56.2	57.1	57.5	55.9

Source: own calculations using data from http://www.adb.org/Kazakhstan and http://www.undp.kz/infobase

The proportion of people employed in agriculture increased from 19.63% in 1988 to 32.23% in 2005, while the share of employed in industry fell from 21.61% in 1988 to 12.26% in 2005 and in services sectors from 58.75% to 55.51% respectively. However, one can notice a strong imbalance in distribution of labour forces between economic sectors compared to their share in GDP. In particular, industry was accounted for 37.6% of GDP in 2005 with only 890 thousand people employed in this sector (12.26% of total number of employed) whereas agriculture with the smallest share of GDP (only 6%) accounted for 32.23% of total employment in 2005 or 2340 thousand workers. This phenomenon can be explained by low productivity of agriculture compared to other sectors (USAID, 2006).

2. Theoretical framework and conceptual model

Migration is driven by perceived differences in living conditions or employment opportunities in different geographical locations. Regional migration and regional economics as it is pointed out by Van Delft & Suyker (1984) are interrelated issues which can be explained both from economists and demographers points of view. Accordingly, causes and consequences of internal migration can be seen as factors of demographic change and economic development of regions. Given the current economic situation there are substantial regional differences in wages, income, employment and economic growth in Kazakhstan. Besides, the regional differences in educational level of population in origin and destination places can also be seen as an influencing factor of internal migration. The analysis of how regional disparities affect migration from one province to another or from rural areas to urban is of particular interest of this research.
Explanatory analysis of migration may be carried out at different levels such as the macro level of aggregates (population, regions, provinces) and the micro level of individual (Willekens, 1984, p.28). Furthermore, as Armstrong and Taylor (2000) state, in addition to the main determinants of migration expressed in terms of characteristics of origin and destination regions such as wages, employment opportunities, climate and environment, there are also institutional factors or context and personal characteristics that enable or restrict migration. Given the research objective and taking into account the aggregate level of data available for analysis the choice of appropriate theories is aimed to conceptualize the causal processes at the macro level of analysis.

2.1. Economic theories of migration

As Pryor (1975, p.34) noted, among major initiating factors, economic factors are the primary course of migration, "whether as the only method of achieving a cash income for personal needs; or in a more developed society, migration based on (perceived) prospects for upward occupational or social mobility, or the location of particular job opportunities". One of the most popular theories explaining migration from an economic standpoint is the neoclassical economic theory which was initially developed to explain labour migration in the process of economic development. The key idea of the neoclassical theory is that migration is caused by geographic differences in supply and demand for labour (Massey et. al, 1993). The resulting differentials in *wages* among regions cause workers to move from low-wage, high-unemployment regions to high-wage, low-unemployment regions. Interregional migration thus occurs in response to wage differences between regions and migrants move from low wage regions to high wage regions motivated by economic benefits from the move. Apparently, migration can be considered as reallocation of labour force in response to market needs (Ritchey 1976, cited by Boyle et al 1998, p.61). Certainly, regional wage differences play an important role in determining inter-regional migration flows. However, the previous research on inter-regional migration indicates that the determinants of migration are more complex than can be explained by the classical model (Armstrong and Taylor 2000). Therefore, we need to find other explanations of internal migration which are provided by extensions to the classical theory of labour migration.
Harris and Todaro (1970) refined the simple neoclassical model into the more widely applied explanation that migration is driven by expected rather than actual wage differentials. In this case, internal movement stems from regional differentials in both *earnings and employment*. Individuals are rational actors who calculate costs and benefits and expectation of return of migration in destination areas. Their model reflects the uncertainty of employment or risk of

successfully finding better paying jobs by migrants in another location. Taylor & Armstrong point out that "one of the deficiencies of the classical migration model is that it does not allow regional differences in employment opportunities" and "it is regional differences in unemployment and job opportunities which become the main determinants of migration" (2000, pp.148-149).

Among other examples of theoretical explanations for migration trends is the widening disparities in *GRP per capita* as with independence and economic transition, levels of GRP per capita have widened considerably within Kazakhstan, and now act as an important migration factor (Mansoor and Qullin, 2006, p.80). Hence, the higher the prosperity of regions, the greater migration between these regions.

Furthermore, with regard to the relation between migration and *business cycle*, it is assumed that the level of inter-regional migration should rise during times of prosperity and decline in periods of recession. Both housing market and labour market processes may contribute to this situation. According to Van der Gaag et al. (2003) in times of economic downturn, job and housing moves may be postponed, whilst during times of economic buoyancy, these intended moves may occur. Thus, the economic cyclical downturns also have a certain effect on interregional migration. It is assumed, that during recession the job finding opportunities and expected earnings also decrease. Moreover, migrants are less able to cover pecuniary and non-pecuniary costs of a move (Armstrong and Taylor, 2000). It is notably however that, as the evidence shows, recessions are usually accompanied by a substantial fall in gross migration, but not always by drop in net migration (ibid, p.161).

2.2. Human capital theory

Along with the reallocation of labour, there exist a movement of capital which includes *human capital* with highly educated and skilled workers. Therefore, it is important to distinguish between labour migration and flow of human capital as the wage rate can be different from the rates of return on human capital in the region of destination. Consequently, the patterns of migration will be also distinct (Massey et. al, 1993, p. 433). The human capital theory developed by Sjaastad (1962) assumes that a migrant responds to the higher earnings that can be expected from migration over his remaining working life (Armstrong and Taylor, 2000, p.153). Human capital theory thus can explain the migration from prosperous to depressed regions given the fact that depressed regions may be high-wage regions for some occupations. They are attracted by the higher expected wages and employment chances. Therefore, age and skills of migrants are important factors. Migration is a highly selective process at a personal level (Lee, 1967) as younger migrants with higher quality, i.e. well-educated and skilled are more motivated to migrate because for them migration means advancement and they perceive better opportunities of the move. They also have a larger remaining life span to enjoy the fruits of their migration. The likelihood of migration is related to such human capital variables as age, skills, education, and marital status. The resulting migration leads to reduction of human capital in sending areas and its accumulation in receiving areas consequently reinforcing economic growth in receiving area and stagnation in sending region (Massey et al, 1993, p.453). Internal migration may begin for a variety of reasons and under different conditions. Lee (1967) argues that the only existence of diversity of people in the area affects the volume of migration. He states, that where there is a great similarity among people – whether in terms of ethnic origin, education, income or tradition – we may expect a lesser rate of migration than where there is a great diversity. This variety of

people inevitably implies that social status of some groups will become elevated above social status of others and migration may occur from desire to improve it (ibid, pp 52-53).

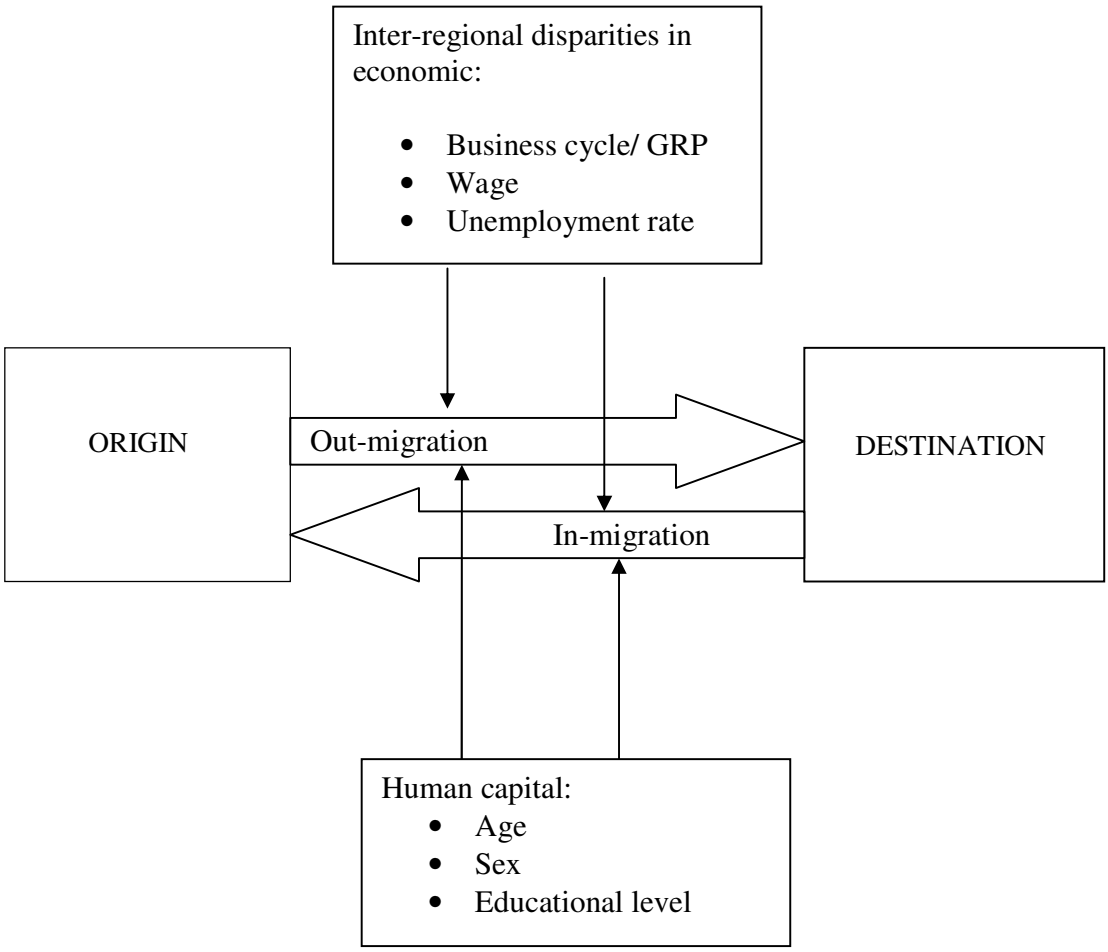
2.3. Conceptual model, definitions of concepts and hypotheses

In the section we present the conceptual model based on the theoretical overview of the previous section. Secondly, the main concepts used in the study will be defined according to the conceptual model and research objectives. Finally, the set of research hypotheses to be tested is given.

Conceptual model

The conceptual model presented in Figure 4 is embedded in a set of theories described in section 2.2. and it results from a combination of economic theory of migration and human capital theory. As can be seen from the model, in-migration and out-migration and consequently the choice of the destination depend on individual characteristics of migrants and economic characteristics in places of origin and destination. Therefore, the main idea of the conceptual model is that migration occurs as a result of regional disparities in economic factors such as gross regional product, averages wages, unemployment rates and migrants human capital characteristics such as age and level of education in origin and destination areas.

Figure 4_ Conceptual model



Definition of Concepts

Migration is a movement of people across the boundaries of a territory which entails change of place of residence (Mulder and Hooijmeijer, 1999). *Internal migration* being a continuous process of people's reallocations in space and time is a component of spatial population change (Willekens, 1984). From spatial perspective, internal migration is represented by moves that cross administrative boundaries within country. In Kazakhstan, internal migration is divided into inter-regional migration or migration between different provinces (oblasts) and intra-regional migration or residential mobility within boundaries of a province. It is important to note therefore that inter-regional migration entails a change of province (oblast) of residence. *Labour migration* is defined as the movement of economically active people between regions of a country which occurs in response to 'persistent inequalities in the distribution of unemployment and imperfections in the labour market' (Boyle et al, 1998, p.83).
Regional economic disparities are expressed in terms of fluctuations in GDP, income and unemployment rates. These factors can be viewed as a stimulus and important triggering processes in decisions to migrate and emphasize the interconnected nature of causes and consequences of population move.
Business cycle is a fluctuation in national economic activity measured by real gross domestic product (GDP). A business cycle contains periods in which real GDP grows followed by a period in which real GDP falls.
Gross Regional Product per capita is a key indicator of the system of national accounts on the regional level and it is calculated as a sum of gross added values of all branches of national economy. The GRP volume indicates the oblast's input to the country's economy and it is a key and more accurate measure of production output and living standards (USAID, 2006).

Wage refers to inter-regional differences in average wage levels. It is defined as a monthly remuneration of an individual and calculated as a ratio of the total wage fund to the average number of working persons on a region. As it is stated by Greenwood (1975), the potential migrant will most likely select that locality at which the expected benefits that accrues to him from migration is greatest. 'The income that the individual expects to earn at each alternative destination is likely to enter importantly into his judgment concerning the benefits associated with each location' (ibid, p. 399).

Unemployment is the percentage of labour force or working population who are currently without a job. Differences in regional job opportunities can be considered as a determinant of internal migration.

Human capital defined by personal characteristics of potential migrants in terms of age and educational status which increase opportunities to find employment and increase income. According to Becker (1962) "earnings typically increase with age at a decreasing rate and unemployment rates tend to be negatively related to the level of skill" (p. 10). Being able to move from one area to another is an ability and a benefit of having human capital.

Education opportunities are regional enrollment rates to higher education or number of students enrolled in higher education institutions per 1000 people.

Research hypothesis

Bearing in mind the research questions to be answered in this paper, and based on the Eurostat report on inter-regional migration in European countries by Gaag et al. (2003), we formulate our research hypothesis in Table 4 on relationships between our control variables and overall internal migration, in-migration and out-migration separately as each may have different influencing factors:

Table 4_ Research hypotheses

Variables	**In–migration hypotheses**	**Out-migration hypotheses**
Size of the region	Large provinces in terms of population and area attract more migration.	Low populated and small areas cause out-migration.
Distance	The fewer distance between regions the higher migration. The large distances reduce migration.	
Capital city	New capital as a political, service and educational center attracts more migrants.	
Gender/Age	Migration is gender and age selective. Young adults and women are more inclined to migrate.	
Business cycle	During economic crisis internal migration declines and it increases in times of economic growth. "The volume of migration varies with fluctuations in the economy" (Lee, 1967, p.53).	
GRP per capita and wages	Higher GRP and high wages provinces attract more migrants.	The higher the GRP and wages the lower out-migration. Low income provinces induce out-migration.
Unemployment	Low unemployment rates draw in-migration to the region.	Increasing unemployment rates lead to higher out-migration from the region.
Education	Higher education enrollment rates attracts more migrants.	Low education enrollment induces out-migration.

3. Data and methodology

Based on the conceptual model and research hypotheses to be tested, this chapter covers an overview of statistical data presented in section 3.1; operationalization of variables is described in section 3.2 and finally, the methods to be used are provided in sections 3.3 and 3.4 consequently.

3.1. Statistical data: vital statistic and census data

Internal migration can be measured directly and indirectly (Willekens, 1984). The information provided in retrospective surveys such as the national Census or Demographic and Health Survey, only indirectly measures migration representing the place of residence at a previous point in time (e.g. 10 years prior to enumeration date or since childhood). This method also known as the transition approach. In contrast, the movement approach gives direct measurement of migration events, because data provided by vital statistics register all movements made by a person during a particular period of time. Of course, both methods have their own limitations. For instance, the Census does not take into account return migrants, there is also a recall problem due to people's memory, migrants under the age of one are also ignored, and the data provided at the aggregate level disaggregated only by age and sex (Boyle et al, 1998). As for the vital statistics, the difficulty of recording migration is explained by the fact that moving from one place of residence to another is a recurrent event and migrants not always register themselves with appropriate authorities. It means that effective and reliable statistics on internal migration depends both on wiliness and cooperation of public as well as on migration policy and legislation enabling and facilitating this cooperation. In particular, some groups of migrants employed in construction, seasonal works or small self-owned businesses migrate or circulate from one place to another without any registration. At the same time, the shortcomings of social system itself, particularly tax and labour legislation, make it possible and affects not only migration statistics. The current state of affairs is preferable for some employers and employees (in case of hired workers) as it allows to avoid the payment of social and income taxes to local budgets. However, another groups of workers become more vulnerable and insecure in terms of social protection and pension savings which are provided to the officially registered employees. So ideally, migrants should be interested in registering with local bodies, which is only possible if they perceive it as obligatory, necessary and important.

In Kazakhstan, the vital statistics data or event data on internal migration are processed on the basis of two documents: the statistical record cards attached to the arrival and departure forms which completed for the all family members. Both documents are made in a questionnaire form. The statistical record card attached to the arrival form contains the following characteristics of migrant: date and place of birth, sex, nationality, place of registration, place of origin, duration of previous residence, purpose of travel, place of work and occupation at the previous place of residence, educational attainment, family status (married persons should indicate whether or not they arrived with their spouses) and information about children under 16 years of age arriving together with the adults. The Agency of Statistics collects information on internal migration which initially provided by the regional migration police divisions. District or municipal statistical departments are responsible for collecting the data and checking for correctness and completeness of the cards. The accuracy of measurement of internal migration is not yet entirely satisfactory. This is evidenced by the frequent discrepancy in the data for the number of departures from any given territory and the number of arrivals to other places. There is less

precise recording of migrants from urban to rural areas and from one locality to another. To improve the completeness and quality of internal migration data it is necessary to improve local record keeping.

The first universal population census on the territory of Kazakhstan took place in 1894 when the country was a part of the Russian Empire, and then followed the all-union censuses in 1926, 1939, 1959, 1970, 1979 and 1989. After gaining their independence, the countries of the Commonwealth of Independent States (CIS) conducted their first national censuses within the framework of the 2000 census cycle in accordance with United Nations recommendations. One of the pioneers in the census process in the former Soviet Republics was Kazakhstan, where the first independent national population census was successfully conducted from 25 February 1999 to 4 March 1999. The census reflected major changes in Kazakhstan's socio-economic development and the structure of society. The 1999 census was different from censuses conducted in the Soviet period in a number of ways. One important innovation was the choice of a household as a unit of observation. Other important distinctions were the inclusion of the questions about job and employment status, sources of livelihood, citizenship, information about dwellings that were incorporated in the census questionnaires. The survey was conducted on a self-identification basis. The census takers registered all residents, foreign citizens and stateless persons who were in the territory of Kazakhstan on the date of the census. Consequently, members of the population who died before or were born after the critical moment were not registered. In 1999 the preliminary results of the population census, disaggregated by sex and place of residence, were made public, and the handbook "Preliminary results of the 1999 population census in the Republic of Kazakhstan" and the compendium "Brief description of the results of the 1999 population census in the Republic of Kazakhstan" were issued (Agency of Statistics, 2006). Later on, thematic collections and handbooks containing socio-demographic and economic indicators of population including size and distribution of the population, level of education, migration, ethnic composition, sources of livelihood and employment, and number and size of households were issued.

With respect to our present study on internal migration, we are interested in 1999 census results devoted to indicators of migration processes that outlined population movements over the 10-year period from 1989 until 1998. In the census questionnaire, the respondents were asked to answer the following questions:

Have you lived in this region since birth? Yes / No; if 'no', specify for the period from 1989 through 1998:

- a) the year since you have permanently lived here
- b) previous place of residence (region, country)
- c) which type of settlement did you come from: Urban / Rural
- d) are you a refugee or a forced migrant? Yes/No

As we can see from Table 5, only inter-regional movements represented by migration to particular regions were captured by 1999 census. It shoud be noted, that the total amount of migrants arrived before the year 1989 is a difference between amount of residents living in a region not since birth and number of migrants arrived between 1989 and 1998.

Table 5_ Structure of the population by residence

Total population, 1999	including permanent residents					
	Since birth	Not since birth	arrived during 1989-1998			
			Total arrived 1989-1998	from other regions of RK	from CIS & Baltic countries	from other countries
14953126	11523850	3429276	752254	**443013**	253720	54794

Source: Agency of Statistics

Based on the answers to these questions available from the census data a number of tables have been prepared for the purposes of the present research containing the following information on internal migration flows and migrants characteristics which will be used for statistic analysis:

- Registered population by province and type of residence (urban, rural) in 1989 and 1999;
- Internal migration flows during 1989-1998 by province, sex, type of residence;
- Duration of residence at current place of residence by sex (male/female) and type of residence (urban/rural), 1989-1998;
- Internal migration by age (male/female, urban/urban_male/urban_female, rural/rural_male/rural_female)

3.2. Operationalisation of variables

Having specified the concepts to be studied and research hypothesis, we can now operationalize our variables or decide on measurement techniques. So, the operationalization of the concepts is presented in this section.

Internal migration is a movement of people (migrants) within national boundaries which entail change of place of residence and divided into *interregional and intra-regional movements*.

Under *the geographic* dimension we will consider internal migration between 16 administrative units of Kazakhstan: 14 provinces (oblasts) and two municipal districts (Almaty and Astana cities) between and within which internal migration take place. Thus, inter-regional migration occurs when the boundary of one of 16 administrative units is crossed and intra-regional migration captures all moves within 14 provinces and 2municipal districts.

Temporal dimension for the purposes of the present study is limited to two periods: we will consider only those internal migrants who have changed their place of residence within the country during inter-censual period 1989-1998 and between 1999-2005.

Business cycle is measured by Gross Domestic Product expressed in US dollars and percent of GDP growth during period under observation from independence till the present time (the years 1991 – 2005).

Income is measured by *GRP* (gross regional product per capita) in thousands tenge and *average wage* in tenge by provinces and two administrative districts for the period 1999 - 2005.

Unemployment rate is a percentage of unemployed population (people at the age 15 and above, who during the reference period, were without work, currently available for work and seeking work) in total labour force by each administrative unit during 1999 - 2004.

Educational level is a number of students enrolled in higher education per 1000 people by regions in 1999-2004.

3.3. Statistical analysis

Measures of internal migration for Census (transition) data:

- *Gross in-migration* is the sum of people moving into place *j* from all other places in the migration system over specified time period.
- *Gross out-migration* is the sum of people moving from place *j* to all other places
- *Net migration* is the gross in-migration minus gross out-migration
- *Age Migration Schedules* (Rogers and Castro 1981) by gender and type of residence show a strong correlation of age and mobility schedules. The high concentration of age-specific migration rates characterized by peaks of migration during different life transitions such as early childhood, early participation in the labour force, retirement and late old age (Boyle et al. 1998).

Measures of internal migration for Vital statistics (event) data:

Net migration is calculated as the difference between the number of persons arriving to and the number leaving from an area in a given period.
Migration rate is the number of migrants during a year divided by the population exposed to migration (the midyear population).
In-migration rates per 1000 inhabitants = (IM / Mid Year Population) x 1000
Out-migration rates per 1000 inhabitants = (OM / Mid Year Population) x 1000
Net internal migration rate per 1000 inhabitants, measuring the balance between in-migration and out-migration is the indicator that gives a clear view of which areas are losing population and which regions are gaining it (Kupiszewski et al, 2000, p.23).
Origin-destination matrix analysis for inter-regional migration flows in 2005
Correlation analysis will be undertaken to test strength and direction of relationships between regional migration rates and explanatory variables.
Spatial interaction model will be applied to extend the results of correlation analysis and test the effect of push and pull factors and additional factors such as population size and distance between regions on inter-regional migration.

3.4. Mapping technique

For mapping purposes, we obtained a shape file for Kazakhstan with administrative boundaries of 14 provinces from the Centre for Remote Sensing & GIS "TERRA". Therefore, for better representation of large amount of data the cartographic form will be used.

4. Results

In this chapter, we present answers to research questions and test our hypotheses. The descriptive analysis is given in section 4.1 with subsections 4.1.1 describing the size and directions of migration flows, 4.1.2 focusing on age and sex determinants, 4.1.3 explaining the effect of new capital on internal migration and 4.1.4 illustrating regional patterns. The results of the explanatory analysis on the effect of the business cycle and various economic factors on internal migration are provided in sections 4.2, 4.3 and 4.4 respectively.

4.1. Descriptive analysis and maps

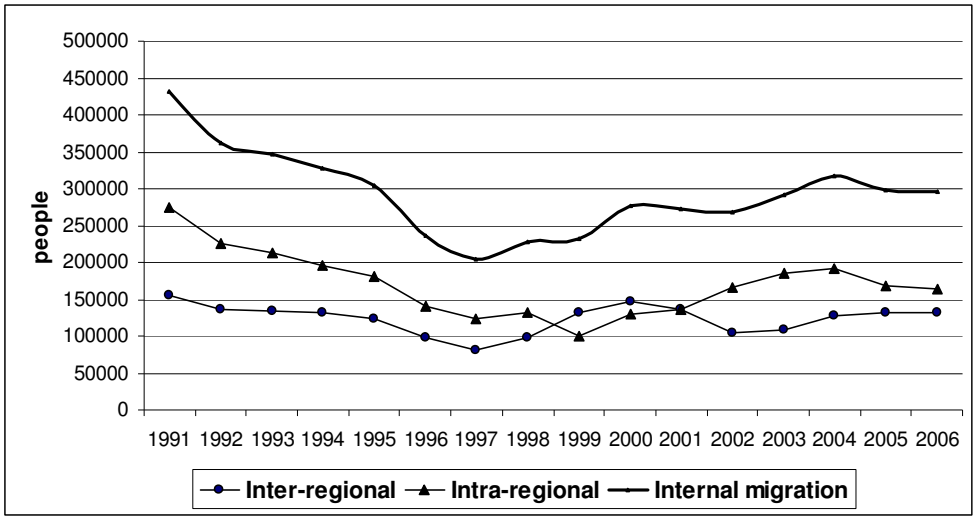
4.1.1. Size and direction of migration flows

The present section is devoted to the overall pattern of internal migration in Kazakhstan. It is aimed to describe how does the pattern and level of internal migration varied over time. Also, the analysis of internal migrants characteristics disaggregated by different age groups, gender, marital status and levels of education will be given.

Internal migration is a change of residence within a country. From the spatial point of view, there are two types of internal migration in Kazakhstan: intra-regional migration or moves within boundaries of one oblast (province) and inter-regional migration or moves between different oblasts. During the period 1991-2006 there were registered 4,696,217 internal migrants (both intra- and inter-regional) participated in movements within country. In 2006, the volume of internal movements within the territory of Kazakhstan achieved 295,270 people compared to 431,262 in 1991. According to expert evaluations, about 70% of internal migration is in the form of rural-urban flows.

As can be seen from Figure 5, the level of intra-regional migration significantly exceeded inter-regional movements, especially in the period of 1991-1995 and 2002-2004, but during 1999-2001 the volume of inter-regional movements equalized with intra-regional migration and even was a bit higher.

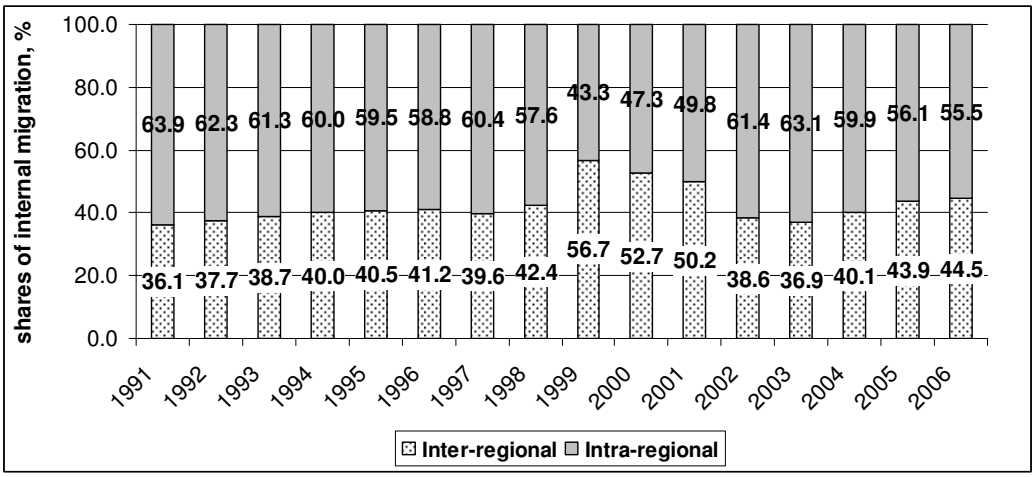
Figure 5_ Internal migration in Kazakhstan, 1991-2006



Source: own calculations based on the data of the Agency of Statistics of RK

Figure 6 shows shares of inter-regional and intra-regional flows in overall internal migration in Kazakhstan during last 15 years.

Figure 6_Shares of inter-regional and intra-regional migration, 1991-2006

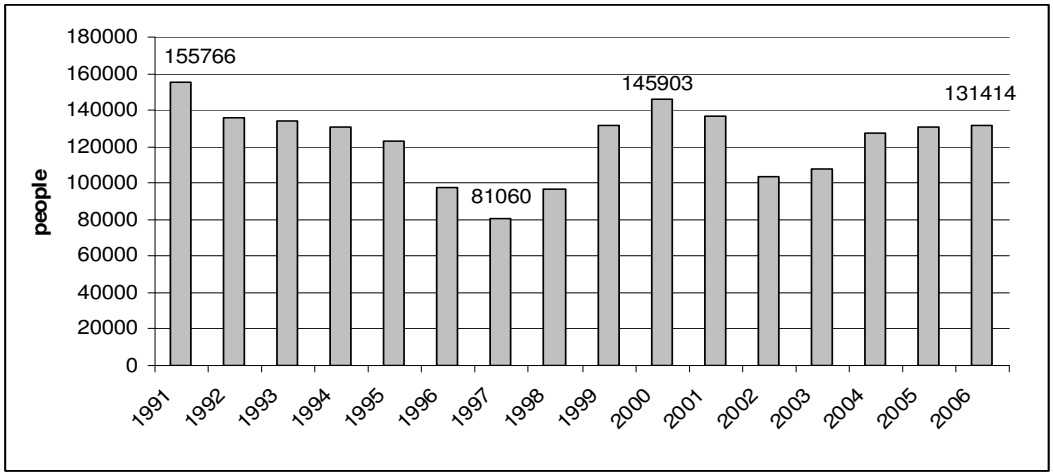


Source: own calculations based on the Agency of Statistics data

Alterations in proportions of inter- and intra-regional migration in total internal migration demonstrate the changes in geographies of internal migrants. For instance, in 1991 more than two thirds or 63.9% of all internal movements were represented by intra-regional migration. Later on, due to administrative reforms and economic developments people became more inclined to migrate from one region to another. In 1999 the proportion of inter-regional migration between different provinces has increased and achieved 56.7% in 1999. Currently the ratio of inter-regional and intra-regional migration is 44.5% against 55.5%.

Figure 7 demonstrates that, the inter-regional migration almost doubled during 1998-2000 after the lowest level in 1997. This increase of mobility between regions was mostly due to relocation of capital that instigated inter-regional relocations of thousands of people. For instance, out of 131,815 in-migrants in 1999, almost half (60,533 people) relocated to Astana.

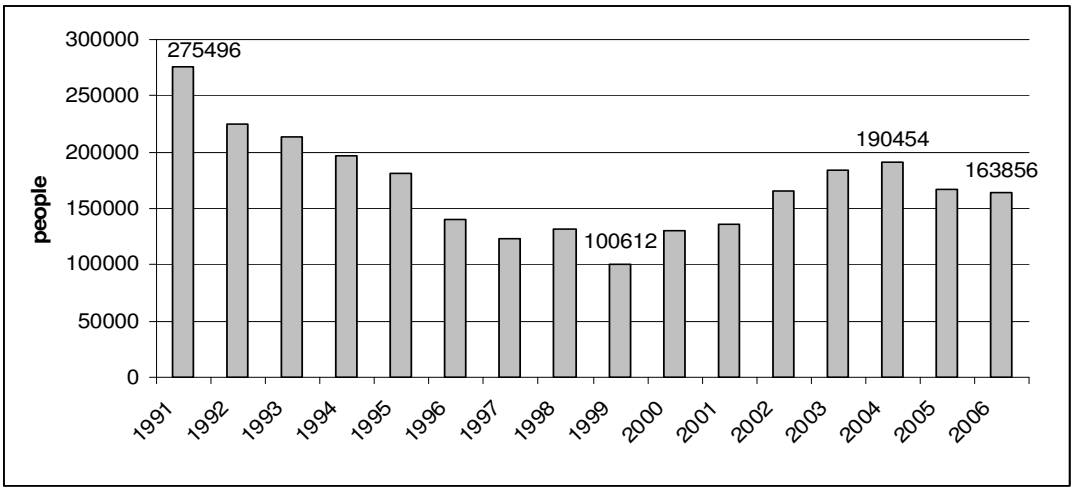
Figure 7_Inter-regional migration, 1991-2006



Source: Agency of Statistics

During 1999-2006, in-migration was mostly concentrated on Almaty and Astana cities and provinces of Almaty and Akmola. In contrast, large out-migration flows were observed from almost all regions except oil-producing oblasts. As for the intra-regional migration within an administrative unit, it's volume declined from 275.5 thousand people in 1991 to 163.9 thousand people in 2006 (see Figure 8).

Figure 8_ Intra-regional migration, 1991-2006

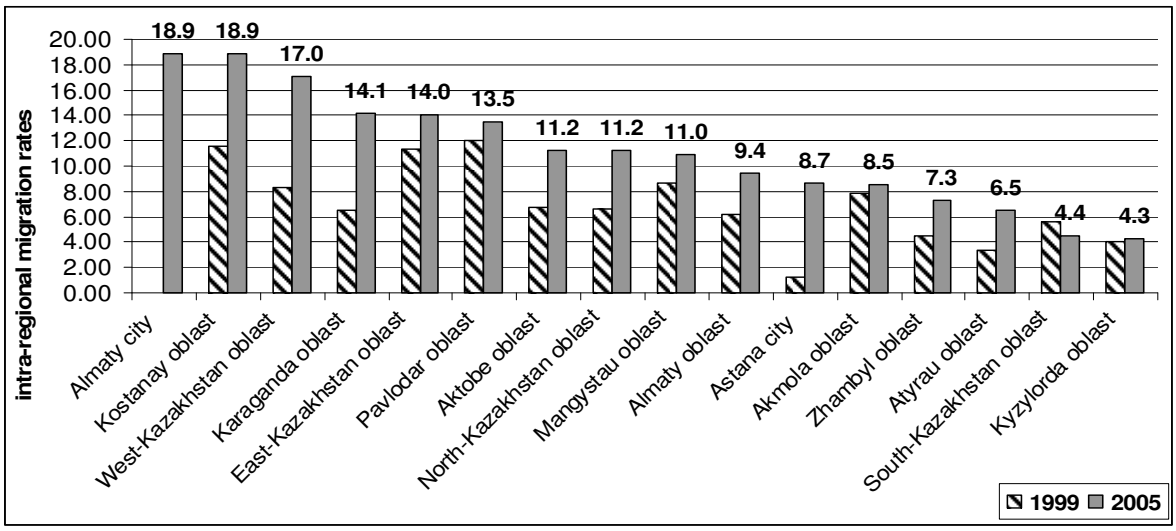


Source: Agency of Statistics

As Figure 9 shows, in 1999, the highest intra-regional migration rates were observed in Kostanay, Pavlodar and East-Kazakhstan oblasts, 11.6, 12.0 and 11.4 per 1000 people respectively. At the same time, Almaty and Astana cities experienced the lowest rates of residential mobility, only 1.3 and 0.04 per 1000 people respectively. Recently, in 2005, the overall mobility of population increased almost in all provinces except Kyzylorda and South-Kazakhstan provinces with intra-regional migration rates of 4.3 and 4.4 per 1000 people respectively. The population of West-Kazakhstan, Mangistau, Aktobe, Karaganda, Kostanay,

Pavlodar, East-Kazakhstan provinces and Almaty city were characterized by the highest intra-regional migration rates ranging from 11.0 to 18.9 per 1000 people in 2005.

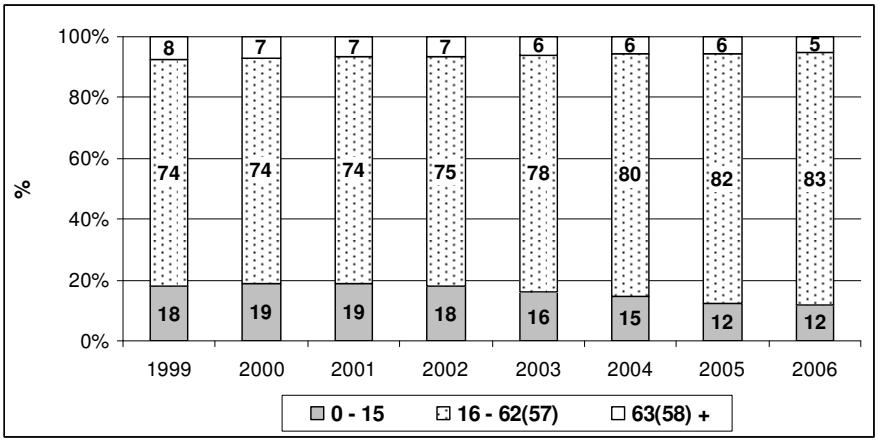
Figure 9_Intra-regional migration rates, 1999 and 2005



Source: own calculation based on the Agency of Statistics data

Now we will proceed with the description of various characteristics of internal migrants in Kazakhstan during the period 1999-2006, particularly age, sex, marital status and educational status of internal movers.

Figure 10_Internal migration by age, 1999-2006



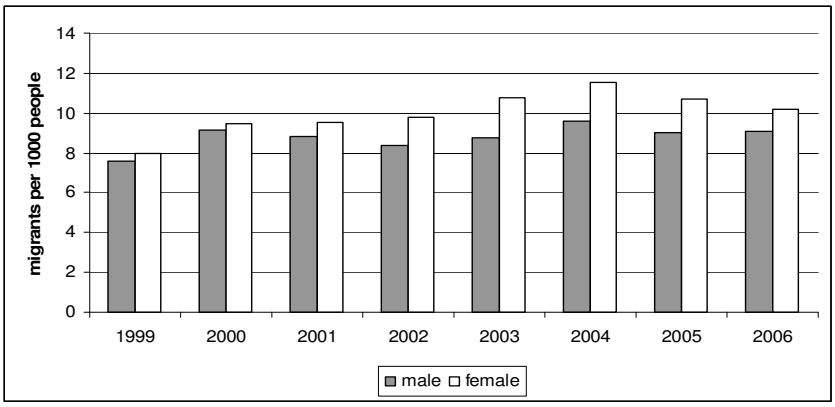
Source: Agency of Statistics

The age distribution of internal migrants shows that out of 295,270 internal migrants in 2006, 12 % were represented by children or population under working age (0-15), 83% by population of working age (16-62(57) and 5% of migrants were at the retirement age (over 63(58) years old) compared to 18%, 74% and 8% in 1999 consequently. The proportion of migrants of working age increased by 9% while proportion of children and elderly migrants decreased by 6% and 3%

accordingly. As can be observed from the data, people in working age are the most mobile group of internal migrants.

Gender distribution of internal migration shows that there is no significant difference in numbers of male and female migrants though female migrants exceeds number of male migrants. It can be explained by higher proportion of females in total population which is 52% against 48%. Nevertheless, during 1999-2006 there was an increase in the absolute numbers of male and female migrants. For instance, in 1999 the number of male and female migrants accounted for 113,306 and 119,306 respectively, whereas in 2006 these numbers achieved 139,086 for males and 156,184 for females. For a comparison purposes, we calculated gender-specific migration rates per 1000 population as shown on Figure 11.

Figure 11_Gender-specific migration rates, 1999-2006

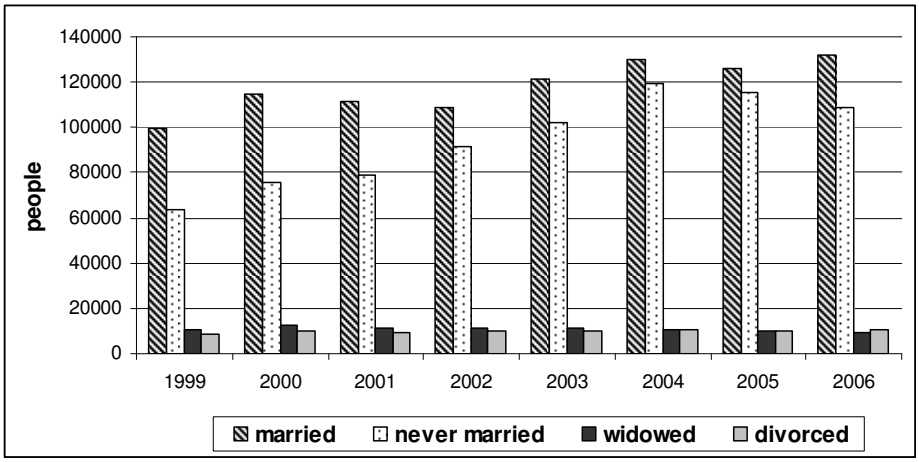


Source: Agency of Statistics

This observation indicates on small gender imbalance in migration processes in Kazakhstan, though it is quite difficult to make any conclusions without disaggregation of data by age-specific migration and type of residence. In addition to overall majority of female in the population (52%), the fact that they slightly outnumber male migrants can be explained that usually women move as 'tied movers' following their husbands making career. Also, late marriages and higher level of education of women as well as high level of women's labour force participation and emancipation processes may also add to women's higher mobility.

Figure 12 illustrates that until 2002, the number of married people exceeded unmarried migrants with the largest difference during 1999-2001. While amount of married migrants rose from 99,239 people in 1999 to 131,935 in 2006, the number of never married migrants almost doubled with significant increase from 64,020 in 1999 to 108,934 in 2006. This fact can be explained both by accelerating spatial mobility among single people and increase in the proportion of unmarried in total population. As we mentioned before, the changes in nuptiality itself and marital behavior of people especially among young highly educated adults might lead to higher mobility of unmarried people in migratory movements.

Figure 12_Marital status of internal migrants aged 16+, 1999-2006



Source: Agency of Statistics

Although the proportion of married migrants is higher as compared to other groups of migrants, marital status specific migration rates (Table 6) indicate that unmarried people are the most mobile group which, as it can be assumed, predominantly consists of young men and women moving among other reasons for education purposes, searching for a job or starting a partnership.

Table 6_Marital status specific migration rates, 1999

Marital Status	Internal migrants aged 16+ by marital status	Population aged 16+ by marital status	Marital status specific migration rates, per 1000
married	99,329	6,272,857	15.8
never married	64,020	2,451,372	26.1
widowed	10,777	975,174	11.1
divorced	8,652	680,223	12.7

Source: own calculations based on data of the Agency of Statistics

The social-economical changes of 1990's have changed the nuptial behaviour with an increasing tendency of late marriages, non-marriages and couple's opting to cohabitate (UNFPA, 2005). The changes in marital status of internal migrants reflect a household structure of the population. For instance, in 1999 the average household size was 3.6 people, 3.1 in urban and 4.4 in rural areas. The single-member households were accounted for 14.2%. The nuclear households are the most widespread form (62% out of 4,152.7 households in 1999) with average size 3.5 people (3.2 in urban and 4.0 in rural areas). The extended households' (23% of total households) average size is equal to 5.2 people. All these alterations in the society show the influence of the social environment on migration behaviour and migrants' characteristics.

The education structure of the overall population as compared with education level of internal migrants, reveals that proportions of migrants with the secondary, vocational and higher levels of educations exceeds significantly the general educational level of population. For instance, there were 12.4% of people aged 15 and over reported in the 1999 census against 17% of internal migrants aged 16 years and over in 1999 and 23% in 2005. In the same time, the share of less educated people participated in internal migration was lower than it was on a population level. Table 7 shows that educational-specific migration rates are significantly higher for migrants with higher education. Apparently, there is an evidence of migration selectivity by educational level.

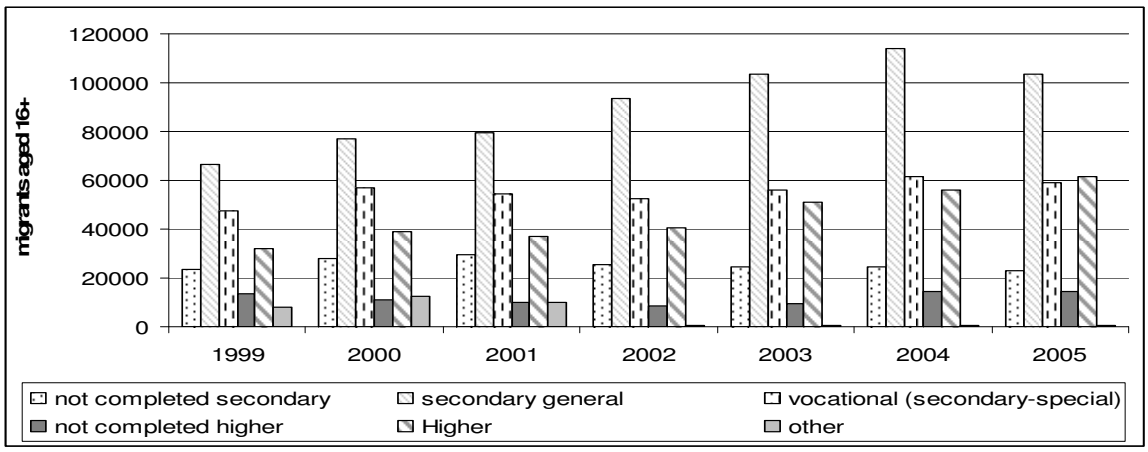
Table 7_Educational-specific migration rates, 1999

Educational status	Internal migrants aged 16+ by educational level	Population aged 16+ by educational level	Educational-specific migration rates, per 1000 people
higher	31938	1318600	24.2
not completed higher	13630	182773	74.6
vocational (secondary-special)	47302	2377932	19.9
secondary	66366	3932581	16.9
not completed secondary	23511	1649803	14.3
other	7925	784550	10.1

Source: own calculation based on Agency of statistics data

As for changes of educational level of migrants over time (Figure 13), it was observed that the absolute numbers of internal migrants with higher and secondary education almost doubled during 1999-2005 changing from 31,938 to 61,286 migrants with higher education and from 66,366 to 103,673 for migrants with secondary education. The number of people who have not completed secondary and higher education remained almost unchanged.

Figure 13_ Educational level of internal migrants aged 16 +, 1999-2005



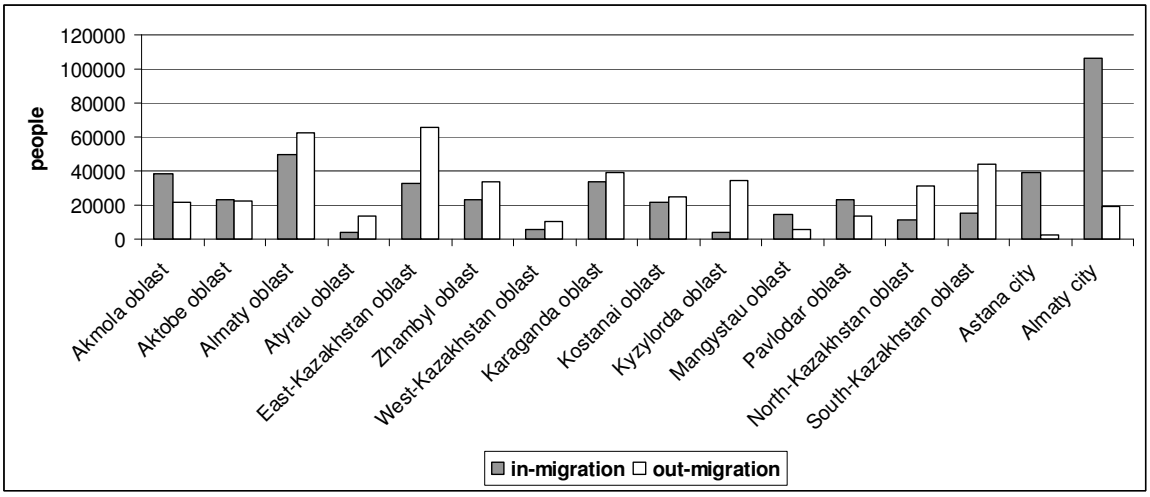
Source: Agency of Statistics

The above analysis of internal migration patterns and levels shows that over 300,000 people (about two percent of total population) participate each year in movements within country. Migration is appeared to be selective by age, gender, marital status and educational level. Majority of internal migrants are economically active population (people aged 15-65). Gender-specific migration rates are higher among women. Single natives and people with higher education are more inclined to migrate in comparison with other groups of population.

4.1.2. Age migration schedules

In the present section, the attention is given to the various stages in the life course of migrants, which are characterized by different migration behaviour. We will investigate whether age migration schedules of internal migrants reflect any age and sex specific peculiarities. We will use in- and out-migration instead of rates based on Census 1999 data for internal migration during 1989-1998 (see Figure 14).

Figure 14_ In- and out-migration by region, 1989-1998



Source: own computations based on 1999 Census data

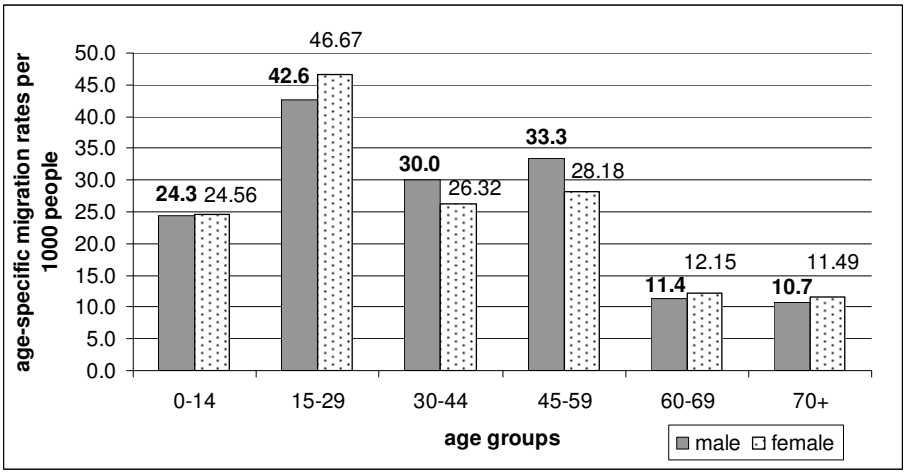
According to the 1999 census data, the sex and age structure of migrants shows that of the total 443 013 internally moved migrants, females slightly outnumbered males (225,422 and 217,591 respectively). Additionally, more than 70% (310,864) of all migrants were in the working ages, 25% (111,394) less than working age, and about 5% percent (20,755) were above the working age.

It is a well known fact that migration is age selective. However, age does not itself determine migration as people of different ages have very different migration propensities and migrate to different types of places because of the different motivations that influence their decision making (Gaag et al, 2003, p.12). Migration preferences may change through individuals' life course and reflect their goals and purposes on each stage of their lives. Children move with their parents, whereas young adults leave parental home to study or to obtain personal independence, later on –

to find job, create family or change their housing conditions. Apparently, the age is an important factor that has an effect on migration behaviour as people's aspiration, needs and goals transform with age. It is evident that time dimension appears to be a very important concept in understanding dynamic and evolving nature of social processes at macro level and personal development at micro (De Bruijn, 1999).
Rogers and Watkins (1987) have suggested a model migration schedule characterized by four peaks of migration during different life transitions such as early childhood, early participation in the labour force, retirement and late old age (Boyle et al. 1998). In order to apply this model for the analysis of Kazakhstan 1999 census data, the following life course stages and age-categories for both male and female are used: the childhood ages 0-14; the adolescent and young adult ages 15-29, the labour force and family ages 30-44; the older labour force ages 45-59; the retirement ages 60-69; the older ages 70 and over. Each category may have a different migration pattern and this pattern may develop differently over time.

Figure 15 proves that, different life-course stages show different migration behaviour with high mobility among children, following with a peak at adolescents and young adults ages, dropping to a lower point at labour force and family ages, followed by a small increase at older labour force ages, with sharp decline during retirement and older ages. This evidence proves that migration is age selective in Kazakhstan as well.

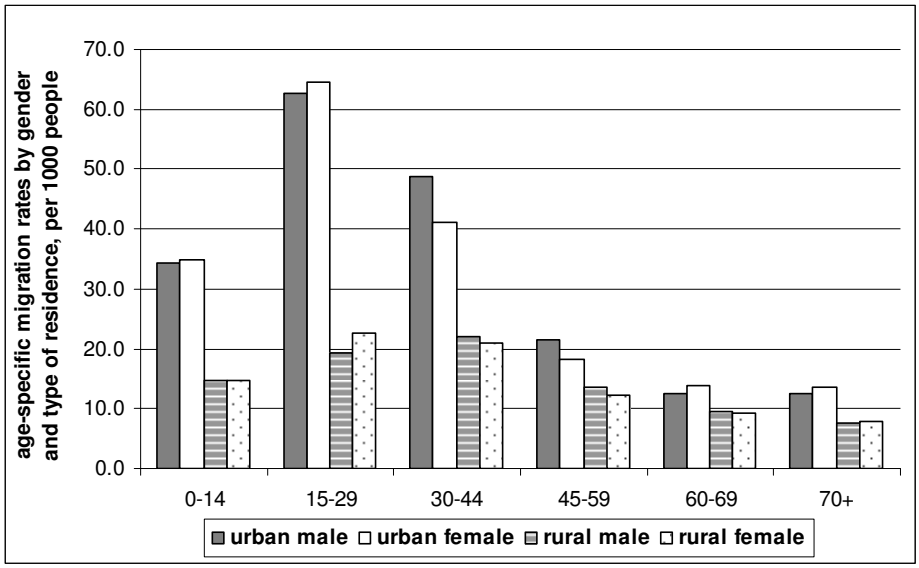
Figure 15_ Age specific migration rates by gender, 1989-1998



Source: own computations based on 1999 Census data

The gender differences are apparent though at some stages are not significant. Indeed, as it was noted by Rees and Kupiszewski (1999), the age-specific migration schedules for male and female are largely identical, except that women demonstrate high rates at younger ages. Besides, female mobility exceeds male migration during retirement and older ages that can be explained by 10-year gender gap in the average life expectancy at birth in Kazakhstan. The residential differences reveal the same effect on age-specific migration schedules with urban migration far exceeding rural due to rural depopulation. In general, gender similarities are more striking than differences (Figure 16).

Figure 16_ Age-specific migration rates by gender and type of residence, 1989-1998



Source: own computations based on 1999 Census data

It must be emphasized, that internal migration was measured as number of people who arrived at the current place of residence (in-migration) during intercensal period. People were asked about their last place of residence thereby skipping multiple migration. Taking into account census self-determination approach, the results may be biased due to memory attrition, age and residence prejudices of migrants. Nevertheless, we can generalize that for most migrants the move occurs in early stages of their life course, particularly under age 29 and that mobility is higher for those internal migrants arrived from urban areas. It should be noted, that education and career building become more and more important for both genders thereby making age group 15-29 more mobile compared to others. Interestingly, females were slightly more mobile than males, probably because of the high level of participation in the labor force (48%). Even during Soviet times women were very important part of a system that depended on every citizen's contribution for overall wellbeing of the country. Women are more educated than men and they play very important roles in the Kazakhstani workforce. For instance, in 1998 the largest number of women (82 % of the total labour force) was employed in healthcare and social services. At the same time, there is a large distinction between work and the home in the society. Kazakh culture is traditionally a patriarchal one, with much respect being given to men, especially elderly men that can be seen in many Kazakh households. Particularly, women roles differ much and regardless of occupational status they are predominantly responsible for domestic work and child rearing. Besides, usually a female moves to her husband's home and if needed for carrier purposes should follow him. Unfortunately, there is no information about the number of females who migrated together with their husbands as tied movers.

4.1.3. The effect of new capital on internal migration

As was indicated in the introduction to the present study, one of the reasons for undertaking research on migration within Kazakhstan was the fact that internal migration had become a more important component of population change in recent years. In this section, we review the evidence for this suggestion using the case of population growth in Astana city as a result of in-migration.

During 1994-1997 the government implemented administrative and territorial reforms aimed at territorial integrity and national security. The reform resulted in reduction of number of provinces from 19 to 14. Also, in 1997 the capital of Kazakhstan was relocated from Almaty city in the south to Astana city situated in the center of the country. The relocation of the capital is a unique event in the history of Kazakhstan. The political decision was undertaken in 1994 with a number of reasons under consideration. Formally, the move of capital was needed because Almaty is situated in an earthquake area and unable to expand physically because of bordering mountains. Among unofficial explanations are the geopolitical and ethnic reasons. Particularly, the desire of the government to increase it's influence on the northern regions and secure the territorial integrity of the state (Sadovskaya, 2001). She argues that the actual causes of the capital relocation lie in ethnic division of Kazakhstan into Russian industrial North and Kazakh agricultural South and therefore ethnic Kazakhs were encouraged to move to the northern regions with ethnic Russians numerical domination. For instance, the proportion of Russian population in north-eastern provinces such as Akmola, Kostanay, Karaganda and East-Kazakhstan provinces in 1989 was 45-65% and 17-28% for Kazakhs (ibid).

During the Soviet period, northern and eastern parts of Kazakhstan had been closely integrated with neighbouring Russia's areas and jointly contributed to economic production, distribution and transport infrastructure. With the collapse of USSR, no central institutions were readily available to replace those of the Soviet era. The former essence of centre-periphery relations had now been replaced by Almaty's relations with its own provinces (Cummings, 2002). The industrial enterprises were located in the northern and eastern regions and predominantly were employed by Russians. Apparently, the construction of a unitary state became closely associated with an attempt of the government to secure greater control over northern border provinces. At the same time, the overwhelming majority of rural Kazakhs lived in West-Kazakhstan (82.0%), Atyrau (98.2%), Kyzylorda (98.7%) and Mangystau (99.7%) (UNFPA, 2005). In a situation of the overall economic crisis and degradation of social sphere, these regions were characterized by relative overpopulation and excessive labour forces. According to UNDP, in mid 1990s there was the highest unemployment rate in the southern regions and two thirds of population were below poverty line. Therefore, the idea was to achieve the regional ethno-demographic balance through directing the process of internal migration from overpopulated south to the industrial north.

By that time Astana was a regional center but it's infrastructure did not match the obtained status of capital city and therefore needed significant development and investments. In order to facilitate construction and infrastructure development the special economic zone was created in Astana. Simultaneously, the relocation of state authorities begun to new capital. We can observe the significant differences in migration flows to and from Astana during 1990s. The first half of

the 1990s were characterised by a decrease in natural growth due to low births and increased mortality and also high emigration. This process of depopulation was similar to the overall tendency in Kazakhstan at that period. In particular, the highest peak of out-migration (both international and internal) and negative net migration was observed in 1994: 11.1 thousands people and (-5.7) thousands people respectively (Sadovskaya, 2001). In contrast, the situation reversed starting from 1997.

The detailed analysis of population change in Astana (Table 8) makes it clear that the population growth in the years after obtaining status of capital city was predominantly due to net internal migration influx to the city with minor effect of natural growth and negative effect of international migration. Within the structure of Astana's population growth, the share of net migration (both international and internal) was accounted for 97.4% in 2000 which reduced in the following years and stood at 74.3% level in 2005. As a result, the size, ethnic and socio-economic composition of Astana's population changed notably due to internal migration to new capital from other parts of Kazakhstan.

Table 8_ Astana city population change structure, 1989-2006

year	Pop. at the beginning of the year	Net internat. migration	Net internal migration	Net migration	Natural growth	Total growth	Pop. at the end of the year	percent of growth
1989	281252							
1999	319324							
2000	380990	-6406	64112	57706	1513	59219	440209	15,54
2001	440209	-3833	55209	51376	1477	52853	493062	12,01
2002	493062	-2621	9382	6761	2175	8936	501998	1,81
2003	501998	-429	5801	5372	3163	8535	510533	1,70
2004	510533	-633	14819	14186	4616	18802	529335	3,68
2005	529335	-462	16141	15679	5424	21103	550438	3,98
2000-2005		**-14384**	**165464**	**151080**	**18368**	**169448**	**110229**	

Source: Agency of Statistics

The data show, that population of Astana increased from 281,252 people in 1989 to 529,335 in 2005 or almost doubled. Total population growth during 2000-2005 made up 169,448 people, out of which majority or 165,464 people arrived from other parts of Kazakhstan. As for natural growth (18,363), it was overlapped by emigration (-14,384). According to 1999 Census, the proportion of Kazakhs in Astana achieved 41.8% against 17.7% in 1989 whereas the share of other ethnic groups has declined, for instance for Russians from 54.1% to 40.5%. First migratory movements from Almaty to Astana were represented by civil servants accompanied with family members. Later on, with the development of local infrastructure and demand in various services, the representatives of business sector started to open offices in new capital.

The spatial analysis of inter-regional migration flows to and from Astana derived from 2005 origin - destination matrix shows the following results (Table 9).

Table 9_Internal migration to and from Astana, 2005

Regions	in-migration	%	out-migration	%
Akmola oblast	6380	29.7	1789	33.7
Aktobe oblast	332	1.5	50	0.9
Almaty oblast	726	3.4	220	4.1
Atyrau oblast	120	0.6	37	0.7
West-Kazakhstan oblast	350	1.6	66	1.2
Zhambyl oblast	1529	7.1	167	3.1
Karaganda oblast	2052	9.6	598	11.2
Kostanai oblast	1893	8.8	492	9.3
Kyzylorda oblast	815	3.8	103	1.9
Mangystau oblast	143	0.7	64	1.2
South-Kazakhstan oblast	1863	8.7	215	4.0
Pavlodar oblast	808	3.8	271	5.1
North-Kazakhstan oblast	941	4.4	249	4.7
East-Kazakhstan oblast	1230	5.7	195	3.7
Almaty city	2275	10.6	800	15.0
total	**21457**	**100**	**5316**	**100**

Source: Agency of Statistics

In total there were 21,457 in-migrants and 5,316 out-migrants. The majority of in-migration was from Akmola province (29.7%), Almaty city (10.6%), Karaganda (9.6%), Kostanay (8.8%) and South-Kazakhstan (8.7%) provinces. Outward migration was mostly directed towards Akmola oblast (33.7%) which can be interpreted as counter-urbanization process, Almaty city (15%), Karaganda (11.2%) and Kostanay (9.3%) provinces.

4.1.4. Regional patterns of internal migration in Kazakhstan

Having examined the general levels and patterns of internal migration during 1991-2006, we now turn to analysis of regional patterns for 16 administrative units for the period 1999-2005: 14 provinces and 2 capital cities (Astana and Almaty). As was already mentioned in previous chapters, the population distribution over the country's territory is characterized by disparities and large disproportions, therefore for the purposes of inter-regional migration analysis we will employ migration rates per 1000 population as a more comparable measure from migration flow statistics between administrative units of different sizes and numbers. In order to support our analysis, six geographical maps for each pair of in-migration, out-migration and net-migration rates for 14 regions in 1999 and 2005 have been created. It should be noted, that data for Almaty and Astana city are not reflected on the maps (see Map 3).

Regional patterns of inter-regional migration in Kazakhstan are heavily influenced by disparities in economic development and biased towards growth regions of Astana and Almaty cities and oil-producing provinces. Regional patterns differ substantially for different parts of the country and are dominated by South to North and South to West shifts. Except four regions of Almaty city, Astana city, Karagandy and Mangistau oblasts, all other regions witnessed a net loss during 1999-2005 (Table 10).

Table 10_In-migration, out-migration and net-migration rates, 1999 and 2005

	in-migration rates		out-migration rates		net migration rates	
	1999	**2005**	**1999**	**2005**	**1999**	**2005**
Akmola oblast	9.0	13.0	23.9	14.4	-14.9	-1.3
Aktobe oblast	2.2	4.7	4.0	5.0	-1.8	-0.3
Almaty oblast	7.3	11.1	10.0	13.6	-2.7	-2.5
Atyrau oblast	2.6	5.5	5.9	5.6	-3.3	-0.2
West-Kazakhstan oblast	1.4	3.2	3.7	5.1	-2.3	-1.9
Zhambyl oblast	2.6	4.0	9.9	11.9	-7.3	-8.0
Karaganda oblast	2.6	5.3	8.8	5.2	-6.2	0.1
Kostanay oblast	1.8	3.9	8.8	5.9	-7.1	-2.0
Kyzylorda oblast	2.0	3.1	8.8	11.0	-6.8	-7.9
Mangystau oblast	4.3	9.4	7.3	6.9	-3.0	2.4
South-Kazakhstan oblast	3.7	2.2	5.6	6.5	-1.9	-4.3
Pavlodar oblast	3.8	4.5	5.9	5.6	-2.1	-1.2
North-Kazakhstan oblast	3.7	4.7	9.0	10.3	-5.3	-5.6
East-Kazakhstan oblast	2.3	2.8	6.1	7.4	-3.8	-4.6
Astana city	165.9	39.7	8.0	9.8	157.8	29.9
Almaty city	19.2	31.9	14.2	11.9	5.1	20.1

Source: own calculations based on data of Agency of Statistics

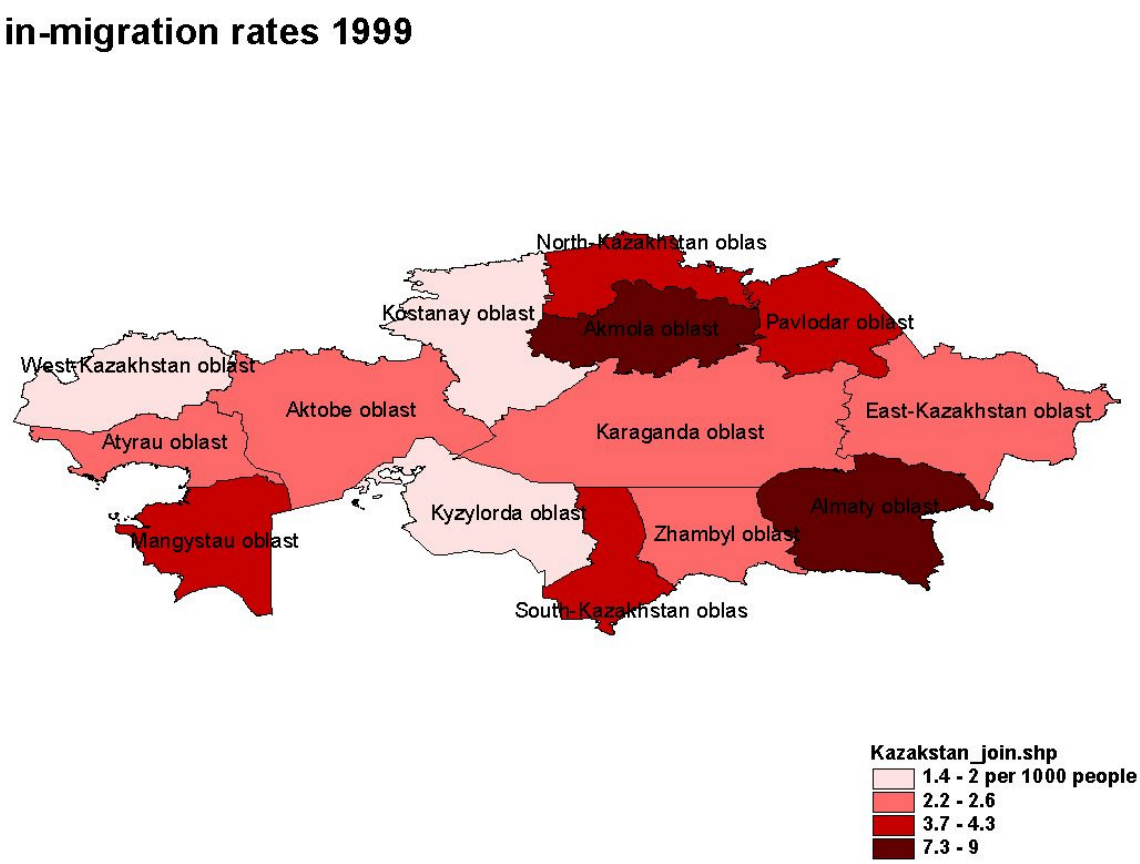
As Boyle et al state (1998, p.20), “in many parts of the world the urbanization process is biased towards primate cities”. Similarly, according to the migration laws of Ravenstein, people are attracted to big centers of commerce and industry, which is true in case of Kazakhstan. Indeed, the extremely high in-migration rates were observed in new capital city Astana during 1999-2001 (165.9, 164.5 and 125.8 consequently). This movement is explained by the necessity of civil servants to live and work in Astana, and in order to keep their work places, thousands of people migrated there. That period was characterized by mass circulation between the former and new capital in spite of thousand-kilometers distance between these two cities, as people visited their families (which remained living in Almaty for some period) during weekends and holidays. But later on, starting from 2002 there was a sharp (almost 10-fold) decline of in-migration rates to 27.3 per 1000 in Astana and significant increase of in-migration to Almaty, particularly from 19.2 in 1999 to 31.9 in 2005. Thus, in spite of the changed status, a former capital city remains a most attractive city of destination. Astana is considered to be a prestigious city for ambitious young people interested in a career with government authorities. As for Almaty city, it remains country’s cultural, recreational, financial center and the most comfortable for living regions of Kazakhstan despite high living costs including expensive dwellings and the highest criminal level in the republic. The other high-inflow regions are Akmola and Almaty provinces. The least popular regions based on their in-migration rates are Kostanay, West-Kazakhstan and Kyzylorda provinces in 1999 together with South-Kazakhstan and East-Kazakhstan regions which joined them by 2005.

The high out-migration rates (8.8-23.9 per 1000 people) in 1999 and 2005 were detected in southern (Almaty, Zhambyl, Kyzylorda, Astana and Almaty cities), center (Karagandy) and northern (Akmola, Kostanay, North-Kazakhstan) provinces which suffered from the large-scale

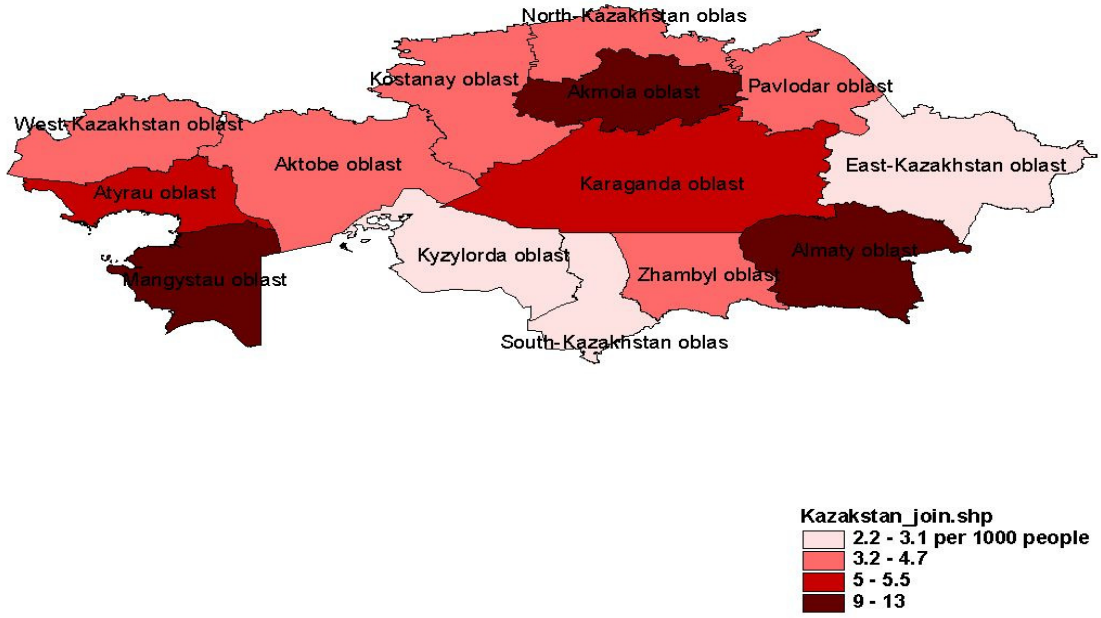
outward movements. Among the push factors are the highest levels of poverty and unemployment as well as poor ecological situation forcing people to change their places of residence.

A clearer picture of inter-regional movements is provided by net migration rates. Particularly, in 1999 only Astana and Almaty cities experienced net migration gain to their populations: 157.8 and 5.1 per 1000 people respectively. By the year 2005, two provinces have joined net-gainers regions with very small but positive net-migration surplus of 0.1 per 1000 people in Karagandy and 2.4 per 1000 people in Mangistau provinces. Karaganda started to attract more people due to it's close location to Astana which enables both migration and circulation. Mangistau province with its oil specialization is a magnet region for labour migrants due to the high wages and relatively low housing prices. All other regions continue to experience net losses with the highest net-migration rates in Zhambyl (-8.0), Kyzylorda (-7.9) and North-Kazakhstan (-5.6). These regions are characterized by prevalence of rural population, high unemployment rates and above national level poverty rates.

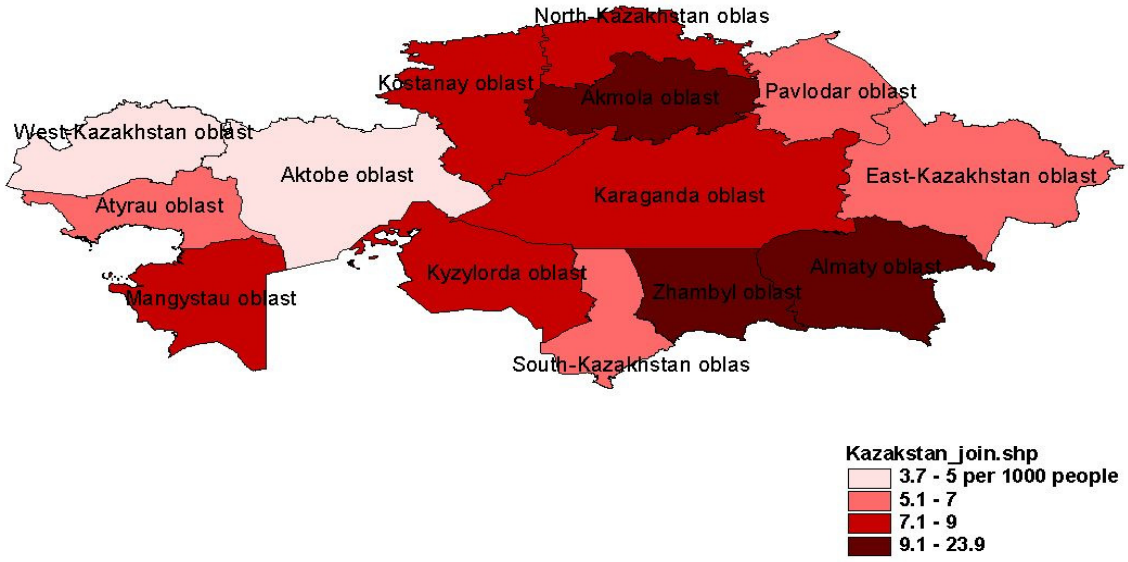
Map 3_ In-migration, out-migration and net-migration rates, 1999 and 2005.



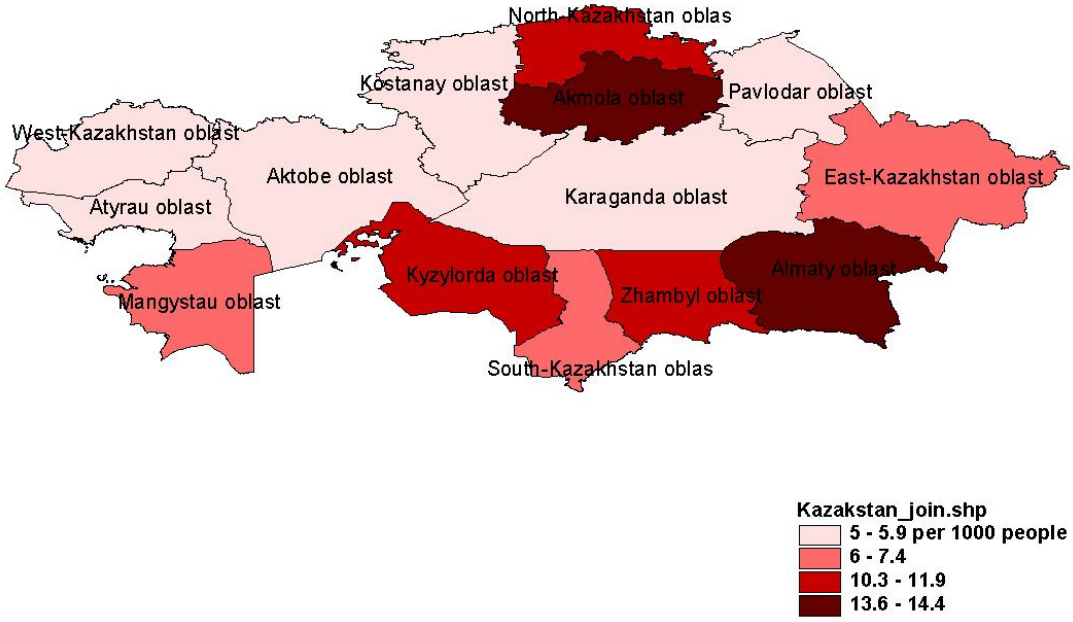
in-migration rates 2005



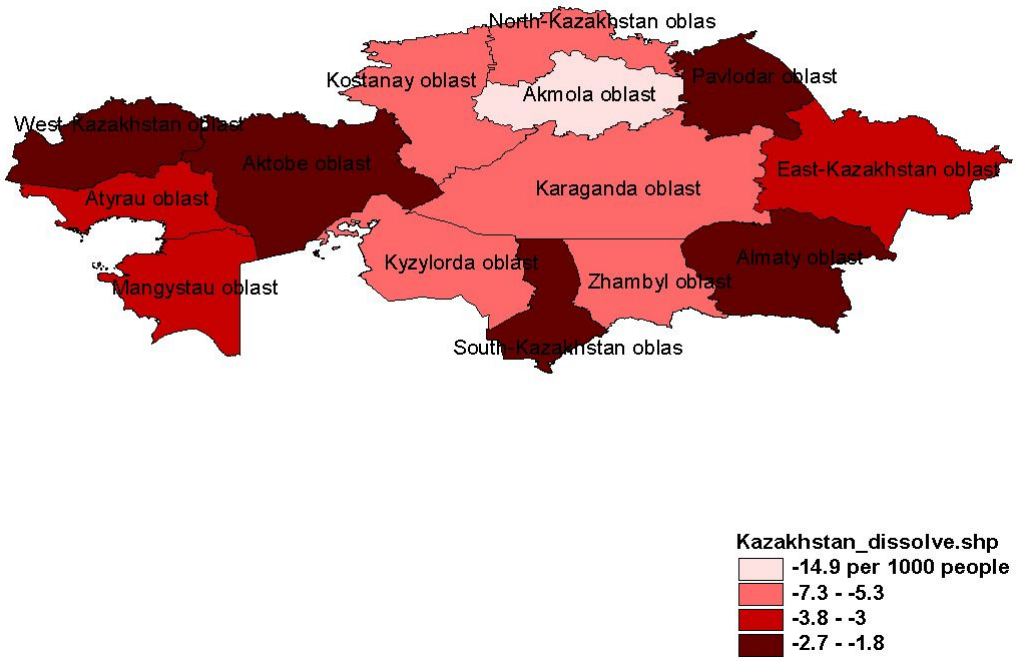
out-migration rates 1999



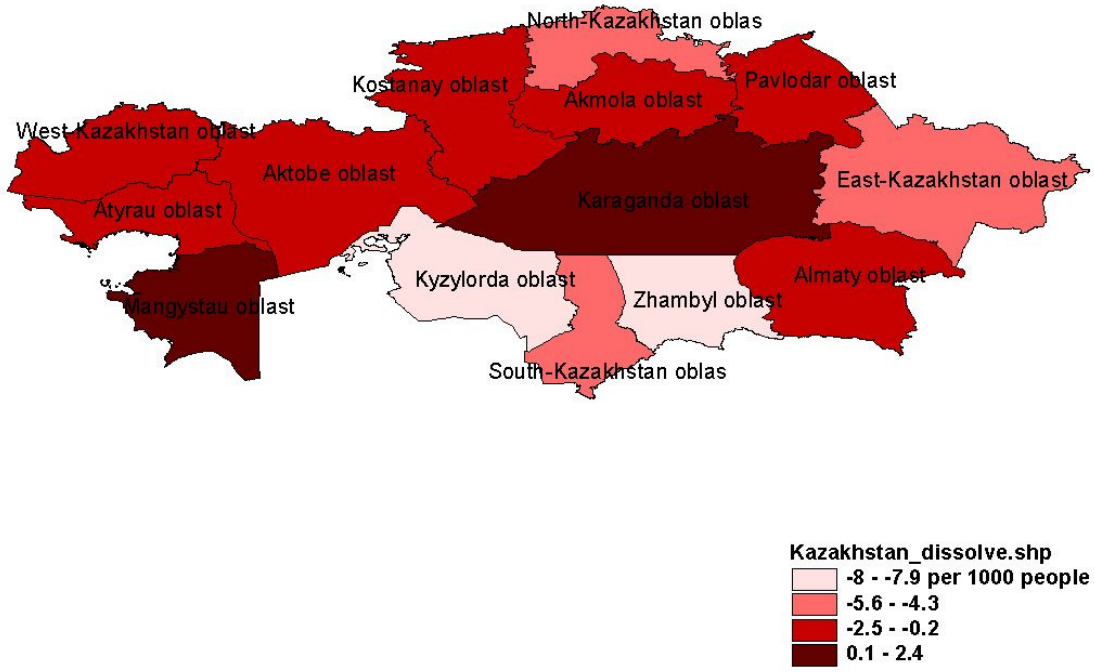
out-migration rates 2005



net migration rates 1999



net migration rates 2005

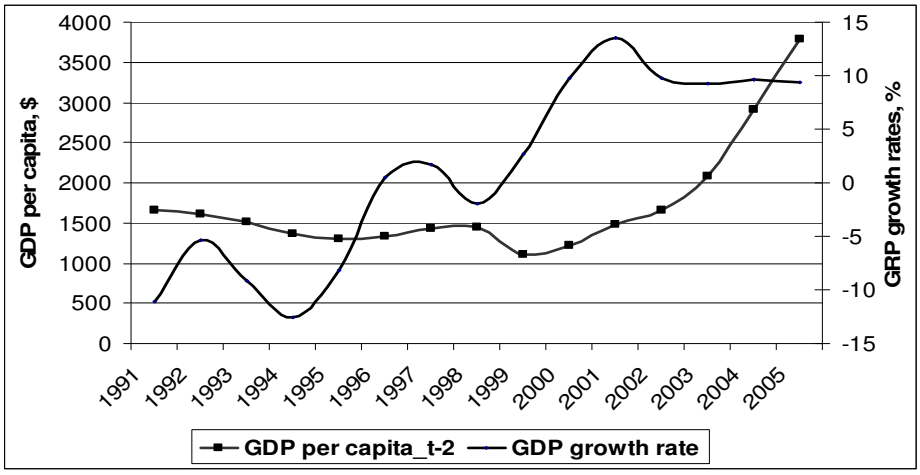


4.2. Migration and business cycle

In this section of the paper, we will apply correlation analysis in order to get more insight to the relationships between country's economic development and the level of internal migration in Kazakhstan. Particularly, we will test our research hypothesis on whether internal migration declines during economic crisis and if it increases in times of economic growth.

The patterns of annual GDP per capita and GDP growth rates since Kazakhstan's independence in 1991 up to 2005 reveals that transition from planning to market economy was characterized by low economic performance in 1995 ($1295) and the lowest level of GDP per capita in 1999 ($1113) and with cyclic changes from the lowest growth rate of -12.6% in 1994 to the highest rate of growth equaled 13.5% in 2001 (Figure 17).

Figure 17_ GDP per capita ($) and GDP growth rate (%), 1991-2005



Source: www.unstats.un.org

For correlation analysis we have created a number of new variables:

- internal migration rates, inter-regional migration rates and intra-regional migration rates
- GDP per capita at time t, GDP (t-1), GDP (t-2)
- GDP growth rate at time t, GDP growth rate (t-1), GDP growth rate(t-2)

The direction and strength of the relationship between migration rates and business cycle factors is depicted in Table 11. The results of correlation analysis revealed that internal migration rates and intra-regional migration rates are significantly correlated with only GDP per capita at time (t-2) at the 0.01 level and that the correlation is positive. The correlation between all other combinations of variables appeared to be insignificant. Thus, the internal migration positively responds to GDP fluctuations with 2-year lag ("catching up" effect) which means, that during economic downturn the internal migration declines and with the growth of GDP internal migration also increases.

Table 11_ Business cycle and internal migration correlations

Migration	Economic factors	Pearson correlation	Significance
Internal migration rates	GDP_t	.280	.313
	GDP_t_1	.395	.145
	GDP_t_2	**.609(*)**	.021
	growth_t	-.340	.215
	growth_t_1	-.048	.871
	growth_t_2	.291	.335
Inter-regional migration rates	GDP_t	.133	.636
	GDP_t_1	.190	.496
	GDP_t_2	.315	.272
	growth_t	.052	.853
	growth_t_1	.089	.762
	growth_t_2	.240	.430
Intra-regional migration rates	GDP_t	.283	.307
	GDP_t_1	.398	.142
	GDP_t_2	**.567(*)**	.035
	growth_t	-.451	.091
	growth_t_1	-.117	.690
	growth_t_2	.194	.525

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Indeed, the high level of internal migration in the beginning of the 1990s (431,462 migrants in 1991) reduced significantly and achieved 204,569 migrants in 1997, when internal migration reached it's lowest level presented by almost twofold decrease from the initial level. This downward trend in internal migration reflected the sharp economic decline and period of recession after the crisis in 1994. Afterward, in 1998 there was observed a small relief in population mobility (due to reallocation of capital from Almaty to Astana city) and continuing recovery up until 2004 with the total number of people moving within country equaled to 317,928. This recovery was due to economic growth started in the beginning of 2000s which led not only to residential but social and labour mobility of population as well. In the last two years one can observe an insignificant decline in migration level though it still remains on a quite high point and may be explained by stabilization in economy as a whole. On the other hand, high population mobility can be fueled by regional disparities and economic structure with mainly primary industries. Housing market and labour market processes might also contribute to this situation (Gaag et al, 2003). The decrease in residential mobility or intra-regional migration can be explained by the fact that those who wished and were able to move, have already settled down in new houses and found jobs, whereas those who incline to migrate might postpone the desired move for a later period.

Thus, it can be concluded, that our hypothesis is proved as fluctuations in the national economy expressed in GDP per capita affected the internal and intra-regional migration during 1991-2005. The effect of growth rates on internal migration rates and the relationship between GDP per capita and inter-regional migration in insignificant.

4.3. Inter-regional migration and Regional Economic Disparities

In this section, we give an overview of economic determinants of inter-regional migration in Kazakhstan. Factors associated with income level will be discussed in subsections 4.3.1 and 4.3.2. In subsections 4.3.3 and 4.3.4 we focus on influence of unemployment and education respectively. We will look particularly to evidence of relationships between regional economics and inter-regional migration and try to assess which regions have been more attractive for migrants and which repulsive. The vital statistics data allow a comparison between in-migration rates and out- migration rates (the numbers of internal migrants per thousand population) and the levels of gross regional product per capita, wages, unemployment and educational level as measures of economic and human capital development.

The correlation analysis revealed the number of relationships (Table 12) between our variables under consideration to support or reject our hypothesis established earlier in chapter 2. We will now describe and explain separately these findings in the following subsections.

Table 12_ Economic factors and Inter-regional migration rates correlations

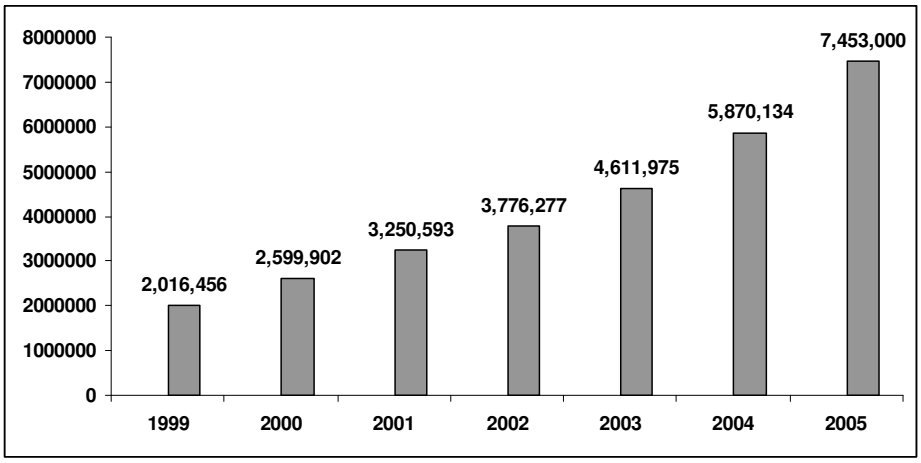
Migration	Economic factors	Pearson correlation	Significance
in-migration rates	GRP per capita	.328(**)	.001
	The lagged values of GRP per capita, t-1	.349(**)	.000
	Wages, KZT	.321(**)	.001
	Unemployment rate	*-.185*	*.071*
	Enrollment rate in higher education, per 1000 people	.646(**)	.000
out-migration rates	GRP per capita	-.209(*)	.041
	The lagged values GRP per capita, t-1	-.218(*)	.032
	Wages, KZT	-.270(**)	.008
	Unemployment rate	.275(**)	.007
	Enrollment rate in higher education, per 1000 people	*.041*	*.693*

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed)

4.3.1 Inter-regional migration and GRP per capita

Gross Regional Product is a key indicator of the system of national accounts on the regional level and it is calculated as a sum of gross added values of all branches of national economy. The GRP volume indicates the oblast's input to the country's economy. Figure 18 demonstrates the GRP dynamics during 1999-2005.

Figure 18_ GRP at current prices, million tenge, 1999-2005



Source: www.undp.infobase.kz

Traditionally, the north, central and eastern provinces have been more industrial, urban and Russian-dominated, whilst the southern and western ones have been Kazakh-dominated and largely rural. To analyze economic performance indicators the regions are divided into the following four groups based on the production structure (Agency of Statistics, 2006; UNAIDS, 2006):

- *Oil-producing or primary commodities regions*: Aktobe, Atyrau, West-Kazakhstan, Kyzylorda and Mangistau provinces situated in the West of Kazakhstan. These are oil-extracting regions with rich natural resources.
- *Industrial regions*: East-Kazakhstan, Karagandy, Pavlodar provinces situated in the north-east and the center of the country with strong industrial sectors such as coal mining, aluminium, steel and electricity.
- *Agro-industrial regions:* Almaty, Zhambyl, South Kazakhstan (situated in the south), Kostanay, North Kazakhstan and Akmola (situated in the north) with dominating share of agriculture (more than 65% of gross agricultural product) given the developed industrial sector.
- *Financial and service centres*: The two municipal districts - the new capital of Astana, and the old capital of Almaty, make up the final group with a highly concentration of financial and intellectual capital. The important position in their specialization belongs to financial and service sectors. In spite of the fact that the industrial production is two times lower that of the country's average level, Almaty and Astana cities are leading in construction and service sectors such as trade, hotel, restaurant, transport, communication, real estate, education and health services.

The analysis of *oblasts' shares in GRP* given in the Table 13 reveals, that Atyrau, Karagandy, East-Kazakhstan provinces and Almaty city were the regions with the highest share in GRP jointly contributing 47% to national GRP in 1999. This tendency remained the same with only exception to East-Kazakhstan region which contribution declined during 1999-2005 from 10.6% in 1999 to only 6.2%. At the same time, Astana city's share in GRP increased from 4.3% in 1999 to 8.6% or tow-fold, therefore replacing East-Kazakhstan province in the four high-GRP regions starting from 2003. As for the provinces with the smallest share in GRP such as Akmola, Zhambyl, Kyzylorda and North-Kazakhstan oblasts, they accounted for only 12% of GRP in 1999 and starting from 2000 their share remained on a low level with only 10% of joint contribution to GRP. As can be seen there is a large four-fold gap in GRP shares between the most and least developed regions which points out the fact that huge regional disparities still exist. Given Kazakhstan's vast territory, various climatic and soil conditions, and profound gaps in the levels of regional economic development there is an urgent need in practical implementation of national strategy of territorial development adopted in August, 2006 aimed at balanced distribution of income, production and labour forces.

Table 13_ Oblasts' share in total GRP 1999-2005, percent

Regions	1999	2000	2001	2002	2003	2004	2005	1999-2005
Aktobe oblast	4.7	4.7	4.5	4.7	4.8	5.1	5.8	1.1
Atyrau oblast	7.0	10.2	10.0	11.1	12.2	11.2	12.5	5.5
West-Kazakhstan oblast	3.9	4.7	4.9	5.0	4.9	6.1	6.7	2.8
Kyzylorda oblast	1.9	2.2	2.2	2.7	2.9	3.1	3.5	1.6
Mangystau oblast	4.3	5.3	4.9	5.6	5.0	5.2	6.2	1.9
Oil-producing	**21.8**	**27.1**	**26.5**	**29.1**	**29.8**	**30.7**	**34.7**	**12.9**
Karaganda oblast	11.7	11.5	10.5	9.7	9.2	8.7	8.4	-3.3
Pavlodar oblast	6.0	6.5	6.5	5.8	5.8	5.7	4.9	-1.1
East-Kazakhstan oblast	10.6	9.2	8.6	7.7	7.1	6.6	6.2	-4.4
Industrial	**28.3**	**27.2**	**25.6**	**23.2**	**22.1**	**21.0**	**19.5**	**-8.8**
Almaty oblast	5.0	4.8	4.9	4.8	4.5	4.4	4.2	-0.8
Zhambyl oblast	2.4	2.1	2.0	2.0	2.3	2.3	2.2	-0.2
South-Kazakhstan oblast	6.0	6.6	7.0	6.2	6.0	5.3	4.7	-1.3
Akmola oblast	4.1	3.2	3.2	3.0	2.8	2.8	2.6	-1.5
Kostanay oblast	6.8	6.1	5.4	4.9	4.9	4.6	4.4	-2.4
North-Kazakhstan oblast	3.6	2.7	3.1	2.7	2.5	2.5	2.4	-1.2
Agro-industrial	**27.9**	**25.5**	**25.6**	**23.6**	**23.0**	**21.9**	**20.5**	**-7.4**
Astana city	4.3	5.0	5.4	6.2	7.0	7.9	8.6	4.3
Almaty city	17.7	15.2	16.9	17.9	18.1	18.5	16.7	-1.0
Finacial/Service	**22.0**	**20.2**	**22.3**	**24.1**	**25.1**	**26.4**	**25.3**	**3.3**

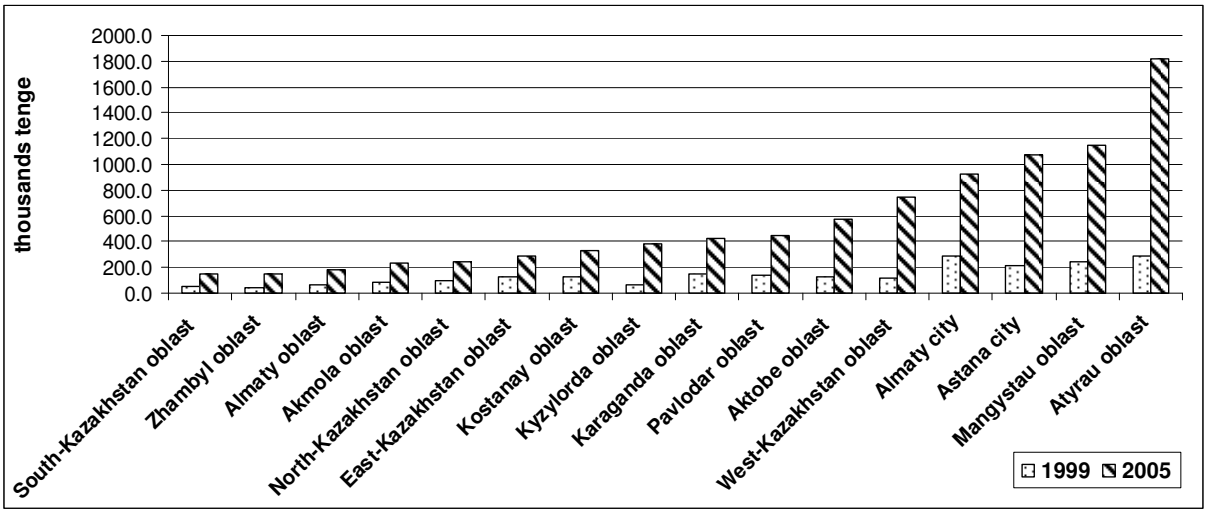
Source: Agency of Statistics

The high proportion of Almaty city, Atyrau and Karagandy oblast can be explained by the rapid growth of service sectors including telecommunications, finances and banking, insurance and other spheres of economy as well as dynamic development of oil-extracting industry. Moreover, the stabilisation in the sphere of capital investments and influx of direct foreign investments as well as housing construction boom have had a triggering effect on economic development in these regions. The same effect can be observed after the relocation of capital to Astana that

prominently increased it's share in GRP. Furthermore, the share of regions in GRP has changed significantly. For instance, during 1999-2005 the input of oil-producing regions and two municipal districts increased by 12.9% and by 3.3% respectively. On the other hand, the input of agro-industrial regions and industrial provinces declined from 27.9% in 1999 to 20.5% in 2005 and from 28.3% to 19.5% respectively.

The regional disparities in *Gross Regional Product per capita* for the oblasts of Kazakhstan in 1999 and 2005 are presented in Figure 19.

Figure 19_GRP per capita in current market prices, thousands tenge, 1999 and 2005

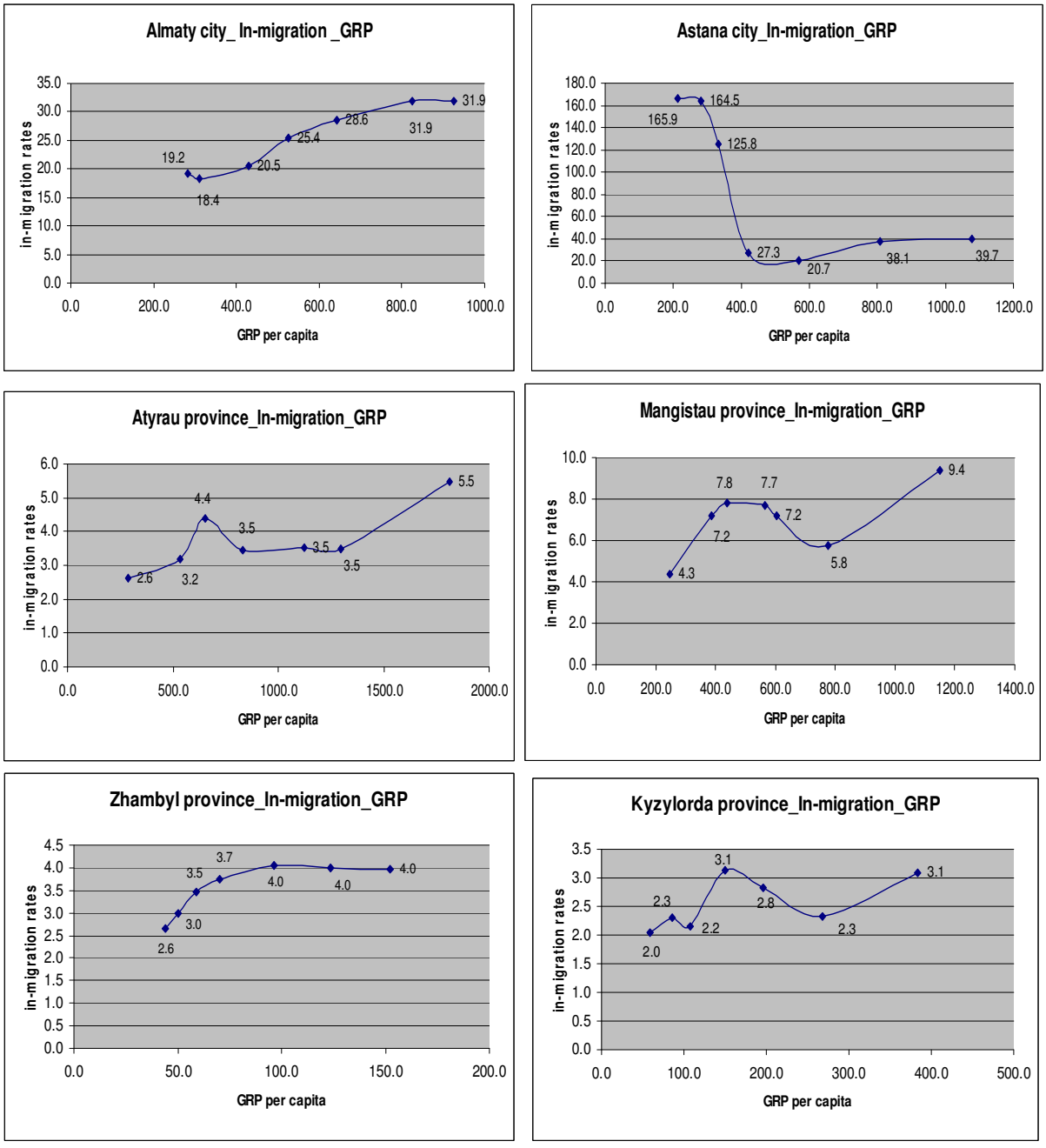


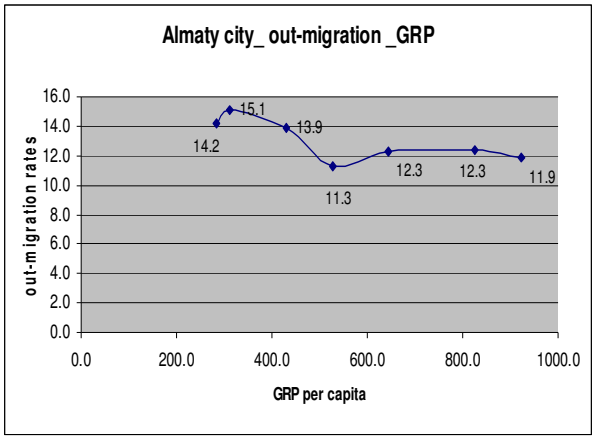
Source: Agency of statistics

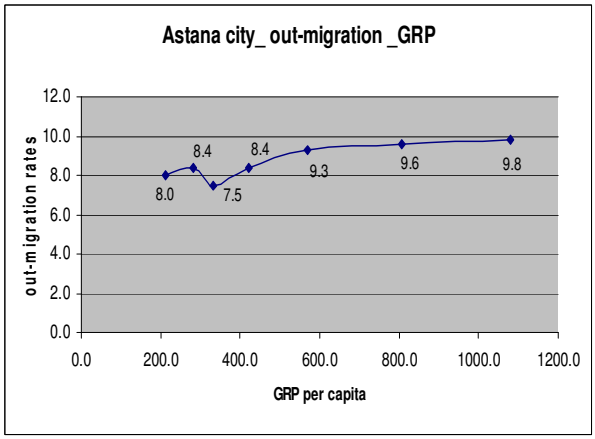
The pattern of regional inequality in Kazakhstan is apparent. The ratio of lowest income in Zhambyl oblast to the highest income in Atyrau oblast in 2005 was 1/12. It is clearly shown that the oil-producing oblasts by the Caspian Sea (Atyrau and Mangistau) and two municipal districts of Almaty and Astana city are the growth regions with the highest production level. The other high GRP per capita oblasts are Pavlodar in the north, Karaganda in the center, Aktobe and West-Kazakhstan in the west of country. In contrast the four southern oblasts Almaty, Zhambyl, South Kazakhstan and Kyzylorda are the poorest regions, and by quite a large margin. The analysis of how strong growth in particular regions affects migration to and from these regions of the country is of special interest. As correlation analysis show, there is a positive and strong correlation between in-migration rates and GRP per capita in the same year and in preceding year (period t-1) and there is a negative and significant relationship between out-migration rates and GRP per capita at time t and (t-1).

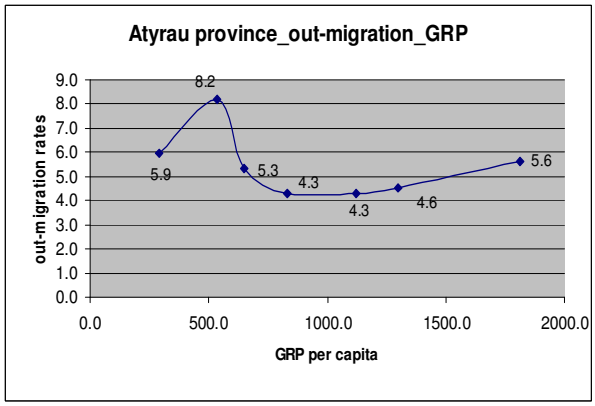
The below analysis shows the graphical representation of above-named relationships for selected regions in 7-year period 1999-2005 (Figure 20). Indeed, in-migration rates reflect the regional disparities in GRP per capita as can be seen from the graphs. The increase in the level of GRP per capita in a region leads to increased in-migration rates to the region. The higher the level of GRP per capita in preceding period (t-1) the higher in-migration rates to the region in subsequent period (t).

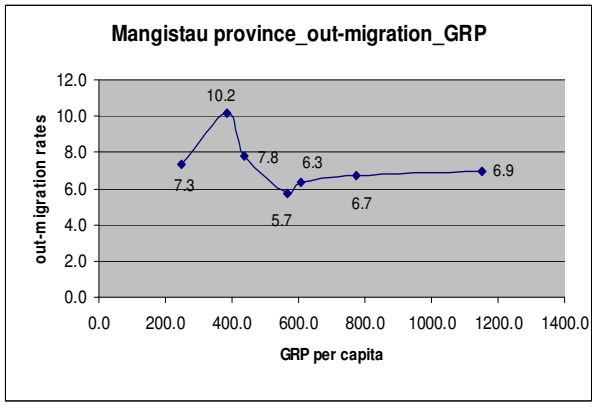
Figure 20_The relationships between migration rates and GRP per capita, 1999-2005

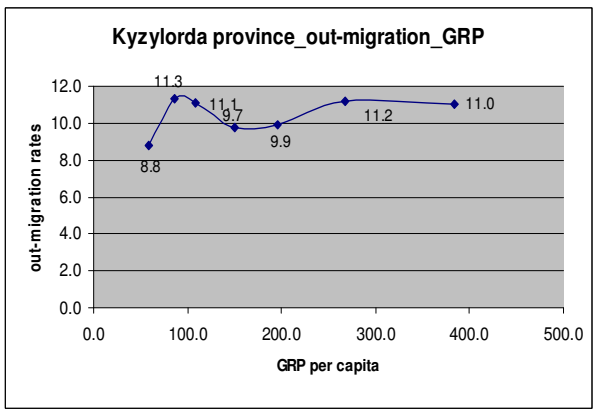


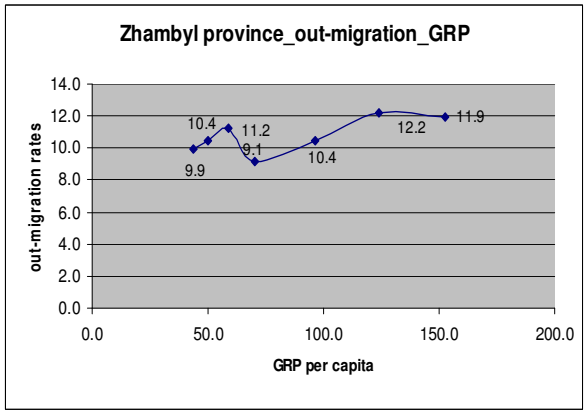

Almaty city_ out-migration _GRP
out-migration rates
GRP per capita
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
200.0
400.0
600.0
800.0
1000.0
14.2
15.1
13.9
11.3
12.3
12.3
11.9

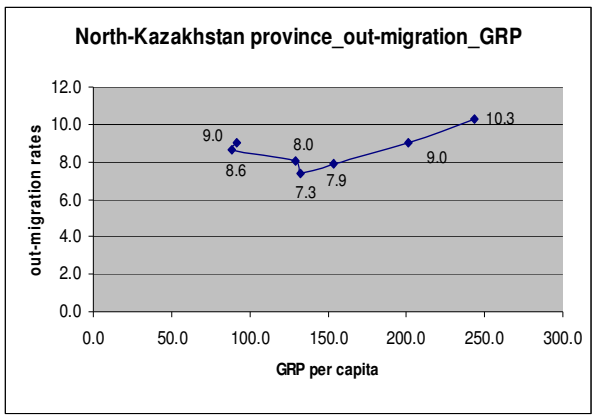

Astana city_ out-migration _GRP
out-migration rates
GRP per capita
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
200.0
400.0
600.0
800.0
1000.0
1200.0
8.0
8.4
7.5
8.4
9.3
9.6
9.8

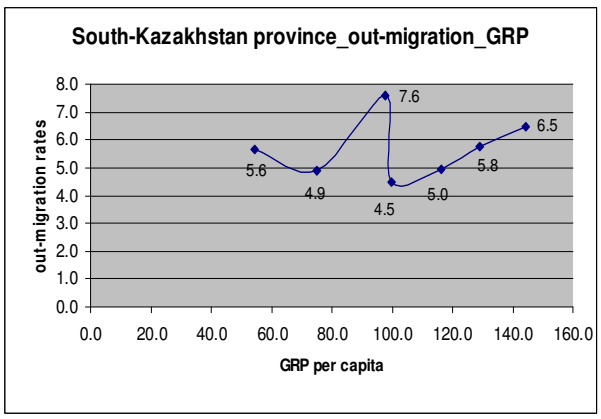

Atyrau province_out-migration_GRP
out-migration rates
GRP per capita
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
0.0
500.0
1000.0
1500.0
2000.0
5.9
8.2
5.3
4.3
4.3
4.6
5.6


Mangistau province_out-migration_GRP
out-migration rates
GRP per capita
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
7.3
10.2
7.8
5.7
6.3
6.7
6.9


Kyzylorda province_out-migration_GRP
out-migration rates
GRP per capita
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
100.0
200.0
300.0
400.0
500.0
8.8
11.3
11.1
9.7
9.9
11.2
11.0


Zhambyl province_out-migration_GRP
out-migration rates
GRP per capita
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0.0
50.0
100.0
150.0
200.0
9.9
10.4
11.2
9.1
10.4
12.2
11.9





Indeed, the high GRP level in Almaty and Astana cities resulted in high in-migration rates to the areas. Atyrau and Mangistau provinces having the highest GRP per capita in 1999 the regions had experienced one of the lowest in-migration rates. However, by 2005 in-migration rates increased to these regions proving the positive relationship between GRP and in-migration rates. The Southern provinces of Zhambyl and Kyzylorda, which are also known as the poorest regions with unfavorable ecologic situation are not surprisingly characterized by low in-migration rates.

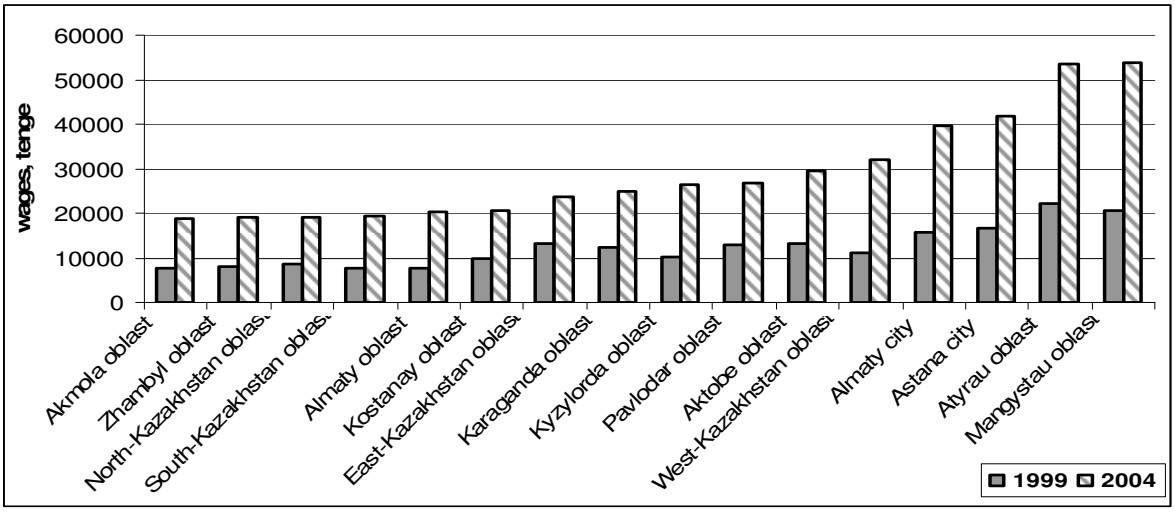
The relationship between out-migration rates and GRP per capita reveals the following findings. The lower the GRP, the higher out-migration from the region. Surprisingly, Astana and Almaty cities experienced high out-migration rates though belonged to high income regions which can be explained by a counter-urbanization process of people moving from big cities to smaller towns or country side. Therefore, the case of capital cities is rather exception than a rule. The oil-producing provinces of Atyrau and Mangistau, with the highest levels of GRP per capita in Kazakhstan, experienced obvious decline of out-migration rates after 2000 coincided with oil-boom and increase in GRP levels, but afterwards starting from 2004, out-migration rates increased again though currently stay on a lower level compared to the highest out-migration rates from the regions in 2000. As was already mentioned, the western part of the country is also characterized by high poverty rates that push people from the region in spite of rapid industrial developments. Among provinces with low GRP per capita levels and high out-migration rates were Almaty, Zhambyl and Kyzylorda provinces thereby proving our hypothesis about outward movements from low-income regions. South-Kazakhstan, Pavlodar and North-Kazakhstan regions also fit these requirements.

Thus, our hypothesis that high GRP provinces stimulate in-migration and low GRP provinces induce out-migration is hold for only Almaty and Astana cities being high-income and highly attractive regions and for Zhambyl and Kyzylorda regions with low income and high out-migration rates.

4.3.2 Inter-regional migration and Wages

The economic motives predominated in recent inter-regional migration. Again, the correlation analysis between average wages and migration reveals a significant and positive relatinship between in-migration and wages, and also a significant and negative relationship between out-migration and wages level. Consequently, workers moved to regions where remuneration were higher and out-migrated from the low-wage provinces. Figure 21 shows, that Atyrau, West-Kazakhstan and Mangistau oblasts and Almaty and Astana cities were among regions with the highest monthly average wages in 1999 and 2004 and which consequently characterized by high in-migrations rates.

Figure 21_Average wages, 1999 and 2004

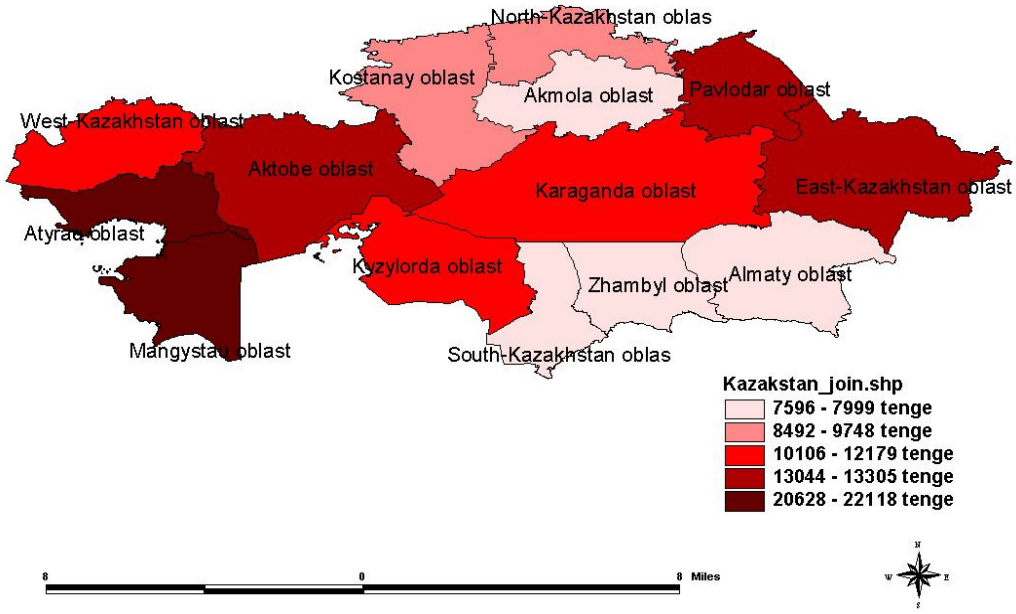


Source: www.undp.infobase.kz

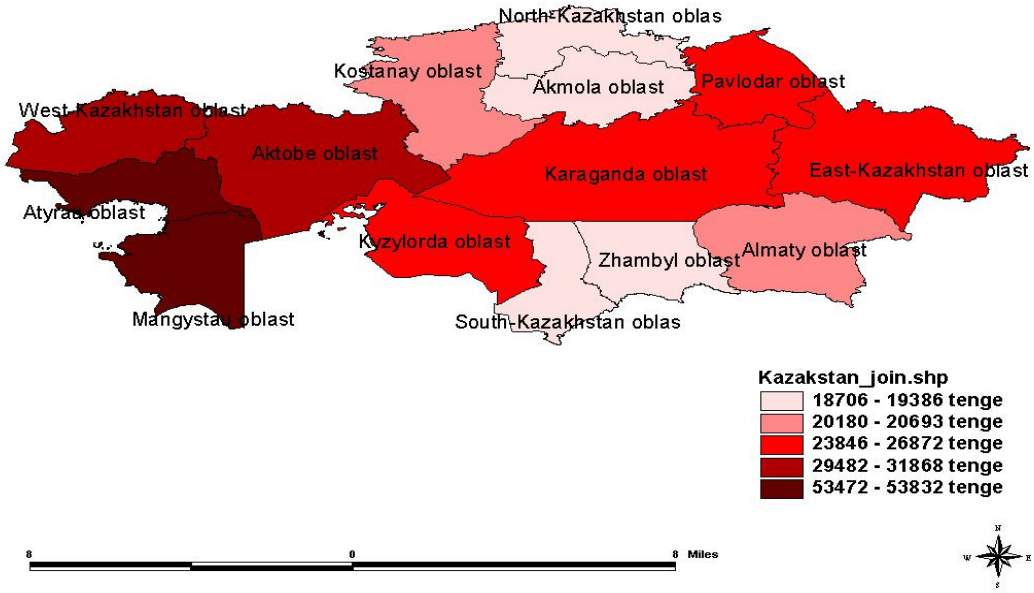
Since workers preferred attractive living and working conditions, they left deficient areas which included South and North regions as real wages fell short compared to wages paid elsewhere. The geographic distribution of average wages in 14 provinces is depicted on Map 4.

Map 4_Average wages, 1999 and 2004

1999 average wages

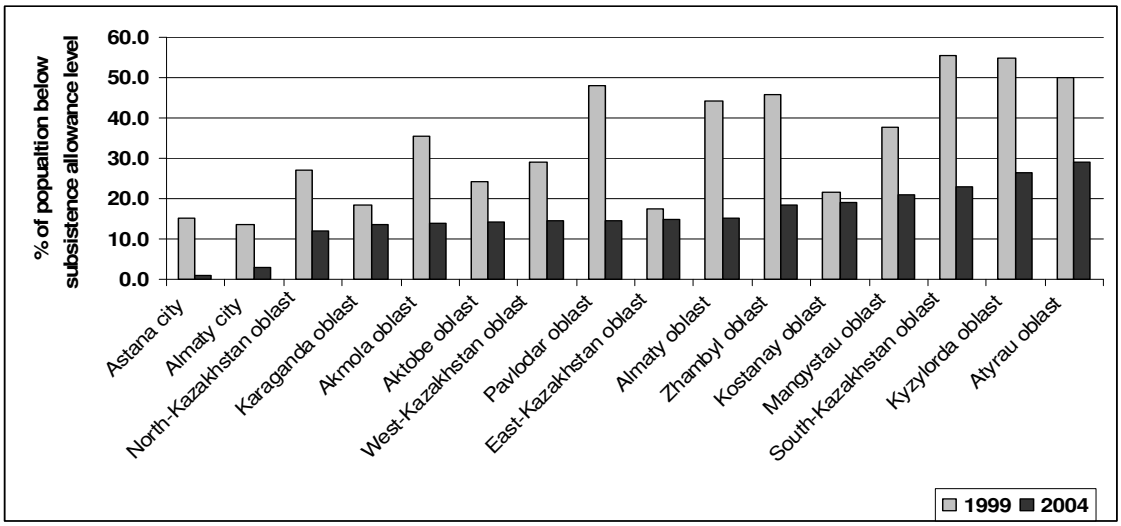


2004 average wages



However, a high level of economic development in a region does not necessarily result in improved living conditions for its residents. During the economic reform, different sectors of the economy have been affected differently and likewise income levels were dependent on regional specialization. Particularly, agriculture, with low productivity resulted in very low incomes that led traditionally agricultural southern regions to relatively low wages and high poverty rates. Other factors that exaggerate the situation in these oblasts are immigration of repatriates (oralmans) and relatively large families typical for the southern regions of Kazakhstan. In western regions (Atyrau and Manystau oblasts), industrial production makes up more than half of the gross regional product. However, the involvement of the local population in the sectors with high wages, such as the oil-and-gas sectors, is limited, and thus these oblasts are still among those with the highest poverty rates (UN, MDG 2005). Besides, construction, trade and service sectors are rapidly developing in the cities, especially in Almaty and Astana, which leads to rather high wages in these regions. Consequently, poverty incidence is lower in urban areas due to the relatively higher wages as well as the educational levels of urban residents. The close examination of regional differences in poverty rates (Figure 22) demonstrates that, despite the highest average wages, the provinces of Atyrau and Mangistau revealed the highest poverty rates in Kazakhstan equaled to 29.1% and 21.0% consequently compared to republican average rate of 16% in 2004.

Figure 22_ Poverty rates (percent of population below subsistence allowance level), 1999 and 2004



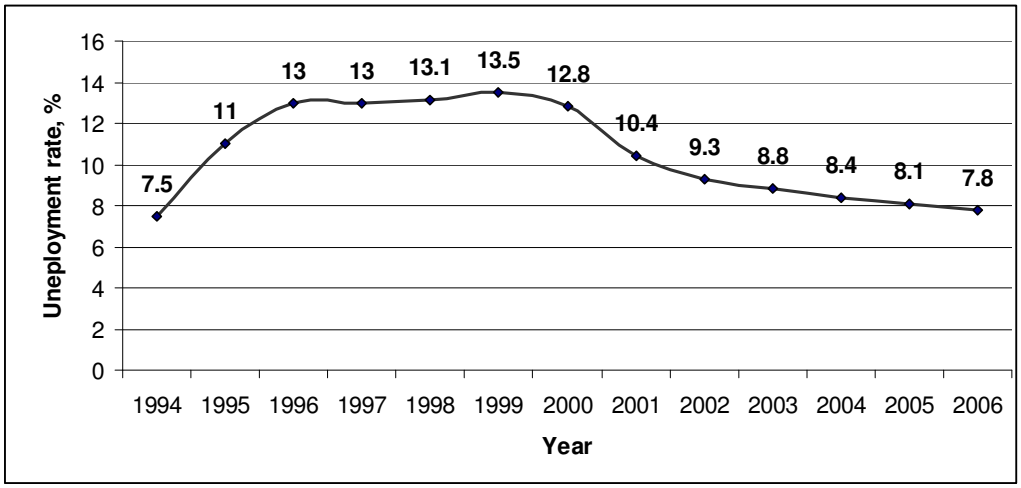
Source: www.undp.infobase.kz

At the same time, Almaty and Astana cities benefited from a significant reduction in proportion of people below subsistence minimum, which dropped from 13.7% and 15.1% in 1999 to 1.1% and 2.8% in 2004 respectively, being the lowest through the country. Thus, the strongest determinant for poverty in Kazakhstan is the province of residence (WB, 2004). The gender disparities are still significant. At the beginning of 2000s, economic situation in Kazakhstan has been improving, but despite of Kazakhstan's higher level of GDP (per capita $1, 506 in 2001) salary rate for females has been permanently decreasing as women receive less than 70 percent of men's wage making women a economically more vulnerable group of population. This factor may in turn explain higher mobility among female.

4.3.3. Inter-regional migration and Unemployment

The general situation on labour market in Kazakhstan since it's independence has been improved according to official data. The total amount of economically active population (above the age 15 and available for production of goods and services) in 2005 was 7.9 million people including 7.3 million employed in different economic sectors which exceeded the 2004 level by 79.2 thousands workers or an 1.1% increase. The amount of population aged 15 and above engaged in non-economic activities was equal to 3.5 million people. Among them were students, retired persons, disabled people and homemakers. More than half of total employed population were male (3.8 million) and 48% or 3.5 million were female. The significant part of employed population was registered in urban areas: 4.1 million people or 56.2%. The total number of unemployed population (people at the age 15 and above, who during the reference period, were without work, currently available for work and seeking work) achieved 640.7 thousands people in 2005 or 8.1% of economically active population. Unemployment rates were lower in rural regions (7%) and higher in urban (9%). Female unemployment was 9.6% against 6.7% among male workers. As can be seen from Figure 23, country's average unemployment rate declined from the highest level of 13.5% in 1999 to 7.8% in 2006 indicating that employment opportunities expanded rapidly with economic development.

Figure 23_Unemployment rates, 1994-2006

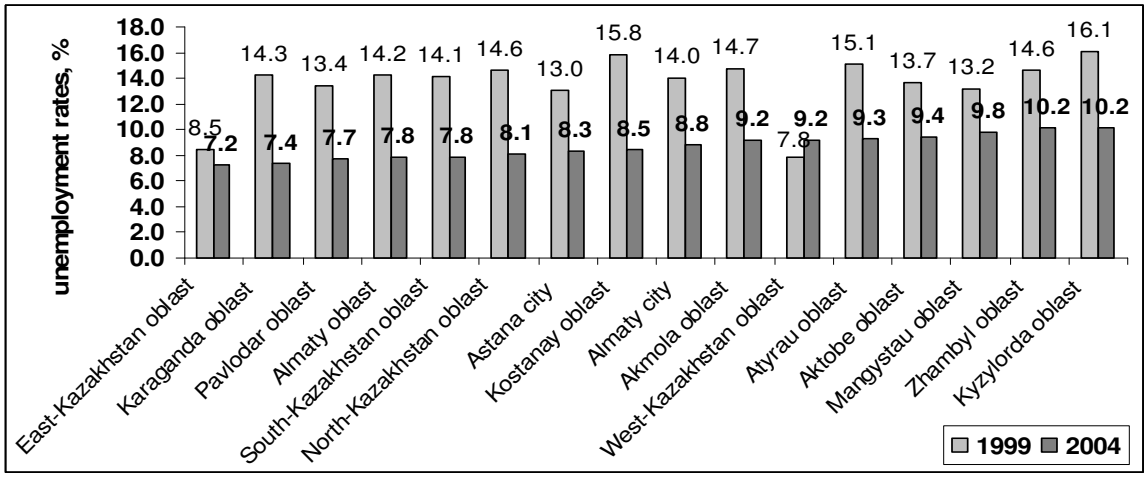


Source: Agency of Statistics and www.undp.infobase.kz

Nevertheless, aggregate numbers in fact hide growing labour market segregation by gender, type of residence and province of residence and poverty status (WB, 2004). Particularly, the geographic distribution of unemployment rates between 14 provinces in 1999 and 2004 depicted on Figure 24 and two maps (Map 5) show existing regional differences, especially in 1999 with two-fold gap between the lowest unemployment rate in West-Kazakhstan province (7.8%) and the highest level in Kyzylorda oblast (16.1%). However, by the year 2004, not only the republican level declined from it's highest pick of 13.5% in 1999 to 8.4% in 2004, but the inter-regional disparities are also narrowed making only 3 points difference between the highest and the lowest levels. This effect perhaps, was a result of new working places creation that increase

the population employment. On the other hand, the inter-regional migration, particularly out-flow of population from high-unemployment regions to low-unemployment region, led to more or less balanced situation on the labour market.

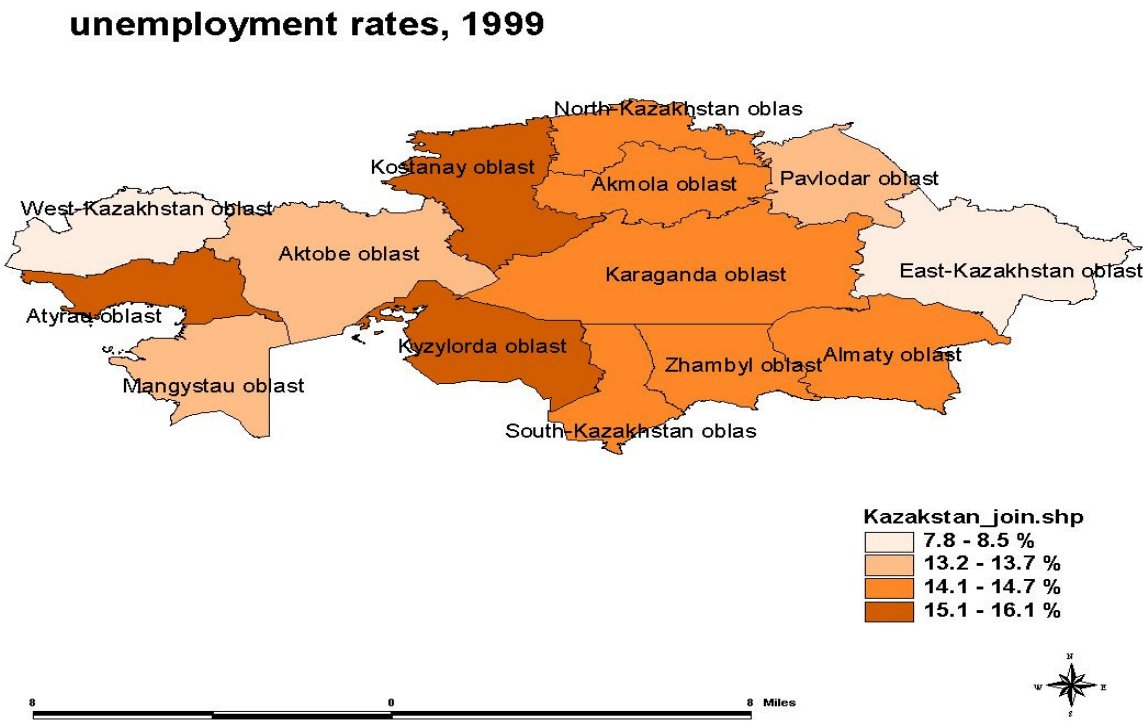
Figure 24_Unemployment rates, 1999 and 2004

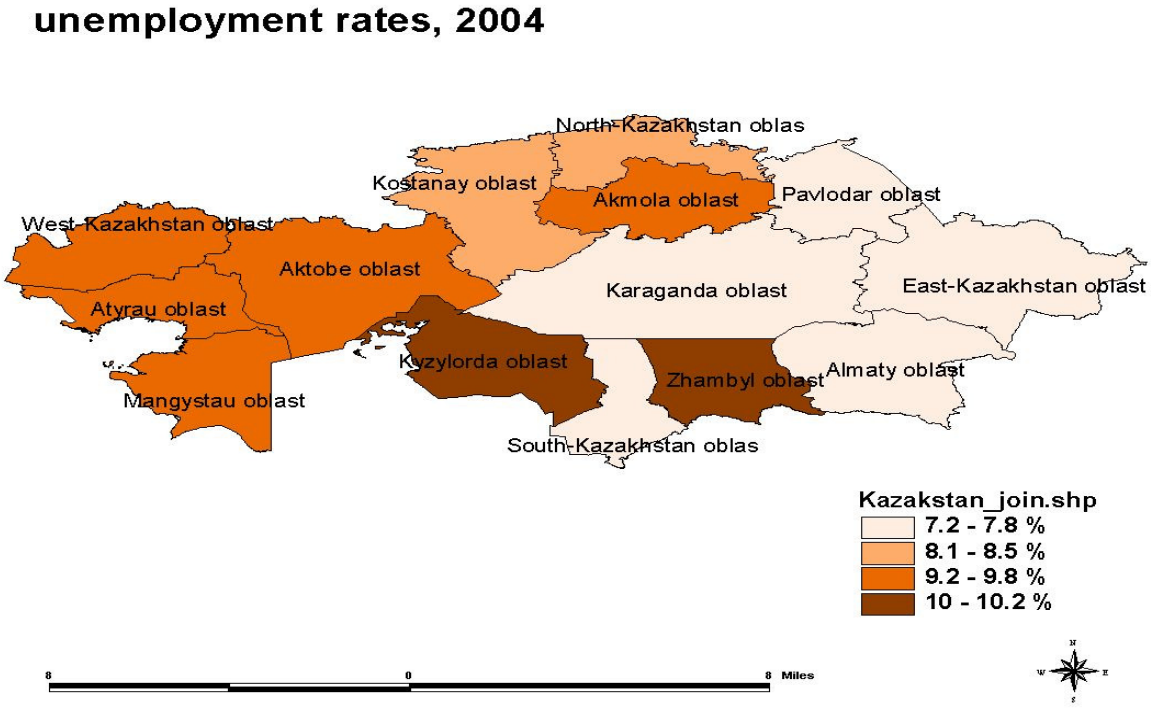


Source: www.undp.infobase.kz

In 2004, the highest unemployment rates (10.2%) were observed in Kyzylorda and Zhambyl regions in the south. Alike, Akmola province and all western provinces experienced above 9% unemployment rates in 2004. All industrial provinces (East-Kazakhstan, Karaganda, Pavlodar) and agro-industrial oblasts (Almaty, Sout-Kazakhstan, North-Kazakhstan) witnessed below 8% unemployment rates which were lower than the average level.

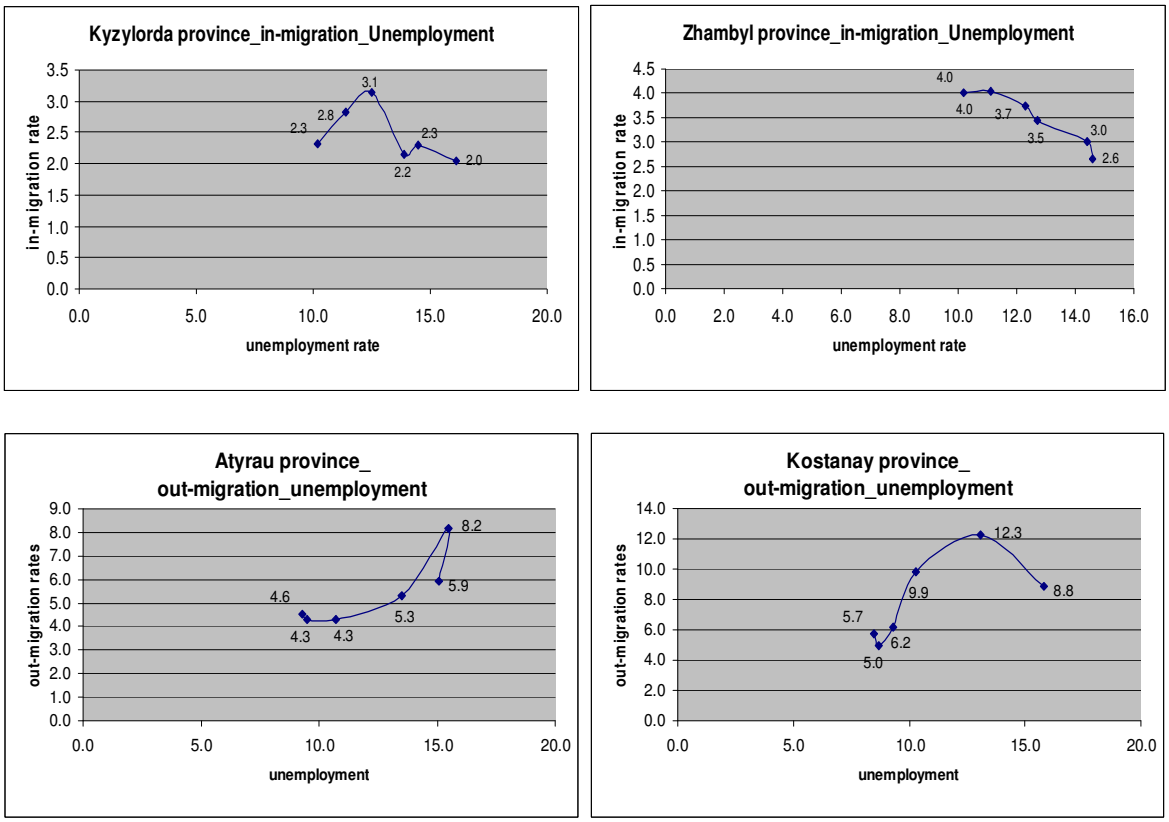
Map 5_Unemployment rates, 1999 and 2004.





The results of correlation analysis given in earlier section revealed, that in-migration rates are negatively correlated with unemployment rates whereas out-migration rates are significantly and positively related to unemployment rates in origin areas. People out-migrate from high unemployment regions and in-migrate to low unemployment regions. The direction and strength of the relationship between migration and unemployment are illustrated on Figure 25 below.

Figure 25_Correlations between migration rates and unemployment rates, 1999-2005



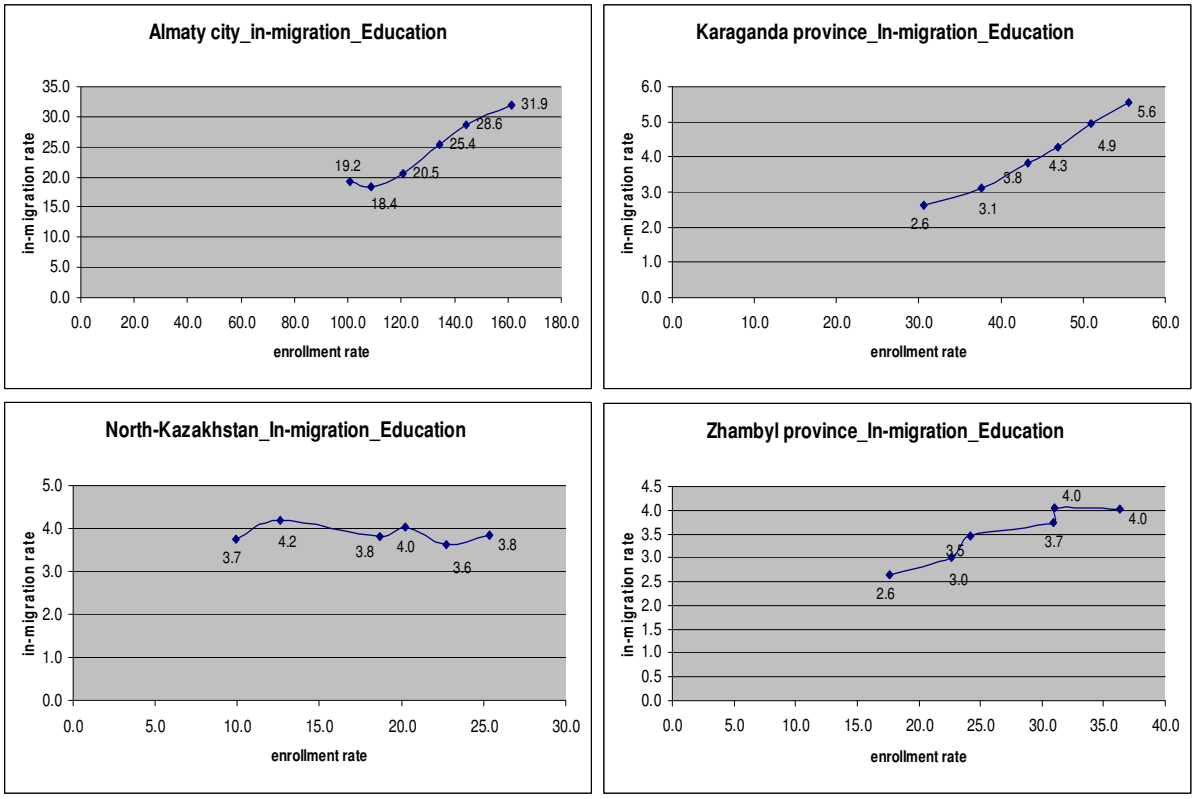
The higher unemployment rates, the lower in-migration rates to a region. The higher unemployment in a region, the more out-migration from it.

4.3.4. Inter-regional migration and Education

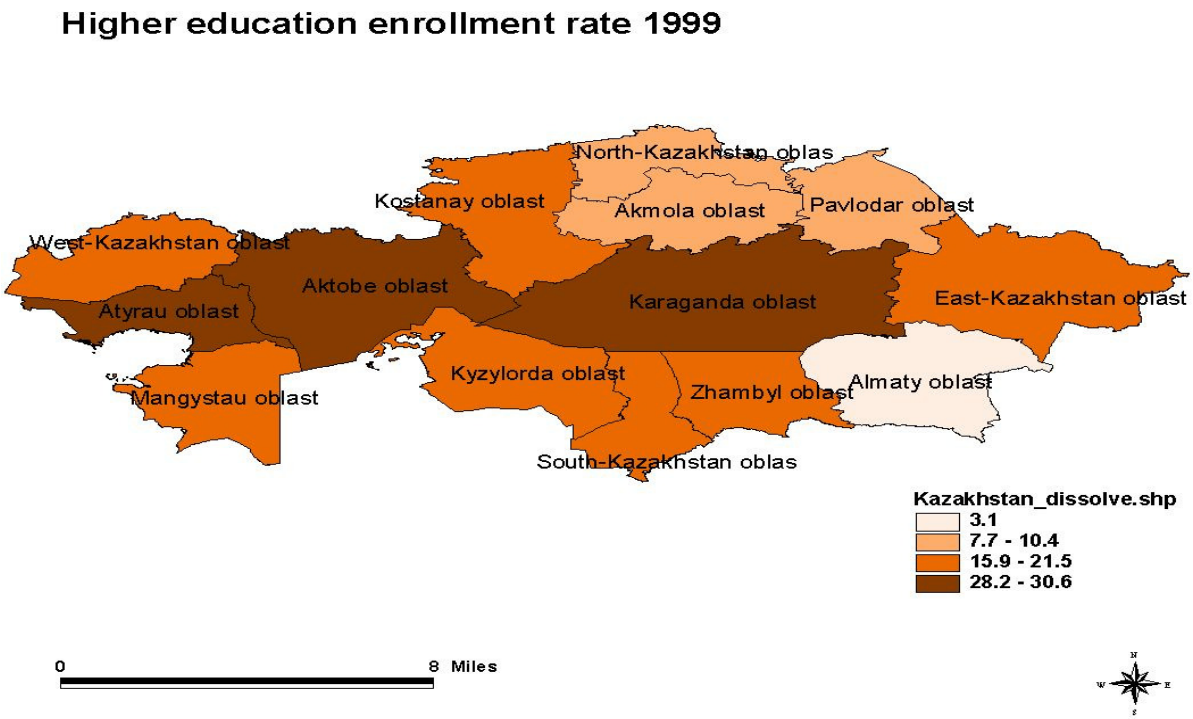
The educational level in Kazakhstan is considered to be rather high, as primary and secondary education is universal and mandatory throughout the country and the literacy rate is 98.4%. Moreover, Kazakhstan achieved MDG of universal primary education in 2002 (USAID, 2006). But the problem exists with the enrollment rates to secondary and higher education as in some regions especially rural areas there is a limited access to education. This affects not only employment opportunities, health and living conditions of young people from these areas but also economic performance on the national level as country is in great demand for educated specialists in all spheres of economy. For instance, in 2002 enrollment rate in secondary education was only 33% in Mangistau and 41% in Astana city, and overall rural enrollment has significantly declined in rural areas from 58.9% in 1999 to 56.3% in 2004 (ibid).

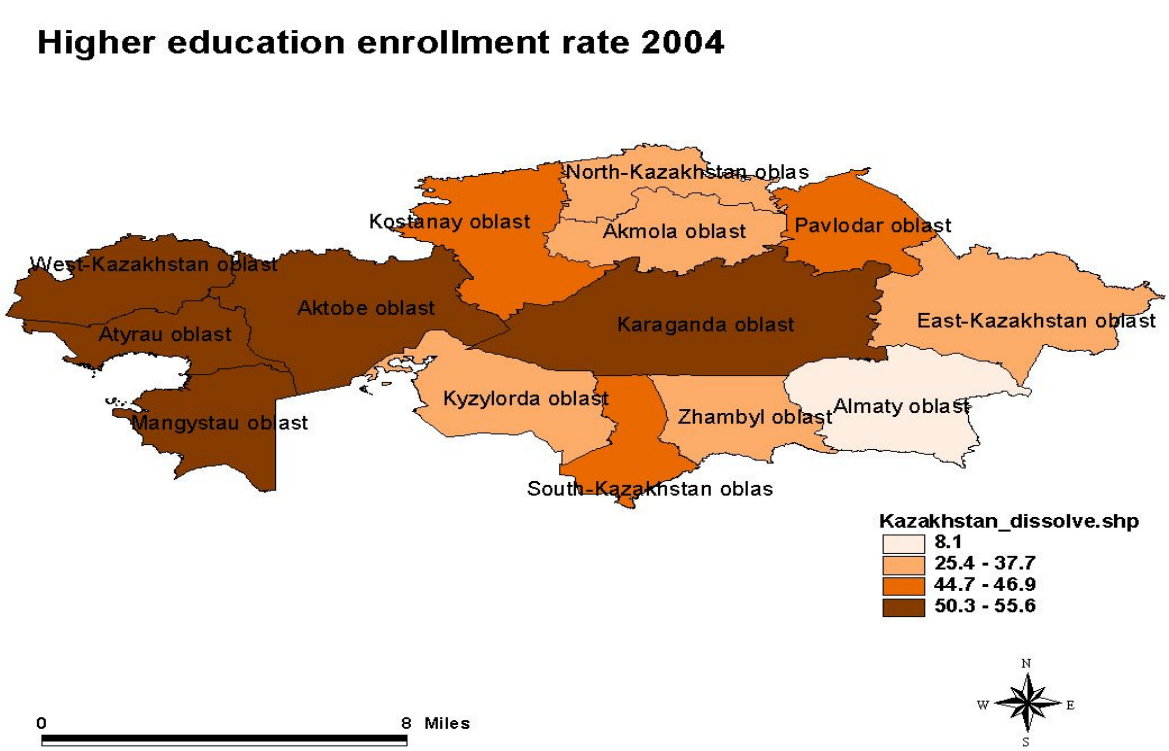
The correlation analysis between higher education enrollment rates and migration rates shows that in-migration to the area is significantly correlated with enrollment rates in the area (Figure 26). Thus, educational opportunity is a pull factor for potential migrants. Particularly, there were 365.4 thousands students enrolled in higher education in 1999. This figure is doubled by 2004 having achieved 747.1 thousand students throughout Kazakhstan. Given this information and having recalled data from the previous sections, where it was mentioned that majority of internal migrants are people of working age (16 and over), it can be assumed that there is a large inflow of students into the regions with opportunities for higher education. As for the relationship between out-migration and enrollment rate, the correlation analysis showed that it is weak. The geographical distribution of higher enrollment rates amongst 14 provinces is depicted on Map 6.

Figure 26_Correlation between higher education enrollment rates and in-migration rates, 1999-2005



Map 6_Higher education enrollment rates, 1999 and 2004.





The highest enrollment rates were observed in Almaty city (100.9 students per 1000 people in 1999 and 161.3 in 2004) and in Astana city (58.6 and 68.2 respectively) which have also experienced the highest in-migration rates. Educational attainment reflects the skills and competencies of a country's population or, in other words, the quality of labour force and could be seen as an important aspect of the human capital. The level of education has implications both for economic development of the country on macro level and personal development of individual on micro level. The large emigration of educated professionals from Kazakhstan during emigration wave in 1990s (known also as "a brain drain") led to deterioration of human capital. For internal migrants, the individual's education is closely related to possibility to invest his or her skills, knowledge, experience in high income jobs. Migration therefore occurs in response to regional differentials in economic development, income levels and educational opportunities bringing young people from regions with lack of institutions to the educational centers, pushing more qualified labour from low income to high income regions. It should be noted, that higher education was always prestigious in soviet times but at the same time, it was free of charge. Unfortunately, during transformation to market economy there was a period of stagnation in higher education due to lack of professional staff, but also due to social and economic difficulties of transition period expressed in absence of state subsidies and limited access to higher education. Nowadays, the situation has improved. For instance, the government introduced the system of educational grants and initiated development of private education sector. Moreover, the reality of modern society dictates new rules for it's citizens, making young people themselves realize the necessity and advantages of higher education. As a result, the number of students increases each year. In this case, higher enrollment rate in destination area may be instigated by relatively high in-migration rates to these regions due to overall popularity of higher education in Kazakhstan and rational choice made in favour of future return on investment in human capital.

4.4 Spatial Interaction Model

So far, we have examined the effect of economic factors on inter-regional migration. The purpose of the present section is to extend our correlation analysis beyond in-migration and out-migration rates that were calculated out of gross migration flows to and from a particular region during 1999-2005. We are interested now to investigate, whether size and distance between origin and destination regions as well as jointly added economic push and pull factors have an effect on in- and out-migration flows. The spatial interaction model based on migration flows matrix for 2005 between 16 administrative units will be applied. In addition to hypotheses on influence of economic factors on internal migration, the research hypothesis that the large provinces attract more migration and the large distances reduce migration will be tested.

First, to have a general idea of origin-destination choices, we will examine specific directions selected by migrants given particular origin and vise-versa. The close examination of origin-destination matrix for 2005 reveals that most migration occurred between bordering regions. For instance, out of 9719 in-migrants arrived to Akmola province, 38.8% was from North-Kazakhstan region, 18.4% from Astana city and 11.7% from Kostanay oblast. 29.7% of gross in-migration (21457 people) to Astana city was from Akmola province, 10.6% from Almaty city. Other large flows were from Karaganda (9.6%), Kostanay (8.8%, South-Kazakhstan (8.7%) and Zhambyl (7.1%) regions. Two latter cases show that there is a shift of migration from South to North direction. Another interesting fact appears from the analysis of out-migration flows. Particularly, 33.7% of 5316 migrants left Astana city for Akmola province. Similarly, 43.4% out of 14611 migrants moved from Almaty city to Almaty province. Apparently, these are characteristics of 'the process of redistribution of growth from larger urban places to smaller places or rural areas' known as counter-urbanization (Rees and Kupiszewski, 1999, p.11).

Secondly, as it was already mentioned, we are interested in answering the question: whether differences in socio-economic situation in origin and destination given the size and distance between regions affect migration flows? One of the approaches to estimate this relationship is the Ravenstein's gravity model, which states that flows between regions are proportional to the population size of the respective regions and inversely proportional to the distance between them. Another model often applied in geography is the basic spatial interaction model. It predicts exactly the total number of in- and out-flows of each region. However, in order to answer the question why certain regions have more out-migration than others, and why certain regions have more in-migration than others, we need to extend previous models. Particularly, by including a set of variables which can explain why certain regions are more attractive than others. In order to test whether the explanatory factors significant in their influence on the migration flows we have applied a spatial interaction model.

This model has the following log-linear form:

$\ln \hat{F}_{ij} = \ln B_i^O + \mu + \alpha \ln B_j^D + \beta \ln Z_{ij} + \theta \ln W_{ij}$ where

- flow between origin and destination F_{ij}
- population of origin B_i^O and destination B_j^D.
- distance between i and j: W_{ij}
- variables representing the difference in attractiveness between zones i and j: Z_{ij}

- ln B_i^O is called an *offset* in order to have this model in terms of rates.

We calculated new covariates expressing the difference in attractiveness of origin and destination Z_{ij}:

- *Wagedif* is a difference between wages in the destination and the origin region

- *Unempdif* is a difference between unemployment rates in the destination and the origin region

Overall, we have 16 regions, therefore the total number of cases is 16*16=256. However, the intra-regional flows are not taken into account in this model. This is accomplished by giving the diagonal entries of the table a weight of 0. Effectively, the number of cases is therefore 256-16=240. Table 14 with the parameter estimates of the model shows, that for the size (expressed in population) of a destination region and wage differential they are significant and positive whereas distance and unemployment difference parameters have a negative sign and are highly significant as well.

Table 14_Parameter Estimates

					95% Confidence Interval	
Parameter	Estimate	Std. Error	Z	Sig.	Lower Bound	Upper Bound
Constant	-7.123	.009	-799.349	.000	-7.141	-7.106
D_pop	4.37E-007	.000	71.085	.000	4.25E-007	4.49E-007
dist	-.882	.004	-218.873	.000	-.890	-.874
wagedif	.040	.000	154.955	.000	.039	.040
unempdif	-.136	.002	-55.790	.000	-.140	-.131

a Model: Poisson
b Design: Constant + D_pop + dist + wagedif + unempdif

Thus, including unemployment and wages as push and pull factors into the model, it can be concluded that our original hypotheses proposed in section 2 are proved:

- the larger the region of destination, the more in-migration to the region
- the larger the distance between the regions, the lower the migration between the regions.
- the higher the wage differential between destination and origin region the higher the migration
- the higher the differential in unemployment between destination region and origin region the lower the migration between these regions.

5. Conclusion and discussion

Following the research questions, this chapter presents the research findings resulted from the analysis given in the previous chapter.

5.1. Research findings

In this paper we tried to describe and explain the major aspects of economically driven migration in Kazakhstan during and after the transition period from 1991 up until 2006 focusing on the relationship between economic motives and internal migration.

What is the size and direction of migration flows between regions in Kazakhstan?

Historically, the population of Kazakhstan was involved in dynamic migratory processes both within republic itself and with other soviet republics due to collectivization and industrialization. In 1991 after the collapse of the Soviet Union, the Republic of Kazakhstan became an independent state. The former internal movements transformed to international migration that were restricted during soviet times. As for internal movements, in spite of the difficulties of transitional period, average level of internal migration during 1991-2006 stayed on a quite high level. In particular, the volume of internal movements within the territory of Kazakhstan achieved 295,270 people in 2006 compared to 431,262 in 1991, the lowest level of internal migration with two-fold decrease compared to 1991 level was observed in 1997 (204,569 migrants) which coincided with the reformation stage. During the period 1991-2006 there were registered 4,696,217 internal migrants (both intra- and inter-regional) participated in the movements within country. According to experts evaluations about 70% of internal migration were represented by rural-urban flows. In general, about 300,000 people (about two percent of total population) participate each year in movements within country. Internal migration in Kazakhstan is selective by age, sex, education and place of residence as most of internal migrants are women (more than half of total number of internal migrants), economically active population (people aged 15-65), with secondary and higher education, with main directions from rural to urban areas.

In 1991 more than two thirds (63.9%) of all internal movements were represented by intra-regional migration demonstrating the changes in geographies of internal migrants. Later on, due to administrative reforms and economic developments people became more inclined to migrate from one region to another. South to North and South to West shifts dominate regional patterns. Population relocations between provinces were mainly directed to the growth centers of Almaty and Astana cities that absorbed jointly more than 60% of migrants in 1999. Later on, with oil-industry boom, western regions, particularly West-Kazakhstan province, Atyrau and Mangistau provinces started to attract more migrants. During 1999-2006, in-migration was mostly concentrated on Almaty and Astana cities and provinces of Almaty and Akmola. In contrast, large out-migration flows were observed from almost all regions except oil-producing oblasts. Apart from four regions of Almaty city, Astana city, Karagandy and Mangistau oblasts, all other regions witnessed a net loss during 1999-2006.

- What are the age and sex patterns of internal migration? How do they differ in urban and rural areas?

1999 census data proved the fact that the different life-course stages show different migration behaviour with a high mobility among children, increasing further at young adults ages and dropping down at labour force and family ages, and with sharp decline during and after retirement ages. This evidence demonstrates that migration is age selective in Kazakhstan with adolescents and young adults group aged 15-29 characterized by the highest mobility. The age-specific migration schedules for male and female are largely identical across the age span, except that women demonstrate high rates at younger ages. Besides, female mobility exceeds male migration during retirement and older ages that can be explained by 10-year gender gap in the average life expectancy at birth in Kazakhstan. The residential differences reveal the same effect on age-specific migration schedules with urban migration far exceeding rural due to rural depopulation. In general, gender similarities are more striking than differences. Unfortunately, there is no information about the number of females who migrated together with their husbands as tied movers.

The vital statistics data revealed, that out of 295,270 internal migrants in 2006, 12 % were represented by children or population under working age (0-15), 83% by population of working age (16-62(57) and 5% of migrants were at the retirement age (over 63(58) years old) compared to 18%, 74% and 8% in 1999 consequently. Hence, people of working ages are the most mobile group of internal migrants. Gender distribution of internal migration shows that there is no significant difference in numbers of male and female migrants though female migrants exceeds number of male migrants. It can be explained by higher proportion of females in total population which is 52% against 48%. Nevertheless, during 1999-2006 there was an increase in the absolute numbers of male and female migrants. For instance, in 1999 the number of male and female migrants accounted for 113,306 and 119,306 consequently, whereas in 2006 these numbers achieved 139,086 for males and 156,184 for females.

- What has been the effect of changing capital city on internal migration?

In 1997, as a part of the administrative reform, the capital of Kazakhstan was relocated from Almaty city in the south to Astana city situated in the center of the country. This unique event in the history of Kazakhstan was not only the political decision, but it also significantly changed the size and ethnic composition of Astana's population due to large in-migration flows from all parts of Kazakhstan. Due to the substantial relocation of state authorities to the new capital, the population of Astana increased from 281,252 people in 1989 to 529,335 in 2005 or almost doubled. Total population growth during 2000-2005 made up 169,448 people, out of which majority or 165,464 people arrived from other parts of Kazakhstan. As for the natural growth (18,363), it was almost neglected by emigration (-14,384). According to 1999 Census, the proportion of Kazakhs in Astana achieved 41.8% against 17.7% in 1989 whereas the share of other ethnic groups has declined, for instance for Russians from 54.1% to 40.5%. Moreover, due to relocation of state authorities and increased job opportunities connected to the needs of new capital developing infrastructure led to extremely high in-migration rates (165.9, 164.5 and 125.8 per 1000 people in 1999, 2000 and 2001 respectively). The spatial analysis of inter-regional migration flows to and from Astana derived from 2005 origin - destination matrix shows that the

majority of in-migration was from Akmola province (29.7%), Almaty city (10.6%), neighbouring Karaganda (9.6%) and Kostanay (8.8%), and South-Kazakhastan (8.7%) provinces. Outward migration was mostly directed towards Akmola oblast (33.7%) due to counter-urbanization process, as well as to Almaty city (15%), Karaganda (11.2%) and Kostanay (9.3%) provinces. Thus, relocation of capital resulted not only in Astana's population growth, but instigated huge south-north population shift with the highest in-migration and net migration rates observed for Astana city during 1999-2006.

- Does internal migration increase during economic growth and decline in times of downturn?

Fluctuations in the national economy expressed in GDP per capita affected notably the internal and intra-regional migration during 1991-2005. The results of correlation analysis revealed that internal migration rates are significantly correlated with GDP per capita that means, during economic downturn the internal migration declines and with the growth of GDP internal migration also increases. The volume of internal migration is closely interconnected with the business cycle fluctuations. Indeed, the high level of internal migration in the beginning of the 1990s (431,462 migrants in 1991) reduced significantly and achieved 204,569 migrants in 1997). This downward trend in internal migration reflected the sharp economic decline and period of recession after the crisis in 1994. Afterward, in 1998 there was observed a small relief in population mobility (due to reallocation of capital from Almaty to Astana city) and continuing recovery up until 2004 with the total number of people moving within country equaled to 317,928. Apparently, the economic growth started in the beginning of 2000s led not only to residential but social and labour mobility of population. Housing market and labour market processes also contributed to this situation. Thus, it can be concluded, that our hypothesis is proved as internal migration increases during economic growth and declines in times of downturn.

- How do the disparities in regional outputs affect migration flows to and from provinces?

The correlation analysis revealed a positive and strong correlation between in-migration rates and GRP per capita and a negative and significant relationship between out-migration rates and GRP per capita at time. In other words, the increase in the level of GRP per capita in a region leads to increased in-migration rates to the region. Regional patterns of inter-regional migration in Kazakhstan are heavily influenced by disparities in economic development and biased towards growth regions of Astana and Almaty cities being financial and service centers, and oil-producing provinces in the west of Kazakhstan (Atyrau, Mangistau, Aktobe and West-Kazakhstan oblasts). The high GRP level in Almaty and Astana cities resulted in high in-migration rates to the areas. In contrast, Atyrau and Mangistau provinces having the highest GRP per capita in 1999 had experienced one of the lowest in-migration rates. However, by 2005 in-migration rates increased to these regions proving the positive relationship between GRP and in-migration rates. The Southern provinces of Zhambyl and Kyzylorda, which are also known as the poorest regions with unfavorable ecologic situation are not surprisingly characterized by low in-migration rates. The relationship between out-migration rates and GRP per capita reveals that the lower the GRP, the higher out-migration from the region. Surprisingly, Astana and Almaty cities

experienced high out-migration rates though belonged to high income regions which can be explained by a counter-urbanization process of people moving from big cities to smaller towns or country side. The oil-producing provinces of Atyrau and Mangistau, with the highest levels of GRP per capita in Kazakhstan, experienced obvious decline of out-migration rates after 2000 coincided with oil-boom and increase in GRP levels, but afterwards starting from 2004, out-migration rates increased again though currently stay on a lower level compared to the highest out-migration rates from the regions in 2000. As was already mentioned, the western part of the country is also characterized by high poverty rates that push people from the region in spite of rapid industrial developments. Among provinces with low GRP per capita levels and high out-migration rates were Almaty, Zhambyl and Kyzylorda provinces thereby proving our hypothesis about outward movements from low-income regions. South-Kazakhstan, Pavlodar and North-Kazakhstan regions also fit these requirements.

Thus, our hypothesis that high GRP provinces stimulate in-migration and low GRP provinces induce out-migration holds strongly for Almaty and Astana cities being high-income and highly attractive regions and for Zhambyl and Kyzylorda regions with low income and high out-migration rates. The fact that some regions experience both high in-migration and out-migration rates needs further investigation and is not covered by the present research.

- Do high-wage regions attract migrants and low-wage areas lose population?

The analysis of relationships between average wages and migration demonstrated a significant and positive correlation between in-migration and wages, and a significant and negative relationship between out-migration and wages level. Consequently, workers moved to regions where remuneration were higher. Construction, trade and service sectors are rapidly developing in the cities, especially in Almaty and Astana, which leads to rather high wages in these regions. It is not surprisingly then, that they are characterized by high in-migrations rates. However, a high level of economic development in a region does not necessarily result in improved living conditions for its residents. During the economic reform, different sectors of the economy have been affected differently and likewise income levels were dependent on regional specialization. For instance, Atyrau, West-Kazakhstan and Mangistau being high–wages provinces are still among those with the highest poverty rates oblasts. Moreover, despite the highest average wages, the provinces of Atyrau and Mangistau revealed the highest poverty rates in Kazakhstan equaled to 29.1% and 21.0% consequently compared to republican average rate of 16% in 2004.
Therefore, in-migration rates to these regions were not so high as compared to capital cities. Furthermore, workers out-migrated from deficient areas which included South and North regions towards regions with attractive living and working conditions since real wages fell short compared to wages paid elsewhere.

- Do high unemployment rates lead to intense outward migration from the region?

The results of correlation analysis revealed that in-migration rates are negatively correlated with unemployment rates whereas out-migration rates are significantly and positively related to unemployment rates in origin areas. People out-migrate from high unemployment regions and in-migrate to low unemployment regions. Geographic distribution of unemployment rates between 14 provinces in 1999 and 2004 depicted existing regional differences, especially in 1999 with two-fold gap between the lowest unemployment rate in West-Kazakhstan province (7.8%) and the highest level in Kyzylorda oblast (16.1%). However, by the year 2004, not only the republican level declined from it's highest pick of 13.5% in 1999 to 8.4% in 2004, but the inter-regional disparities are also narrowed making only 3 points difference between the highest and the lowest levels. This effect perhaps, was a result of new working places creation that increase the population employment. On the other hand, the inter-regional migration, particularly out-flow of population from high-unemployment regions to low-unemployment region, led to more or less balanced situation on the labour market. In 2004, the highest unemployment rates (10.2%) were observed in Kyzylorda and Zhambyl regions in the south that were also characterized by high out-migration rates. Alike, Akmola province and all western provinces experienced above 9% unemployment rates in 2004. All industrial provinces (East-Kazakhstan, Karaganda, Pavlodar) and agro-industrial oblasts (Almaty, Sout-Kazakhstan, North-Kazakhstan) witnessed below 8% unemployment rates which were lower than the average level and consequently resulted in higher in-migration rates to the regions.

- What is the effect of education on internal migration?

Though Kazakhstan achieved MDG of universal primary education in 2002 with literacy rate 98.4%, there still exists problem with the enrollment rates to secondary and higher education as in some regions especially rural areas there is a limited access to education. For instance, in 2002 enrollment rate in secondary education was only 33% in Mangistau and 41% in Astana city, and overall rural enrollment has significantly declined in rural areas from 58.9% in 1999 to 56.3% in 2004. Educational attainment reflects the quality of labour force and could be seen as an important aspect of the human capital. For internal migrants, the individual's education is closely related to possibility to invest his or her skills, knowledge and experience in high income jobs. Migration therefore occurs in response to regional differentials in economic development, income levels and educational opportunities bringing young people from regions with lack of institutions to the educational centers, pushing more qualified labour from low income to high income regions. The number of students increases each year. Particularly, there were 365.4 thousands students enrolled in higher education in 1999. This figure is doubled by 2004 having achieved 747.1 thousand students throughout Kazakhstan. In this case, higher enrollment rate in destination area may be instigated by relatively high in-migration rates to these regions due to overall popularity of higher education in Kazakhstan and rational choice made in favour of future return on investment in human capital.

The correlation analysis between enrollment rate in higher education and migration rates shows that in-migration rates to the region is significantly correlated with enrollment rates in the area. Consequently, it can be assumed that there was a large inflow of students into the regions with opportunities for higher education. For instance, the highest enrollment rates were observed in Almaty city (100.9 students per 1000 people in 1999 and 161.3 in 2004) and in Astana city (58.6

and 68.2 per 1000 people respectively) which have also experienced the highest in-migration rates. As for the relationship between out-migration and enrollment rate, the correlation analysis showed that it is weak.

- What is the effect of regional population and distance between origin and destination on migration flow?

Having extended our correlation analysis beyond in-migration and out-migration rates, we investigated that size and distance between origin and destination regions as well as jointly added economic push and pull factors have certain effects on in- and out-migration flows. The application of the spatial interaction model based on migration flows matrix for 2005 between 16 administrative units confirmed the research hypothesis that the large provinces attract more migration and the large distances reduce migration. According to Ravenstein's gravity model, flows between regions are proportional to the population size of the respective regions and inversely proportional to the distance between them. New covariates calculated as the difference in attractiveness of origin and destination that was expressed in unemployment rates as push factor and wages as pull factor were included into the spatial interaction model. The parameter estimates show, that the size (expressed in population) of a destination region and wage differential are significant and positive, whereas distance and unemployment difference parameters have a negative sign and are highly significant. Thus, the model proves that the larger the region of destination, the more in-migration to the region; the larger the distance between the regions, the lower the migration between the regions; the higher the wage differential between destination and origin region the higher the migration; and, the higher the differential in unemployment between destination region and origin region the lower the migration between these regions.

5.2. A research agenda for internal migration in Kazakhstan

Internal migration is closely connected with the changing economic structure and disposition of productive forces and evolving social and labour mobility. There is a growing understanding and necessity of scientific approach to the problems of population movements that put migration into the long-term priority of development and research agenda. Monitoring, forecasting, regulation of internal migration and balanced spatial distribution of sparse population over Kazakhstan's huge territory are the key objectives of it's migration policy and territorial development strategy and even more important for the purposes of sustainable economic development. As the findings of the present research proved, economic gaps stimulate migration from less developed to richer areas, from high-unemployment regions to areas with more job opportunities. In this regard, the rapid growth in the regions attracting the most migration might have an important surging effect and may equalize living conditions and employment situation in poorer regions (USAID, 2006). Hence, the regional policy should focus on creation of jobs in depressed areas thereby reducing out-migration and establishing equilibrium on the labour market. Besides, as it was demonstrated with Astana city, the internal migration has a significant effect on population size and structure in terms of gender, ethnic, social and age composition. Therefore, the spatial interaction model employed in this paper can also be applied for preparation of projections of inter-regional and intra-regional migration flows. These projections may help state authorities anticipate and regulate large-scale migration, but what is more important to foresee demographic, economic and social outcomes from the moves. Assessment of the effect of housing construction on residential mobility could also be a part of the research for policy-making. Furthermore, the present research can be extended by including socio-demographic variables such as ethnic composition, marital status, educational level with application of age and sex-specific migration rates. Some of these statistics are still missing and not collected on the required level of dissagregation. The residential relocations affect different social domains such as family formation and dissolution, housing, education, shopping and recreation amenities, and supply of labour (Mulder & Hooimeijer, 1999). Therefore, the life-course approach entails further development as migration should be seen as a part of dynamic process of transitions from one life-stage to another each demonstrating appropriate migration behaviour. Hence, it can be recommended to start any policy-making with thorough analysis of motives of migrants and their needs in terms of jobs, schooling, social infrastructure and housing as people's needs and aspirations differ with age. Particularly, taking into consideration a process-context approach based on the combination of macro level of society and micro level of individuals, it is obvious that the qualitative research can give an insight to migrants' motives, intentions, and needs as well as to understanding of external restrictions and opportunities related to decision to move. These surveys may in turn provide policymakers with better understanding of different conditions (both financial and psychological) which trigger or hinder migration behaviour of citizens and as a result adjust current migration policies to achieve the desired policy effect and make move of people less risky and expensive. Knowing behavioral mechanisms underlying migration decision making through surveys will add significantly to evidence-based planning and policy-making and help to adopt more realistic plans and programmes based on people's opinions and experiences. In order to provide planners, politicians and policy makers with comprehensive data on migration dynamics, cross-national and multi-disciplinary research is required to capture changing patterns of demographic and particularly internal migration dynamics. Research efforts should be focused on demographic, economic, and social consequences of internal migration at different levels of individuals, households and national level.

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