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**A Preliminary Spatial Examination of  
Post-Independence Population Dynamics  
in Kazakhstan**

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## **A Preliminary Spatial Examination of Post-Independence Population Dynamics in Kazakhstan**

### **INTRODUCTION**

The former Soviet republic of Kazakhstan offers an intriguing spatial and temporal expression of population dynamics, both through its history and over the past two decades of independence. Population dynamics in this sense implies both movement (migration) and change (population increases or decreases), with each of these elements having profound impacts on the territory now bounded by Kazakhstan's internationally-recognized state political border. Historically, native Kazakh populations themselves exhibited a certain dynamism through a nomadic pastoral existence, migrating in tune with seasonal changes guided largely by the availability of steppe pasturage to feed herds of livestock. The great Silk Road network of trade routes traversed the region, highlighted by the movement of traders, traded goods and the exchange of ideas and cultural traits. The expansion of the Russian empire into what is today Kazakhstan would ultimately alter the ethnic composition of the territory, a process that would continue through the Soviet era. Established as a full Soviet Socialist Republic (SSR) in 1936, Kazakhstan's population and ethnic composition were greatly impacted by USSR policies of collectivization, the Virgin Lands agricultural development program, forced relocation to Kazakhstan of perceived 'enemies of the state,' as well as the reductions of populations associated with the Great Patriotic War (WWII). The dissolution of the Soviet Union catapulted Kazakhstan into independence, which it seemingly reluctantly (Kazakhstan was the last Soviet republic to do so) declared on December 16, 1991.

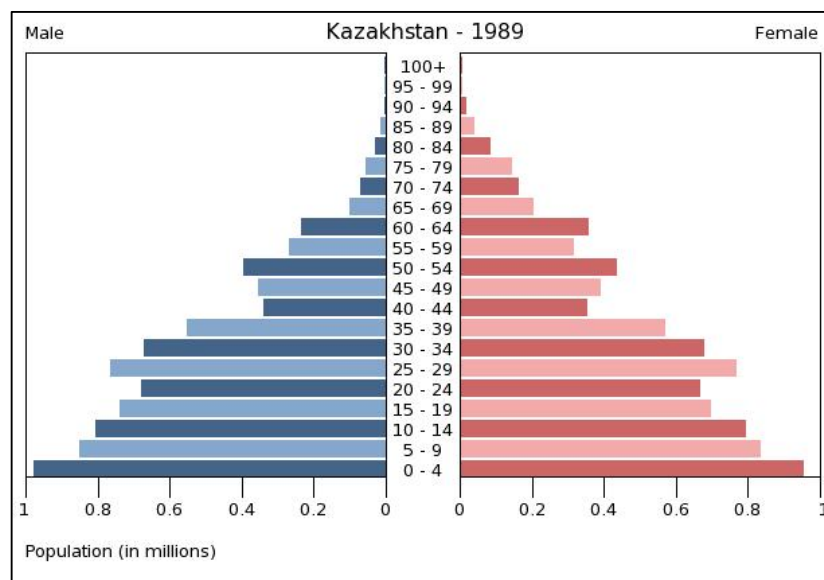
While historical demographic processes have, of course, largely affected Kazakhstan's contemporary population situation, this paper focuses on its population dynamics since independence. Perhaps the most dramatic dynamic within Kazakhstan since 1991 has been a decline in total population within the republic, largely a result of widespread outmigration of ethnic Russian populations (see e.g. Olcott, 1996; Zardykhon, 2004; or Peyrouse, 2008). State-level population figures clearly provide important insights, though such figures mask internal variation and often lead to inaccurate generalizations. A fuller, more geographically nuanced view, as this paper will attempt, reveals regional variations in population dynamics within Kazakhstan. Such dynamics are the result of a complex interplay between natural elements of population change (fertility and mortality as expressed by birth and death rates), as well as migration (into and out of Kazakhstan, and also interregional migration within the republic). Economic conditions play an important role, as do political, social, and historical influences. Ethnicity seems to have played a role in fertility rates in Kazakhstan since independence (Agadjanian, 1999), as have migration trends, including the afore-mentioned Russian emigration and the return of ethnic Kazakhs (*oralman*) exiled from the USSR (Diener, 2005). Clearly a detailed treatment of population dynamics within post-independence Kazakhstan would address ethnic composition, natural rates of fertility and mortality, and would elaborate on the migration trends over the past two decades. These issues, however, extend beyond the scope of this paper, which seeks to describe the changes in population structure within Kazakhstan between 1989 and 2010, and will present spatial intra-republic variations in population change over this same period. The year 1989 as chosen as a benchmark, or indicative of initial conditions, as this was the last union-wide census conducted in the USSR. Near the start of this 21-year period, Kazakhstan experienced a demographic 'upheaval' (a term used by both Olcott, 1996 and Agadjanian *et al.*, 2008 to

describe the tumultuous years following the Soviet collapse), though the empirical response in terms of population change varied considerably within the republic.

## POPULATION STRUCTURE IN KAZAKHSTAN, 1989 AND 2010

Population structure within a particular area can be examined through the use of population pyramids, which provide a graphical expression of numbers of people in specific age cohorts (typically in 5-year age segments, 0-4, 5-9, etc.) for both males and females. In comparing the population structure of Kazakhstan across the 21-year time period considered in this paper, population pyramids are presented for 1989 (Figure 1) and 2010 (Figure 2). Kazakhstan's population pyramid for 1989 generally resembles a classic pyramid structure, though a number of abrupt population changes can be seen, corresponding to momentous events in the republic's history (Figure 1). The first population shock experienced by those residents of Kazakhstan alive in 1989 would certainly have been the Soviet collectivization initiative beginning in earnest in 1929 and continuing into the mid 1930s. The top (oldest) four or five age cohorts in Kazakhstan in 1989 would have been adults during the collectivization period, a forced resettlement of ethnic Kazakhs onto collective farms and a destruction of the traditional nomadic lifestyle and economy having disastrous demographic consequences. Conservative estimates place the number of Kazakh deaths from starvation at 1.5 million (Olcott, 1981), while additional Stalin-era purges and the out-migration of nearly 200,000 Kazakhs have led some to classify deaths during this collectivization period in Kazakhstan as "genocide" (Shayakhmetov, 2006, p. vii). The truncation of these upper age cohorts can be seen in the 1989 population

**Figure 1: Population Pyramid, Kazakhstan 1989\***

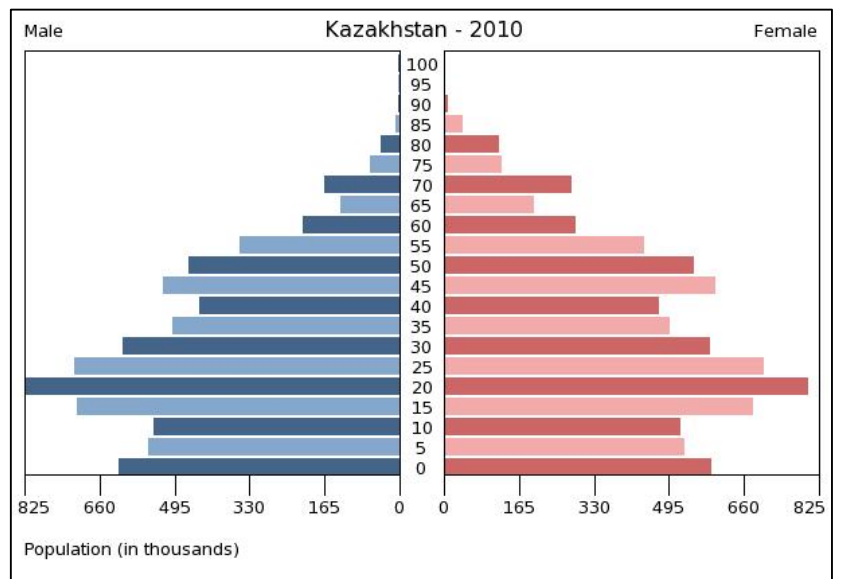


\*Image source: US Census Bureau, 2011

pyramid, though the dramatic effects may be somewhat masked by the advanced age of these individuals (above 75). A sharp 'break' appears in contrasting the 65-69 cohort with its next

younger (60-64). Those individuals aged 65 and above (particularly to 74) would have been young adults during another of the traumatic periods of Soviet history, the Great Patriotic War (officially from 1941 with the Nazi invasion of the USSR to the 1945 fall of Berlin). Such sharp breaks are seen between these age cohorts in population pyramids across each of the Soviet republics, clearly a result of the Soviet deaths associated with the war that, at the very least, amounted to between 26 and 27 million people within the Soviet Union (Haynes, 2003). Also of note for the 65-70 age cohorts is the nearly 1:2 sex ratio of males to females. A disproportionate number of males perished on the front during the Great Patriotic War, a condition clearly represented in the population pyramid. The 55-59 and 60-64 age cohorts seem to represent a slight 'recovery' in demographic structure, as these individuals would have been too young to fight in the war, though were born during the periods of collectivization, purges, and outmigration. A full recovery doesn't appear until the 50-54 cohort, which represents individuals born just prior to the outbreak of war in the Soviet Union. The sharp reduction, then, in the next two younger age cohorts (45-49 and 40-44) clearly expresses the sharp decrease in births during the war years. The sharp rebound in births following the war (35-39 age cohort) and continuing strongly for the next younger cohorts (30-34 and 25-29) may in part be explained by the war's end, the offspring of those born just prior to the war, or greater births during the period during and following the 1954-64 Virgin Lands program. Under directive from Nikita Khrushchev, vast 'virgin' or 'idle' steppe regions of northern Kazakhstan became the scene of a herculean effort to increase Soviet wheat production largely by cultivating more acreage (Jackson, 1962). Though meeting with mixed results in terms of wheat production, the program had drastic demographic consequences in Kazakhstan through the massive influx of approximately two million people from European Soviet republics (Zardykhon, 2004). Moving further down Kazakhstan's 1989 population pyramid, the next younger age cohort (20-24) contracts significantly. These individuals are likely to be offspring of the children born during the Great Patriotic War, already seen as sharply truncated cohorts, producing fewer offspring than would normally be expected. The next three cohorts represent successive periods of expansion (15-19, 10-14, and 5-9), a pattern continued by the most populous age cohort (0-4) in Kazakhstan in 1989. These young children, the largest sector of the population in Kazakhstan in 1989, will, as discussed below, become an important cohort for the future of the republic.

In similar fashion to its 1989 version, the 2010 population pyramid for Kazakhstan also reveals momentous historical events, and in this case the clear, overwhelming demographic event seen is the collapse of the USSR (Figure 2). Here, the demographic structure essentially represents an aging of each of the cohorts presented in the previous figure (1989) by 21 years, moving each age cohort up the pyramid by two decades. The largest cohort within the republic in 1989 remains the largest (20-24 cohort) today. As can be seen, the total number of individuals in this cohort, and many others as well, has decreased significantly. This drop can be at least partly explained by the massive outmigration experienced by Kazakhstan following the collapse of the USSR. As particularly evidenced by the sharp reduction in the 10-14 age cohort, the Soviet dissolution had dramatic demographic consequences, outmigration of young adults (the most mobile segment of the population) and their children. As with many such economic and political shocks, the Soviet demise also resulted in a sharp reduction of births republic-wide. Figure 2 seems to indicate a slight reversal of the declining trend since independence (the 0-4 age cohort is noticeably larger than the 5-9 cohort), although it remains uncertain as to whether fertility will increase to any great extent in the future.

**Figure 2: Population Pyramid, Kazakhstan 2010\***

\*Image source: US Census Bureau, 2011

## POPULATION CHANGE IN KAZAKHSTAN, 1989-2010

In the two decades since the collapse of the USSR, the republic of Kazakhstan has experienced tremendous population change (Table 1). The most glaring aspect of this may, in fact, be the decline in population (nearly 163,000 or 1%) within the entire republic over the 21-year period. The outmigration previously discussed most certainly plays a role in this decline. In terms of absolute population losses, the highest declines were experienced by the Karaganda (over 393,000), East Kazakhstan (over 348,000), Kostanai (over 337,000), and Akmola (over 326,000) oblasts. Additional sizeable losses were also experienced in the North Kazakhstan (nearly 269,000) and Pavlodar (over 191,000) oblasts. Rates of decline were greatest in the Akmola (nearly 31% decrease), North Kazakhstan (nearly 30% decrease), and Kostanai (nearly 28% decrease) oblasts. Population losses in the Karaganda oblast (a 22.5% decrease) were dramatic enough to drop it from the third-largest area in Kazakhstan in 1989 to fifth-largest in 2010.

While population losses occurred in eight of Kazakhstan's oblasts between 1989 and 2010, other areas gained population and some dramatically so. Of particular note here is the city of Astana, which added nearly 403,000 people, growing by an astounding 143.2%. These dramatic gains have primarily occurred following the relocation of Kazakhstan's capital city from Almaty to Astana in 1997. The South Kazakhstan oblast, Kazakhstan's most populous in both 1989 and 2010, experienced the greatest gains in population (605,600) since the final Soviet census. Other areas, including Almaty city (over 332,000 or 31%), Mangistau oblast (122,100 or 37.7%), Kyzlorda oblast (115,200 or 20.1%), Atyrau oblast (88,700 or 20.9%), Almaty oblast (50,100 or 3%), and Zhambyl oblast (5,100 or .5%), also experienced population gains during the 21-year period.

**Table 1: Population (1,000), Change, & Rate (%) of Change in Kazakhstan, 1989-2010**

Area	1989	2010	$\Delta 1989-2010$	% $\Delta$ 89-10
Akmola oblast	1064.4	738.0	-326.4	-30.7
Aktobe oblast	732.6	718.9	-13.7	-1.9
Almaty oblast	1642.9	1693.0	50.1	3.0
Atyrau oblast	424.7	513.4	88.7	20.9
East Kazakhstan oblast	1767.2	1418.8	-348.4	-19.7
Zhambyl oblast	1038.7	1043.8	5.1	0.5
West Kazakhstan oblast	629.5	624.3	-5.2	-0.8
Karaganda oblast	1745.4	1352.0	-393.4	-22.5
Kostanai oblast	1223.8	886.3	-337.5	-27.6
Kyzylorda oblast	574.5	689.7	115.2	20.1
Mangistau oblast	324.2	446.3	122.1	37.7
Pavlodar oblast	942.3	750.9	-191.4	-20.3
North Kazakhstan oblast	912.1	643.3	-268.8	-29.5
South Kazakhstan oblast	1823.5	2429.1	605.6	33.2
Astana city	281.2	684.0	402.8	143.2
Almaty city	1071.9	1404.3	332.4	31.0
<b>Republic of Kazakhstan</b>	<b>16198.9</b>	<b>16036.1</b>	<b>-162.8</b>	<b>-1.0</b>

Data sources: 2010 population data from Republic of Kazakhstan Statistical Agency (2011). 1989 population data from 1989 USSR Census as reported in Zimovina (2003).

### **SPATIAL PATTERN OF POPULATION CHANGE IN KAZAKHSTAN, 1989-2010**

The republic of Kazakhstan clearly experienced significant population losses (nearly 163,000 or 1%) between 1989 and 2010. This state-level figure, however, masks the internal spatial variation in population change that can be seen in examining maps of population losses (Figure 3) and population gains (Figure 4) within Kazakhstan. Of Kazakhstan's 16 administrative areas (14 oblasts and 2 cities), exactly half experienced population losses between 1989 and 2010, the other half experienced population gains. Clearly, then, assuming a uniform loss of population across Kazakhstan during its two decades of independence is inaccurate. Heavy population losses did occur within oblasts along the republic's northern tier, likely the result of ethnic Russian outmigration as these populations tended to concentrate in the northern regions of Kazakhstan. Karaganda oblast, though, the republic's greatest population loser in absolute numerical terms, is anchored within central Kazakhstan. Also worthy of mention is the city of Astana, the new capital, which experienced a near 150% increase in population, which is located within the northern tier region of Kazakhstan.

Figure 3: Population Decline in Kazakhstan, 1989-2010

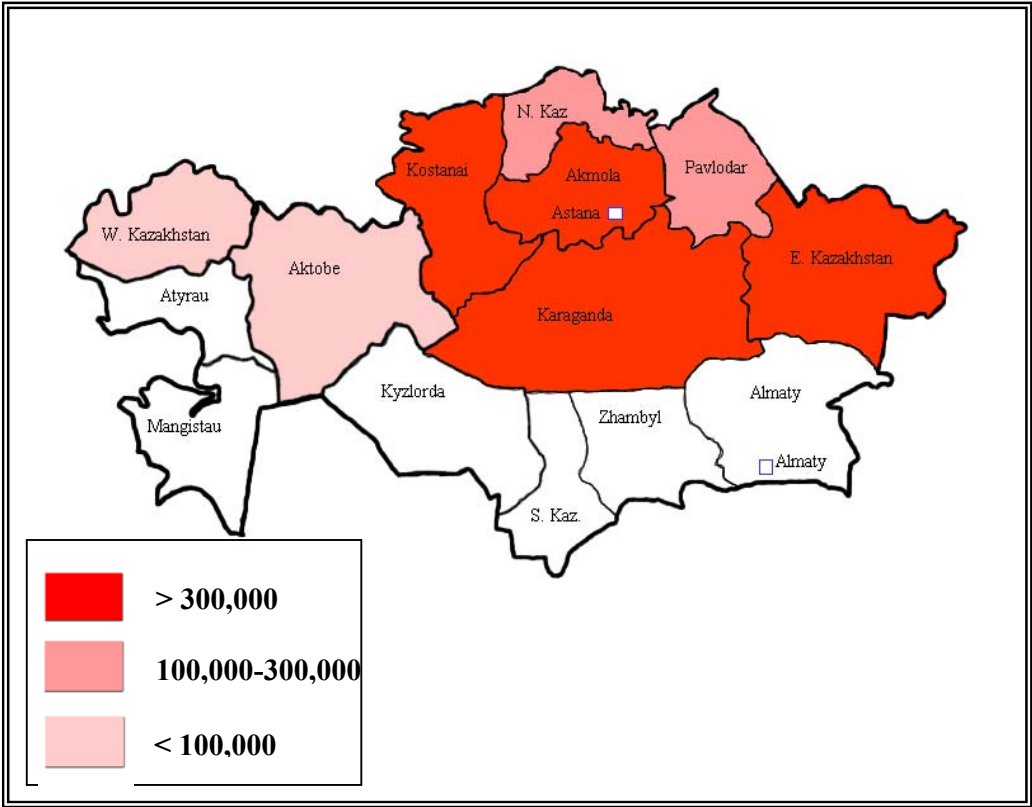
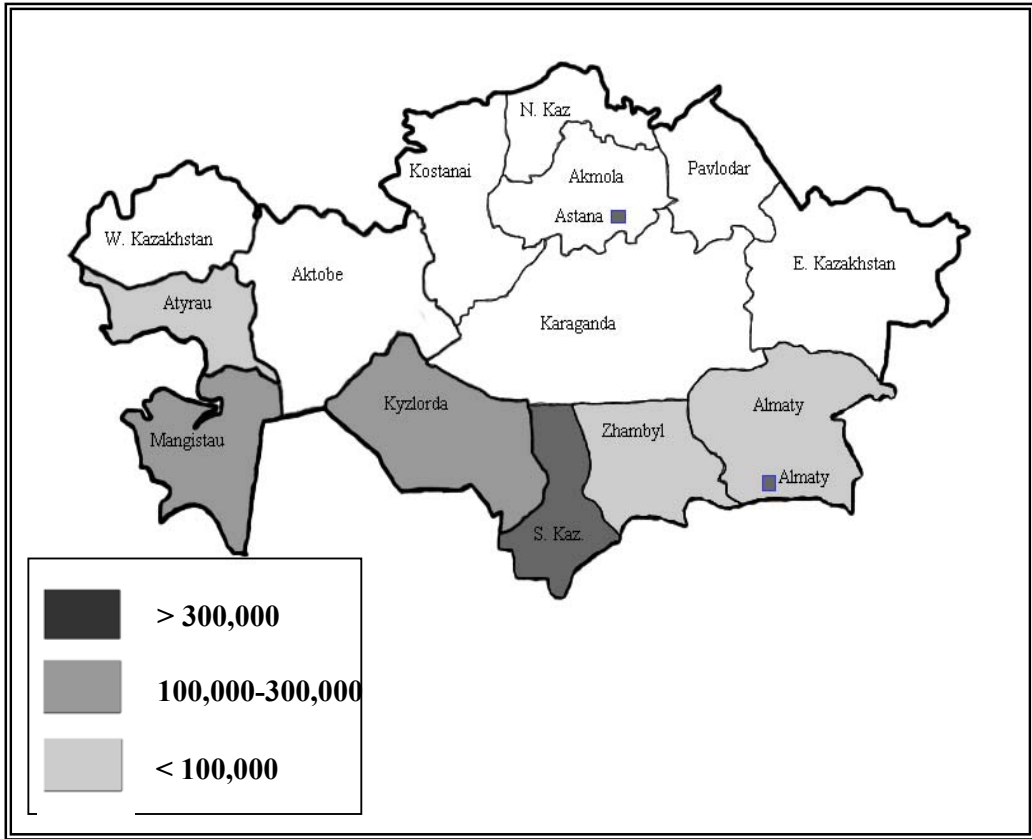


Figure 4: Population Growth in Kazakhstan, 1989-2010





Nonetheless, comparing both of these maps reveals a general pattern of northern population loss and southern population gain within Kazakhstan. This spatial dichotomy of population loss and gain is striking. The losses experienced in the north of Kazakhstan, as discussed earlier, are likely to be closely linked to the mass-scale outmigration of Russian (and other European) individuals in the years following the Soviet collapse. Attempting to explain the southern population growth region in Kazakhstan would seem to belie such a generalization. Clearly the city of Astana's population growth is closely linked to its formation as Kazakhstan's capital city in 1997, largely the result of intra-state migration, and could at least partly explain some of the population losses in neighboring oblasts. Kazakhstan's largest and most cosmopolitan city, Almaty, has also experienced significant population gains. The city continues to serve as Kazakhstan's financial and economic center, with its climate and natural setting offering additional pull factors for migrants (both from within Kazakhstan and from other countries). For the oblasts of Mangistau, Atyrau, and Kyzylorda, one likely explanatory factor are the locations of Kazakhstan's major petroleum deposits. The cities of Atyrau (in the oblast of the same name) and Aktau (in Mangistau oblast) are Caspian regional oil industry centers, anchoring the nearby clustering of major oil fields in Kazakhstan, including the Tengiz (the world's deepest field) and Kashagan (the world's fifth-largest oil field) (Gizitdinov, 2010). Kyzylorda oblast's neighbor to the southeast, the South Kazakhstan oblast remains the republic's most populous. Over the course of Kazakhstan's independence, this oblast saw the greatest gains in population. It is likely that rates of natural increase here are slightly higher than in northern portions of Kazakhstan, though this alone is unlikely to explain all of the oblast's significant gains in population. The oblast is home to Kazakhstan's third-largest city, Shymkent, itself offering a strong pull factor for migrants. In addition, South Kazakhstan contains two of the republic's largest uranium deposits, the Chu-Sarysu and Syr Darya deposits that together account for nearly 73 percent of Kazakhstan's uranium production (Kazatomprom, 2011). While piling in comparison to oil with respect to proportion of GDP, Kazakhstan is the world's leader in uranium production, and future growth is expected through increased global demand for nuclear energy and the high quality of Kazakhstan's uranium ore (Lustgarten, 2008).

An additional element important in addressing positive population change in Kazakhstan is the immigration of ethnic Kazakhs from other countries since independence. The arrival of these *oralman* immigrants is likely to have exceeded 500,000 since independence (Diener, 2005 states this figure, certainly more have arrived since 2005). With respect to the north/south dichotomy of population loss and gain described here, these *oralman* numbers are important as the top four *oralman* settlement locations all fall within the southern zone of positive population change. As of 2006, South Kazakhstan oblast featured the greatest number of these *oralmans* (122,131), followed by Mangistau oblast (61,737), Almaty oblast (60,770), and Zhambyl oblast (49,365) (UNDP, 2006). While the half-million *oralman* figure does not counter the 1.2 million (as cited by Zardykh, 2004) emigrants leaving for Russia, these immigrants have surely impacted the positive population changes experienced along Kazakhstan's southern flank since the collapse of the USSR.

## CONCLUSION

Since the final population census of the Soviet Union in 1989, the republic of Kazakhstan has witnessed a state-level decrease in population and a vastly altered population structure. The USSR's dissolution and the accompanying political, economic, and social upheaval resulted in a large-scale exodus of people (primarily ethnic Russians) from Kazakhstan. As is the case

with any such population shock, uncertainty brought declines in fertility rates and sharp reductions in younger age cohort populations. The negative population consequences for Kazakhstan are clearly evidenced by the nearly 163,000 person decline in population between 1989 and 2010. This drastic state-level decline in population, however, masks internal variation with respect to population change. In fact, of Kazakhstan's 16 administrative units, only half experienced population declines over the 21-year period. The heaviest population losses were found in the Karaganda, Akmola, East Kazakhstan, and Kostanai oblasts, with additional losses in Pavlodar, North Kazakhstan, Aktobe, and West Kazakhstan. Those areas experiencing population gains included the two main cities (Astana and Almaty), as well as the oblasts of Almaty, Zhambyl, South Kazakhstan, Kyzlorda, and Mangistau. The spatial pattern of population loss and gain in Kazakhstan, with a northern region of decline and a southern region of growth, is quite striking. It appears that a combination of factors have contributed to the emergence of this pattern, including ethnic concentrations within oblasts (northern, more proximate areas to Russia tend to have higher concentrations of Russians, the main ethnic group of the post-independence exodus), locations of major natural resource deposits (the oil industry in particular has sparked an influx of economic activity, foreign direct investment, and labor migrants), the continued pull factors associated with migration to urban areas (in particular the cities of Astana and Almaty, as well as Shymkent in the South Kazakhstan oblast, Kyzlorda in the oblast of the same name, and Aktau in Mangistau oblast), and the primary destination locations for *oralman* return migrants (in Kazakhstan's southern tier).

A fuller treatment of post-independence population dynamics in Kazakhstan would certainly include analyses of intra-republic migration patterns and regional variation in the factors associated with natural population growth. In addition, as Kazakhstan is a multi-ethnic state, variations among ethnic groups (particularly Russian and native Kazakh populations) in migration and fertility would also prove informative. Investigative field work within Kazakhstan's southern region of population growth might also lend a more authoritative explanation above and beyond the ethnic composition, natural resource deposits, and *oralman* return migrant locations discussed here. Lastly, as this paper has limited its focus on 1989 and 2010, a fuller examination would attempt to highlight both spatial and temporal population change patterns at smaller time intervals (say five year periods) over the course of Kazakhstan's independence. Despite these shortcomings, which provide avenues for further research, this brief and tightly focused paper has shed important insights into the spatial manifestation of population dynamics within Kazakhstan during its nearly two decades of independence.

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