SOVIET AND POST-SOVIET TRANSFORMATIONS OF URBAN SYSTEM: CASE OF KAZAKHSTAN FROM 1979 TO 2022

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ABSTRACT

This study analyzes the transformation of the urban system in Kazakhstan from 1979 to 2022 by studying the interrelationship between population change in large cities and demographic trends in nearby towns and rural areas. The findings suggest that the collapse of the USSR triggered a large-scale spatial realignment of the population leading to dramatic changes in the population size of urban settlements. The estimations largely failed to confirm relationships between the growth of large cities vs population change in mid-size and small urban settlements that would hold throughout the entire sample period. However, the analysis of district-level data showed that remote and rural areas were more prone to depopulation while districts around rapidly growing large cities had significantly higher rates of population growth. The population in large cities and regional centers was found to be growing much faster than in periphery areas, which is very much in line with findings from studies done on other former Soviet states.

Keywords: Urban system, Urban settlements, Districts, Kazakhstan, Post-Soviet Urbanization.

INTRODUCTION

Over the last half a century, Kazakhstan has seen several waves of radical socio-demographic transformations that have largely determined the current state of the country's population distribution and urban structure (UNDP, 2019). The collapse of the USSR has been followed by a period of adjustment from a Soviet disequilibrium to a post-Soviet equilibrium state of social, economic, political, and demographic processes (Becker et al., 2012). The Soviet period was characterized by strong centralized control over the city system and spatial demographics were largely regulated by the government. We can distinguish two different schools of thought regarding the regional planning policies in the USSR (Fedorov, 2019). One of them proposed accelerated urbanization and prioritized urban systems based on large cities that would sustain heavy industries (Pivovarov, 1976; Lappo, 1978). The other one promoted a unified administrative scheme of a settlement hierarchy, in which each region would have a system of four-tier hierarchical inter-settlement infrastructure and would be economically autonomous to a certain extent (Khorev, 1981). However, the real policy of the Soviet government regarding regional territorial planning had elements from both schools with gradual predomination of the latter by the end of the Soviet period as the republics gained more autonomous power.

The abolition of the system of control of the spatial movement of the population unleashed a large-scale migration of the population across the borders between the newly formed Post-Soviet states (World Bank, 2006; Oka, 2007). The transition not only implied a switch from rigid centralized spatial planning of urban settlements but also the inclusion of the market forces as factors shaping the spatial distribution of the population (Becker et al., 2012). At the same time, fundamental changes in political and economic paradigms triggered a mass relocation of the population including within the former Soviet republics (Heleniak, 2001). The urbanization trends went somewhat ambiguous though after the collapse of the Soviet system. On the other hand, practically all former Soviet countries have experienced stagnation in rates of urbanization or even a decline in the proportion of the population living in urban areas (Lutz, 2010). On the other hand, with the abandonment of the Soviet rural policies, the movement of the population from rural areas to cities became a major trend (Becker et al., 2012; Karachurina and Mkrtchyan, 2015). The effects of the transition processes on urban settlements in former communist countries were manifold. The exposure to international trade and the sudden contraction of the state demand for manufacturing goods had serious negative effects on industries in mid-size and small urban settlements (monotowns) leading to their rapid decline (Shastitko and Fatikhova, 2015). The patterns of depopulation in small towns and cities during the 1990s became sufficiently strong to offset the overall relocation of the population from rural areas to cities. The net effect was that only large cities capable of sustaining urban amenities and service sectors became the absolute net gainers of the population (Becker et al., 2012).

Studies on Post-Soviet spatial demographics, urbanization, and other related fields are mainly focused geographically on Belarus, Russia, and Ukraine (Antipoval, et al., 2012; Fedorov, 2019; Karachurina & Mkrtchyan, 2015) and conceptually on population change in major cities (Anacker, 2004; Seitz, 2020). Usually, studies in this field consider population change in major urban settlements separately from demographics in rural areas and surrounding

territories. Smaller and mid-size urban settlements usually do not receive much attention. This study seeks to provide an understanding of the processes of transformation of the urban system and urbanization of Kazakhstan from 1979 to 2022. By choosing this particular period of time, we can analyze the change in the population size of urban settlements in Kazakhstan from the earliest reliable data from the USSR census of 1979 to the latest preliminary data from the census conducted in Kazakhstan in 2021. The analysis relies on the most reliable available population data from censuses of 1979, 1989, 1999, 2009, and 2021. It also aims to identify other patterns and processes that shaped the population distribution across space after the collapse of the communist system in Kazakhstan and incorporate them into the contemporary discussion of urbanization and spatial demographics. In technical terms, the contribution of the study is twofold. Firstly, unlike many previous studies, we build our analysis based on population data for territorial subdivisions equivalent to NUTS 3 in the EU covering the totality of the population and territory of Kazakhstan. By increasing the spatial granularity, the study intends to obtain more detailed information about the spatial aspects of population change over the course of the last four decades. Secondly, the analysis covers the last decade before the collapse of the USSR and three decades afterward allowing us to isolate the effects of the transition on urbanization and transformations of spatial demographics.

LITERATURE REVIEW

The transformations of urbanization and urban systems in Eastern Europe should be understood as a long process of convergence to Western-style urbanization. In general, post-socialist cities and regions are less populated, less urbanized, and more dispersed than regions in the West. Eastern European urbanization is passing through a hybrid stage manifesting some typical features of capitalist urbanization, but relics of the socialist past will be present yet for many years to come (Taubenbock et al., 2019). Eastern post-socialist Europe could be understood as a departure point when studying cases from former Soviet countries because, generally, the trends and patterns of change of urban systems in Eastern Europe usually tend to be more pronounced in Post-Soviet states.

Skryzhevska and Karácsonyi (2012) conducted a study with a district-level analysis of demographic variations in Ukraine since 1979 with a special focus on the rural population. The study reveals a very significant decline in the rural population since the collapse of the USSR due to the overall decrease in birth rates, outmigration to other countries, and urbanization of the Ukrainian population. The authors point out the devastating socio-economic effects of the rural population decline.

Antipoval et al. (2012) did similar research on Belarus to study the spatial patterns of population change using the map-image transformation method. The study emphasizes the trends of the spatial population change in rural areas of Belarus from 1959 to 2009. The authors of the study note a population decline during the period from 1979 to 1989 due to the environmental effects of the Chornobyl accident and the stagnation of the overall socioeconomic development of the country. The process of urbanization that had started much earlier in the 1950s continued during the period prior to the collapse of the USSR contributing to rural depopulation. Antipoval et al. (2012) note an accelerated migration during the 1990s with persisting outmigration from rural areas. The authors emphasize

that the negative spatial demographic trends with rural decline, net outmigration, and negative natural population growth that aroused in the 1990s turned into long-lasting trends characterizing the Belarusian geo-demographics.

A study by Karachurina and Mkrtchyan (2015) covers spatial population change dynamics in Russia, Ukraine, and Belarus throughout 1990-2000 at the NUTS-3 territorial unit level. The study finds strong depopulation trends in rural and periphery areas in all three republics confirming Skryzhevska and Karácsonyi (2012) and Antipoval et al. (2012). The population growth in regional centers and capital cities was caused by migration, which indicates that urbanization processes had not been completed. Karachurina and Mkrtchyan (2015) point out that the population decline rates were the highest in the central regions of Russia.

Studies on spatial demographics and the urban system of Kazakhstan are relatively scarce. Most of them are outdated and have limited temporal coverage (Lewis and Rowland, 1995; Rowland 1989, 1990, 1994, 1995, 1999, and 2001). Rowland (1999) provides one of the most informative studies on urban and spatial population change in Kazakhstan during the 1990s based on data from official Goskomstat publications as well as from preliminary results of the census of 1999. The study notes an overall population decline (-4.9%) in the 1990s with urban population decline (-8.1%) being much faster than rural (-0.6%). Out of all 270 urban centers, 174 or nearly two-thirds presented a population decline during 1989-1998.

Rakhmetova et al. (2018) made a valuable study evaluating the economic and social development potential of the cities of Kazakhstan, including small and mid-size urban settlements since its independence in 1991. The authors concluded that most of the cities surveyed were found to have low potential in spite of current sustainable development. Most of the poorly developed cities were monocities that were highly dependent on single partially operating backbone enterprises. The population distribution in Kazakhstan was described by authors as dispersed and but the pace of population concentration was noted as high with nearly one-fifth of the total population living in the three largest urban agglomerations.

Studies covering the demographics of all urban settlements of Kazakhstan are very rare. Rakhmetova et al. (2018) cover only about half of all cities and towns of the country. Most of them are mainly focused on major agglomerations and are not quite centered on urban demographics and the city system (Dodonov 2017, Seitz 2020, Kabdesov, 2020). This study intends to provide insight into the urban system of Kazakhstan by analyzing the demographic changes in all urban settlements of the country during 1979-2022.

DATA AND METHODOLOGY

This study uses complete demographic data on districts and urban settlements, which allows us to analyze the spatial demographic processes that took place in Kazakhstan during 1979-2022. The data set used for the analysis is a compilation of spatial demographic information from a restored version of the censuses of the USSR of 1979 and 1989 as well as various yearly open-access demographic data publications of the official state statistics service of Kazakhstan. In total, the study uses data on 173 districts and 95 urban settlements covering 100% of the population of the country. The official classification of the status of settlements

in the official statistical records of Kazakhstan is rather arbitrary. Some rural settlements could be larger than those that are officially counted as towns and/ or cities and vice versa. Moreover, the statuses of some settlements changed over time. Therefore, for the sake of consistency and take a generally accepted threshold of 10 thousand people between rural and urban. All settlements under 10 thousand people are rural and once they exceed 10 thousand they become urban.

The article aims to study the patterns of urbanization encompassing the totality of spatial demographics including rural-to-urban and urban-to-urban migration. The division between towns (small and mid-size cities) and cities (large cities) is not arbitrary but rather based on certain functionalities and demographic features that arise at certain population size thresholds. All urban settlements with a population of 200 thousand and more are considered cities throughout this study. In total, there were 15 cities, 13 of them being regional capitals. These have been the main points of concentration of the population and the demographic significance of the cities has become disproportionately greater over the sample period. For instance, the 15 major cities of Kazakhstan are home to about 44% of the total population of the country. Since 1979, their combined population increased by 110.8% adding around 4.7 million people, while the total population of the country went up by nearly 33.9%. The towns, by contrast, have a combined population of roughly 3.5 million people and have added only about 1,233 thousand people since 1979. (Bureau of National Statistics of Kazakhstan, 1999, 2009, 2019).

Table 1. *Some of the Main Differences between Cities and Towns*

	Cities	**Towns**
Size threshold	200 thousand<	10-200 thousand
Number	15	77
Combined population in 2022	8,973.9 thousand	3,545.8 thousand
Average population size in 2022	560.9 thousand	46.0 thousand
Combined population change during 1979-2022	+4,717.1 thousand	+1,233.2 thousand
% in total population growth during 1979-2022	110.8%	53.3%

Source: Bureau of National Statistics of Kazakhstan, 2022.

By dividing urban settlements into two categories (cities and towns), this study intends to shed light on urbanization and spatial demographic dynamics in Kazakhstan over the last four decades, at the same time distinguishing urban-to-urban from the rural-to-urban type of urbanization. The spatial demographic analysis uses similar methods used in previous studies done on other former Soviet states but not covering Kazakhstan (Antipoval et al., 2012, Skryzhevska and Karácsonyi 2012, Karachurina and Mkrtchyan, 2015). By doing so we attempt to identify the linkages between the transformation of the urban system and the spatial distribution of the population of Kazakhstan throughout the last four decades. One of the arguments for opting for this approach is that Soviet central planning replicated to some extent the traditional central place theory scheme. Within the central command administrative system of urban management, it was quite easy to incorporate hierarchical urban structures at all levels (Vladimirov and Naimark, 2002). Hence, these hierarchy schemes could have shaped the internal migration flows in Kazakhstan that emerged after the collapse of the USSR. This can also be viewed as an argument for focusing on urban-to-urban migration, which in our case is referred as migration from towns to cities.

POST-SOVIET URBANIZATION AND TRANSFORMATION OF URBAN SETTLEMENTS

The USSR and the Eastern-European states of the Socialist Bloc have undergone rapid urbanization once they switched to Moscow-imposed communism after WWII. The process was mainly driven by extensive industrialization policies in these countries (Bideleux and Jeffries, 2007). By the end of 1980, the rates of urbanization in these states have started to stagnate as the Eastern Bloc started to disintegrate, switching from a socialist/communist planned economy to market economic systems. For instance, from 1980 to 1990, Eastern Europe has seen a fast increase in the share of the urban population from 63.8% to 68.0%. Over the same decade, this figure for the USSR increased from 62.6% to 65.6% (UNDESA, 2014). However, these urbanization rates slowed down after the 1990s in Eastern Europe and Former Soviet states as they went through dramatic changes in the political paradigm. It is worth noting that these urbanization trends in Former Soviet and Socialist states did not match with urbanization patterns in most other parts of the world, where urbanization has been a rather monotonous and continuous process. Although Kazakhstan and other Central Asian states have seen some growth in urbanization rates after the 1990s, it was nothing nearly as fast as in other middle-income countries or the rest of the world in general. It can be said that Kazakhstan as well as other Former Soviet states started to diverge from the global urbanization context after the 1990s (see Table 2). Although former Soviet republics are consistent with global urbanization trends, the rates of urbanization in these countries have not been very. In this regard, they are very different from other developing countries where the urbanization rates are significantly faster.

Table 2. *Share of Urban Population in Kazakhstan compared to other regions of the world*

	1980	1990	2000	2010	2020
Kazakhstan	54.1	56.3	56.1	56.8	57.7
Central Asia	45.2	45.2	45.7	48.0	48.3
Former Soviet states	62.6	65.6	65.3	65.7	65.4
Eastern Europe	63.8	68.0	68.2	68.9	69.9
Middle-income countries	31.7	36.7	41.6	47.9	53.7
World	39.3	43.0	46.7	51.7	56.2

Source: UNDESA, 2022.

Among the former Soviet states, Kazakhstan has had by far the largest population decline following the collapse of the Soviet Union. For instance, during 1990-2000 its population dropped by 8.9% primarily due to the exodus of ethnic minorities (Rowland, 2001). The statistical records on the population of urban settlements in Kazakhstan clearly show a drastic realignment of the hierarchy and quantity of urban settlements. In particular, there has been a continuous decrease in the number of urban settlements (gorodskiye poseleniya), which are communities with populations ranging from several thousand to tens of thousands of people. These are settlements that are neither villages due to their large size, nor fully functioning cities and could also be referred to as towns. This classification and the term itself were preserved throughout most of the Post-Soviet space after the collapse of the USSR.

Table 3. *Demographic evolution of cities of Kazakhstan compared to some post-Soviet countries*

	1979	1989	1999	2009	2019	2022
Cities						
Kazakhstan	-	84	87	87	88	89
Russia	-	1037	1098	1100	1099	1101
Ukraine	-	434	436	434	461	461
Urban settlements						
Kazakhstan	-	294	272	185	182	-
Russia	-	3230	2940	1734	1494	-
Ukraine	-	1361	927	927	841	-
Number of cities with more than 1 million inhabitants						
Kazakhstan	0	1	1	1	3	3
Russia	8	12	13	12	15	16
Ukraine	5	5	5	3	3	3
Post-Socialist Europe	6	6	6	6	6	6
% of population living in cities above 1 million						
Kazakhstan	0	6.8	7.6	8.5	21.4	23.7
Russia	14.4	17.7	18.9	19.7	22.9	24.5
Ukraine	13.5	14.7	14.8	16.0	16.6	12.3
Post-Socialist Europe	11.7	11.9	11.6	12.5	14.0	10.0

Source: Goskomstat, 1990; Bureau of National Statistics of Kazakhstan, 1999, 2009, 2019, 2022; State Statistics Service of Ukraine, 2022.

One of the main trends that marked the sample period is the strong outmigration of the population from small urban settlements to urban centers. The number of urban settlements has decreased dramatically from 294 in 1989 to 182 in 2019. At the same, time the number of settlements classified as cities has increased from 84 to 89. Throughout the sample period, there has been a very significant growth of population in mid-size and large cities, while that of small urban settlements has mostly dwindled. Regional administrative centers and capital cities have seen a large influx of population coming mainly from rural areas and smaller towns. This pattern is especially clear in the national capitals and other cities with a population of over one million people. For instance, at the end of the Soviet period, Kazakhstan had only one city with a population exceeding one million people and by 2019, this number tripled and so did the share of the total population living in those cities (see Table 3). Interestingly, these trends did not really match either with the overall fluctuations of the population or the urbanization trends, suggesting a strong presence of urban-to-urban migration over the sample period.

ANALYSIS

Estimation

Based on preliminary statistics on the development of cities and evolution of urban settlements, we estimate the following OLS model for cities vs towns:

$Y\_i=(\beta\_0)\hat{}+(\beta\_1)X\_1i+(\beta\_2)X\_2i+(\beta\_3)X\_3i+(\beta\_4)X\_4i+\epsilon\_i$

Y_i = Population growth in town i

X_1 - Population growth in the nearest major city

X_2 - Distance to the nearest major city

X_3 - Access to railroad network (dummy=1 for towns with rail transport and dummy=0 otherwise)

X_4 - Access to major republican or international routes (dummy=1 for towns located along major transport routes and dummy=0 otherwise)

The reasons for which these variables are suspected of being explanatory for the growth of mid-size and small urban settlements are rather straightforward. Since aggregate statistical data show significant population growth in most of the large cities and decline in many smaller and mid-sized towns, we presuppose that these processes were interrelated and large cities have grown attracting population from nearby smaller cities and towns. The more population in towns declines, the greater would be the growth of the nearest cities. If this is true, then we think that distance from towns to the nearest cities would be a relevant variable to include. The smaller the distance, the more significant is the relationship. We also add access to railroads and major routes of national and international significance without fearing that they could be too correlated because the correlation between the two dummy variables is only 0.17. 11 out of 77 towns have access to railroads and do not have access to major highways. At the same time, 10 towns are located along national and international routes but do not have access to railroad networks. We expect that towns located along major transport corridors will tend to grow faster compared to towns that are more isolated.

The following cities vs districts model were used to estimate the population growth in districts of Kazakhstan over the last four decades:

$$Y\_i = (\beta\_0)\hat{}+(\beta\_1)\acute{}X\_1i+(\beta\_2)\acute{}X\_2i+(\beta\_3)\acute{}X\_3i+\epsilon\_i$$

Y_i = population growth in district i

X_1 - Population growth in the nearest major city

X_2 - Distance to the nearest major city

X_3 - Ruralness of districts (% of the rural population living in districts)

With the same token, we admit that population growth in districts depends on the proximity of districts to large cities because of rural-to-urban migration. In order to reveal the role of the demographic interrelationship between active urban growth and change of rural population, we specify the growth rate of the nearest major city and the distance to the nearest major city as potential explanatory variables for population change in districts. Since we are also interested in isolating the rural-to-urban migration, we include the share of the rural population (ruralness) in the districts as an explanatory variable.

Results

The estimation of the model largely invalidates the idea of the interrelationship between towns and cities based on specified variables. It turns out that none of the explanatory variables stays statistically significant throughout all four periods. Interestingly though, population growth in towns and major cities was positively related throughout 1979-1999 and the variable was significant enough statistically. Access to major national and international roads was a relevant factor in explaining population changes in towns during 1989-2009. However, it is quite surprising to acknowledge that access to railroads is not a relevant factor in explaining the population change in towns. Moreover, in 1989-1999 being statistically significant this variable turns out to be even more negatively related to population change in towns.

Table 4. *Determinants of population growth in towns*

	1979-1989	1989-1999	1999-2009	2009-2022
	n=75	n=75	n=80	n=80
	R^2=0.0970	R^2=0.2186	R^2=0.1122	R^2=0.1065
p-value (of F)	*(0.1230)*	*(0.0015)*	*(0.0600)*	*(0.0700)*
Coeff. of growth of nearest major city in %	0.6376**	0.3719***	0.0519	−0.1285
(std. dev.)	*(0.2615)*	*(0.1279)*	*(0.1291)*	*(0.1260)*
(p-value)	*(0.0173)*	*(0.0049)*	*(0.6887)*	*(0.3112)*
Coeff. of Distance to a nearest major city in km	−0.0561	−0.2228	−0.4288*	−0.1701
(std. dev.)	*(0.2162)*	*(0.1401)*	*(0.2165)*	*(0.2131)*
(p-value)	*(0.7958)*	*(0.1162)*	*(0.0513)*	*(0.4677)*
Coeff. of Access to railroad	5.7915	−7.5247*	−0.3745	1.1994
(std. dev.)	*(6.7070)*	*(4.4395)*	*(7.0350)*	*(6.3782)*
(p-value)	*(0.3908)*	*(0.0945)*	*(0.9577)*	*(0.5123)*
Coeff. of Access to major routes	2.9367	11.7097***	17.0701**	14.3602**
(std. dev.)	*(6.3106)*	*(4.1685)*	*(6.6907)*	*(7.1075)*
(p-value)	*(0.6431)*	*(0.0064)*	*(0.0128)*	*(0.0469)*

Source: Estimates by author.

The variables of the second model for cities vs districts relationship turn out to be statistically significant throughout most of the sample period. The population change in the nearest major city turns out to be a relevant variable for describing the overall population change in districts of Kazakhstan. For instance, in 2009-2022, one percentage point growth of population in the nearest major city on average could lead to 0.15% growth in districts. This coefficient was higher for 1979-1989 (0.23) and 1989-1999 (0.35). Moreover, the relationship between population change in districts and distance to large cities appears to be negative, suggesting that districts located closer to major cities have grown faster than those lying in remote areas. The ruralness factor also presents high statistical significance throughout most of the sample period being negatively related to the overall population growth. This clearly suggests that districts with a larger share of the rural population were more prone to depopulation compared to more urbanized districts, which confirms the ongoing migration from rural areas to cities.

DISCUSSION

It might seem at first that the estimated model for population change in towns could be discarded as irrelevant. But within the context of countries in transition with deep economic and socio-demographic changes, the results do not seem highly unexpected. Instead, it confirms that the urban system in Post-Communist Kazakhstan is passing through a period of adjustment from a Soviet disequilibrium to a Post-Soviet equilibrium. It is highly likely that the factors determining the population dynamics in urban settlements could have been relevant for very short-term periods and not relevant in longer timeframes. The irrelevance of variables in the first model for urban-to-urban migration clearly suggests that towns were not very closely connected by migration flows with the nearby large regional centers. The proximity of large cities was not a relevant factor in determining the migration from small and mid-size urban settlements to larger cities. In other words, large cities with high rates of population growth did not necessarily act as primary points of attraction for migrants from nearby towns. Hence, it could be concluded that some other factors were at play in determining migration flows from small and mid-size towns to large urban cities or abroad. The most likely option in

Table 5. *Determinants of population growth in districts*

	1979-1989	**1989-1999**	**1999-2009**	**2009-2022**
	n=173	n=173	n=173	n=173
	R^2=0.1857	R^2=0.1469	R^2=0.1363	R^2=0.1883
p-value (of F)	*(<0.00001)*	*(<0.00001)*	*(<0.000005)*	*(<0,00001)*
Estimator of population change in the nearest major city in % (std. dev.) p-value	0.2341*** (0.0881) *(0.0086)*	0.3541*** (0.0763) *(0.00001)*	0.0873 (0.0575) *(0.1305)*	0.1481*** (0.0392) *(0,0002)*
Estimator of distance to a nearest major city in km (std. dev.) p-value	−0.0065 (0.0660) *(0.9207)*	−0.1975** (0.0769) *(0,0112)*	−0.3116*** (0.1128) *(0.0064)*	−0.1926** (0.0808) *(0,0183)*
Estimator of ruralness of districts in % (std. dev.) p-value	−0.1727*** (0.0293) *(0,00001)*	−0.0194 (0.0345) *(0,5728)*	−0.1701*** (0.0471) *(0.0004)*	−0.1415*** (0.0339) *(0,00005)*

Source: Estimates by author.

this case that led to more than the national average population decline in small and midsized cities would be that some large cities were significantly more successful in attracting population from smaller urban settlements than others. Therefore, the distance to the nearest city might not be a considerable factor in choosing among large cities to emigrate to. Instead, migrants from small towns might consider other factors like income, employment opportunities, housing, urban amenities etc. more important than distance when choosing a major city to live in.

Figure 1. *Population change in cities, towns and districts of Kazakhstan during 1979-2022*
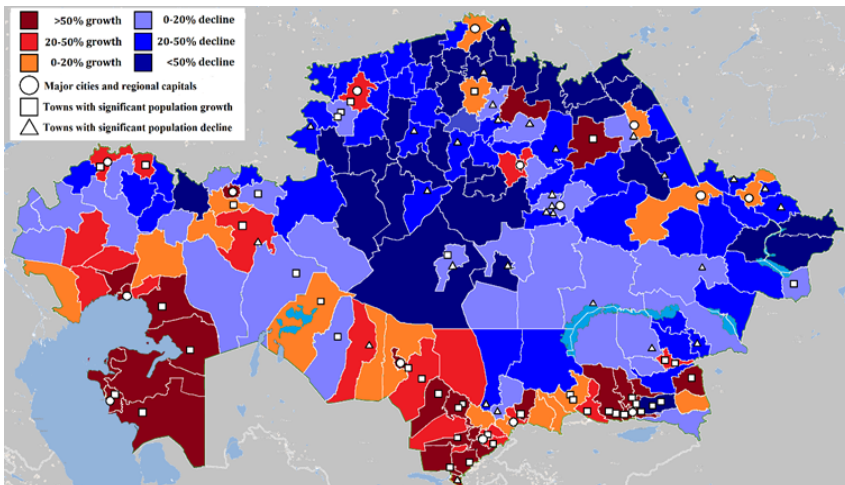
Source: Prepared by author.

At the same time, it is interesting to note that the proximity to large cities did positively affect the population growth in districts indicating that the rural population living close to major urban areas has grown faster than in remote areas. In fact, remote rural areas were the ones that experienced the largest outmigration, which is totally in line with studies done on other former Soviet states (Antipoval et al., 2012; Skryzhevska and Karácsonyi, 2012; Karachurina and Mkrtchyan, 2015). The continuation of these trends can lead to a deep transformation of the urban system in Kazakhstan as rural settlements located around large cities will develop into urban areas or incorporate into nodal cities.

It follows from this study that although the urbanization rates in Post-Soviet Kazakhstan are low in nominal terms, most of the ongoing urbanization is hidden due to population decline in many small and mid-size cities. At the same time, Kazakhstan has seen fairly large population growth in large cities. For instance, over the last four decades, large cities with a population above 200 thousand people have grown on average more than twice as fast as the total population of the country and five times faster than towns with a population below 200 thousand people (Bureau of National Statistics of Kazakhstan, 2022). The analysis shows that population growth around major cities creates centripetal forces creating areas of concentration of rural population around themselves, which has the potential to accelerate the urbanization process in the future. Hence, there is also a significant rural-to-urban type migration component in overall urbanization.

It is important to admit though that the complexity of the issue of transformation of the urban system in former Soviet states is immense and cannot be easily encompassed within a few narrow academic fields. Unlike in other countries, the transformations of urban systems and spatial distribution of population in Post-Soviet states are very much driven by deep changes in other political, socio-economic, institutional, and other spheres rather than demographic processes. Studying complex relationships between the spatial and the social in post-communist cities requires a more holistic view of transition as a triad of democratization, marketization, and state-building, as well as the interplay of these factors in explaining urban dynamics (Kinossian, 2017). It should be admitted that urbanization and major agglomerations are also gaining importance for governments of former Soviet states. Apart from prevention and overcoming of negative consequences of demographic transition, adaptation measures for demographic change (Sidorenko, 2019), cities and public perception of urban images are becoming political and cultural instruments. Large cities and especially capital cities could also act as a place for the manifestation of governments' policies of nation-building and function as symbols of national identities (Anacker, 2004). In this light, we can expect that urban policy and urban systems in the Post-Soviet space will be subject to interventions and manipulations by the governments.

Another question to address regarding this issue is in which way urban systems in former Soviet states will develop. Should we expect that former Soviet states will gradually be converging to western-style

urbanization, which would be similar to what happened in Eastern European states after the transition to a market economy (Taubenbock et al., 2019) where prosperous cities have become centers of western-style consumption, peripheral regions, and many smaller towns were succumbed by structural problems and population decline (Lang, 2015)? These are questions that certainly will stimulate further research in this field.

It should be mentioned that the interpretations of the estimates ought to be done taking into account certain limitations. Firstly, the number of districts used for the analysis (173) is different from the official one, which is 170. This difference arises from the fact that some major cities are administratively counted jointly with adjacent extensive land areas with a predominantly rural population. Since we are interested in studying the functionality of cities and rural areas, we separate the cities from adjacent rural territories that are administratively attached to the city. Secondly, the growth rate of population in large cities in some cases is not only a sum of natural population growth and migration but also an aggregation of small nearby rural communities that get merged with the growing city both geographically and statistically. This might mislead when comparing the growth rates of large cities as they can appear exceptionally high.

CONCLUSION

The urbanization trends and changes in urban systems that emerged in former Soviet states after the collapse of the USSR were unique and bizarre within the context of contemporary urbanization. However, the anomalies observed in spatial demographic trends and the change in the urban system in Kazakhstan over the last decades fit into the context of major readjustment from a rigid system of disequilibrium to a new equilibrium described in (Becker et al., 2012). Studies on other Post-Soviet states note similar trends in the change of spatial distribution of population and urban systems such as rising urban primacy, very rapid population growth in large urban areas, and regional capitals, the decline in a significant part of smaller urban settlements, and strong rural depopulation. The processes in Kazakhstan that took place over the last four decades in this regard appear to be very similar to those of other large countries such as Russia, Ukraine, and Belarus. In spite of the small pace of urbanization in nominal terms, there has been a very significant concentration of population in the large urban areas with a population of over 200 thousand people that are typically regional capitals. On the other hand, many smaller urban centers have seen severe depopulation, partially balancing the overall growth of the urban population. A closer look at the change in the urban system generally indicates a weak linkage between small urban settlements and nearby large cities. However, the analysis reveals fairly strong linkages between districts and nearby major cities. Districts located closer to major cities have experienced significantly faster population growth than remote districts, which resonates very with the existing literature on other Post-Soviet republics.

The study attempts to shed light on the basic spatial demographic patterns

of Kazakhstan encompassing late-Soviet and post-Soviet periods. From the general academic perspective, it can be considered as a building block for future research and serve as a reference point in studying urbanization and spatial demographic processes in Kazakhstan. In particular, the findings of the study help better understand the sources of growth of urban population in major cities of Kazakhstan and the concentration of population in areas around major cities which could be useful in e.g. studying the formation and dynamics of functional regions in Kazakhstan.

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