

Housing and Ethnicity in the Post-Soviet City: Ust'-Kamenogorsk, Kazakhstan

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Summary. Despite egalitarian aims, considerable social and ethnic segregation existed in countries with central planning. To date, however, research on residential segregation in the former state socialist countries of east central Europe and the former Soviet Union has been limited and has focused mainly on major metropolitan or capital-city areas and on social segregation. The aim of this study is to analyse ethnic post-Soviet segregation in housing in the medium-sized industrial city of Ust'-Kamenogorsk, Kazakhstan. The paper uses data from the sample survey *Cities of the Rudnyi Altay*, and linear and logistic regression to analyse segregation by dwelling type, housing size and facilities between Kazakhs, Russians and other ethnic groups. The study reveals that the housing conditions of Kazakhs are considerably worse than those of both Russians and other ethnic groups.

Introduction

European and North American cities tend to be segregated ethnically, although the intensity and extent of the segregation vary in time, by minority group and by geographical context, in accordance with the evolution of immigration and metropolitan area histories, housing market functioning and its degree of state regulation, housing stock heterogeneity, labour market conditions, anti-discriminatory legislation, different demographic behaviour and household composition of immigrants and titular populations, host country language skills among immigrants, ethno-cultural and other factors (Andersson, 1998; Andersen and Clark, 2003; Farley and Frey, 1994; Kaplan, 2004; Knox and Pinch, 2000; Logan *et al.*, 2004; Magnusson and Özüekren, 2002; Özüekren and van Kempen, 2002). The extent of research on residential

segregation in the former state socialist countries of east central Europe and the former Soviet Union, however, has been limited, and has focused mainly on segregation in major metropolitan or capital-city areas (for example, Bator *et al.*, 1998; Loogma, 1997; Ruoppila and Kährrik, 2003; Sailer-Fliege, 1999; Vendina, 1997, 2002). The situation in cities at lower levels of the urban hierarchy has only been discussed to a limited extent (for example, Alexandrova *et al.*, 2004; Gentile, 2003b, 2004a; Lehmann and Ruble, 1997).

Furthermore, the main focus of research is on social segregation; despite the egalitarian aims of the socialist doctrine, social segregation tended to increase over time (Smith, 1996, p. 77). Earlier studies reveal a rather modest social segregation (Rukavishnikov, 1978, pp. 73–76), while later studies reveal

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significant residential and housing segregation by education and occupation (Dangschat, 1987, pp. 55–57; Kulu, 2003a, pp. 904–908; Ladányi, 1989, pp. 561–562; Rowland, 1992, pp. 586–587). Two explanations for social segregation emerged based on those findings in countries under central planning, focusing on the housing allocation system (Hegedüs and Tosics, 1983; Musil, 1987) and on individual merit (Dangschat, 1987; Ladányi, 1989). These two explanations combine, as it is argued that people's individual characteristics were important in taking advantage of the centralised housing allocation (Szelényi, 1983).

Ethnic segregation was a modestly studied aspect of residential differentiation in countries under central planning (Ladányi, 1993a). The reasons for this could be related to the generally limited availability of data at the micro level and to the fact that macro-level studies were not able to trace significant levels of ethnic segregation. Studies of late-Soviet Moscow (Rowland, 1992) and Alma-Ata and Tbilisi (Smith, 1996, pp. 94–95) revealed that macro-level ethnic segregation was limited. However, different results were also obtained, reflecting the amplitude of the contextual variations which characterised the USSR's regions, let alone the countries of central Europe. For example, studies on the gypsy minority in Budapest indicated considerable segregation (Ladányi, 1993a, 1997; see also Węclawowicz, 1998, and Ladányi and Szelényi, 1998). More detailed research on ethnic segregation in the cities of the former Soviet Union—the Tatarstani metropolis of Kazan (Rukavishnikov, 1978; see also Bater, 1989) and the Estonian second-ranked city of Tartu (Kulu, 2003a; Kulu and Tammaru, 2003)—revealed considerable segregation between Russians and the titular ethnic group as well. Also, the segregation of smaller ethnic minority groups was evident in Alma-Ata (Smith, 1996, p. 95). Several explanations have been put forward to account for ethnic segregation under central planning. These include different inter-war housing experiences (whether single-family housing construction took

place), discrimination against minorities, cultural differences between population groups and differential access of minorities (immigrants) and titular populations to the centralised housing allocation system (Ladányi, 1993a; Ruble, 1989; Kulu and Tammaru, 2003).

Few studies have applied a multivariate research design in studying ethnic segregation under central planning. Therefore, it is difficult to estimate whether ethnic differences in residence and housing were due to ethnic origin *per se*, or due to the structural forces (housing allocation) and the compositional differences of minority and titular populations. The most prominent exception is a recent study of late-Soviet Tartu, which indicates that ethnic differences in housing remain with respect to both facilities and housing size after controlling for the impact of other personal characteristics, but differences in housing size disappear after introducing housing allocation (dwelling type/ownership) as a control variable (Kulu, 2003a, pp. 906–907).

Given the limited extent of the research on ethnic segregation in post-socialist societies and the hints that have been provided by the work that actually has been done, greater attention to this issue is warranted. Therefore, the purpose of this paper is to analyse post-Soviet residential differentiation, with a specific focus on ethnic segregation in housing. The primary research questions of the paper are: whether ethnic origin explains segregation in housing in the post-Soviet urban setting independent of population composition; and, if yes, what are the possible causes for ethnic segregation in housing, including the role of structural forces (housing allocation system). Previous descriptive studies reveal considerable ethnic segregation in the post-Soviet urban setting. For example, a study by Vendina (2002) shows that, unlike during the Soviet period, ethnic segregation does exist in post-Soviet Moscow, owing to the increased—and often illegal or semi-legal—in-migration of non-Slavic ethnic minorities from the former Soviet republics.¹ Another study on post-Soviet Ust'-Kamenogorsk reveals that

Kazakhs tend to live in the least attractive (with respect to the environment and the quality and location of the housing stock) neighbourhoods of the city (Gentile, 2003b). However, the explanations given for post-Soviet ethnic segregation in Moscow do not apply to Ust'-Kamenogorsk, as Kazakhstan—like the other non-Russian post-Soviet successor states—was a country of emigration in the 1990s.

To find answers to our main research questions, we focus on ethnic segregation in housing in a multivariate research setting. We use data from the medium-sized industrial city of Ust'-Kamenogorsk, Kazakhstan. The study of Ust'-Kamenogorsk helps us to understand ethnic segregation in a context very typical of the medium-sized industrial cities in the former Soviet Union, where: powerful industrial enterprises shaped the form and housing stock of the city; industrialisation went hand-in-hand with immigration of Russians despite abundant labour reserves in Kazakhstan and central Asia, bringing along their dual minority–majority status after the demise of the former Soviet Union; most of the population growth took place during the Soviet period, meaning that Ust'-Kamenogorsk is a truly 'socialist' city; to accommodate quick population growth, standardised housing construction of multifamily housing estates was favoured; the best housing was built by high-priority enterprises; privatisation in the 1990s favoured sitting tenants; there was no major housing construction in the 1990s; and, the emigration of Russians after the demise of the Soviet Union vacated some of the housing stock. In addition to these very typical features, the case of Ust'-Kamenogorsk is also interesting for two reasons. First, it was a closed city during the Soviet period. Although this does not mean that Ust'-Kamenogorsk was entirely closed to non-organised forms of migration (Gentile, 2004b, pp. 265–266), it still enables us to study ethnic segregation in a previously relatively pure form of a centrally planned mini-society. Secondly, ethnic boundaries run deeper in the Asian region of the former Soviet Union (Ruble, 1989, p. 406; Kaiser and Chinn, 1995; Lubin, 1984).

Our paper proceeds as follows. First, we will set forth the factors underlying the differentiation of the housing stock in post-Soviet cities and discuss the Soviet housing allocation system. Then, we will outline the development of the population size, ethnic composition and housing stock of the case study city of Ust'-Kamenogorsk. This will be followed by a description of the data and methods used in the study, which will introduce the sections on data analysis. We use linear and logistic regression to analyse ethnic segregation by dwelling type, housing size and facilities, and highlight the differences in the housing conditions of Kazakhs, Russians and other ethnicities.

Population Dynamics in Ust'-Kamenogorsk

Ust'-Kamenogorsk was founded in 1720 as a Tsarist fortified military outpost at the confluence of the rivers Irtysh and Ul'ba (Figure 1). The town remained small until after the end of the Second World War, when central Asia became one of the most important areas for extracting energy and raw materials for forced military-industrial development in the former Soviet Union. This brought along a rapid industrialisation of the region (Szirmai, 1998, 172) and Ust'-Kamenogorsk became a typical Soviet industrial city, located in the eastern part of the industrial region of northern Kazakhstan (Gentile, 2004c, ch. 4). During most of the Soviet period, access to the city was restricted due to the closed city regime. This was introduced during the years of the expansion of the Soviet nuclear bomb project (see Gentile, 2003a) and aimed to protect a number of defence and military-industrial enterprises which were, and still are, located in the city. Among these, the uranium-, beryllium- and tantalum-enriching Ul'ba Metallurgical Plant (Ul'binskii Metallurgiceskii Zavod or UMZ), one of the main employers in the city, could be labelled as the top priority enterprise. This means that Ust'-Kamenogorsk was not only a typical Soviet industrial city, but it was also a city where population growth was strictly regulated by the rules of central planning or,



Figure 1. Kazakhstan, showing the location of Ust'-Kamenogorsk.

more exactly, by the labour needs of the industrial enterprises during the Soviet period.

Between the 1939 and 1959 censuses, the population of the city increased nearly eight-fold and touched the 150 000 level by the end of the period. Initially, in-migration to the city was partly a result of the evacuation of industrial facilities from areas threatened by German conquest and of the deportation of thousands of people, deployed as coerced or semi-coerced labour until the 1950s (Aleksenko, 1995). The population of Ust'-Kamenogorsk continued to expand throughout the Soviet period, peaking in 1989 at 325 000 inhabitants. The continued growth was due to industrial expansion and the high labour needs of the mighty industrial enterprises of Ust'-Kamenogorsk that shaped the city and its population, like other important industrial enterprises across the industrial regions of the former Soviet Union and other countries under central planning (see Andrusz, 1996, p. 37; Iyer, 2003, p. 206). Since the demise of the Soviet Union, the population of Ust'-Kamenogorsk has been declining, which is also typical of the comparable industrial

regions in the former communist countries. Between 1989 and 2001, the city lost approximately 10 per cent of its population (Figure 2).

At the 1897 census, an overwhelming majority of Ust'-Kamenogorsk's population of 8700, or 84 per cent, was ethnic Russian (Figure 3), in stark contrast with the population of the surrounding *gubernia*, of which only 12 per cent were Russian. The city's second-largest ethnic group in 1897 were the Tatars, not the Kazakhs. The immediate pre-WWII, wartime and post-WWII changes in the ethnic structure of the city can largely be understood in terms of the migration history of East Kazakhstan *oblast'* and of Kazakhstan as a whole. Three major periods may be identified in the evolution of the post-war migration history and ethnic composition of Kazakhstan: a period of intensive voluntary and forced immigration of Russians and other Slavs, lasting approximately until 1970; a period with a moderately negative migration balance in the 1970s and 1980s; and, a period of intense out-migration (since the early 1990s) of Russians, other Slavs and Germans towards Russia, the Ukraine and

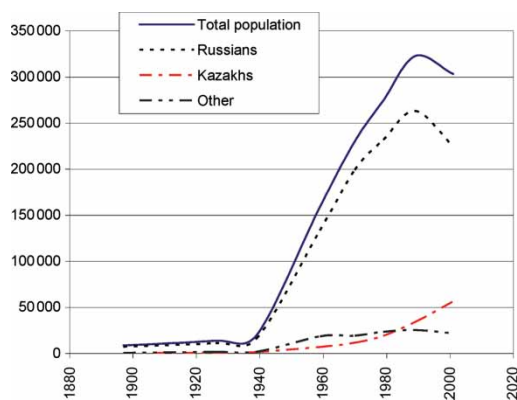


Figure 2. Total population and major ethnic groups in Ust'-Kamenogorsk, 1897–2001. *Sources:* Alekseenko (1994, 1995); Agenstvo (2002); Gentile and Vostochno-Kazakhstanskoe (2001).

Germany, leading to a significant absolute population decline in the republic (Akhmedova *et al.*, 1976; Alekseenko, 1994; Agenstvo, 2000). Because of intense post-WWII 'non-Kazakh' immigration, the share of Kazakhs dropped to a minimum in 1959, to just above 4 per cent. Subsequently, the number of Kazakhs started to increase more rapidly than that of other ethnicities (Figure 4). Along with this, the share of Kazakhs grew gradually as well, reaching

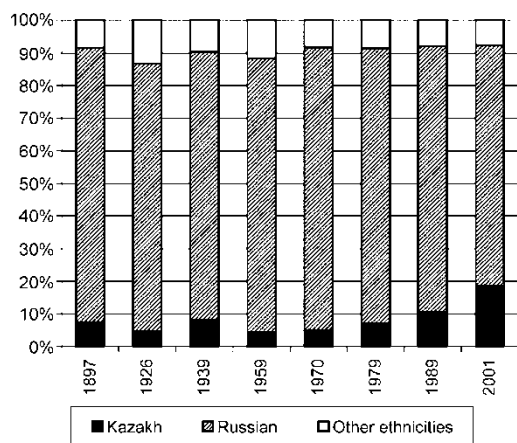


Figure 3. The ethnic composition of Ust'-Kamenogorsk, 1897–2001. *Sources:* Alekseenko, (1994, 1995); Agenstvo (2002); Gentile and Vostochno-Kazakhstanskoe (2001).

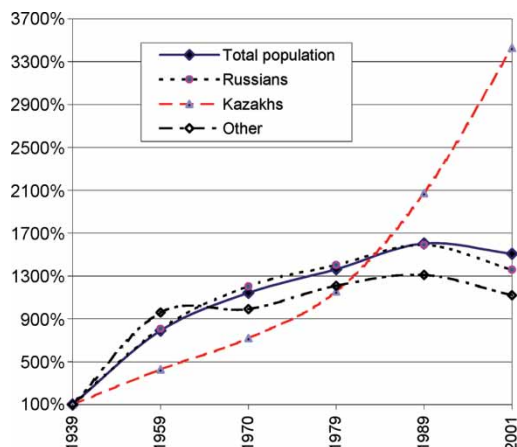


Figure 4. Total population and major ethnic groups in Ust'-Kamenogorsk, 1939–2001. *Note:* 1939 = 100 per cent. *Sources:* Alekseenko (1994); Agenstvo (2002); Gentile and Vostochno-Kazakhstanskoe (2001).

almost 10 per cent at the last Soviet census in 1989, and close to 20 per cent by 2001. This reflects the overall increase in the share of Kazakhs in Kazakhstan—from 40 per cent to 60 per cent—in the 1990s (Anecker, 2004). In addition to the intensive emigration of Russians and other Slavs, and the relatively high ethnic Kazakh birth rate, the share of Kazakhs increased significantly in Ust'Kamenogorsk due to their intensive in-migration from rural areas in the 1990s (Agenstvo, 2001; Gentile, 2004c, ch. 4, p. 19).

The migration history and the formation of the Russian immigrant population in Ust'-Kamenogorsk is typical of the industrial cities across the former Soviet Union. Despite the fact that Kazakhstan and central Asia were regions of abundant rather than limited labour supply (Ruble, 1989, p. 408), industrialisation still favoured immigration of mainly Russians due to ideological reasons like elsewhere in the former Soviet Union (Lewis and Rowland, 1979, p. 26). This means that economic policies became ethnic policies (Ruble, 1989, pp. 408–409), leading to the dual status of Russians today. They were the majority population in the Soviet Union. After its demise, the Russians became a minority in Kazakhstan, but they still form

a clear majority in Ust'-Kamenogorsk like elsewhere in the cities of the industrial regions of northern Kazakhstan. Russians living in the industrial regions have a strong orientation towards Russia and they often feel excluded in post-Soviet Kazakhstan (Kaiser and Chinn, 1995, pp. 269–271). Such a dual minority–majority status of Russians together with ethnic tensions in the region becomes even more important when we place it into the context of post-Soviet employment change. Heavy industry formed the backbone of the Soviet economic might. The situation changed in the 1990s. Debts, crumbling markets, unprofitable production and an outdated price and production structure brought along restructuring and contraction of industry (Szirmai, 1998, p. 175). As Russians were more likely to work in industry (Kaiser, 1995, p. 105), including in Kazakhstan, economic problems have tended to translate into ethnic problems during the post-Soviet transition period (Tamaru and Kulu, 2003). Thus, the problems in industrial areas in the former Soviet Union are more complex compared with those of east central Europe due to the intertwined economic and ethnic dimensions. Also employment decreased considerably in many former important industrial enterprises in Ust'-Kamenogorsk. However, the highest high-priority enterprises of the city, especially the UMZ, were able to restructure their production and are still the most important employers in the city. This is on the one hand due to the uniqueness of the output (the UMZ produces most of the nuclear fuel pellets used at Soviet-built nuclear power plants around the world) and on the other due to the relatively high prices for some raw materials (of which zinc and gold are particularly important to the local economy).

Housing in Ust'-Kamenogorsk

During the earliest period of Ust'-Kamenogorsk's wartime and post-WWII expansion, in-migrants were housed in one- and two-storey wooden barracks in very cramped conditions and in direct proximity



Figure 5. The inhabited remains of a 1940s workers' barrack in Leninogorsk (Ridder), 100 km to the north-east of Ust'-Kamenogorsk. Such dwellings were common in Ust'-Kamenogorsk until the 1960s, when the construction of modern multifamily dwellings began on a significant scale. *Photo:* Michael Gentile, January 2001.

to the main factories of the city (Figure 5). The housing built in the 1950s, during the late Stalin period, is generally of higher quality and often consists of spacious apartments. Such apartments usually have high ceilings, thick walls and modern facilities. Their limited supply means that they were allocated exclusively to the élite of the political class, the intelligentsia and the military apparatus (French, 1995). Even today, they are in high demand on the housing market and their value is often increased due to their favourable location within the city (Alexandrova *et al.*, 2004). Dwellings erected during the Khrushchevian epoch (*Khrushchevki*) in the 1960s signalled the start of massive pre-fabricated housing construction, poorly planned and poorly built (Alexandrova *et al.*, 2004; French, 1995). These units manifestly represent the quantity drive in Soviet housing construction aimed at solving the dramatic housing shortages in the cities caused by massive post-WWII urbanisation (Tamaru, 2001). The unsuitable pre-1950s dwellings were demolished in order to replace them with modern prefabricated apartment blocks arranged in *mikrorayony* (semi self-sufficient neighbourhood units; see Andrzejewski, 1966; Bater, 1980 and 1989; French, 1995; Smith, 1996; Borén, 2005). The apartments dating from the 1960s

are typically small, with particularly tiny kitchens, and therefore only modestly in demand today. Even so, they have all modern facilities (or ‘full conveniences’, to use a term coined during the Soviet period).

Thus, the majority of the city’s housing stock and of the infrastructure surrounding it has been built since the 1960s (Gentile and Vostochno-Kazakhstanskoe, 2001), when the population growth rates of the city were the highest. Later, the rate of housing construction decreased, but the quality of the apartment blocks increased. Thus, in relative terms, the apartments built in the 1980s are superior to those built in the 1960s through the 1970s with regard to size, quality, planning and architecture. But the housing quality remained low, as elsewhere in the former Soviet Union (Morton, 1980). Furthermore, due to the quantity drive, new housing was constructed at the expense of the maintenance of the existing stock. As a result, older dwellings nowadays tend to be in a state of disrepair which would require very substantial investment if subjected to renovation.

Nowadays, approximately three-quarters of the Ust’-Kamenogorsk housing stock consist of multifamily dwellings. Most of the apartments are of similar size and standard, but there are several notable exceptions. First, a few of the earliest *mikrorayony* dating from the 1950s contained solidly built apartment blocks in buildings of a neo-classical style

(Figure 6). Secondly, a number of apartment blocks with relatively spacious dwellings were erected in the late Soviet era in Lenin square, in the heart of the city. However, what really matters is the location of the apartments with respect to the main industrial enterprises and the city centre with its multiple services and cultural and entertainment functions, and the degree of *mikrorayon* completion. In this respect, the multifamily housing stock is highly differentiated. Typically, dwellings built by the powerful, high-priority, Moscow-controlled metallurgical enterprises (for their own workers and their families) are in *mikrorayony* with a solid infrastructure (including paved roads, schools, day care, etc.) and at attractive locations in the city centre. The best apartments in the best locations, including the ones built on Lenin Square, were built by the highest high-priority enterprise UMZ; conversely, dwellings built by low-priority enterprises, such as the furniture factory, are generally found in fragmentarily built and often isolated *mikrorayony* in peripheral areas (Gentile, 2003b, pp. 592–593).

One-quarter of the housing stock in Ust’-Kamenogorsk consists of detached houses. The variance in their quality is determined by year of construction and level of initial investment. Typically, such dwellings tend to lack modern facilities, are not connected to the municipal sewerage system and are, for the



Figure 6. A prestigious neo-classical multifamily building on Lenin Avenue, Ust’-Kamenogorsk, built in the early 1950s. *Photo:* Michael Gentile, August 2000.



Figure 7. Single-family housing in the peripheral neighbourhood of Ablaketka, Ust’-Kamenogorsk. The majority of such dwellings are in a grave state of disrepair and offer few modern comforts. *Photo:* Michael Gentile, January 2001.

most part, inconveniently located (Figure 7; Széleányi, 1983; Ashwin, 1999; Gentile, 2003b and 2004c; Alexandrova *et al.*, 2004; Shkaruba, 2002). The bulk of this type of housing is found in semi-peripheral and peripheral locations in Ust'-Kamenogorsk, since the centrally located dwellings were gradually demolished and replaced by enterprise housing. There is, however, one major exception, consisting of an area built during the late 1980s and early 1990s by and for the workers of two of the three main metallurgical plants. Here, instead of being allocated a dwelling in a multifamily complex, workers were provided with construction materials, equipment and, above all, cheap loans, to build a house. The result was a small area with very large high-quality near-luxurious dwellings ('cottages', as they are called locally), for the industrial élite of the city (personal interview, A. S. Kulenov, President of the Aimak Altyn Corporation, 11 February 2001). Nevertheless, given the limited size and small population of this neighbourhood, we can conclude that an apartment with all modern facilities or full conveniences in a multistorey block was considered to be more attractive than a poorly equipped single-family house in Ust'-Kamenogorsk.

There were four types of housing tenure in the Soviet Union. The first, and most common, was state ownership. In 1989, 54.7 per cent of the Soviet housing stock, and over 70 per cent in urban areas, was owned either by the local soviets or 'departmentally'—i.e. by a subject of a particular ministry, for example an industrial enterprise (Andrusz, 1999, pp. 151–152). The second type consisted of housing owned by social organisations, such as the writers' union, and accounted for 2.6 per cent of the total stock, but only 0.6 per cent of the urban stock. The third type consisted of housing co-operatives, accounting for 3.7 per cent of the total stock and 5.7 per cent of the urban stock. Finally, the fourth type included all dwellings owned privately. These were typically single-family houses. In cities, privately owned dwellings accounted for 21.4 per cent of the housing stock, and in rural areas nearly 70 per cent (Andrusz, 1999, pp. 151–152). Co-operative

housing required an initial private investment, which meant that there was a certain socioeconomic selection of its residents (Kulu, 2003a, pp. 904–905; Morton, 1980, p. 255). The initial investment is also reflected in better maintenance, making the (former) co-operative housing stock more attractive on the current market. The quality and location of the dwellings built by social organisations depend on the status of the organisation that built them. Nevertheless, both co-operative and social-organisation housing comprise only a small share of the total housing stock.

Since the demise of the Soviet Union, most of the non-private housing stock (multifamily houses) has been subject to privatisation, generally at very low or no cost (Struyk, 1996). Ust'-Kamenogorsk's multifamily housing stock had mostly already been privatised by 1994. Initially, privatisation was supposed to have taken place through sale at nominal prices or for housing vouchers. In practice, however, most apartments were simply given to the people who lived in them (Kaufman and Lipkovich, 1995). In Ust'-Kamenogorsk, the industrial enterprises passed their housing shares over to the city administration, because of high maintenance costs. The municipality proceeded with privatisation, and by 1994, most apartments had been privatised, forming loose housing co-operatives (personal interview, G. A. Moskal'tseva, urban planner and former chief city architect, 6 September 2000). As a result, at its dawn, the post-Soviet socio-spatial residential pattern in Ust'-Kamenogorsk resembled the late Soviet one, which is typical in other countries under central planning (Struyk, 1996; Ruoppila and Kährik, 2003).

Hypotheses of the Study

Based on the preceding sections, we advance the following hypotheses regarding ethnic segregation in Ust'-Kamenogorsk. First, as industrialisation, immigration and major housing construction of multifamily housing went hand-in-hand in Kazakhstan (Gentile, 2004c, ch. 4), as elsewhere in the non-Russian republics of the former Soviet Union, one could expect that, in

Ust'-Kamenogorsk, Russians will be more likely to live in apartments compared with Kazakhs. Similar results have also been obtained from previous studies (Kulu, 2003a; Kulu and Tammaru, 2003). Previous studies also indicate that Russians live in better-equipped houses, but they have less space compared with titular populations (Kulu, 2003a; Kulu and Tammaru, 2003). We also expect that Russians will be more likely to live in dwellings equipped with all modern facilities compared with Kazakhs (see Gentile, 2003b, pp. 595–598). However, there are several reasons to expect that Kazakhs also have less living space at their disposal. First of all, detached houses are less spacious than apartments in Ust'-Kamenogorsk. Kazakhs are more likely to live in single-family houses, which means that they probably have less space as well.² However, there are grounds for believing that Kazakhs also have less space than Russians independent of dwelling type, as they tend to concentrate in smaller apartments (Gentile, 2003b, p. 595), which is related to the fact that Kazakhs were generally worse off in the Soviet-era central redistributive system compared with the Russians (Ruble, 1989, p. 409).

Data and Methods

For the analysis of ethnic segregation in Ust'-Kamenogorsk, we use data from the *Cities of Rudnyi Altay* database (Gentile and Vostochno-Kazakhstanskoe, 2001; for details, see Gentile, 2004a). The data are based on a sample survey that was carried out among the inhabitants of Ust'-Kamenogorsk in 2001 in co-operation with the *oblast'* statistical office (Vostochno-Kazakhstanskoe Oblastnoe Upravlenie Statistiki). The sample was systematically extracted from the alphabetical list of households created by the Statistical Agency of Kazakhstan on the occasion of the First Census of the Republic of Kazakhstan carried out in 1999, and covered 1.3 per cent of all households. Our research population includes 1836 individuals, of whom 73.8 per cent are Russian, 18.5 per cent are Kazakh and 7.7

per cent represent other ethnic groups. Significant compositional differences exist between Russians and Kazakhs (Table 1). Kazakhs are younger and more educated, and the share of married people and migrants is higher among them. Sectoral and professional compositions vary across the two ethnic groups as well. In most respects, the other ethnic groups lie in between the Kazakhs and the Russians.

In the data analysis, we first use a binary logistic regression to clarify the role of different characteristics that discriminate between people living in single-family and multifamily houses. The dwelling type is an important feature of the Soviet housing construction that sheds light on the differences in the housing allocation system (structural forces) and, in connection, the ownership status of housing. Multifamily houses were typically public-enterprise owned, while the single-family housing was typically owner-occupied. We can formalise the model as follows

$$\log \frac{p(Y_i = 1)}{p(Y_i = 0)} = \alpha + \sum_{k=1}^K \beta_k X_{ik} \quad (1)$$

where, $p(Y_i = 0)$ is an individual's $i = 1, \dots, I$ probability of living in a single-family house; $p(Y_i = 1)$ is an individual's $i = 1, \dots, I$ probability of living in a multifamily house (apartment); α is constant; X_{ik} is the value of the variable for an individual; and β_k is the parameter describing the impact of this variable, with K variables.

In Model 1, K only includes ethnic origin in order to confirm the existence of ethnic differences in housing existed in Ust'-Kamenogorsk. The first model also serves as a baseline for the subsequent ones, which introduce the socio-demographic variables in order to test whether the ethnic differences stem from compositional differences between Russians, Kazakhs and other ethnic groups, or are independent of the other population characteristics. In Model 2, we add demographic variables (given to individual); and, in Model 3, social variables (varying by individual over the life-course).

Table 1. Research variables (percentages)

	Total (<i>N</i> = 1836)	Russian (<i>n</i> = 1355)	Kazakh (<i>n</i> = 340)	Other (<i>n</i> = 141)
<i>Ethnic origin</i>				
Russian	73.8			
Kazakh	18.5			
Other	7.7			
<i>Age</i>				
<30	16.3	14.5	24.7	12.8
30–39	16.5	14.4	26.8	12.1
40–49	24.8	24.2	27.6	24.1
50–59	13.5	13.8	10.6	17.0
60–69	15.4	17.2	7.6	17.0
70>	13.5	15.9	2.6	17.0
<i>Gender</i>				
Female	64.8	66.1	63.8	54.6
Male	35.2	33.9	36.2	45.4
<i>Family status</i>				
Married	55.3	53.4	61.5	58.9
Single	10.6	8.8	18.8	7.8
Co-habiting	6.1	6.6	4.1	5.7
Divorced	12.0	12.9	8.5	12.1
Widow	16.0	18.2	7.1	15.6
<i>Place of birth</i>				
Ust'-Kamenogorsk	36.6	43.2	16.5	22.0
Migrant	63.4	56.8	83.5	78.0
<i>Education</i>				
No education/incomplete primary	16.0	18.6	4.7	18.4
Primary	3.7	3.6	2.1	8.5
Secondary	60.3	59.4	65.9	55.3
Tertiary	20.0	18.4	27.4	17.7
<i>Occupational sector</i>				
Industry and mining	13.1	15.1	6.3	10.7
Construction	3.7	3.9	3.3	3.6
Transport and communications	3.7	3.9	3.6	3.6
Public administration	3.6	2.7	7.5	3.6
Education	5.4	4.4	11.0	2.9
Health care	4.2	3.7	7.2	2.9
Other services	8.0	7.3	11.3	7.2
Inactive	58.1	59.3	50.0	65.2
<i>Profession</i>				
Manager	2.1	2.1	1.8	2.8
Professional/senior specialist	9.9	8.9	15.3	6.4
Associated professional/specialist	6.2	5.9	7.9	4.3
Clerk	3.3	3.0	4.4	3.5
Service worker	4.2	3.7	6.5	3.5
Operator	4.4	4.7	3.8	2.8
Skilled worker	7.3	7.7	5.0	9.2
Unskilled worker	4.3	4.5	4.4	2.1
Military	0.3	0.1	0.9	
Inactive	58.1	59.3	50.0	65.2
<i>Income</i>				
Below average	59.4	58.1	64.3	59.3
Above average	40.6	41.9	35.7	40.7

Secondly, we analyse ethnic differences in housing size and facilities in order to clarify the differences in housing conditions between Russians, Kazakhs and other ethnicities. Controlling for structural forces, dwelling type is also added to the models. Living space per person was an important background variable for planners in allocating housing in countries under central planning and thus indicates how well people were able to perform on the housing market. We use linear regression to study the determinants of housing size per person, based on the following model

$$Y_i = \alpha + \sum_{k=1}^K \beta_k X_{ik} \quad (2)$$

where, Y_i is the size of the living space (square metres of total floor space per capita) of an individual's $i = 1, \dots, I$ household.

Again, we first estimate Model 1 with only ethnic origin included, followed by Models 2 and 3, which include demographic, and demographic and social composition respectively. In Model 3, we also introduce previous (pre-privatisation) ownership status as a research variable. The multifamily housing stock differs by previous ownership: since the UMZ was the high(est) priority enterprise, a transition-survivor enterprise and the owner of the best housing in the city, we add a UMZ dummy variable (whether the house was owned by the UMZ or otherwise before privatisation) into the model to shed some additional light on the housing differences within the multifamily housing stock. Both of these variables—dwelling type and UMZ—enable us to capture the effects of the Soviet housing allocation system on housing outcomes on the one hand, and to

clarify the importance of ethnic origin in producing differences in housing outcome independent of structural forces (housing allocation) on the other. We proceed with similar three-step models for the analysis of ethnic differences in housing facilities, based on the following binary regression model

$$\log \frac{p(Y_i = 1)}{p(Y_i = 0)} = \alpha + \sum_{k=1}^K \beta_k X_{ik} \quad (3)$$

where, $p(Y_i = 0)$ is an individual's $i = 1, \dots, I$ probability of living in a house equipped with lower-order facilities, and $p(Y_i = 1)$ is an individual's $i = 1, \dots, I$ probability of living in a house equipped with higher-order or all modern facilities. Higher-order facilities include electricity, cold and hot water, and connection to a sewer system. Dwellings that had all these listed facilities were called houses with full conveniences and were part of the most desirable fraction of the housing stock. If one of those facilities is missing, we classify the housing into the lower-order facilities category.

Ethnic Differences in Housing

In our sample, over 70 per cent of the population live in multifamily housing and almost 30 per cent in single-family houses. Russians are more likely to occupy apartments than are Kazakhs (Table 2). The share of single-family house-dwellers among other ethnicities (38.3 per cent) is similar to that of the Kazakhs (39.1 per cent). Not only are Kazakhs under-represented in apartments, but even more so in houses built by highest high-priority enterprises (Table 3), which form the highest-quality part of the multifamily

Table 2. Dwelling type by ethnic origin

	Russian ($n = 1355$)	Kazakh ($n = 340$)	Other ($n = 141$)	Total ($N = 1836$)
Apartment	73.8	60.9	61.7	70.5
Single-family house	26.2	39.1	38.3	29.5
Total	100.0	100.0	100.0	100.0

Table 3. Ethnic composition by Soviet-era housing ownership status (percentages)

	UMZ (highest priority)	Other priority sector	Other enterprise	Detached housing (private sector)	N
Russians	78.1	78.3	74.9	70.0	1355
Kazakhs	11.2	16.7	18.5	23.0	340
Other ethnicities	10.7	5.0	6.6	7.0	141
Total	100.0	100.0	100.0	100.0	1836

housing stock in Ust'-Kamenogorsk (Gentile, 2003b, p. 592). The average living space is 22.3 square metres per person, but there are significant differences according to ethnicity (Table 4). Russians have the most living space, whilst Kazakhs have least. Kazakhs also have fewer facilities compared with Russians and other ethnic groups. People living in multifamily housing have more space than those who live in single-family housing, the average floor space being only 19.3 square metres per capita in detached housing, compared with 24 square metres in apartments. Ethnic differences in the living space of apartments and single-family housing are similar: Russians live in the least-crowded conditions, while Kazakhs live in the most-crowded. The average living space for Kazakhs living in detached houses is only 14 square metres per person. Multifamily dwellings are better equipped with facilities compared with

single-family houses, which was expected. However, the extent of the differences is striking. As many as 60 per cent of those who occupy apartments have higher-order facilities, compared with only 1 per cent of those living in detached houses.

Ethnic Differences by Dwelling Type

The Kazakhs and other non-Russian ethnic groups are less likely to live in multifamily estates than the Russians (Table 5, model 1). After introducing the demographic and social variables (models 2 and 3), these differences in dwelling type persist and, with respect to Kazakhs and Russians, they are even more evident. Russians have more than twice the odds of living in an apartment compared with Kazakhs. The differences in dwelling type by other characteristics of population are as follows. People aged 40–49 are less

Table 4. Housing characteristics by ethnic origin

	Russian	Kazakh	Other	Total
<i>Total</i>				
Living space ^a	23.3	18.4	22.1	22.3
Facilities ^b	44.9	37.6	39.0	43.1
N	1355	340	141	1836
<i>Apartments</i>				
Living space ^a	24.4	21.8	24.5	24.0
Facilities ^b	60.0	59.4	60.9	60.0
N	1000	207	87	1294
<i>Single-family houses</i>				
Living space ^a	20.7	14.0	18.4	19.3
Facilities ^b	0.7	3.0	0.0	1.0
N	355	133	54	542

^aMean living space in square metres per capita; ^bPercentage of people living in housing with higher-order facilities.

Table 5. Logistic regression of dwelling type on characteristics of population ($N = 1836$)

	β		
	Model 1	Model 2	Model 3
<i>Ethnic origin (base: Russian)</i>			
Kazakh	-0.593***	-0.695***	-0.761***
Other ethnicity	-0.559***	-0.619***	-0.619***
<i>Age (base: 40–49)</i>			
Age 18–29		0.559***	0.590***
Age 30–39		0.315**	0.312*
Age 50–59		0.758***	0.895***
Age 60–69		0.213	0.717***
Age 70>		0.208	0.961***
<i>Gender (base: female)</i>			
Male		-0.272**	-0.398***
<i>Family status (base: married)</i>			
Single (never married)		-0.076	-0.082
Co-habiting		-0.089	-0.105
Divorced		0.342*	0.335*
Widow		-0.027	0.119
<i>Place of birth (base: migrant)</i>			
Ust'-Kamenogorsk		-0.322***	-0.346***
<i>Education (base: secondary)</i>			
No/incomplete primary			-0.500***
Primary			-0.268
Tertiary			0.822***
<i>Occupational sector (base: industry and mining)</i>			
Construction			0.212
Transport and communications			-0.093
Public administration			0.709
Education			0.363
Healthcare			0.234
Other services			0.884***
Inactive			-0.352
<i>Profession (base: specialist)</i>			
Manager			0.284
Clerk			-0.062
Service worker			-0.813***
Operator			0.051
Worker (skilled and unskilled)			-0.179
Military			0.046
<i>Income (base: low income)</i>			
High income			1.054***
	2201.361	2161.960	1953.450
	2	13	33

Notes: ***indicates significant at the 1 per cent level; **at the 5 per cent level; and *at the 10 per cent level.

likely to live in apartments than are people of both younger and older cohorts. Women have a higher probability of living in multifamily

housing than do men. Migrants are also more likely to live in apartments compared with people born in Ust'-Kamenogorsk. The

differences in dwelling type are less significant when measured by family status. The only notable exception is the higher probability of divorced people of living in an apartment.

There are also important differences in dwelling type according to the social composition of the population. First, let us examine the differences by educational status. It becomes apparent that there is a linear relationship between dwelling type and education. People with no or incomplete primary education have the lowest probability of living in apartments, while people with tertiary (university) education have the highest probability. The differences in dwelling type according to the economic sector of employment and profession are less significant. People working in public administration and education tend to live in multifamily dwellings. Finally, people who earn above-average incomes have a much higher probability of living in an apartment compared with those who earn below-average incomes.

Ethnic Differences in Housing Size

Russians are more likely to live in apartments and, therefore, as expected, they also have more living space than Kazakhs and other ethnic groups (Table 6, model 1). However, the differences in housing size between the Russians and the other (non-Kazakh) ethnic groups are not statistically significant. Differences in living space by ethnic origin remain after introducing the demographic (model 2) and social (model 3) variables as well. However, ethnic differences in housing decrease only after adding demographic variables, but remain unchanged after introducing social variables. We can also conclude that Kazakhs live in more crowded conditions compared with other ethnic groups. It follows that, in Ust'-Kamenogorsk, Kazakhs tend to live in single-family housing to a similar extent as Estonians do in Tartu (Kulu, 2003a), but in considerably more cramped conditions.

Let us proceed with the analysis of the differences in living space according to

other personal characteristics. The relation between age and living space is linear: younger people have less space and older people have more space. As Kazakhs are younger than Russians (Table 1), differences in the age structure partly explain ethnic differences in housing size as well. Women tend to have more space than men. Married and co-habiting people have less space per person than other, smaller household types, while a comparison of migration status exhibits no particular differences. Differences in living space revealed by the level of education show a linear pattern, as in the case of age. Less educated people have less space and more educated people have more space. Thus, people with university education live in the most spacious conditions. Somewhat unexpectedly, there are only minor differences in living space when analysed by occupation sector and profession. Only people working in public administration tend to have more space. The differences are, however, significant when measured by income. Those who earn above-average incomes are more likely to live in more spacious dwellings than those who earn below-average incomes.

Ethnic Differences in Facilities

Next, we examine the differences in access to facilities by ethnicity. The analysis reveals that Russians have more facilities than Kazakhs, while the differences with respect to the other ethnic groups are not statistically significant (Table 7, model 1). The differences between Russians and Kazakhs decrease after introducing the demographic characteristics of the population (model 2), but remain again unchanged when adding social variables (model 3)³. The variable which is most responsible for the decrease in ethnic differences regarding facilities is again age, as in the case of living space. However, we can conclude that ethnic origin is an important determinant of housing conditions independent of the differences in the demographic and social composition of the populations. Russians have 1.3 times higher odds of

Table 6. Linear regression of living space on characteristics of population ($N = 1836$)

	β		
	Model 1	Model 2	Model 3
<i>Ethnic origin (base: Russian)</i>			
Kazakh	-0.135***	-0.060***	-0.060***
Other ethnicity	-0.023	-0.021	-0.012
<i>Age (base: 40–49)</i>			
Age 18–29		-0.036	-0.054**
Age 30–39		-0.052*	-0.061**
Age 50–59		0.111***	0.101***
Age 60–69		0.188***	0.213***
Age 70>		0.154***	0.215***
<i>Gender (base: female)</i>			
Male		0.034	-0.041*
<i>Family status (base: married)</i>			
Single (never married)		0.141***	0.142***
Co-habiting		0.005	0.003
Divorced		0.179***	0.177***
Widow		0.234***	0.259***
<i>Place of birth (base: migrant)</i>			
Ust' – Kamenogorsk		-0.011	-0.003
<i>Education (base: secondary)</i>			
No/incomplete primary			-0.092***
Primary			-0.016
Tertiary			0.066***
<i>Occupational sector (base: industry and mining)</i>			
Construction			-0.012
Transport and communications			-0.010
Public administration			0.051**
Education			0.017
Healthcare			-0.001
Other services			0.016
Inactive			0.003
<i>Profession (base: specialist)</i>			
Manager			-0.020
Clerk			-0.020
Service worker			-0.040
Operator			0.011
Worker (skilled and unskilled)			-0.019
Military			-0.017
<i>Income (base: low income)</i>			
High income			0.186***
<i>Dwelling type (base: multifamily)</i>			
Single-family			-0.043**
<i>Housing owner before privatisation (base: other)</i>			
UMZ			-0.021
R^2	0.018	0.195	0.262
Degrees of freedom	2	13	33

Notes: *** indicates significant at the 1 per cent level; ** at the 5 per cent level; and * at the 10 per cent level.

Table 7. Logistic regression of facilities on characteristics of population ($N = 1836$)

	β		
	Model 1	Model 2	Model 3
<i>Ethnic origin (base: Russian)</i>			
Kazakh	-0.302**	-0.294**	-0.295*
Other ethnicity	-0.244	-0.271	-0.303
<i>Age (base: 40–49)</i>			
Age 18–29		0.371**	-0.366**
Age 30–39		0.035	-0.086
Age 50–59		0.605***	0.733***
Age 60–69		0.392**	0.758***
Age 70>		0.091	0.807***
<i>Gender (base: female)</i>			
Male		-0.141	-0.157
<i>Family status (base: married)</i>			
Single (never married)		-0.435**	-0.463**
Co-habiting		-0.307	-0.450*
Divorced		-0.392**	-0.428**
Widow		-0.242	-0.058
<i>Place of birth (base: migrant)</i>			
Ust'-Kamenogorsk		-0.033	0.073
<i>Education (base: secondary)</i>			
No/incomplete primary			-0.903***
Primary			-0.712**
Tertiary			0.765***
<i>Occupational sector (base: industry and mining)</i>			
Construction			0.080
Transport and communications			0.623*
Public administration			0.614
Education			-0.083
Healthcare			0.272
Other services			0.417
Inactive			-0.266
<i>Profession (base: specialist)</i>			
Manager			0.293
Clerk			-0.615*
Service worker			-0.839**
Operator			-0.622*
Worker (skilled and unskilled)			-0.702***
Military			-0.027
<i>Income (base: low income)</i>			
High income			1.014***
<i>Housing owner before privatisation (base: other)</i>			
UMZ			1.346***
-2 log likelihood	2506.520	2469.935	2127.992
Degrees of freedom	2	13	32

Notes: ***indicates significant at the 1 per cent level; **at the 5 per cent level; and *at the 10 per cent level.

living in dwellings with a full set of facilities than Kazakhs. We can draw the conclusion that Kazakhs are disadvantaged in the Ust'-Kamenogorsk housing market as they have less living space and less facilities than Russians.

There is a positive linear relationship between age and facilities: younger people have least facilities, while older people enjoy considerably more facilities. There are no differences in facilities by gender and migrant status. Married people are better equipped with facilities than other population groups. There is a linear relationship between facilities and education, as was the case between dwelling type and living space. People with lower education have fewer facilities and people with higher education have more facilities. There are only minor differences in facilities when analysed by sphere of occupation. The situation is different with professions, as managers and specialists have more facilities compared with others. Again, significant differences in facilities appear when income levels are compared. People who earn above-average incomes have considerably more facilities than people who earn below-average incomes. Finally, those who occupy housing built by the UMZ have 3.8 times greater odds of living in a dwelling with full modern conveniences.

Summary and Discussion

Our research reveals that there is a significant degree of residential segregation according to housing conditions in Ust'-Kamenogorsk. Older people, Russians, people with tertiary education and those earning higher incomes have the highest probability of living in larger and better-equipped housing. People living in dwellings built by the UMZ also have more facilities compared with those living in dwellings built by other organisations. Kazakhs, younger people, people with primary education and those earning lower incomes live in smaller and less-equipped housing. The results regarding age and income differences shed some interesting

light on residential differentiation, revealing clear distinctions from the situation in Western countries. First of all, there were no straightforward differences in dwelling type by age, while people with higher incomes 'end up' living in apartments rather than in detached houses. This is probably typical of the pre-mortgage housing market which was evident in other countries at the initial stages of transition and during which the relatively better-off started by renovating their own apartments, lacking the means to move into (or build) modern detached houses. Secondly, the per capita living space and the availability of facilities increased linearly with income and age (i.e. the advancement of the life-course: older people enjoy more facilities).

We can draw two conclusions based on these two findings. First, it follows that the typical housing career in Ust'-Kamenogorsk was not related to mobility between dwelling types (for example, first to an apartment and then to a single-family house), but rather to mobility from small to large apartments with more facilities, as the life-course proceeds and income increases. Secondly, our study confirms the results of previous research, suggesting that people continue to live in the dwellings that they received when they were in the 'family stages' of their lives, even after their children move out and the individuals retire (Kulu, 2003a, pp. 904–905; Tammaru and Kulu, 2003, pp. 133–134). Both non-market rents and the low activity of the housing market, which resulted in the housing shortage, were responsible for the relatively low mobility which characterised the Soviet period. Being allocated an apartment meant almost certainly that one was going to continue occupying it for a long time, as acquiring a new flat or house was a complicated procedure (Ciechocinska, 1987, p. 24; Pöder and Titma, 2001, p. 159). This differs from the situation in Western countries, where there is a considerably tighter match between life-course, income and housing career (Magnusson and Özüekren, 2002, pp. 476–477).

The analysis also clearly confirms our hypotheses regarding ethnic differences in

housing and reveals that Kazakhs are in a disadvantaged position in the housing market compared with Russians, both in terms of living space and facilities, independent of the differences in the demographic and social composition between Russians and Kazakhs, and structural forces (the housing allocation system). Our result that Russians are more likely to live in multifamily houses confirms that they were better off in the centrally planned housing allocation system during the Soviet period—i.e. the single-family housing stock in Ust'-Kamenogorsk differs significantly from that found in most Western cities. The infrastructure surrounding them is poor and there are fewer facilities within the dwellings, many of which lack running water. Single-family houses are typically small and, therefore, more crowded than the apartments in multifamily dwellings. Furthermore, Kazakhs end up in the worst part of the single-family housing stock, as Kazakhs living in detached houses also have less living space and fewer facilities than Russians and other ethnic groups. The same is true regarding multifamily housing, as the housing outcomes of Kazakhs by housing size and facilities are worse than those of Russians. This means that not only do the Kazakhs live in areas with worse housing conditions, but they also have access to fewer facilities and less space per capita than the Russians and the representatives of the other ethnicities, independent of the dwelling type they occupy.

These results reveal both similarities and differences when compared with the analyses of ethnic segregation in late-Soviet Tartu, Estonia (Kulu and Tammaru, 2003). Similar is the higher probability that Russians will live in apartments and enjoy more facilities than the titular ethnic group, but the differences are related to crowding, which was higher for the Russians in Tartu, but is lower in Ust'-Kamenogorsk. Three plausible explanations of the greater likelihood of the titular population to live in single-family houses were advanced (Kulu and Tammaru, 2003, p. 137). Two of the explanations, the differences in the interwar housing experience and the cultural explanation do not apply to

Ust'-Kamenogorsk. The third explanation, which stresses the different migration experiences and the role of housing in the migration process between titular populations and immigrants, mainly of Russian origin, remains relevant. Russians were long-distance immigrants and, therefore, they were more likely to have been engaged in some form of organised migration across the former Soviet Union (see Rybakovskii, 1987). As migration gradually turned into a voluntary process during the course of the post-war decades, obtaining housing at the destination became an important part of the Russians' migration process. This means that they were in a better position in the socialist system of housing allocation, which favoured the immigrant population over the indigenous one (Ruble, 1989, p. 409). This is why they were more likely to end up in multifamily housing than the Kazakhs.

The population dynamics and composition of Ust'-Kamenogorsk were primarily shaped by the city's industrial enterprises, particularly by those that belonged to the high-priority sectors. These enterprises tended to recruit a specific labour force, attracting mainly Russians and other immigrants despite labour abundance in Kazakhstan. But they also required skilled labour. Therefore, alongside ethnic origin, the level of education is an important independent predictor of the housing performance of the inhabitants in Ust'-Kamenogorsk. The high-priority enterprises were not the only employers in the city, but *de facto* they controlled the better part of the housing stock. Our research reveals that those who live in the apartments built by the UMZ, the highest-priority enterprise in the city, enjoy considerably more facilities than those living in dwellings built by other organisations. However, ethnic origin remains significant even after controlling for the impact of both other personal characteristics and housing allocation, meaning that it is independent of the compositional differences between Kazakhs and Russians, and of the structural forces that operated in Soviet society. For example, Kazakhs who received their housing either from the

UMZ or from other organisations have, *ceteris paribus*, fewer facilities than Russians.

The match between industrialisation, in-migration and housing construction (by priority-sector enterprises) was far from optimal, even within the closed-city context of Ust'-Kamenogorsk. A considerable part of the population arrived seeking non-industrial or unskilled industrial employment in the city, including many rural Kazakh in-migrants, and were less likely to gain access to the (new) housing being provided through *vedomstvennyi* (ministerial) channels (see Kulu and Tammaru, 2003, p. 137). Thus, the endemic housing shortage which characterised the cities of the Soviet Union, and the privileged allocation of new apartments by (priority-sector) enterprises, led to the lower housing quality of the local in-migrants of Kazakh origin (see Kulu and Tammaru, 2003), despite the overall egalitarian claims of central planners (Szelényi, 1983 and 1996). This process continued well into the 1990s, as rural in-migrants of Kazakh origin tended to end up in poorer housing conditions.

In summary, many mechanisms provided Russians and other long-distance 'industrial' immigrants with better access to better housing compared with Kazakhs during the Soviet period. For example, our results that Russians are more likely to live in multifamily housing than Kazakhs support the argument that migration and residential differentiation were, to a significant degree, dependent on structural forces (housing allocation) working within Soviet society (Hegedüs and Tosics, 1983; Musil, 1987; see also Buckley, 1995; Sjöberg, 1999). But our results also support the argument that non-structural individual factors (Dangschat, 1987; Ladányi, 1989), including ethnic origin and merit (as measured through education), were important independent predictors (migrant status was controlled for as well) of housing performance. Therefore, we agree that the structural context engendered a continuously self-regulating dual process: the state and other institutions offered employment and housing opportunities for people with certain characteristics, and people with these matching characteristics took advantage of those

opportunities (Kulu, 2003b). Industrialisation offered opportunities mainly to Russians who immigrated to the industrial cities located throughout the former Soviet Union (Tammaru, 2001). Due to the high priority given to industrial growth, Russians (and other immigrants) tended to gain more from the centralised and enterprise-based housing allocation system and therefore ended up in better-quality housing (more facilities) relative to the titular ethnic groups, as revealed by the case studies of Tartu in Estonia and Ust'-Kamenogorsk in Kazakhstan.

Our results also tend to support the argument that the legacy of the Soviet period probably explains most of today's ethnic segregation in Ust'-Kamenogorsk. Almost no new dwellings were built in the city during the first decade of Kazakhstan's independence, which means that all the changes in residential segregation that did take place after the demise of the Soviet Union were restricted to the existing housing stock. The emigration of Russians who worked in the high-priority enterprises during the 1990s is one of the factors that created the pre-conditions for changes in the ethnic geography of post-Soviet Ust'-Kamenogorsk. Another factor is the changing status of Kazakhs. The status of Kazakhs had already started to improve in Kazakhstan in the 1970s and 1980s but, since the demise of the Soviet Union, their position has improved considerably both in the labour market and more generally in society (Kaiser, 1995, p. 103). New jobs are being made available for them, especially within public administration, where knowledge of both Kazakh and Russian is valuable. One could expect, therefore, that they will be able to improve their relative position in the housing market compared with what it was during the late Soviet period. In turn, this implies that the introduction of the market economy would, along with the expected effect of increasing socioeconomic residential segregation, have the surprising effect of indirectly reducing ethnic residential segregation, as Kazakhs are able to improve their housing outcomes relative to Russians.

Notes

1. The results of the First Russian Population Census, carried out in 2002, revealed the existence of a striking discrepancy between the previous population estimates for Moscow, which suggested a population decrease throughout the post-Soviet period (from 8 970 000 in 1989 to 8 390 000 in the year 2000), and the census-counted *de facto* population of over 10 125 000 (Goskomstat SSSR, 1991, p. 5; Goskomstat Rossii, 2000, p. 34; Federal'naya Sluzhba, 2005). The difference is mainly assumed to consist of 'unregistered' migrants. For more on this issue, see Gorenburg, 2003.
2. It should be noted, however, that the Kazakhs tend to have larger families than Russians, meaning that the number of their children has an impact on the differences in average per capita living space. Even so, the total fertility rate of Kazakhs has been declining throughout the post-Soviet period and is now below replacement level in most urban areas.
3. We had to remove dwelling type from initial model 3, as it is highly correlated with facilities (see also Table 4), but the variable UMZ controls the effect of the best housing allocation on the ethnic differences in facilities.

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