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Mobility Where Mobility is Illegal: Migration and City Growth in the Soviet Union

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**Mobility Where Mobility is Illegal: Internal
Migration and City Growth in the Soviet Union**

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Abstract: This paper examines an important anomaly in the internal migration history of the former Soviet Union (FSU). While many cities were closed in the sense of explicitly limiting growth of city population from migration, it was difficult to assess the effectiveness of these controls. We analyze a sample of 308 Soviet cities to isolate the impact of closure regulations controlling for city size. We find that while there are pervasive patterns of city growth, the rate increasing through the 1960s and declining thereafter, there are also pervasive differences between controlled and uncontrolled cities, the later growing significantly faster in almost all cases, controlling for city size.

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Mobility Where Mobility is Illegal: Internal Migration and City Growth in the Soviet Union

I. Introduction

An important and long standing case of restricted population mobility was that of the urban sector of the former Soviet Union (FSU). Not all citizens of the FSU were issued internal passports, a required document for travel and migration. In addition, a number of medium and large cities were “closed” with legal residence in such cities requiring an appropriate document (propiska). However, throughout the Soviet era, with important temporal and spatial variations, the urban sector grew, the result of internal (urban) growth, migration, and administrative reclassification. Thus, while there seemed to be a general assumption in the West that mobility could indeed be effectively limited in a controlled society, where controls existed it was not evident that these controls were effective.

In this paper, we examine a selected but very important example of mobility where restrictions existed - what we term illegal mobility: medium and large Soviet cities where there were, over various time periods, specific administrative restrictions. We examine these restrictions asking first, whether or not they were effective, and second, if they were not effective, why they existed in many cities over a long time period.

Our paper is divided into four parts. In part two, we examine background issues, including a review of the existing literature. In part three, we discuss the data and how cities are classified by ‘restrictiveness’. In part four, we examine whether or not city controls were effective, and investigate the political economy of these controls. Finally, in part five, we summarize our findings and suggest some issues appropriate for future investigation.

II. Soviet Urban Growth: Was it Constrained ?

Most western industrialized economies do not have specific policies designed to limit internal population mobility.¹ Thus, in western economies, the concept of effective policy measures for the purpose of restricting mobility and possible violations of those policies leading to illegal mobility is almost entirely related to cross border population movements.

In the FSU (and other socialist systems of Eastern Europe), internal mobility restrictions, which specifically restricted entry into (via an internal passport and residence permit system) medium and large cities, were widely applied in the era after World War II.² The passport system and other controls have been discussed by a number of scholars (Lewis and Rowland 1979; Zaslavsky and Luryi 1979; Armstrong 1982; Matthews 1993; Nash 1996; Morton 1984; Loeber 1984; Buckley 1995). It was generally argued that these restrictions were put in place for a variety of distinct but interrelated reasons.³ First, there were cities which were restricted because they involved significant military activities. In some cases, these cities were totally secret (not appearing on maps) while in other cases (for example, Gorky, now Nizhny Novgorod), they were closed because much of their production was of a military character. Second, restrictions related in part to a desire by planners to control the distribution of economic activity and especially the distribution of the labor force required for this activity. For example, if industrial processing

¹This assertion is not strictly correct. Many countries engage in urban planning, including zoning, transportation arrangements, locational incentives and the like.

²In the case of the FSU, entry to some cities was restricted prior to World War II. Although the issues we examine are relevant to the pre-war and war periods, we limit our focus to the post war period in light of the very different and special circumstances pertaining in the 1930s and 1940s.

³Specific controls to limit the further growth of large Soviet cities were mostly put in place in 1956 (Buckley 1995; Lewis and Rowland 1979).

activity was built near a source of inputs such as minerals, a city would be developed. Third, more generally, controls on Soviet city growth also derived from the concept of a “socialist city”, a city which would differ from those found in market capitalist economies. The socialist city would be a city in which all aspects of urban activity including production would be planned, and outcomes often observed in capitalist less developed economies, for example, poverty resulting from excessive immigration vis-a-vis available employment and infrastructure, would be eliminated.

It has generally been argued that extensive controls on city growth implemented in the FSU were ineffective. The evidence to support this point of view derives largely from the observation that “closed” cities in fact continued to grow. Moreover, western scholars observed significant FSU population movement (Lewis and Rowland 1979, Grandstaff 1980, Matthews 1993, Chinn 1977).⁴

At the same time, there is a large body of literature which examines the specific issue of city growth in the FSU (Harris 1972, Bator 1980, Morton and Stuart 1984). While this literature attempts to examine the nature of cities in the FSU, it also focuses on the sources of city growth, specifically internal growth, re-classification and migration. Much of this evidence, while not directly testing the issue of closed cities, nevertheless seems to suggest that controls were not

⁴Controls in the FSU were much more pervasive than those pertaining to city growth. For example, there was a system of required placement of university graduates, and there was a widely used system of organized recruitment (orgnabor) used to re-distribute labor from surplus to deficit sectors and regions. At the same time, market-type forces were used for re-distribution, for example, the existence of significant money wage differences for equivalent tasks performed in say the Moscow region or a city in Siberia. Finally, it is important to understand that Soviet authorities for the most part denied the existence of regional differentials, thought to have been eliminated under socialism. Accordingly, evidence of any type on regional differences, including city specific data, was extremely difficult if not impossible to obtain. Thus, there were both general policies and specific controls, though demonstrating the impact of either has proven to be elusive.

effective in any obvious way. Soviet citizens were in fact able to circumvent regulations, but to what degree is an open question. While re-classification is probably not a major issue explaining urban growth (Stuart 1984), rural to urban migration as a source of growth broadly conforms to trends found in market economies (Stuart and Gregory 1979; Gang and Stuart 1996). That is, rural to urban migration flows responded to the same factors known to be important in market economies, specifically the costs and benefits associated with sending and receiving regions. These results conform to the argument (Buckley 1995) that in the FSU efforts to control population movement for the most part did not focus on the basic reasons for that movement. Moreover, if one examines the size structure of FSU cities using the rank size rule, familiar patterns emerge, though the size structure of FSU cities is not linear as is often the case in market economies (Clayton and Richardson 1989).

Much of the analysis discussed above refers to city specific characteristics of the FSU. A rather different picture emerges from a broader analysis of urbanization patterns. Early analysis of the general socialist case found systematic differences between the socialist and capitalist systems with regard to levels of urbanization (Ofer 1977). This result was a significant part of a larger issue, namely structural differences between capitalist and socialist economic systems (Gregory 1970; Ofer 1976). Specifically, it was found that controlling for the level of economic development (measured in terms of per capita GDP), socialist systems (the FSU and countries of Eastern Europe) were systematically less urbanized than those in a sample of Western market economies.⁵ Given the difficulties of examining specific causal factors at such a high level of

⁵These types of studies generally resulted in the characterization of the planned socialist economies as being “under urbanized” although the models used to derive these conclusions did not permit identification of causal factors. Typically an equation of the form $Urban = a + b(GNP \text{ per capita}) + c(\text{dummy}) + u_i$ was estimated on a large sample of market and planned socialist economies with the dummy variable distinguishing

aggregation and the absence of meaningful data for most of the socialist cases, the connection between this general result and the city specific restrictions remained vague. Put differently, “under urbanization” so measured could be quite consistent with select but ineffective city specific controls. However, in an attempt to understand the economic underpinnings of perceived socialist urban policies, attempts were made to provide a theoretical justification for policies designed to limit city growth, though once again, data limitations precluded the possibility of direct empirical tests (Ofer 1976).⁶

The literature suggests that the effects of restrictions were minimal, a view that conflicts with conventional Soviet wisdom. Within the FSU, the passport system and the propiska system were viewed as burdensome barriers to geographic mobility. Surveys conducted in 1989-90 found, for example, 60 percent of respondents wanted the passport system eliminated and 76 percent called for the elimination of the propiska system (Matthews 1993). In this study we examine the determinants of net migration. We examine a large sample of cities in the FSU, seeking statistically observable difference in the restricted and unrestricted subsamples. Our focus, therefore, is whether restricted cities exhibited lower net migration rates, ceteris paribus, than unrestricted cities.

III. Soviet Urban Growth and Controls: Data and Framework

the market systems from the planned socialist systems.

⁶For example, the argument was made that to limit the growth of state expenditure on urban infrastructure necessary to support a growing labor force, a policy of capital intensive factor proportions was applied to the expansion of urban production capacity (Ofer 1976).

The data that we use in this study derive largely from Soviet sources.⁷ We chose a sample of 308 cities which were within the borders of the FSU and had a population of 50,000 or greater in 1959.⁸ We then worked forwards and backwards from this date, gathering population information for other years. Our data are anchored by census years in 1939, 1959, 1970, 1979 and 1989. For each city for each census year we were able to locate information on population, the Republic and the province (oblast) in which it is located, whether the city was a Republic capital or not, and, of course, whether and what type of restriction the city faced. For most of the cities we were not able to obtain birth and death rates specifically for that city, or even for the oblast. Thus we were forced to use the urban birth and death rates for the Republic in which the city was located in order to calculate the rate of natural increase.

Using the population figures we are able to calculate annualized rates of population growth as well as the rate of natural increase (birth rate - death rate). To interpolate, we use the method of cubic splines available in SAS-IML (1996). The net migration rate was computed by subtracting the rate of natural increase (computed from urban birth and death rates by republic) from the annualized rate of growth of population. The accuracy of our net migration rates would probably be increased by using data on urban births and deaths from the province level or from

⁷The major sources are the Soviet handbooks on population (Naselenie SSSR), the annual statistical handbooks (Narodnoe khoziaistvo SSSR), the census volumes (Itogi vsesoiuznoi perepisi naseleniia) and the Soviet statistical journal (Vestnik statistiki). Identification of urban controls is from Lewis and Rowland (1979) and Buckley (1995).

⁸Given the size of the cities that we examine, the issue of definition does not arise. However, the Soviet urban population lived in a city (gorod) or a village of a city type (poselki gorodskogo tipa). The definition of the latter (the minimum size of a population unit that would be considered urban) varied from 2,000 to 5,000 depending on region and time period.

the city level itself.⁹

Key to this study is the identification of restricted cities and the type of restriction they faced. In terms of administrative restrictions, there were two main types: total and expansion. A total restriction implied a (propiska) limitation, while an expansion restriction limited the expansion of enterprises and were applied "...in consideration of future economic and investment plans (Buckley 1995, 905)." We identify 77 cities as having some sort of administrative restriction, of which six were put under total restrictions in the 1930s (Leningrad, Moscow, Gorky, Kiev, Sverdlovsk and Kharkov), 44 were put under total restrictions in 1956, and 27 faced expansion restrictions as of 1956. After 1956, no cities were added to the official list of administratively restricted cities.

Although the concept of restricting population mobility was one of long standing in Russia and the Soviet Union (Lewis and Rowland 1979, Matthews 1993, Buckley 1995), the dramatic increase in administrative restrictions in 1956 is of special interest both as a policy imperative and in terms of subsequent effectiveness. In a very real sense, the 1950s was the first decade in which the administrative command economy could function "normally", having emerged from World War II and the Stalinist policies of the 1930s. Indeed, Nikita Khrushchev focused on Soviet urban problems, especially the persistent shortage of urban housing (Morton 1984). At the same time, major efforts were made to provide services in rural areas, to raise rural incomes via-a-vis urban incomes, and to resolve labor shortages (especially seasonal

⁹We use 15 cities for which we were able to obtain actual city-specific arrivals and departures in 1970 to check on the viability of our use of Republic birth and death rates. Generally, our imputed net migration rate is below the actual rate. This may be because our rate of natural increase is for the Republic-level, while cities may have a lower rate of natural increase than the rest of the Republic. However, the differences in net migration rates are not statistically significant.

shortages).

Lewis and Rowland (1979) point out, however, that emphasis on small city development was not in fact a serious initiative until the late 1960s and thereafter. They note that, along with new emphasis on restricting the growth of large cities, there was also specific attention paid to the matter of focussing investment in medium and small cities.

Our analysis in the next section follows the following course: First, we examine some of the overall characteristics of our data. Second we look at how net migration rates vary between restricted and unrestricted cities, and how net migration rates vary among restricted and unrestricted cities. Third, we try to isolate the effects of administrative restrictions from other effects influencing mobility using standard regression techniques. Finally, we perform some exploratory analysis on 29 restricted cities for which we have more extensive data.

IV. The Empirical Evidence: Analysis

The average annual rate of growth of the total Soviet population over our sample period (1940-1989) was quite modest, with an annualized rate of 1.09 percent in 1959, thereafter increasing to 1.20 percent in 1970 declining to .84 percent in 1980 and .89 percent in 1988 (Table 1).¹⁰ At the same time, the share of the Soviet population defined as urban (end year of each period) increased from 48 percent in 1959 to 66 percent in 1989. During the post-war era, the sources of growth of the Soviet urban sector varied. Between 1959 and 1969, natural increase (that is excess of births over deaths within the urban sector) accounted for 40 percent of total urban growth, while rural to urban migration accounted for 46 percent, the remaining 14

¹⁰The annualized rates are based on a cubic spline interpolations found in SAS-IML (1996). Actual data points are from the census years, 1939, 1959, 1970, 1979 and 1989.

percent derived from re-classification. For the period 1970-1979, natural increase accounted for 44 percent of total while reclassification and rural to urban migration together accounted for 56 percent of urban growth.¹¹

Turning to our sample of 308 cities, the total population in this sample increased from 59 million in 1959 to almost 116 million in 1988. There was, however, significant variation in the average annual rate of growth over the periods of our analysis, and indeed, we see a pattern of growth that is generally sustained as we disaggregate our sample in a number of different dimensions. While the annualized rate of growth of these cities was rapid (2.33 percent) in 1959, thereafter it increased (2.80 percent) in 1970 declining to 1.71 percent in 1980 and again to 1.21 percent in 1988.

The changing size distribution of our sample cities in Table 1 is predictable. The number of smaller cities (less than 250,000) decreased significantly from 250 in 1959 to 177 in 1988. For the same period the number of cities over 1 million increased from 3 to 23.

From a functional and regional perspective, 15 of our cities were republic capitals, with most of the cities located in Russia and Ukraine, the remainder in the 13 other republics of the FSU.

In Table 2, we turn to net migration rates for our sample of 308 cities.¹² The results reinforce the pattern noted above. First, after a modest rate of net migration between 1940 and 1959, a high rate of 1.94 percent is observed in 1970 thereafter declining to a low rate of .48

¹¹Stuart 1984, p. 30.

¹²F-tests across time indicate that the means of the net migration rates for 1959 and 1970 were not significantly different from one another. Every other comparison of net migration rates across years produced significantly different rates.

percent in 1988. While we need to be sensitive to the turmoil of the war years, the general pattern of increase followed by decrease is familiar. Indeed, this pattern is evident if we examine growth by size category, although larger cities grew at a slower rate than the smaller cities. Finally, administrative capitals grew more slowly than non-capitals. Initially, net migration in Russian cities was more rapid than that in Ukrainian cities, though this pattern was reversed by 1970. Cities in other republics had less net in-migration at all times than Russian cities.

In Tables 3a and 3b we turn to an examination of restrictions. As we have already noted, restrictions were either total (limitation on issuance of a propiska) or expansion (limitation on the development of industrial enterprises). In our sample of 308 cities, 77 cities were restricted at some time in some manner, with total restrictions applied to 50 cities and expansion restrictions applied to 27 cities. Of the republic capitals, only Ashkhabad, Turkmenistan was unrestricted.¹³

The cities that were restricted tended to be the larger cities, while understandably, the size distribution of restricted cities shifted over time. Throughout, cities over 1 million were restricted. Indeed in 1988, of the 23 cities in this size category, 21 were subject to total restriction while only 2 were subject to an expansion restriction. Of all restricted cities, the bulk, 46, were in Russia while 16 were in Ukraine with the remainder in various other republics.

We now examine how net migration varies by the type of restriction both across and within city size, administrative function and Republic (Table 4). It is evident from Table 4 that the distinction between total restrictions and expansion restrictions is important.

First, it is evident that across our sample, the general temporal pattern of net migration

¹³Most restrictions date from 1956. We have relied upon two sources (Lewis and Rowland, 1979; Buckley, 1995) to identify closed cities. Differences between these two sources are minor.

rates, rising into the 1960s and declining thereafter, is generally sustained. Second, and most important, if we compare net migration rates of restricted and unrestricted cities, it is evident that the annualized rates of growth of the unrestricted cities are much higher than those of the restricted cities. Indeed, during the 1960s, the unrestricted cities grew, via migration, approximately at a rate 2.3 times faster than restricted cities, while by 1988, even when the respective rates of growth via migration of the restricted and unrestricted cities had both slowed, the differential was still 1.9 times.

Examination of the growth via migration of restricted and unrestricted cities by size shows the familiar pattern. On balance, the rate of net migration increased through the 1960s slowing thereafter. Moreover, as we would expect, across restrictions, migration into smaller cities generally proceeded at a faster rate than larger cities. For the most part, within size categories and time periods, unrestricted cities grew more rapidly than restricted cities. There are, however, some anomalies. For example, in 1959 and 1970, for cities less than 250 thousand, cities with an expansion restriction grew more rapidly than those without any restriction. This pattern may in part be explained both by lack of implementation of restrictions and the emphasis on promoting economic activity in generally smaller cities.

Turning finally to function and location, administrative capitals generally grew more slowly than those cities that were never restricted. However, comparing net migration rates of totally restricted republic capitals to other cities with total restrictions, we see capital cities grew faster in 1980 and 1988. By region, unrestricted cities in Russia were generally the fastest growing. For those cities with an expansion restriction, the fastest growth was observed in Russia until the 1980s, while in the 1980s growth rates were faster in Ukraine. Indeed, among

those cities with a total restriction, the growth was fastest in Ukraine.

To summarize, the Soviet Union experienced significant though uneven city growth from the 1940s through the 1980s. A familiar pattern emerges, with the rate of city growth increasing through the 1960s and thereafter declining through the 1980s. While this general pattern is observable in our sample, it is quite clear that there were significant shifts in the size distribution of our sample cities. Most important, while there are interesting deviations from the general pattern, unrestricted cities grew significantly more rapidly than restricted cities, indeed by a factor more than 2, a difference largely sustained over time.

In order to understand the importance of administrative restrictions as an independent factor in determining net migration into a city, *ceteris paribus*, in Table 5 we present OLS results. Our variable choice is quite limited, dictated by data availability for the 308 cities over time. Our independent variables include population and population squared, whether the city is a Republic capital or not, whether the city is in Russia, the Ukraine or another Republic, and whether the city faced a total, expansion or no restriction as of 1956. As cities get larger we expect the rate of net migration to decrease, so we expect the estimated coefficient on population to be negative, while the estimated coefficient of population squared should be positive. Since all restrictions were imposed by 1956, in our analysis the type of restriction is exogenous.

First, it is evident that, *ceteris paribus*, restrictions mattered in the 1980s, but not in 1970 or 1959, in the sense that restricted cities had lower in-migration than those cities without restriction. *Ceteris paribus*, restrictions were not important in the earlier years, a noteworthy outcome since most of these restrictions were put in place in the 1950s, a decade of “thaw” during the early years of post-Stalin liberalization. At the same time, this pattern is

understandable given the delay in emphasizing controls, an issue noted by Lewis and Rowland (1979).

Second, as we have noted, the distinction between an expansion restriction and a total restriction seemed to be modest. In fact, it is only in 1988 that the impact of having a total restriction is statistically different from that of an expansion restriction.¹⁴

Third, with the exception of 1988, our control for city size matters, understandable insofar as we would expect larger cities to be growing at lower rates, *ceteris paribus*, than smaller cities.

Fourth, whether or not a city is a republic capital matters from 1970 onward. Thus cities that were republic capitals grew more rapidly, *ceteris paribus*, than cities that were not republic capitals. This result presents us with an interesting contrast. While one might expect controls to be better enforced in an administrative capital, at the same time, it is precisely these cities that faced growth pressure not only for the location of economic activity, but also from those rural to urban migrants within republics. Moreover, the expansion of republic capitals may well have been a result of the expansion of administrative and service types of activities typically associated with these types of cities.

Finally, net migration into cities of the FSU is republic specific and patterns shift over time. Russian and Ukrainian cities were likely to have larger net migrations, *ceteris paribus*, than

¹⁴As all cities over 1 million were restricted, a correlation between restriction and city size might create problems. However, the correlation coefficient between a total restriction and city size varied between .2 and .5, while that between an expansion restriction and city size was about .01. At the suggestion of one of the referees, we performed the analysis only on cities with populations between 250,000 and 500,000. These produced much larger restricted R^2 s, and the absolute values of the coefficients on total restriction and expansion restriction were larger, though not significantly so. It appears that the restrictions had slightly more powerful effects on intermediate sized cities.

those in the other Republics.¹⁵ This result conforms to earlier studies (Grandstaff 1980) which emphasized the importance of regional differences when examining population mobility in the FSU.

The above focuses on a statistical analysis of city growth. In addition to our analysis performed on 308 cities, we performed an additional multivariate analysis on a sample of 29 cities for which we have substantially greater information.¹⁶ In addition to the variables for which we have data on the 308 cities, for these 29 cities we also have information on the availability of living space, per capita retail trade, the number of graduates from higher education, and the availability of medical care. These variables may be thought of as capturing how, respectively, housing availability, income, education and general social services, affect net migration. We examine this evidence in Table 6. These 29 cities are restricted cities, so that when we examine the effect of restrictions we are in fact looking at the impact of a total versus an expansion restriction. We note that in this subsample of 29 cities, if we simply allow for intercept shifts due to total restrictions, total restrictions do not generate a significantly different net migration compared to expansion restrictions.¹⁷ What we present in Table 6 are results that include a dummy variable for total restrictions and interaction terms between total restrictions

¹⁵Joint tests indicated that Russia and the Ukraine are jointly different from other republics in all but 1959, and are not significantly different from one another in any year.

¹⁶Soviet city-specific data, especially relating to economic data, are difficult to obtain. Fortunately we have rather more data on 29 large and otherwise important cities. This data set is from *Vestnik statistiki*, various issues. Unfortunately this does not include data on direct economic matters for each city, such as industrial production.

¹⁷For comparison purposes we ran the regression of Table 5 on the subsample of 77 restricted cities only and again for the 29 cities of the extended data set. Of course, here also we could only examine the effect of a total restriction versus an expansion restriction. The coefficient on total restriction versus expansion restriction was insignificant in both cases.

and our four economic variables.¹⁸ By including these interaction terms we are able to test whether these economic variables change the slope of the relationship between total restrictions and expansion restrictions, not just the intercept.

First, holding the economic factors constant by themselves by restricting the interaction terms to zero, shows no link between net migration and whether the restriction is total or expansion. However, once we include interaction terms with the economic variables we find total restrictions matter in 1970, 1980 and 1988. At the mean of these characteristics totally restricted cities have a greater in-migration than expansion restricted cities. Thus, holding constant economic factors and allowing a total vs. an expansion restriction to change how much the economic variables affect the net migration rate through the introduction of the interaction terms, expansion restrictions limited in-migration more than total restrictions. Thus it would appear that the economic factors were important in stimulating the growth of expansion cities, and restrictions on them had a greater effect on their growth via net migration than on the totally restricted cities.

Second, when examining the interaction terms, it is notable that the coefficients on the interaction terms largely offset the coefficients (effects) of the economic variables. For example, in expansion restricted cities, housing has a large, positive and statistically significant impact on net migration. For totally restricted cities the effect of housing is close to zero. Similar patterns can be observed with the other interaction terms.

¹⁸The small data sample may lead OLS standard errors to be biased downward. We use the bootstrapping routine in SHAZAM with 100,000 replicated regressions to examine the extent to which the OLS standard errors are underestimates. The bootstrap procedure raises the standard error of the restriction dummy and the interaction terms, but does not alter our conclusions at standard levels of significance.

Third, the importance of being a republic capital is evident in the 1980s, not for the earlier years, while regional differences are less important than those found earlier.

V. Conclusions

In this paper we have examined samples of Soviet cities (a large sample of 308 cities and a smaller sample of 29 cities) to investigate the impact of administrative restrictions on net migration rates. We present a statistical analysis of new data, gathered in order to address directly the question of restrictions. 77 of the 308 cities had some sort of migration restriction. Was net migration into those cities with such restrictions lower, *ceteris paribus*, than cities for which there were no restrictions?

Our evidence suggests that, on balance, restrictions mattered, in the sense that restricted cities grew via net migration less rapidly than unrestricted cities, controlling for the obvious factors expected to explain differences in net migration among cities, for example between large cities and small cities.

There are, however, interesting anomalies. For example, restrictions mattered less in the earlier post War years and more in the latter years, suggesting that there were significant lags in implementation and/or the pressures for urban expansion. Only over time could capacity be expanded in the unrestricted cities. This difference in implementation is especially interesting in that it seemingly contradicts at least one part of our received knowledge about the FSU. We might expect greater attention to enforcement of restrictions in the early Brezhnev years than in the latter years of stagnation (1970s). It is especially interesting that controls seemed to be important in the Gorbachev era of the late 1980s.

Our study also demonstrates that there were important regional (republic) differentials,

notably a generally faster expansion of cities in the Russian republic as opposed to urban growth in other republics. In addition, the pressure on republic capitals is evident, since on balance, republic capitals grew faster, *ceteris paribus*, than cities that were not capitals.

Finally, while analysis of our smaller sample of 29 cities generally confirms these results, we can also observe the impact of traditional destination type variables such as the availability of housing, services, education and medical care. This sample deserves additional attention since it provides important evidence on issues beyond statistical patterns of city growth. In some sense our view of the Soviet city derives from the large cities that we have been able to observe in greater detail. However, our results suggest first that we need to examine a broader set of cities (such as the 308 cities that had a population over 50,000 in 1959 that make up the bulk of the analysis above), and, second, we need to develop a better data set on the major economic variables.

In summary, restrictions mattered.

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Table 1
The Structure of Population in the Soviet Union

	1959	1970	1979/1980	1988/1989
Soviet Union				
Population in (000)	208,827	241,720	262,436	286,717
Population Growth (%)	1.09	1.20	.84	.89
Proportion of Population Living in Restricted Cities				
% of Urban	39.0	37.9	38.2	37.2
% Urban	48	56	62	66
% of Total	18.7	23.8	23.8	24.5
Sample of 308 Cities				
Population	59,907	82,780	102,186	115,656
% Population Growth	2.68	2.80	1.71	1.21
Number of the 308 Cities with Population				
less than 250,000	250	228	198	177
250,000-500,000	34	47	65	78
500,000-1 million	21	23	26	30
greater than 1 million	3	10	19	23
Number of the 308 Cities that are				
Republic Capitals	15	15	15	15
Other Cities	293	293	293	293
Number of the 308 Cities in				
Russia	174	174	174	174
Ukraine	50	50	50	50
Other Republics	84	84	84	84

Sources: From Soviet handbooks on population (*Naselenie SSSR*), the annual statistical handbooks (*Narodnoe khoziaistvo SSSR*), the census volumes (*Itogi vsesoiuznoi perepisi naseleniia*) and the Soviet statistical journal (*Vestnik statistiki*). Cities are all known cities with a population over 50,000 in 1959. Proportion of population living in restricted cities is from Buckley (1995), Table 2. Growth rates are annual, calculated by using a cubic spline interpolation available in SAS-IML (1996). Growth rates of 308 cities is weighted by population.

Table 2
Net Migration Rates
(In %, standard deviation in parentheses)
(weighted by population)

		1959	1970	1980	1988
Overall Measure		1.12 (2.18)	1.94 (2.19)	.95 (1.09)	.48 (.89)
City Size (000)	< 250	1.90 (3.10)	2.56 (3.45)	1.27 (1.60)	.53 (1.50)
	250-500	1.15 (1.00)	1.99 (1.47)	1.11 (1.16)	.61 (.73)
	500-1000	.89 (.89)	1.77 (.59)	.80 (.71)	.42 (.58)
	> 1000	-.28 (.63)	1.25 (.52)	.66 (.40)	.27 (.44)
Administrative Function of City	Republic Capital	.51 (1.19)	1.50 (.86)	.75 (.56)	.33 (.59)
	Others	1.29 (2.35)	2.06 (2.42)	1.00 (1.19)	.46 (.93)
Republic	Russia	1.08 (2.38)	1.91 (2.62)	.99 (1.20)	.48 (.73)
	Ukraine	.98 (1.37)	2.05 (1.34)	1.07 (.91)	.61 (.72)
	Others	1.35 (2.03)	1.96 (1.09)	.75 (.86)	.15 (1.21)

Sources: See Table 1. Net migration rates are calculated for each city as the (population growth rate - rate of natural increase). Rates are annual, calculated using a cubic spline interpolations available in SAS-IML (1996). The rate of natural increase used in this calculation is the rate of natural increase for the Republic the city is in. For a discussion of the possible bias this introduces, see the text, footnote 9.

Table 3a
Incidence of Restrictions

		Number of Cities
Type of Restriction		
Total Restriction		50
Expansion Restriction		27
Never Restricted		231
Administrative Function of City		
Total Restriction	Republic Capital	9
	Others	41
Expansion Restriction	Republic Capital	5
	Others	22
Never Restricted	Republic Capital	1
	Others	230
Republic		
Total Restriction	Russia	30
	Ukraine	12
	Others	8
Expansion Restriction	Russia	16
	Ukraine	4
	Others	7
Never Restricted	Russia	128
	Ukraine	34
	Others	69

Table 3b
Incidence of Restrictions by City Size

Type of Restriction	City Size (000)	Number of Cities			
		1959	1970	1980	1988
Total Restriction	< 250	8	4	2	2
	250-500	19	18	16	14
	500-1000	20	18	14	13
	> 1000	3	10	18	21
Expansion Restriction	< 250	13	3	1	0
	250-500	13	19	15	10
	500-1000	1	5	10	15
	> 1000	0	0	1	2
Never Restricted	< 250	229	221	195	175
	250-500	2	10	34	54
	500-1000	0	0	2	2
	> 1000	0	0	0	

Sources for Tables 3a and 3b: Information on which cities were restricted and the type of restriction are from Lewis and Rowland (1979) and Buckley (1995).

Table 4
Net Migration by Type of Restriction
(In %, standard deviation in parentheses)
(weighted by population)

		1959	1970	1980	1988
Overall Measure					
Restricted		.78 (1.29)	1.61 (.99)	.72 (.58)	.32 (.50)
Never Restricted		1.80 (3.21)	2.55 (3.35)	1.33 (1.55)	.62 (1.25)
Type of Restriction					
Total Restriction		.52 (1.01)	1.50 (.72)	.67 (.43)	.27 (.45)
Expansion Restriction		1.91 (1.70)	2.07 (1.59)	.94 (.90)	.47 (.64)
City Size (000)					
Total Restriction	< 250	1.65 (1.62)	2.60 (1.30)	1.06 (.29)	.06 (.33)
	250-500	.88 (.76)	1.63 (1.03)	.66 (.66)	.28 (.52)
	500-1000	.85 (.88)	1.75 (.57)	.71 (.34)	.37 (.39)
	> 1000	-.28 (.63)	1.25 (.52)	.65 (.40)	.25 (.44)
Expansion Restriction	< 250	2.48 (2.42)	2.21 (1.68)	.72 (.00)	
	250-500	1.58 (1.17)	2.16 (1.86)	1.00 (.78)	.46 (.49)
	500-1000	1.98 (0.00)	1.84 (.68)	.86 (1.09)	.45 (.75)
	> 1000			1.09 (0.00)	.57 (.11)
Never Restricted	< 250	1.84 (3.25)	2.56 (3.52)	1.29 (1.61)	.54 (1.50)
	250-500	.81 (.78)	2.40 (1.00)	1.45 (1.45)	.75 (.80)

	500-1000			1.30 (.16)	.56 (.04)
	> 1000				
Administrative Function of City					
Total Restriction	Republic Capital	.30 (.99)	1.38 (.81)	.74 (.52)	.32 (.58)
	Others	.65 (1.01)	1.56 (.65)	.63 (.37)	.25 (.35)
Expansion Restriction	Republic Capital	-2.37 (1.23)	2.39 (.58)	.88 (.77)	.44 (.69)
	Others	1.80 (1.77)	1.98 (1.75)	.95 (.94)	.48 (.62)
Never Restricted	Republic Capital	-.16 (.00)	.67 (.00)	.10 (.00)	.07 (.00)
	Others	1.82 (3.22)	2.56 (3.36)	1.34 (1.55)	.63 (1.26)
Republic					
Total Restriction	Russia	.42 (.96)	1.34 (.60)	.59 (.31)	.38 (.28)
	Ukraine	.66 (.64)	1.86 (.74)	.94 (.56)	.73 (.28)
	Others	.85 (1.49)	1.70 (.92)	.65 (.53)	.26 (.71)
Expansion Restriction	Russia	2.05 (1.82)	2.41 (1.84)	1.27 (.83)	.70 (.46)
	Ukraine	1.42 (1.82)	.91 (.96)	.15 (.42)	-.08 (.60)
	Others	1.92 (1.23)	1.20 (.85)	.64 (.87)	.28 (.72)
Never Restricted	Russia	2.00 (3.69)	2.66 (4.22)	1.49 (1.79)	.76 (1.06)
	Ukraine	1.44 (1.92)	2.83 (1.81)	1.58 (1.16)	.95 (.90)
	Others	1.57 (2.52)	2.15 (1.24)	.87 (1.02)	.16 (1.61)

Sources: See notes to Tables 1, 2, and 3.

Table 5
Effect of Restrictions on Net Migration
 (OLS, White Standard Errors)
 dependent variable = net migration rate, n = 308

Year	1959	1970	1980	1988
Expansion Restriction	.42 (.68)	-.43 (.50)	-.47* (.21)	-.34* (.15)
Total Restriction	.66 (.82)	-.16 (.53)	-.73* (.19)	-.61* (.14)
Population/1000	-8.40* (3.27)	-3.72* (1.68)	-.15 (.25)	.11 (.16)
Population Square/1000 ²	1.27* (.49)	.45* (.21)	.01 (.02)	-.02 (.02)
Republic Capital	1.41 (1.15)	1.75* (.85)	.52** (.28)	.41** (.25)
Russia	1.19* (.98)	1.56* (.68)	.59* (.20)	.54* (.20)
Ukraine	.86 (1.35)	.77* (.38)	.52* (.21)	.61* (.21)
Constant	3.10	2.73	.97	.27
R-bar squared	.01	.01	.03	.03
p-value joint population test	0.04	.09	.08	0.26
p-value joint restrictions test	.71	.68	.00	.00
p-value test of whether coefficients on total and expansion restrictions are the same	.72	.60	.21	.06

Source: Authors' calculations using Shazam 8.0. See also sources for Tables 1, 2, and 3.

Notes: *significant at .05 level. **significant at .10 level.

Table 6
Total Restriction versus Expansion Restriction
 (OLS, White Standard Errors)
 dependent variable = net migration rate, n =29

Year	1970	1980	1988	means 1988
Total Restriction	2.34 (1.79)	5.43* (1.90)	24.40* (3.80)	.76 (.44)
Population/1000	-.70* (.32)	-.26 (.16)	-.07 (.34)	1.58 (1.65)
Population Square/1000 ²	-.05 (.04)	-.06* (.02)	-.05* (.03)	5.12 (15.08)
Republic Capital	.52 (.38)	.74* (.16)	.93* (.31)	.52 (.51)
Russia	.64 (.40)	.93* (.23)	1.22* (.55)	.40 (.49)
Ukraine	.64 (.39)	.58** (.29)	1.13** (.61)	.17 (.38)
Meters of Per Capita Living Space /10	-3.81* (1.46)	5.44* (1.82)	14.43* (2.89)	1.44 (.19)
Per Capita Retail Trade (Rubles)/10	.06* (.00)	.01 (.00)	-.04* (.01)	160.47 (39.62)
# of Higher Education Graduates/10	1.32* (.44)	-.48 (.47)	-5.19* (.982)	1.41 (1.65)
# Doctors (per 100,000 population)	-.08 (.10)	.15* (.05)	2.16* (.30)	7.83 (1.53)
Interaction of Total Restriction and Meters of Per Capita Living Space /10	1.06 (1.70)	-4.34* (1.79)	-14.01* (2.38)	1.13 (.66)
Interaction of Total Restriction and Per Capita Retail Trade (Rubles)/10	-.04* (.01)	-.00 (.01)	.05* (.01)	120.72 (78.35)
Interaction of Total Restriction and # of Higher Education Graduates/10	.67 (.44)	.94** (.52)	5.44* (1.23)	1.23 (1.75)
Interaction of Total Restriction and # Doctors (per 100,000 population)	.13 (.15)	-.13** (.06)	-2.07* (.33)	5.73 (3.57)
Constant	-1.05	-7.97	-27.80	
R-bar squared	.49	.62	.34	
p-value joint population test	.05	0.01	.21	
p-value joint restrictions test	.01	0.01	.00	

Source: Authors' calculations using Shazam 8.0. See also sources for Tables 1, 2, and 3.

Notes: *significant at .05 level. **significant at .10 level.