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THE INFLUENCE OF URBANIZATION ON THE BIRTHRATE AND MORTALITY RATE IN MAJOR CITIES OF THE USSR

G. Kiseleva

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Preface

Interest in human settlement systems and policies has been a central part of urban-related work at IIASA since its inception. Recently this interest has given rise to a research effort focusing on the comparative study of the population and migration policies of the USA and the USSR. This paper, the first of a series, focuses on the role played by urbanization in the decline of birth and death rates in the Soviet Union.

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Papers in the USA-USSR Population Study Series

1. Galina Kiseleva, "The Influence of Urbanization on the Birthrate and Mortality Rate in Major Cities of the USSR," IIASA RM-75-68 (Laxenburg, Austria, International Institute for Applied Systems Analysis, 1975).

2. George J. Demko, "Soviet Population Policy," IIASA RM (Laxenburg, Austria, International Institute for Applied Systems Analysis, forthcoming).

The Influence of Urbanization on the Birthrate and Mortality Rate in Major Cities of the USSR

G. Kiseleva

The increasing concentration of population in urban settlements is one of the fundamental characteristics of changes occurring in the territorial distribution of population in almost all countries of the world. This process is clearly apparent in the USSR where it has been stable for many years. As of January 1, 1975, the urban population of the USSR accounted for 60% (153.2 million people) of the total population, while the rural contained 40% (100.1 million people).[1] During the sixteen years from the official USSR census of 1959 until the beginning of 1975, the whole population of the USSR grew by 44.5 million people (from 208.8 to 253.3) or by 21%. Urban population increased by 53.2 million or 53% (from 100.0 to 153.2 million people) while rural population decreased by 8.7 million people or by 8% (from 108.8 to 100.1).[2]

At the present time the number of large cities is increasing. In addition there is a heightened growth rate for their population in comparison with those of medium and small cities among urban settlements of the USSR. (See Table 1.) Increase in urban population is a regular, inescapable historical phenomenon conditioned both by the development of industrial capacity and by social development. Urban population growth is an outward manifestation of the process of urbanization.[3] Modern urbanization

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[1] The USSR in Figures for 1974 (Moscow, 1975), p. 7.

[2] Calculated from data in The USSR in Figures for 1974, p. 7.

[3] Even until comparatively recently, many studies in my opinion examined the concept of urbanization quite superficially. The essence of urbanization is often reduced to the outward forms of its manifestation--the percentage increase of the population in a country or region, the growth in the number of cities, the increase in the sophistication of technical equipment available to the cities, and so on. See V.V. Pokinesevskij, V.M. Goxman, "Problems of Hyper-urbanization in Developed Capitalist Countries and Their Geographical Aspects," in Scientific Problems of Population Geography (Moscow: Moscow University Press, 1967); K. Davis, "The Urbanization of the Human Population," Scientific American, 3 (1965).

is a multifaceted socio-economic process to which the concentration, intensification, and diversification of nonagricultural functions, the spread of urban ways of life, the development of urban culture, and so forth are intrinsic. A.M. Rumjancev states:

> Urbanization is a worldwide historical process, closely tied to the development of industrial capacity and forms of social intercourse. This process must not be identified with the simple mechanical growth of the modern cities. It is connected with a more profound structural transformation of existing cities and countrysides due to the development of the latest forms of industry, transport, housing, mass communication, cultural and everyday services and due to the spread of urban ways of life and urban forms of social intercourse to the most distant corners of the country.[4]

Table 1. Distribution of the cities of the USSR according to the number of inhabitants.[5]

Cities by number of inhabitants	Number of cities[6]		Number of inhabitants (millions)		1974 as a percentage of 1959	
	January 1959	January 1974	January 1959	January 1974	Number of cities	Number of inhabitants
To 50,000	1,375	1,548	23.4	28.6	112.6	122.2
50,000 - 100,000	156	213	11.0	14.7	136.5	133.6
100,000 - 500,000	123	203	24.4	43.7	165.0	179.1
500,000 +	25	35	24.2	41.7	140.0	172.3
TOTAL	1,679	1,999	83.0	128.7	119.1	155.1

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[4] A.M. Rumjancev, "Urbanization and Society," in Urbanization and the Working Class During the Scientific-Technological Revolution (Moscow, 1970), p. 15.

[5] Calculated from data in The Population of the USSR (Size, Composition and Movement of Population), 1973. (Moscow: Publishing House Statistics, 1975), p. 36. (Data for 1974 are included in this volume in spite of the 1973 in the title.)

[6] Urban type towns are not indicated.

The growth of major cities is a phenomenon presenting many varied aspects for study: economic, social, demographic, hygienic, psychological, ecological and so on. Each of these aspects is, in turn, characterized by a large number of indicators which undergo constant change. The existence and successful development of any city is possible only if the systems composing it (industrial, scientific-technological, transport, housing, trade, sanitation, and so on) first respond to demands placed on their qualitative and quantitative structure, and secondly, if all these systems develop with mutual reciprocity and in the absence of substantial disproportions. Each of the indicated developing systems in turn makes its own demands on the qualitative and quantitative structure of an urban population, i.e., on the demographic system. These demands differ from each other depending on the size of the city and the complexity of its functions--organizational-economic, cultural-educational, administrative-managerial, transport, and so on.

Major cities are, as a rule, multi-functional. They are places for the concentration of varied industrial, scientific, social, educational, trade, and cultural-entertainment institutions. An organizational role is also inherent in major cities, and this is shown by the fact that the majority of major cities have substantial influence on large territories by promoting in the territories the formation of new industries, transport, cultural and trade centers, recreational areas, etc.

The normal development and future perfection of the multi-functional structure of large cities and the fulfillment of the cities' organizational roles demand the presence of a definite level of population, a sufficient level of scientific-technological and professional expertise, and a demonstrated higher general educational and cultural level. From what has been said, it is clear that the demographic system alone possesses many aspects for investigation. In this article we shall analyze only one side of the development of the demographic system: the process of numerical growth of the populations of major cities as a result of the natural increase in population (the excess of number of births over number of deaths).[7] Other characteristics of the demographic system such as population age structure, educational structure, employment levels for women, etc. will be examined only in connection with whatever influence they have on changing birth and mortality rates.

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[7]Urban population is formed basically in two ways: as a result of natural population increase, and as a result of migration. Urban population increases may sometimes result from administrative-territorial transformations--the joining of settled rural areas to urban territory or the transformation of settled rural centers into a city or town of city-like structure.

The Influence of Urbanization on Birthrates

Urbanization is often viewed as one of the main factors leading to a reduction of birthrate. As a rule, the birthrate for city dwellers is lower than for rural inhabitants, and lower for inhabitants of major cities than for inhabitants of cities of intermediate or small size. Statistical data gathered in the USSR point on the one hand to a growth in the urban population, and on the other to a reduction of the birthrate coefficient to its minimum level among city dwellers (in comparison to that for rural inhabitants). (See Table 2.)

Table 2. Percentage change for urban population and change in the birthrate coefficient for urban and rural populations of the USSR.[8]

Year	Percent of Population		General Birthrate Coefficient (Births per 1,000 Population)		Correlation of Birthrate Coefficients for Urban and Rural Population
	Urban	Rural	Urban	Rural	Urban and Rural Populations
1940	33	67	30.5	31.5	96.8
1950	39	61	26.0	27.1	95.9
1955	44	56	23.5	27.4	85.8
1960	49	51	21.9	27.8	78.9
1965	53	47	16.1	21.1	76.3
1970	56	44	16.4	18.7	87.8
1971	57	43	16.9	19.2	88.0
1972	58	42	16.9	19.0	88.9
1973	59	41	16.6	19.0	87.4

Speaking of urbanization as a factor in the reduction of birthrate, it is worthwhile to remember that urbanization is a kind of general, multifaceted factor reflecting the conditions of urban life. As a rule, the more urbanized a territory, the

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[8]The table is compiled from data of the statistical annual report The National Economy of the USSR in 1973 (Moscow: Publishing House Statistics, 1974), pp. 7, 45.

lower its population's birthrate. Unfortunately we do not have at our disposal systematic statistical data characterizing birthrates for groups of cities of various sizes. Therefore, we shall use government statistical data on birthrate levels for major cities of the USSR over a number of years and certain data obtained by special research studies. Before proceeding to our analysis of the data for birthrate levels in major cities of the USSR, let us examine the basic factors which influence the lowest birthrate levels in major cities.

It is known that birthrate is a socio-biological category. If a single birth is a social-biological phenomenon, then the totality of many births is a socially conditioned phenomenon. The existence of one or another birthrate level depends on a large number of socio-economic factors, the most important of which are the method of production for material wealth and the level of socio-economic development. However, even in the presence of a unified socio-economic demographic structure, the birthrate levels for large groups of the population vary substantially from one another depending on educational and professional training, level of culture, kind of employment, etc.

The lower birthrate level for populations in the largest cities occurs as a result of many factors. Major cities, owing to the variety and complexity of the functions they perform, make greater demands on the educational, cultural, and professional elements of their populations. In major cities there is a different employment structure.

In spite of the fact that there are specific developmental characteristics inherent in each major city, all cities have many common traits that in the final analysis condition a similarly low birthrate level.

All major cities of the Soviet Union are industrial centers. Because of scientific-technological progress, industrialization makes stringent demands on both general education and professional manpower training; and such industralization necessitates more substantial expenditures than its counterpart in the countryside. Costs for realizing manpower requirements in the largest cities, where the most complex manufacturing is located, are especially great. In this regard, costs for manpower realization are met only by society's public sector but also by the private sector, at the expense of individual families. In connection with the increasing complexity of modern industry the time necessary for training qualified personnel has increased, and this means an extension to an age of between nineteen and twenty-two years for the period when children are dependent on their parents. The rise in costs and the increase in the time period a child enjoys parental support--especially apparent in large cities--has caused a reduction of the number of children at home. It is known that parents as a rule strive to give their children an education better than, or in any event no worse than, they received themselves. In the USSR, education is free of charge, but this in no way means that for that period when children are in school

parents are free from all material expenditures. The Hungarian demographers, R. Andovka and K. Milteni, write that "with the increase in the time required for education and its level of sophistication there occurs to all intents and purposes an increase in expense for the maintenance of children."[9]

An increase in educational, cultural, and professional levels of a population, including women, has a marked influence in lowering the birthrate. On the one hand this is owing to an increase in the time spent on schooling and consequently there is an increase in the age at which people marry and a decrease in the average length of married life. On the other hand, it is characteristic, for example, for women who have enjoyed a high degree of professional training, to limit the number of children in the family in order not to disrupt work or to reduce their own qualifications. Here we see the expression of not only material interests but also the social prestige of a highly qualified worker.

In large cities there are strong inducements for women to work. Employment leads to a reduction of birthrate not only because of increased burdens and a loss of free time for working women (women outside the ruling classes who have been the overwhelming majority for the full course of recorded social development have always worked); there are other causes including: economic independence which facilitates a change in a woman's view of her position in society; the need to work; the desire to improve one's skills and gain social promotion; the emergence for educated working women of new qualitative demands on their standard of living and the standard of education necessary for their children; increased demands for free time in order to obtain fuller spiritual development and professional growth.

In an urban population, especially in major cities, there are greater demands on one's standard of living that quite often lead to a discrepancy between needs and the possibilities for their realization.

In my opinion, for a study of factors influencing birthrate at the present time, the most promising avenue for investigation is one which says that the number of children per family where birth control is available depends not so much on a family's affluence as on the degree to which such affluence corresponds to formulated needs, that is, on the correspondence or descrepancy

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[9]R. Andovka and K. Milteni, "Economic Causes and Consequences of Low Birthrate," in Birthrate and its Factors (Moscow: Publishing House Statistics, 1968), p. 18.

between perceived needs and the ability to satisfy them.[10] We think that one may agree with Professor P. Simonov who feels that "the question of needs, their classification, their interdependencies and interactions is presently the first and fundamental question which must be asked of any system of thought claiming to analyze human existence."[11]

We feel it is necessary to stress that a study of the system of population needs and their hierarchies plays a very important role in the development of measures for a demographic policy. By first knowing which place in a hierarchy of needs would be occupied by the need for one or two or three children, it would be possible to talk about scientifically based measures of a material and moral character, which might influence the formation of a desired birthrate level.

A thorough study of factors influencing the dynamics of birthrate, an investigation of the reproductive behavior of the populations of major cities, has great theoretical and practical significance. This is explained by many factors, the most important of which is the rapid growth (absolute and relative) of large urban populations that at the present time has a substantial influence on reproduction for the entire population of the USSR. In the future, this growth process will intensify. No less significant is the fact that many aspects of city life serve as rather fixed and attractive models for a significant portion of a country's population: the life-style of large urban populations; the kind of demands on living standards formed in association with such life-style and also the determination by inhabitants of large cities as to what number of children to have per

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[10]This point of view has received especially full treatment in the work of the Polish scholar, Z. Smolinskij, "An Effort to Formulate a General Economic Model for Population Development," in Theoretical Problems of Demography (Moscow, 1970), pp. 63-77. Among other works which express this opinion the following may be mentioned: an article by the Hungarian demographers, R. Andovka and K. Milteni, "The Economic Causes and Demands of Low Birthrate"; an article of the Czech demographer, I. Prokopec, "The Married Woman in The Family at Work," in Birthrate and its Factors (Moscow, Publishing House Statistics, 1968), pp. 16-29, 30-39; the works of Soviet scholars, V.P. Piskunov and V.S. Stemenko, "Population Reproduction in the Ukrainian Soviet Socialist Republic," in A Study of Population Reproduction (Moscow, 1968), p. 225-244; R.S. Rotova, "Social Production, Personal Needs, Birthrate," in Marxist-Leninist Theory of National Population (Moscow, 1974), pp. 304-315.

[11]P. Simonov, "Sparking Contacts," Novyj Mir, 9 (1971), p. 192.

family. At the present time, as I have already said, the lowest level of birthrate exists among inhabitants of the Soviet Union's largest cities (see Table 3).

Table 3. The birthrate level for the entire urban and rural population of the USSR and for cities with populations greater than one million people.

	Births per 1,000 Population				
	1965	1967	1970	1972	1973
USSR - Total population. (Including Rural Population)	18.4 21.1	17.3 19.8	17.4 18.7	17.8 19.0	17.6 19.0
Urban Population	16.1	15.4	16.4	16.9	16.6
Cities above one million					
Baku	21.6	18.7	18.9	18.2	18.0
Gorkij	12.9	12.5	13.9	14.0	13.7
Kiev	14.2	15.4	15.9	16.9	16.3
Kujbyshev	13.4	12.8	14.3	14.5	13.8
Leningrad	11.2	11.2	12.7	13.6	13.4
Minsk	18.1	17.4	17.9	18.3	17.8
Moscow	10.8	10.9	11.8	12.6	12.4
Novosibirsk	14.6	14.1	14.5	16.2	15.9
Sverdlovsk	14.3	13.9	14.6	15.8	15.2
Tashkent	21.9	19.3	20.7	20.5	20.1
Xarkov	13.0	12.9	14.6	14.9	14.0

Data covered in Table 3 show that, first, the birthrate of the rural population substantially exceeds that of the urban, and second, that of the eleven largest cities of the USSR only in three cities--Baku, Minsk and Tashkent--were birthrate indicators higher than analogous indicators for the total population of the USSR. In my opinion a great influence on the birthrate indicators for Taskent (capital of the Uzbek SSR) and Baku (capital of the Azerbajdžan SSR) came from the high birthrate

existing among women of the indigenous populations of these cities. This high birthrate is influenced by many factors, including a tradition of large families in the indigenous populations of the republics of Central Asia and Azerbajdžan. However, even these comparatively high birthrate indicators for Tashkent and Baku were 60% and 71% respectively of the birthrate levels for the entire population of the Uzbek and Azerbajdžan Republics in 1973.[12] The birthrate indicators for Minsk are higher than for the entire urban population of the USSR. This apparently can be explained by the influence of demographic structure. The percentage of young people (of child bearing age) is significantly higher for Minsk than for the majority of cities of the Soviet Union. As for the two largest cities of the USSR, Moscow and Leningrad, there the birthrate indicators for many years have been at a very low level--eleven to fourteen births per 1,000 inhabitants.

Data from special surveys conducted in the USSR of opinions regarding the optimum number of children per family also bear witness to the fact that mean levels for the "desired" number of children and the "ideal" number of children registered for inhabitants of major cities are less than for inhabitants of medium sized and small cities and much less than for the rural population.[13] Let us review some data regarding womens' opinions as to the optimum number of children per family and intended number per family. Data from an opinion poll conducted by the Laboratory of the Scientific Research Institute of the Central Bureau of Statistics for the USSR in 1969 and involving 34,000 women of child bearing age from white and blue collar social groups (women residing in all the republics of the USSR) show that the mean number of children considered by urban inhabitants as "ideal" was 2.74 whereas for rural areas it was 3.47. As concerns the mean number of anticipated children, the figures were 2.19 and 3.32 respectively.[14] According to this survey, only 24% of the women surveyed in cities intended to have three or more children, whereas in the countryside the proportion expressing this intention was 57%.[15]

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[12]The number of births per 1,000 of the population in 1973 was 33.7 for the Uzbek SSR and 25.4 for the Azerbajdžan SSR. (See The National Economy of the USSR in 1973, p. 47.)

[13]The "desired" number of children is the number of children the woman would like to have in her family. The "ideal" number is the woman's idea as to what would be the best number per family not taking into account actual conditions of family life.

[14]The term "mean number of anticipated children" is close in meaning to the concept "mean desired number of children" per family.

[15]V.A. Belova, The Number of Children in the Family (Moscow: Publishing House Statistics, 1975), pp. 127, 129.

The collected data also give information about the entire urban and rural population of the USSR. Let us examine the opinions held by women in a number of major cities with their adjoining districts regarding the question as to what women felt to be an "ideal" and "anticipated" number of children (see Table 4).

Table 4. "Ideal" and "anticipated" number of children per family for women from blue and white collar families.[16]

Center	Ideal Number of Children (mean)		Anticipated Number of Children (mean)	
	City	Associated District	City	Associated District
Moscow	2.35	2.45	1.69	1.95
Leningrad	2.30	2.45	1.55	2.02
Kiev	2.45	2.77	1.84	2.14
Minsk	2.60	3.10	2.05	2.63
Tashkent	3.17	4.06	2.82	3.73
Alma-Ata	2.84	3.51	2.20	3.87

The data indicated in the table allow us to draw a number of conclusions. First of all in all major cities with the exception of Tashkent and Alma-Ata the "ideal" and especially the "anticipated" number of children is less than on the whole for urban inhabitants. The high figures for Tashkent and Alma-Ata are explained by the high percentage in these cities of women from indigenous populations, still preserving the traditions of large families. Besides this, it is clear that notions regarding the ideal number of children per family in major cities of the European part of the USSR are all almost identical. Data indicated in Table 3 also show that the anticipated number of children per family, that is the number of children women intend to have, is everywhere (with the exception of the Alma-Ata District) less than the ideal number of children.

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[16] A.G. Volkov, "Influence of Urbanization on Demographic Processes in the USSR," in Problems of Modern Urbanization (Moscow: Publishing House Statistics, 1972), p. 114.

In those districts of the USSR's European part, on whose territory are located the largest cities, both the mean ideal and the mean anticipated number of children are substantially lower than on the whole for the entire territory of the USSR. This situation confirms our conclusions that most of the largest cities have a substantial influence on adjoining territories of considerable area, promoting the formation in these territories of an "urban way of life" including the formulation of demographic ideals and the fixing of notions as to the optimum number of children per family. According to this survey only 24% of the women living in urban areas intended to have three or more children, but among rural inhabitants the figure was 57%.

In 1970 a special survey on "Causes of the Trend for Smaller Families in Moscow"[17] was conducted by the Center for the Study of National Population Problems of the University of Moscow. According to data from this survey the mean ideal number of children was 2.48, whereas the mean desired number of children was 1.81. The mean number of children already born per family for each woman interviewed at the time of the survey was only 1.4. Of the women interviewed 25% wanted to limit their family to one child, 59% to two children. Only 9% of the women questioned wanted to have three or more children. The remaining 7% either had no clear idea about the number of children desired, or wanted no children at all.

An analysis of the opinions of women residing in Moscow about the ideal and desired number of children per family showed that the most preferred was the two-child family, although at the time of the survey 64% of the women had only one child and 17% had no children at all. Two-child families constituted only 18% of those interviewed and three-child families only 1%.[18]

In analyzing the opinions of women residing in Moscow about the ideal and desired number of children per family, it is important to keep in mind the city's position as capital and as the largest city in the USSR. In this respect Moscow has many qualities that distinguish it from other cities and consequently there are specific characteristics for its inhabitants' notions about the ideal and desired number of children per family. At the same time almost all major cities of the Soviet Union echo many characteristics of the capital's development, including characteristics of its demographic development.

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[17] Five thousand two hundred married women between ages eighteen and forty working in various institutions and manufacturing enterprises of Moscow were interviewed.

[18] See G. Kiseleva, "Birthrate Factors in Major Cities," in National Population: The Growth of Cities and the Settlement System (Moscow: Publishing House Statistics, 1975), p. 80.

Thus, if the trend for two-child families were to become predominant among the urban population, then there could emerge a situation where not even a simple reproduction of the urban population would occur. The problem of a simple or limited population reproduction at the present is only a hypothetical proposition. Nevertheless it is impossible to absolutely discount the possibility of the spreading of one- and two-child families among the larger part of the urban population. In major cities this phenomenon is already taking place.

In this connection the problem of constructing an active demographic policy not only for the country generally, but also in its separate regions, is very pressing. There is a need for defined measures aimed at increasing the birthrate, particularly in the major cities. At the same time the problem of demographic policy measures is exceedingly complex and needs to be developed in depth and to be reasoned out on a scientific basis.

The results of a series of studies both in the Soviet Union and other countries give witness to the fact that the social trend to small families leads to a refusal to have a second or third child even in those circumstances where the conditions of family life are objectively quite propitious for supporting additional children.[19] Therefore the widely held belief that financial inducements for larger families lead to an increase in birthrate is entirely debatable. Apparently grants to families for child maintenance in certain groups of the population should be viewed merely as a measure for material support, but not as a means to stimulate birthrate.

A demographic policy directed at stimulating the birthrate should be many-sided and take into account the specifics of behavior for various groups of the population. Demographic policy measures ought to be quite diverse--from economic measures, proposing substantial material help from society for families raising children, to socio-psychological measures, promoting the formation among the population of such a concept regarding the ideal number of children per family that would correspond to the interests of both the family and of society as a whole.

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[19]G. Kiseleva, I. Rylkova, "On Motives for Limiting the Birthrate," in National Population: The Development of Population (Moscow: Publishing House Statistics, 1974) pp. 55-71; V.A. Belova, The Number of Children in the Family (Moscow: Publishing House Statistics, 1975) pp. 138-152; I. Prokopec, "The Married Woman in the Family and at Work," in Birthrate and its Factors (Moscow: Publishing House Statistics, 1968) pp. 30-64; K. Andorka and K. Milteni, "The Economic Causes and the Consequences of Low Birthrate," in Birthrate and its Factors (Moscow: Publishing House Statistics, 1968), pp. 16-29.

The Influence of Urbanization on Mortality

Research regarding the influence of urbanization on population mortality is a task incomparably more difficult than research into the influence of urbanization on birthrate. This is explained, first of all, by lack of detailed statistical information. In order to analyze the mortality level researchers often are compelled to use such indicators as the general mortality coefficient (the number of deaths computed per 1,000 people). This indicator, however, has a serious defect. Its value during conditions of low mortality in economically developed countries is often a function not of the true level of mortality, but of the peculiarity of a population's age structure. The greater the percentage on this or that territory of people of older age groups (whose mortality rate is significantly higher than for younger people) the higher will be the general indicator for mortality. However, it would not be worthwhile to fully neglect the general mortality coefficient since it gives information about dynamics of the mortality level and, in addition, combined with the birthrate indicator shows the population's natural reproduction level. Let us examine the population mortality level for the largest cities of the USSR over a definite period of time (see Table 5).

Table 5. Mortality levels for the total USSR and for cities over one million.[20]

	Number of Deaths per 1,000 of the Population				
	1965	1967	1970	1972	1973
The Entire Population of the USSR, including cities with populations over one million people:	7.3	7.6	8.2	8.5	8.7
Baku	7.4	7.2	7.3	7.5	7.2
Gorkij	6.3	6.8	7.8	7.7	8.1
Kiev	7.0	7.4	7.5	7.4	7.4
Kujbysev	6.9	7.0	7.8	7.9	8.3
Leningrad	7.8	8.4	9.2	9.5	9.6
Minsk	4.1	4.2	4.4	4.6	4.6
Moscow	8.9	9.2	9.5	9.7	10.8
Novosibirsk	6.4	6.7	7.2	7.3	7.3
Sverdlovsk	6.2	6.5	7.1	7.3	7.5
Tashkent	8.0	7.1	7.3	7.6	7.6
Xarkov	7.2	7.7	8.1	8.7	8.2

[20]See The National Economy of the USSR in 1973 (Moscow: Publishing House Statistics), p. 43; the statistical collection The Population of the USSR (Size, Composition and Movement of Population), 1973 (Moscow: Publishing House Statistics, 1975), pp. 96-99; and Statistical Bulletin, 12 (1968), 79-80.

From the indicated data, it is clear that population mortality coefficients both for the USSR on the whole and for cities of over one million people show a clearly defined tendency to increase. However, it is necessary to examine this not as a result of an increase in the intensity of mortality but as a consequence of the population's aging. The lowest mortality indicators are manifested for Minsk and the highest for Moscow and Leningrad. According to figures for the 1970 national census, the proportion of middle-aged and elderly people (fifty years and older) in Minsk was only 13% whereas for Moscow and Leningrad it was 27% and 26% respectively.[21] Thus here there is a direct dependency of the mortality level on the age composition of the population, more precisely on the proportion in the population of middle-aged and elderly people.

In order to judge the rate of mortality in cities of various size and to study the influence of urbanization on the population mortality level, detailed statistical data about the mortality levels for various ages according to groups of cities of varying sizes are necessary. A study of mortality according to causes of death is also needed. At the present time comparatively few detailed studies of mortality for cities of various sizes have been carried out, and therefore I feel it would be a mistake to make generalizing conclusions on the basis of those studies. However, in my opinion it is necessary to emphasize that all researchers note that the basic causes of mortality in cities are diseases of the circulatory system, cancer, and disorders of the nervous system. In the district centers of Northern Kazakhstan 49% of all deaths[22] in 1964 occurred from these diseases. In Xarkov 75% of all deaths[23] occurred from diseases of the circulatory system, cancer, and strokes. High mortality from these causes is registered also in other major cities of the Ukraine.[24] It is possible that mortality from the indicated causes is conditioned to a certain extent by peculiarities of population age structure for major cities. Unfortunately we do not have data about causes of death for various age groups. For a thorough

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[21] Calculations were made on the basis of data published in the collected materials of the All-Union Population Census of 1970, Vol. III (Moscow: Publishing House Statistics, 1972), pp. 114, 118, 193.

[22] The Population and Labor Resources of Cities of Northern Kazakhstan (Alma-Ata: Nauka, 1970), p. 137.

[23] M.V. Kurman, I.V. Lebedinskij, The Population of the Large Socialist City (Moscow: Publishing House Statistics, 1968), p. 46.

[24] G.L. Gluxanova, "Mortality According to Causes in the Largest Cities of the Ukrainian SSR," in Materials of the All-Union Scientific Conference on National Population Problems of the Caucasus (Erevan, 1968), pp. 73-74.

investigation of the influence of urbanization on the population mortality level, statistical data about mortality according to causes in different age groups is necessary, as are special studies devoted to the explication of the influence of urban conditions of life on population health and mortality.

At the same time we consider it necessary to note that major cities offer greater opportunities, when compared to small cities and rural areas, for the best organization of health care, and the rendering of highly qualified medical treatment. For example, in 1967 the number of physicians of all specialties per 100,000 people in cities of 500,000 or more was 630, whereas for the USSR as a whole it was 253. In these same cities the inhabitants were provided with hospital services at a level on the average of 30% higher than for the countryside.[25]

In my opinion despite the better provisions for highly qualified medical assistance, the specific conditions of life for inhabitants of major cities often act unfavorably on their health. Of course this assertion needs subsequent verification and amplification on the basis of more complete data than now available.

In conclusion I consider it possible to make several assumptions about prospects for birthrate and mortality dynamics as influenced by urbanization. The general tendency is for a lowering of birthrates as a result of the prevalence of smaller families. In connection with low population birthrate, the proportion of children and adolescents decreases and the percentage of middle-aged and elderly people increases. (An example of this is the populations of Moscow and Leningrad, whose birthrates have for many years been at a low level.) Here there is a so-called "aging" of the population. The increase in the population of people of older age groups, not of childbearing age, in turn leads to a curtailing of birthrates. The mortality rates in economically developed countries have stabilized. This fact holds, too, for major cities of the USSR. Thus urbanization in modern conditions retards the population growth. However, in my opinion it would be a mistake to assert that urbanization in the future can lead to depopulation.

In the Soviet Union broad possibilities for purposeful influence by society on demographic processes exist. In order to influence birthrate in a socially useful manner, it is necessary, as we have already noted, to carry out not separate measures aimed at stimulation of birthrate but a complex of measures--economic, social, and psychological--which together will promote the influence of society on the development of birthrate in a socially useful direction. At the same time I consider it necessary to note that state measures to influence demographic processes ought not to be reduced merely to measures aimed at an increasing of

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[25] Statistical Bulletin, 12 (1968), pp. 90, 91.

birthrate. No less important is the problem of improving health and prolonging peoples' working years. And finally it is very important to underscore that research into demographic processes ought to be conducted while taking into account the development not of separate cities but of the entire settlement system. It should be kept in mind that not only does urbanization act upon demographic processes but also that demographic development has a substantial influence on urbanization; this fact must be accounted for in working out measures aimed at controlling the urbanization process and optimizing a settlement system.