INTERNAL MIGRATION IN THE USSR: 1897–1926

J. WILLIAM LEASURE AND ROBERT A. LEWIS*

RESUMEN

El propósito de este estudio es describir y analizar la migración interna en la URSS, principalmente utilizando datos del censo de 1926 de la URSS. El artículo esta dividido en dos partes. La primera parte esta dedicada a una descripción de los patrones de migración agregado y regional basado en datos sobre lugar de nacimiento. La segunda parte es un análisis de estos patrones de migración, principalmente en términos de diferenciales económicas por guberniya. *Debido al hecho de que hay disponibles sólo limitados datos sobre ingresos, para el periódo alrededor de 1926, y que también otros datos económicos son escasos o no utilizables por los cambios de demarcación, se han utilizado como variables de sustitución los datos del censo sobre la distribución de la fuerza de trabajo, alfabetismo, y urbanización, para tener una apreciación de las diferencias de ingreso.*

La migración es un fenómeno complejo, relacionado con una serie de factores. El presente estudio no intenta explicar en forma completa la migración en la URSS, pero trata de anlisar diferencias en ingreso y relacionarlas con la migración interna que ocurrió durante este período. Como resultado del procesamiento y análisis de un extenso conjunto de datos, hemos mostrado que las diferencias en el ingreso, derivadas indirectamente de una variedad de datos, estan estrechamente relaciondas con la migración interna en la URSS, en el período anterior al censo de 1926. Hubo también notables similitudes con respecto a la migración interna entre el período previo al censo de 1897 y el período anterior al censo de 1926. Las principales áreas de emigracion e inmigración eran más o menos las mismas, y los migrantes en ambos periódos se movilizaron principalmente hacia áreas de mayor ingreso.

SUMMARY

The purpose of this study is to describe and to analyze internal migration in the USSR primarily by the use of data from the 1926 census of the USSR. The article is divided into two parts. The first is devoted to a description of the aggregate and regional migration patterns based on place-of-birth data. The second is an analysis of these migration patterns, primarily in terms of economic differentials by guberniya. *Because only limited income data are available for the period around 1926 and because other economic data are scarce or unusable owing to boundary changes, census data on labor force distribution, literacy, and urbanization are used as substitute variables to approximate income differences.*

Migration is a complex phenomenon related to a host of factors. The present study does not presume fully to explain migration in the USSR, but it does attempt to isolate differences in income and to relate these to the internal migration that occurred during this period. As a result of processing and analyzing an extensive array of data, we have shown that differences in income, derived indirectly from a variety of data, are closely related to internal migration in the USSR in the period prior to the 1926 census. There were striking similarities in respect to internal migration between the period prior to the 1897 census and the period prior to the 1926 census. The chief areas of out-migration and in-migration were roughly the same, and migrants in both periods moved primarily to areas of higher income.

World War I, the Revolution, and the Civil War resulted in a massive displacement of the population of the USSR and a drastic deterioration of the economy. By 1926, however, pre-war levels of production had been achieved again, largely as a result of the New Economic Policy. Because economic and political conditions had become stable by 1926, the census of that year provides a basis for evaluating the effect of conditions during this turbulent period on internal migration in the USSR. The purpose of this study is to describe and to analyze this migration primarily with data from the 1926 census of the USSR.[1] The article is

* San Diego State College and Columbia University, respectively. This study was made possible by support from the National Science Foundation. We should like to acknowledge the aid of our able assistants, Richard Rowland and Maurice Walter. We are grateful for the use of the computer services at Western Data Processing Center, University of California, Los Angeles, and for the help of George Diehr, who wrote the programs.

[1] Census data, unless otherwise indicated, are from Tsentral'nyy Statisticheskiy Komitet, *Pervaya Vseobshchaya Perepis' Naseleniya Ros-*

Table 1.—DE FACTO POPULATION BY PLACE OF BIRTH, 1926

Natives and migrants	Total Population	Percent of total Population	Urban Population	Percent of urban Population	Rural Population	Percent of rural Population	Urban as percent of total
Total.....	147,027,915		26,314,370		120,713,545		17.9
Born in place of enumeration.....	111,807,145	76.0	13,275,396	50.4	98,531,749	81.6	11.9
Total migrants.....	34,729,018	23.6	12,886,986	49.0	21,842,032	18.1	37.1
Place of birth not indicated.....	491,752	0.3	151,988	0.6	339,764	0.3	30.9

divided into two parts. The first is devoted to a description of the aggregate and regional migration patterns based on place-of-birth data. The second is an analysis of these migration patterns primarily in terms of economic differentials by *guberniya*.[2]

MIGRATION PATTERNS

Migration is measured in this study from place-of-birth data, from which the relative magnitude and the direction can be derived. These data, however, have certain limitations. They give only the net result of migration between the time of birth and the time of enumeration.[3] The chief limitations are that the number or proportion of migrants in any given year cannot be determined, and migrants who have died or returned to their place of birth are not counted. Moreover, intermediate moves are not recorded. Finally, *gubernii* (each *gubernniya* is roughly equivalent to a state) vary in area and configuration, and thus a move of equal distance from the center of one unit might result in the crossing of a political boundary, whereas in another unit it might not. Yet, the availability of place-of-birth data permits an extensive analysis of internal migration in the USSR.

AGGREGATE PATTERNS

In 1926, out of a de facto population of 147,027,915 natives (those born in the same place or settlement in which they were enumerated) comprised 76 percent, and migrants, 23.6 percent (Table 1).

---

siyskoy Imperii, 1897 g. (St. Peterburg: 1905), 89 vols.; and Tsentral'noye Statisticheskoye Upravleniye, *Vsesoyuznaya Perepis' Naseleniya 1926 Goda* (Moskva: 1929), 56 vols.

[2] A *guberniya* and an *oblast* are similar political units; the term *guberniya* will be used to refer to both. The system of transliteration used in this article is that of the U.S. Board on Geographic Names, Washington, D.C.

[3] Because of the many changes in the political-administrative structure after the Revolution, there were problems in determining the place of birth according to the 1926 political divisions. If the person being enumerated did not know his place of birth according to the 1926 political

Included among the migrants, however, were 1,867,020 persons, or 1.3 percent of the population, who were born in foreign areas including Bessarabia. Of these foreign immigrants, 68.9 percent were born in areas that were formerly a part of the Russian Empire, but were not a part of the USSR in 1926. The remaining de facto migrants—32,861,998—were not subdivided into the two census categories for migrants: those born in another place of the same *guberniya* in which they were enumerated (hereafter referred to as intra-*guberniya* migrants) and those born in a *guberniya* other than the one in which they were enumerated (hereafter referred to as in-migrants). However, data are available by *guberniya* for these two types of migrants for the permanent[4] population born within the 1926 borders of the USSR. According to these data, 51.9 percent of the migrants were intra-*guberniya* migrants and 48.1 percent were in-migrants.

There probably was relatively more migration in the period before 1926 than in the period before 1897. According to the 1897 census, out of a population of 125.6 million, which excluded the Finnish *gubernii*, 85.4 percent were classified as natives; 5.2 percent, intra-*guberniya* migrants; and 9.0 percent, in-migrants.[5] These data, however, are not comparable to the 1926 data for three reasons. (1) By 1926 the political-administrative structure of the USSR had been drastically altered, and in 1926 there were about twice as many political units roughly comparable to the *guberniya* as there were in 1897. (2) The definition of intra-*guberniya* migration was different in the 1897 census from that of the 1926 census. In the 1897 census, only those that moved across an *uezd* (roughly equivalent to a county) or city boundary were considered migrants. Consequently, in 1897 a person could move to the neighboring village within the same *uezd* and not be counted as a migrant; but according to the 1926 definition, he would be considered a migrant. This would tend to inflate the number of natives and decrease the number of intra-*guberniya* migrants in 1897. (3) Because of the territorial losses primarily along the western border, the area of the USSR in 1926 is not comparable to that of the Russian Empire in 1897. The above limitations should be considered when comparisons based on place-of-birth data are made between 1897 and 1926.

The majority of the migrants, 62.9 percent, went to rural areas prior to 1926 and, according to the migrant data for the permanent population, almost two-thirds of these were intra-*guberniya* migrants. Nevertheless, only 18.1 percent of the rural population were migrants. In 1897, a smaller proportion, 57.4 percent, of the total migrants went to rural areas, and they comprised only 9.7 percent of the rural population. That 59.5 percent of the rural migrants were from other *gubernii* or foreign countries in 1897 (in contrast to only about a third in 1926) can probably be largely explained by the different definition for intra-*guberniya* migration in 1926.

Although only somewhat more than a third of the migrants, or about 12.9 million, went to urban areas in 1926, migrants constituted 49 percent of the urban population,[6] and this was 2.4 percentage

---

divisions, he gave his place of birth according to the former political division, and his place of birth based on the 1926 political units was determined for him.

[4] Data for intra-*guberniya* migrants and in-migrants refer to the population that is permanently living at the place of enumeration and that was born within the 1926 borders of the USSR. This is the de facto population minus the temporary residents. It is not the de jure population, because those permanently residing in an area, but away at the time of the enumeration, are not allocated to their permanent place of residence. Hereafter, this population category is referred to as the permanent population.

[5] For a more detailed discussion of internal migration in Russia based on the 1897 census, see J. William Leasure and Robert A. Lewis, "Internal Migration in Russia in the Late Nineteenth Century," *Slavic Review*, forthcoming.

[6] Of the 1926 de facto population excluding the foreign-born, 13.2 percent were born in urban areas and 17.4 percent, or about six million more, were enumerated in urban areas. Of those enumerated in urban areas in 1926,

points or over five million migrants more than in 1897.[7] About two-thirds of the urban migrants in 1897 and 1926 were from other *gubernii*.

Even though almost two-thirds of the migrants went to rural areas, there was a substantial increase between 1897 and 1926 in the proportion of the population in cities of 15,000 or more. In 1897, 9.8 percent of the population lived in these centers and in 1926, 13.1 percent. These data refer to an identical national area—the contemporary territory of the USSR.[8] This urban increase was not uniform, and within this period comparisons can be made for select centers. Between 1897 and 1917, there was a rapid increase of 73.3 percent in the population of centers of 100,000 or more, and in the centers with a population between 50,000 and 100,000, the increase was 59.1 percent. However, between 1917 and 1920 both of these groups of cities lost population as a result of the Civil War and the ensuing famine—38.2 and 11.3 percent, respectively. During this period, most of the urban outmigrants went to rural areas because of food shortages in the cities. Much of the loss in population of centers of 100,000 or more occurred in Moscow and Leningrad which together accounted for about 73 percent of the population loss of this group or 2,115,325 persons. After 1920, however, there was an increase in the urban population. The population of centers of over 100,000 increased 23.5 percent between 1920 and 1923 and 36.1 percent between 1923 and 1926. For centers with a population between 50,000 and 100,000, the corresponding increases were 1.7 and 19.1 percent.[9] By 1926 the population in

52.9 percent were natives, 16.1 percent were from other urban areas, and 31.0 percent were from rural areas. There was also some urban-to-rural migration: 1,783,187 or 9.3 percent of those born in urban areas were enumerated in rural areas.

[7] Unfortunately, the urban definition, and thus the rural definition, were not the same in both censuses. Despite the differing urban definition, however, it is reasonable to assume that the data in both censuses are representative of predominantly urban and rural areas. The urban population in the 1897 census includes the *uezd* and *guberniya* centers, as well as a significant number of legal cities (*zashtatnyy* and *bezuezdnyy*). A number of centers that were urban in terms of function were not considered urban; for example, 35 centers with populations between 15,000 and 41,000 were not included in the urban population. These centers had a total population of 694,674. Moreover, very small *uezd* centers, which in terms of function were actually little more than agricultural villages, were considered urban.

The urban population in the 1926 census includes the following urban centers and their contiguous built-up areas: (1) all legal cities regardless of their size or function; (2) industrial settlements, railroad stations, and resorts having a population of 500 or more persons with more than one-half of the labor force in non-agricultural pursuits; and (3) trade-industrial settlements having a population of 2,000 or more with more than half of the labor force in non-agricultural pursuits. The criteria for legal cities, however, varied from republic to republic. To be designated a city in the RSFSR, for example, a settlement was required to have an adult population of at least 1,000 persons with at least three-fourths of the labor force in non-agricultural pursuits. In the Ukrainian SSR, a city was required to have a total population of at least 10,000; there were no occupational criteria. In the Belorussion and Georgian SSR's, there were no quantitative or functional criteria, but the creation of a city required a legislative act. The remaining republics apparently used the criteria of the other republics; probably mainly that of the RSFSR. (See O. A. Konstantinov, "Sovremennoye Sostoyaniye Deleniya Naselennykh Punktov SSSR na Gorodskiye i Sel'skiye," *Izvestiya Akademii Nauk SSSR, Seriya Geograficheskaya*, No. 6 [1958], 69–78.)

[8] We have determined the urban population living in cities of 15,000 or more according to the 1961 major economic regions of the USSR. This was necessary in order to compare population changes from 1897 to 1959 in conjunction with our study of internal migration. The larger study required the establishment of comparable territorial units within the USSR. The results have been presented in *Slavic Review* (December, 1966), and the methods are explained in detail in a monograph by the authors entitled *Population Changes in Russia and the USSR: A Set of Comparable Territorial Units* (San Diego: San Diego State College Press, 1966).

[9] Data for these calculations are from Narodnyy Komissariat Vnutrennikh Del, RSFSR, *Goroda Soyuza SSR* (Moskva, 1927). The cities that were included in the 100,000 or more category comprised 82.2 percent of the population of centers of that size in 1926, and the correspond-

cities of 50,000 or more slightly exceeded the pre-war level.

Data are also available for migrants by ethnic group in 1926, too. Table 2 gives the median urban proportion of migrants (in-migrants and intra-*guberniya* migrants) for a few ethnic groups for which data are available and the number of *gubernii* for which data were reported in the 1926 census.

Even though the proportion of intra-*guberniya* migrants was only slightly greater than the proportion of in-migrants in 1926, much more migration generally occurs locally than over long distances. There was, however, considerably more local migration than the foregoing above data indicate, because a migrant who moved a short distance, but across a *guberniya* boundary, would be included in the same category as one who moved across the entire country. Nevertheless, data are available on the number of migrants to a given *guberniya* from the other political units, and consequently migration from the surrounding *gubernii* to each *guberniya* can be determined. Because it was much too laborious to calculate in-migration to each *guberniya* from the other political units, it was decided to consider only the top five, which included a high proportion of the migrants. The median proportion of in-migrants that the top five included was 43.8 percent and the mean was 40.8 percent.

Two methods were used to analyze migration from surrounding areas. First, of the top five *gubernii* providing migrants to each of the 189 *gubernii*, those that were contiguous to the *gubernii* in question were compared with the possible contiguous *gubernii* based on a maximum of five for each *guberniya*. It was determined that of the top five providing total in-migrants, 65.8 percent were contiguous; of those providing urban in-migrants, 62.3; and of those providing rural in-migrants, 66.3. Corresponding proportions for 1897 based on the 89 *gubernii* were 68, 60, and 70 percent.

The second method that was used differs from the contiguity index only in that in addition to those *gubernii* that are contiguous, it includes those that adjoin the contiguous units, that is, those that are linked. Of the top five providing total in-migrants, 71.0 percent were linked; of those providing urban in-migrants, 71.8 were linked; and of those providing rural in-migrants, 70.0 were linked. The corresponding proportions for 1897 were 79, 75, and 78 percent. Thus in both periods, a considerable proportion of the in-migration was from neighboring *gubernii*.

More women migrated than men and this probably reflects moves of women to neighboring villages to marry and the greater war losses among males. There were 713 male intra-*guberniya* migrants and in-migrants per 1,000 female migrants. Women predominated even more among rural migrants, where 566 males migrated per 1,000 females. Among urban migrants, however, males slightly exceeded females—1,038 males per 1,000 females.

In the 1926 census, data are available on the duration of residence of migrants, in-migrants, intra-*guberniya* migrants, and foreign immigrants, excluding temporary residents (Table 3).[10] More than one-half of the migrant-survivors came between 1917 and 1926, and only 12 percent came before 1897. That a relatively large

ing proportion for the 50,000 to 100,000 category was 69.8 percent.

[10] Absences of less than a year are not considered, but if a migrant is absent for more than a year, the duration of residence is calculated from the time of his return.

Table 2.—URBAN PROPORTION OF DE FACTO MIGRANTS, BY NATIONALITY, 1926

Nationality	Median percent	Number of gubernii
Jews.....	79.4	55
Great Russians.....	44.7	161
Tatars.....	42.2	24
Ukrainians.....	13.5	96
Belorussians.....	10.2	19
All Nationalities...	25.8	181

proportion of the migrants moved in the last ten years is probably closely related to the considerable rehabilitation of the economy which occurred as a result of the New Economic Policy. The analysis of the migration patterns is also facilitated by the occurrence of a large number of migrants that arrived in the last ten years. In fact, high rank correlation coefficients were obtained when migrants for the past three years (22.7 percent of total migrants) were statistically related by *gubernii* to the migrant survivors for all years. The correlation for total migrants was +0.873; +0.882 for urban migrants, and +0.893 for rural migrants. These high correlations would seem to indicate that the direction and relative magnitude of migration in the last three years corresponded closely to that of the whole period.

Although the 1897 census does not provide migration data according to labor force categories, these data are available in the 1926 census and refer to any movement of the permanent population from one settlement to another regardless of *guberniya* boundaries; therefore, they include intra-*guberniya* and inter-*gubernii* migration. Data on labor force and migration include dependents who work, and the two cannot be separated. The distribution of the labor force according to place-of-birth data is similar to that for the total population; however, relatively more workers migrated to other places—28 percent of the labor force in contrast to 24 percent of the total population.

Of the 22.2 million migrants in the labor force, 30 percent, or 6.9 million, were enumerated in urban areas. Of these, 30 percent came from other urban areas, and 70 percent were from rural areas. Urban in-migration was predominantly the result of rural out-migration. The migration of people in the labor force in 1926 from urban to rural areas consisted of only 0.7 million. Urban migrants dominate the urban labor force, since they comprise 73 percent of the total urban labor force, whereas total urban migrants comprise only 49 percent of the total urban population.

Industry was the sector with the most mobile members. Sixty percent of the factory workers were migrants in contrast to only 21 percent in the agricultural labor force. In the agricultural sector there were almost twice as many female migrants. This can probably be explained by the migration of women in order to marry. In factories, male migrants were three times as numerous as the females.

Eighty-five per cent of the migrants in the labor force came after 1897, and 57 percent came after 1914. The period beginning with 1914 and ending around 1923 was one of war and turmoil. Consequently, one would expect a substantial shifting of the population as well as changes in the labor force distribution by sector in that period.

The proportion of the total labor force in agriculture increased from 57.6 percent in 1897 to 65.1 percent in 1926. The proportion in industry, however, decreased

Table 3.—MIGRANTS BY YEAR OF ARRIVAL, 1926

Migrants	Total migrants	Percent distribution				Average annual number 1924-26
		1917-26	1897-1916	Before 1897	Unknown	
Total migrants[a]...	32,175,480	54.7	29.9	12.1	3.4	2,429,783
Urban migrants.....	11,893,892	59.8	26.1	8.5	5.5	1,147,911
Rural migrants.....	20,281,588	51.6	32.1	14.2	2.1	1,281,872

[a]"Migrants" include intra-guberniya migrants, in-migrants, and foreign immigrants.

slightly, from 13.4 percent to 12.1 percent during this period and the proportion in the remaining sectors declined from 29.0 per cent in 1897 to 22.8 percent in 1926.[11] This change may indicate that after the Revolution the service sector was reduced through restrictions on trade and employment in the non-government sector. The proportion of the labor force in industry barely changed between 1897 and 1926, and an industrial index shows that by 1926 the USSR had just returned to its pre-war level of industry.[12] Therefore, the small tradesmen and workers in handicrafts and services apparently were forced back into agriculture after the 1917 Revolution, since large-scale nationalized industry had not yet begun to expand.

REGIONAL VARIATIONS IN MIGRATION

From the place-of-birth data in the 1926 census, regional patterns in migration can be derived. Because the population and area of the *gubernii* vary greatly, migration is measured by *guberniya* as a proportion of the total population. The resulting patterns are strikingly similar to those derived from place-of-birth data in the 1897 census.

With few exceptions, such as the more urbanized *gubernii* (Leningradskaya, Moskovskaya, and Kievskaya), the European USSR roughly north of the steppe was an area with few in-migrants —generally fewer than 7.5 per cent of their total population (Fig. 1). Political units in the steppe from the western border to the Altay Mountains and southern Siberia had proportionately many more migrants. Generally over 10 percent but usually less than 40 percent of their total population were migrants. The North Caucasus and southern West Siberia were areas of particularly intense in-migration. In the northern areas, Soviet Central Asia, and the Transcaucasus, there were relatively few in-migrants.

[11] J. William Leasure and Robert A. Lewis, *Population Changes in Russia and the USSR: A Set of Comparable Territorial Units, op. cit.*

[12] Alexander Gerschenkron, "The Rate of Industrial Growth in Russia Since 1885," *The Journal of Economic History*, VII (1947), 144–74.

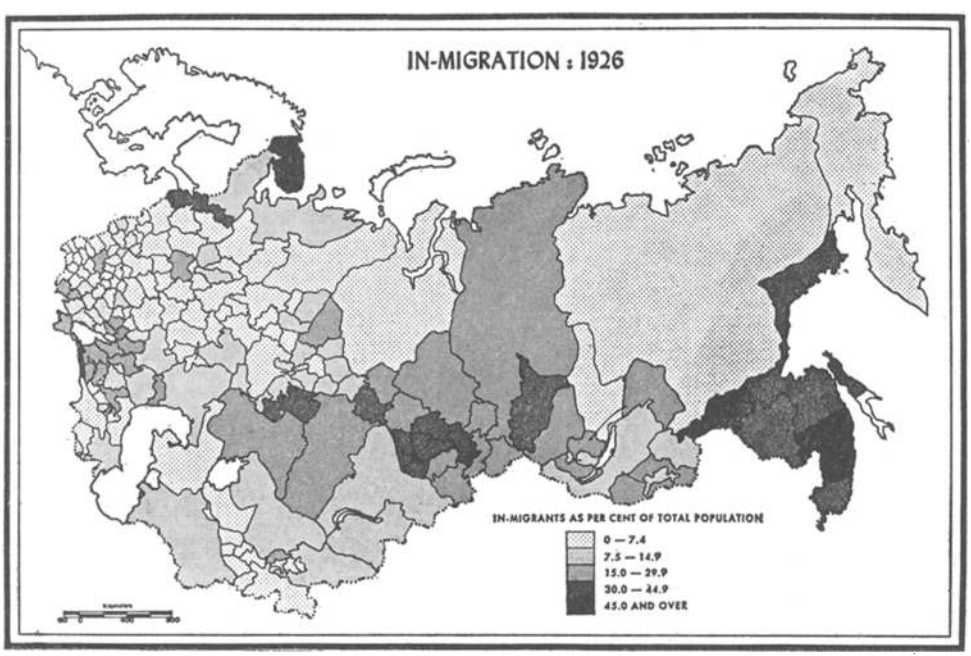

FIG. 1.—In-migration, 1926

To characterize further the regional variation in in-migration, Table 4 groups data into seven regions of roughly homogeneous migration characteristics. Two restrictions should be considered in the analysis of this table and the following tables. First, the presentation of regional migration data contains a summation of the migration characteristics of each *guberniya* in the region, and thus includes migrants from the other *gubernii* within the region as well as from those outside of the region. Second, these regions vary in the number and size of internal political units and in population. Despite these drawbacks, these groupings provide a useful summation of regional migration patterns.[13]

[13] In the following tables on migration, the urban and rural categories do not always equal the total category, because the computer is accurate only to six digits and in-migration data for Kamchatskiy Okrug are included for the total category but are not available for the urban and rural categories. Data are for the permanent population born within the 1926 borders of the USSR (see n. 4).

Rural in-migration proportions were normally low in the European USSR, but were higher (slightly above 10 percent of the rural population) in a few units of the southern Ukraine. In the North Caucasus rates generally ranged between 10 and 20 percent (Fig. 2). The greatest rural in-migration occurred in the eastern steppe and southern Siberia, where up to 40 percent of the rural population were migrants. Elsewhere in the USSR, there was little rural in-migration. Regional patterns of rural migration are shown in Table 5.

Relatively low urban in-migration rates were characteristic of the European USSR north of the steppe, where migrants comprised less than 15 percent of the urban population of most political units (Fig. 3). In absolute terms, however, this was where the bulk of the urban in-migration occurred, as Table 6 indicates. Urban in-migration proportions were the highest in the steppe and southern Siberia, but these areas had relatively small urban populations (Fig. 4).

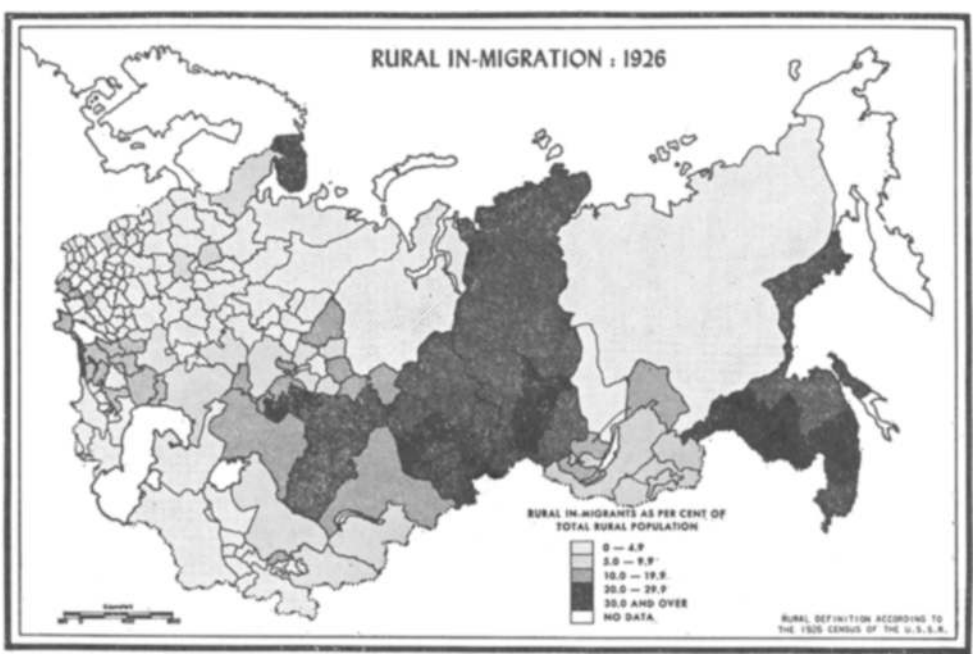

FIG. 2.—Rural in-migration, 1926

Table 4.—REGIONAL VARIATIONS IN TOTAL IN-MIGRATION

Region[a]	Number of in-migrants	Regional in-migrants as percent of total in-migrants	Regional population as percent of total population born in USSR	In-migrants as percent of population born in USSR
Total.....	14,614,916	100.0	100.0	10.3
European North.....	6,397,632	43.8	62.5	7.2
European Steppe.....	3,289,010	22.5	15.4	15.1
West Siberia.....	2,129,800	14.6	5.6	26.7
East Siberia and Far East.....	1,111,868	7.6	3.2	24.6
Stepnoy Kray.....	691,674	4.7	2.8	17.3
Central Asia and Transcaucasus.....	994,932	6.8	10.5	6.7

[a]The European North includes the 85 gubernii north of the steppe and west of the Urals, and the European Steppe encompasses the 41 gubernii west of the Volga River including the North Caucasus. The Stepnoy Kray includes the six political units in the steppe between the Volga and the Altay. East Siberia and the Far East includes the 19 political units roughly east of the upper Yenisey River.

Table 5.—REGIONAL VARIATIONS IN RURAL IN-MIGRATION

Region	Number of rural in-migrants	Regional rural in-migrants as percent of total rural in-migrants	Regional rural population as percent of total rural population born in USSR	Rural in-migrants as percent of rural population born in USSR
Total.....	7,302,582	100.0	100.0	6.2
European North.....	2,243,536	30.7	62.6	3.1
European Steppe.....	1,615,967	22.1	14.7	9.4
West Siberia.....	1,722,859	23.6	6.0	24.3
East Siberia and Far East.....	770,849	10.6	3.2	20.6
Stepnoy Kray.....	595,941	8.2	3.1	16.2
Central Asia and Transcaucasus.....	353,430	4.8	10.3	2.9

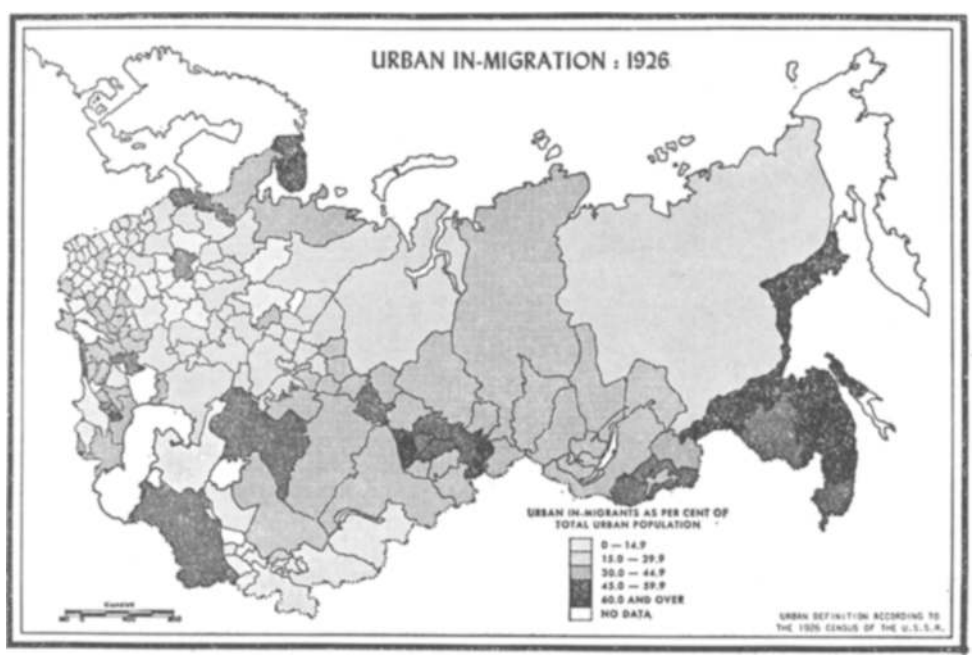

FIG. 3.—Urban in-migration, 1926

To eliminate the influence of in-migration, out-migration was measured relative to the native population of each *guberniya*; that is, those born in the same *guberniya* in which they were enumerated rather than the total population. The European USSR, excluding the North Caucasus and a few *gubernii* along the western border, was the chief area of out-migration (Fig. 4). Because the area north of the steppe in the European USSR had relatively few in-migrants compared to out-migrants, most *gubernii* in this area experienced a net loss in population through migration. In the southern Ukraine, however, high in-migration rates cancelled out the effect of the high out-migration rates. Elsewhere out-migration rates were generally low, except in the eastern part of Siberia, which, too, had particularly high in-migration rates. Both of these rates were affected by the small populations of most of the political units in Siberia. No data are available in the

Table 6.—REGIONAL VARIATIONS IN URBAN IN-MIGRATION

Region	Number of urban in-migrants	Regional urban in-migrants as percent of total urban in-migrants	Regional urban population as percent of total urban population born in USSR	Urban in-migrants as percent of urban population born in USSR
Total.....	7,311,501	100.0	100.0	29.8
European North.....	4,154,096	56.8	62.1	27.3
European Steppe.....	1,673,043	22.9	18.7	36.5
West Siberia.....	406,941	5.6	3.6	45.9
East Siberia and Far East.....	340,186	4.7	3.1	44.2
Stepnoy Kray.....	95,733	1.3	1.3	30.9
Central Asia and Transcaucasus.....	641,502	8.8	11.2	23.3

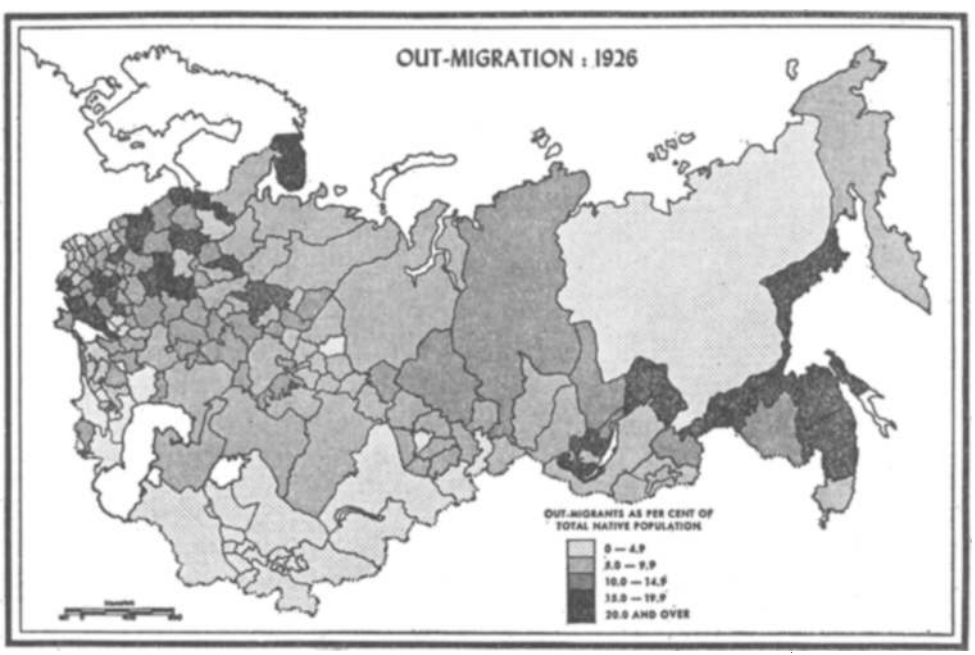

FIG. 4.—Out-migration, 1926

1926 census on rural or urban out-migration by *gubernii*. Table 7 summarizes the regional variations in out-migration.

Intra-*guberniya* migration was relatively high—between 10 and 20 percent of the total population in the European USSR, but generally below ten percent in the chief areas of in-migration (Fig. 5 and Table 8). Intra-*guberniya* urban migration rates in the European USSR north of the steppe were relatively high, usually between 10 and 35 percent of the urban population; whereas they were below 10 per cent in the European steppe including the North Caucasus. In the east, intra-*guberniya* urban migration proportions generally ranged between 5 and 15 percent, but were particularly low in Soviet Central Asia. Intra-*guberniya* rural migration rates were the highest in European USSR excluding the North Caucasus and the western Ukraine and ranged between 10 and 20 percent of the rural population. In the chief areas of rural in-migration and in the North Caucasus and western Ukraine, they were normally below ten percent.

ANALYSIS OF MIGRATION PATTERNS

When seeking to analyze internal migration, one is confronted with two questions. (1) Why do people decide to leave a particular area? (2) Why do they move to a particular area? Numerous combinations of socioeconomic variables have been used in studies of migration,[14] and a general expression which is used to group the variables is "push-pull." There are circumstances which push people out of

[14] H. ter Heide, "Migration Models and Their Significance for Population Forecasts," *The Milbank Memorial Fund Quarterly*, XLI (1963), 56–76.

TABLE 7.—REGIONAL VARIATIONS IN TOTAL OUT-MIGRATION

Region	Number of out-migrants	Regional out-migrants as percent of total out-migrants	Regional guberniya native population as percent of total native population	Out-migrants as percent of guberniya natives
Total.....	14,128,328	100.0	100.0	11.1
European North.....	10,727,114	75.9	64.7	13.0
European Steppe.....	2,015,441	14.3	14.5	10.9
West Siberia.....	438,792	3.1	4.6	7.5
East Siberia and Far East.....	322,422	2.3	2.7	9.5
Stepnoy Kray.....	188,169	1.3	2.6	5.7
Central Asia and Transcaucasus.....	436,390	3.1	10.9	3.1

Table 8.—REGIONAL VARIATIONS IN INTRA *guberniya* MIGRATION

Region	Number of intra-guberniya migrants	Regional intra-guberniya migrants as a percent of total intra-guberniya migrants	Regional population as a percent of total population born in USSR	Intra-guberniya migrants as percent of total population born in USSR
Total.....	15,787,599	100.0	100.0	11.1
European North.....	10,911,208	69.1	62.5	12.3
European Steppe.....	2,216,206	14.0	15.4	10.2
West Siberia.....	606,736	3.8	5.6	7.6
East Siberia and Far East.....	492,366	3.1	3.2	10.9
Stepnoy Kray.....	405,986	2.6	2.8	10.2
Central Asia and Transcaucasus.....	1,155,097	7.3	10.5	7.8

some areas and pull people into other areas. The concept of push-pull can lead to a formulation of the differences between two regions with respect to a variable. The greater is the difference in unemployment rates between two areas, for example, the greater will be the attraction of migrants to the area with the lower unemployment rate. This approach has been used in various forms in a number of studies.[15]

The supply of migrants undoubtedly is a function of many variables, but economic factors have been shown to be crucial. At an early stage of economic development, such as that in the USSR in 1926, it seems plausible that differences in income or in indicators of income between regions are weighted heavily by people considering migration. Our analysis of internal migration in the USSR prior to 1926 is based on economic differentials, since this appears to be a fruitful way of interpreting the data. Specifically, we shall analyze the relationship between the proportion of migrants by *guberniya* and differences in economic factors.

Because only limited income data are available for the period around 1926, and other economic data are scarce or unusable because of boundary changes, census data on labor force distribution, literacy, and urbanization will be used as substitute variables to approximate income differences. A movement out of agriculture and into factory work or handicrafts can be interpreted as an attempt, at least, to raise one's income; the same is true for a movement to an urban area from a rural area. A movement to a more literate area can be regarded in the same way if we assume that people who are more literate people are more productive.

[15] H. Makower, J. Marschak, and H. W. Robinson, "Studies in Mobility of Labour: A Tentative Statistical Measure," *Oxford Economic Papers*, I (1938), pp. 83–123; "Studies in Mobility of Labour: Analysis for Great Britain, Part I," *ibid.*, II (1939), pp. 70–97; Part II, *ibid.*, IV (1940) pp. 39–62. See also, Richard A. Easterlin, "Long Swings in U.S. Demographic and Economic Data," *Demography*, II (1965), 490–507.

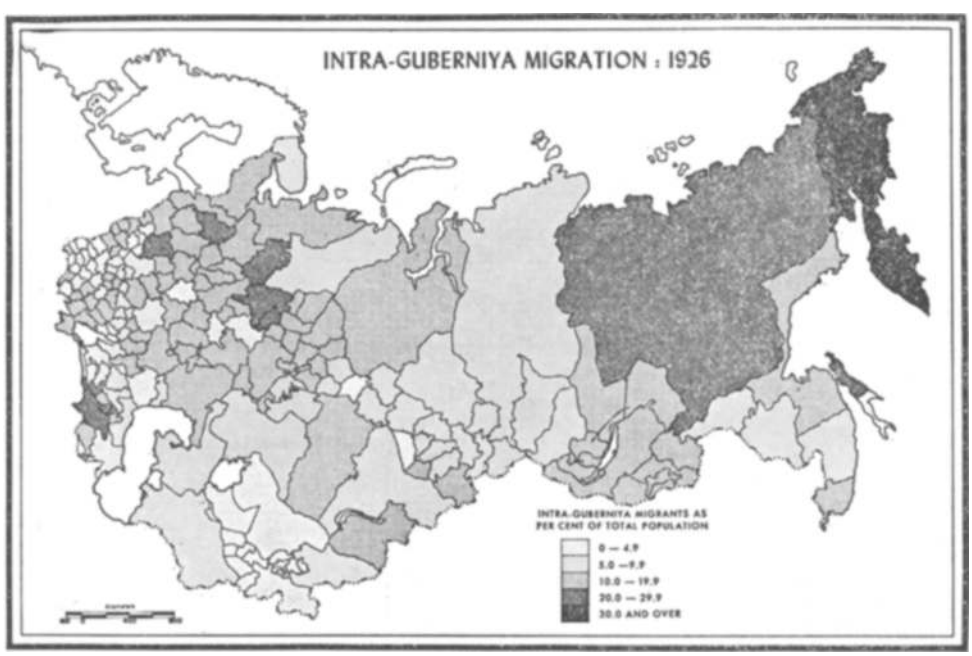

FIG. 5.—Intra-*guberniya* migration, 1926

The top-five method and rank correlation method will be used for the analysis. Primary emphasis is placed on the top-five method, because it provides a unique analysis utilizing place-of-birth and place-of-enumeration data. Rank correlation provides a standard statistical test for our analysis.

TOP-FIVE METHOD

From place-of-birth data by *guberniya*, we selected the five *gubnerii* providing the most in-migrants to each *guberniya*. The median proportion of in-migrants provided by these *guberniya* was 44 per cent. The socio-economic characteristics of these five *gubernii* were then compared with the *guberniya* of in-migration in the following way. The value for a particular variable for 1926 in each of the top five is weighted by the number of in-migrants that it provided to a given *guberniya*. The mean of the variable for the top five, weighted in this manner, is then obtained. In effect, we have created an artificial *guberniya* consisting of the in-migrants from the top five. Then the characteristics of this artificial *guberniya* are compared with the corresponding characteristic of the *guberniya* of in-migration. The value of the socioeconomic characteristic of the top five (the *guberniya* of out-migration, artificially constructed) is subtracted from the value of the same characteristic for the *guberniya* of in-migration. The subtraction is performed for each *guberniya* and its top five. For each variable except the proportion of the labor force in agriculture, the difference will be positive if people are moving into *gubernii* with a higher standing of living, according to our interpretation of the data. In the case of the foregoing exception, we have reversed the subtraction so that if the difference is positive, it, too, will imply a movement to an area with a higher standard of living. An example of this procedure is shown in the accompanying tabulation.

Supply of In-Migrants to Guberniya F from Gubernii:	Proportion of Labor Force in Industry in 1926	Col. 1—Col. 2
A 10,000	0.01	100
B 5,000	.05	250
C 4,000	.02	80
D 3,000	.03	90
E 2,000	0.10	200
24,000	.....	720

$$\frac{\text{Col. 3}}{\text{Col. 1}} = \frac{720}{24{,}000} = 3 \text{ percent}$$

The 3 percent is then subtracted from the percent of the labor force in industry in *Guberniya* F in 1926 to determine whether people are tending to move to more or less industrialized areas. If the difference is positive, then it is inferred that people are seeking a higher standard of living by moving to an area which is relatively more industralized.

It should be noted that when we compare differences in these variables from census data for 1926, we are not examining the differences at the time the migrants moved. Place-of-birth data and place-of-enumeration data in 1926 merely indicate where people were born and where they were living in 1926, but not the year they moved. When a migrant moved from one *guberniya* to another in 1920, for example, the socioeconomic characteristics were undoubtedly different from those in 1926. Nevertheless, if the level of the variables for each *guberniya* changed in approximately the same proportion, the differences would remain fairly constant. It should also be noted that 23 percent of the life-time migrants came after January 1, 1924.

Place-of-birth data and place-of-enumeration data in 1926 do not give any indication of intermediate moves. Someone may move from *Guberniya* A to *Guberniya* B and then on to *Guberniya* C where he is finally enumerated in 1926. In this case, a comparison of characteristics for *Guberniya* A and *Guberniya* C will reveal whether or not the net movement was in the direction of an area with a

higher income. Another possible distortion is that migrants themselves might influence the value of the variables. This bias, however, works in both directions, and the in-migrants as a proportion of the total *guberniya* population was less than 10 percent for about three-fourths of the *gubernii*.

In summary, the top-five method shows the net movement as of a certain date and the differences in the socioeconomic characteristics as of that date as well. Given the limitations which are inherent in such data, it is a useful tool of migration analysis.

For purposes of analysis the total number of *gubernii* is divided into three groups on the basis of the proportion of in-migrants: low, medium, and high. The comparison involving subtraction explained earlier in the example is performed for each of the *gubernii* in each group and the median difference for each group is used as the measure for comparison. The three groups are defined in the accompanying tabulation for the total population.

Total Population	Percent of In-Migrants	Number of Gubernii
Low	0-4.99	65
Medium	5-9.99	51
High	10+*	73

* The median percent in this group is 21.7.

By presenting median differences for groups it is likely that the analysis will be clarified. As noted earlier, we are relating differences in indicators of income by *guberniya*. Obviously, other factors, such as cultural differences, distance, location of resources, and availability of transportation, influence migration and will vary by *guberniya*. The effect of only the economic factors on migration cannot be isolated, and, as a consequence, the observable relationship between the two, the proportion of migrants and income variables, will be weakened. If it can be assumed, however, that each of these noneconomic factors in each of the three groups of *gubernii* has a somewhat random distribution, the effect on migration of each of these factors will tend to be offset by one another within the same group. For example, a *guberniya* which is more readily accessible because of transportation will attract more migrants than one with poorer transportation facilities, even though the two are equally attractive to migrants in all other respects. Therefore when the *gubernii* are grouped according to the proportion of in-migrants and, median income differences are compared, there is a tendency for the *gubernii* within each group to cancel the effects of other variables on migration.

Table 9 gives the median differences for each of the three groups, low, medium, and high, as well as the difference between the low and the high—the spread. For

Table 9.—TOP-FIVE IN-MIGRATION: TOTAL IN-MIGRANTS

Independent variable	Median difference for low, medium, and high groups			
	0-4.99	5-9.99	10 and over	Spread
Urban percent (Russian definition)	-6.51	-3.84	+4.09	+10.60
Urban percent (cities 15,000 and over)	-6.52	-6.07	+2.65	+ 9.17
Percent of total labor force, excluding dependents who work, in:				
agriculture	-8.14	-4.82	+8.06	+16.20
factory industry	-2.45	-1.42	+0.08	+ 2.53
handicrafts	-0.81	-0.60	+1.03	+ 1.84
Percent of population aged 10-49 years, literate	-6.03	-3.00	+2.11	+ 8.14

each variable, there is a progression from negative to positive when we move from low to high. Each median difference in the high group is positive. This group consists of 73 *gubernii* with a median proportion of in-migrants of 22 percent. This is in contrast to the other two groups where the upper limits are 5 and 10 percent, respectively. In these two groups where the proportion of migrants is relatively low, negative differences can be accounted for by misinformation, presence of relatives, and other noneconomic factors. According to our interpretation of the results, people are moving out of the agricultural sector and into more urban, industrial, and literate areas. The results for 1926 are similar in magnitude and direction for comparable 1897 census data.[16]

RANK CORRELATION

The patterns of migration were also analyzed by means of rank correlation, which is a measure of how closely two variables move with respect to one another and in which direction they move. The independent variables by *guberniya* are the same as those for the top five, except that here we have data for the rural and urban areas in each *guberniya* as well as for the entire *guberniya*. The variables used to indicate migration are (1) proportion of intra-*guberniya* migrants; (2) proportion of in-migrants; (3) and proportion of intra-*guberniya* migrants, in-migrants, and immigrants from foreign counties who moved in the period of 1924–26 and were referred to as migrants (1924–26).

The labor force data presented for the total population are for members of the labor force, both excluding and including dependents who work. The data for the urban and rural areas, however, are only for members of the labor force including dependents who work.

Given our interpretation of the variables used as indicators of income, it follows that the sign of the rank correlation between the various measures of migration and each of the substitute variables as of 1926 will be as shown in the accompanying tabulation.

Variable	Hypothesized Sign
Urban percent (Russian definition)	+
Urban percent (Cities 15,000 and over)	+
Percent of labor force in agriculture	−
Percent of labor force in factory industry	+
Percent of labor force in handicrafts	+
Percent of population, aged 10–49, literate	+

The top-five analysis was based on differences with respect to income indicators. In the rank correlation analysis, however, the level or value for the variable, rather than a measure of the differences (a median difference for example), will be used. The ranking is the same whether one uses a level by *guberniya* or a median difference which compares each *guberniya* with all others.

Through the use of rank correlation, we can make a standard statistical test of the relationship between indicators of the standard of living and the proportion of in-migrants. These results can then be used in conjunction with the analysis based on the top-five method. Rank correlation is used rather than the standard correlation or regression technique, because the top-five method is based on a ranking of differences in the values of the variables and the use of the median difference. Thus, we have utilized an ordinal measure throughout. Such a measure is adequate for our purposes. Given the limitations of the data, it appears that other techniques (such as multiple correlation), while not detracting from the analysis, would not provide at the same time, any additional insights. In addition,

[16] J. William Leasure and Robert A. Lewis, "Internal Migration in Russia in the Late Nineteenth Century," *Slavic Review*, forthcoming.

we merely want to determine the direction of movement rather than the value for any coefficients associated with the variables in any complex relationship. Such a precise model is not warranted by the data.

The results are given in Table 10 for each of the three types of migration, and for the total, urban, and rural population of each *guberniya*.

For each of our variables in the total population and rural population groups, the correlation coefficient, if statistically significant, has the same sign as that hypothesized. And there is always a significant relationship with at least two of the migration variables.

For the urban group, the results are similar except that the proportion of the labor force in handicrafts for each of the types of migration has a statistically significant but inverse relationship. The negative sign is the opposite of that hypothesized. It may be that in 1926 in the urban areas, handicraft industries were being replaced by factory industries; whereas, in the rural areas, handicrafts still attracted migrants.

It is noteworthy too that the relationship between the proportion of the labor force in factories is significant only for intra-*guberniya* movement. The urban areas which received the most migrants were the areas in the eastern and southern USSR, and these were not the great industrial centers. Industry is located in the western USSR and this is the region of great out-migration. Many out-migrants moved to the large industrial cities in the West, but, although the number was large, the proportion was relatively small. The cities in the east which received the most migrants were predominantly centers for service to agriculture and mining.

The foregoing interpretation regarding the number and proportion of migrants is supported by the following correlation coefficients between the percent of the urban labor force in factories and the *number* of urban intra-*guberniya* migrants, +0.633*; the *number* of urban in-migrants, +0.525*; the *number* of urban migrants (1924-26), +0.595*. The correlation coefficient between the per cent of the labor force in handicrafts and the number of migrants by type is statistically significant only for the number of urban migrants (1924–26); −0.155*. When percent of urban migrants (1924–26) is used with handicrafts the correlation is −0.609*.

The more literate *gubernii* have more internal migration in both rural and urban areas; whereas, long-distance or inter-*guberniya* migration is independent of the level of literacy. The more urbanized *gubernii* too attract more in-migrants.

In summary, people were moving out of agriculture and into the relatively urban, industrial, and literate areas. The same significant relationships are found when in-migrants in the labor force as a proportion of the total labor force, rather than the in-migrants in the entire population as a proportion of the total *guberniya* population are used as a dependent variable. In a previous study of migration prior to 1897, similar results were obtained with the rank correlation procedure.[17]

There is a statistically significant relation between urban and rural intra-*guberniya* migration (+0.450*), urban and rural inter-*guberniya* migration (+0.736*), and urban and rural for both types, 1924-26 (+0.577*). Thus, both urban and rural areas of the same *guberniya* attract migrants from other *gubernii*, and within a *guberniya*, movement to the urban areas is associated with movement to other rural areas. In the latter case, perhaps rural intra-*guberniya* migrants were moving to urban areas, as well as other rural areas of the *guberniya*, in quest of a higher standard of living, since such migration is associated with a higher proportion of the labor force in factories in both rural and urban areas. The areas with high intra-*guberniya* movement, moreover, are those with relatively high literacy.

[17] *Ibid.*

Table 10—RANK CORRELATION CO-EFFICIENTS

Total, urban, and rural population by guberniya	Independent variable								
	Urban percent		Percent of total labor force						
			excluding dependents in:			including dependents in:			percent of population aged 10-49 years, literate
	Russian definition	Cities of 15,000 and over	agri-culture	factory industry	handi-crafts	agri-culture	factory industry	handi-crafts	
Total population by guberniya									
Total intra-guberniya migrants as percent of total population	-.003	-.056	-.134	+.263[a]	-.113	-.039	+.215[a]	-.140	+.365[a]
Total in-migrants as percent of total population	+.377[a]	+.328[a]	-.550[a]	+.287[a]	+.295[a]	-.529[a]	+.330[a]	+.354[a]	+.203[a]
Total migrants (1924-26) as percent of total population.	+.422[a]	+.329[a]	-.652[a]	+.441[a]	+.272[a]	-.608[a]	+.468[a]	+.369[a]	+.328[a]
Urban population by guberniya									
Intra-guberniya urban migrants as percent of urban population	...	...	...	...	...	-.180[a]	+.314[a]	-.239[a]	+.363[a]
Urban in-migrants as percent of urban population	...	...	...	...	...	-.452[a]	+.021	-.408[a]	-.025
Urban migrants (1924-26) as percent of urban population.	...	...	...	...	...	-.462[a]	+.093	-.609[a]	+.128
Rural population by guberniya									
Intra-guberniya rural migrants as percent of rural population	...	...	...	...	...	-.046	+.176[a]	-.103	+.403[a]
Rural in-migrants as percent of rural population	...	...	...	...	...	-.477[a]	+.078	+.326[a]	+.080
Rural migrants (1924-26) as percent of rural population.	...	...	...	...	...	-.568[a]	+.208[a]	+.368[a]	+.176[a]

[a] Significant at a 5 percent level of confidence.

Some of the evidence on the direction of movement of in-migrants, however, is partially contradicted by the movement of out-migrants. Out-migrants prior to 1926 were calculated as a percent of the total population in 1926 of the *guberniya* of out-migration. The proportion of out-migrants was greater when the *guberniya* had a higher proportion of the labor force in factories (the coefficient was +0.364*), although there was no significant relation to the proportion of the labor force in agriculture or handicrafts. Again, the more urban and more literate a *guberniya*, the greater was the out-migration. The respective correlations were +0.241* (Russian definition of urban); +0.177* (cities of 15,000 or more); and +0.659* for literacy.

It appears that the more urban, literate, and industralized *gubernii* had more in-migration as well as more out-migration. It could well be that prior to 1926 the Civil War, famine, and strife caused relatively more hardship for the urban population as opposed to the rural. Consequently, highly urbanized *gubernii* experienced extensive out-migration to rural areas which reflected an attempt on the part of the migrants to survive in the midst of the chaos, rather than a rational attempt to raise their standard of living. By 1926, when the larger cities had only 4 percent more people than in 1917, many out-migrants were undoubtedly still living in the rural areas in 1926. If this interpretation is correct, it is possible for a *guberniya* that was relatively urban, literate, and industrialized in 1926 to have had simultaneously relatively more in-migration and out-migration prior to 1926.

The rank correlation coefficients and the top-five median differences are consistent for each variable. For the high group the differences are all positive and the corresponding rank correlation coefficients are all statistically significant with the same sign as that hypothesized.

Data on farm income or cultivated land per person by *guberniya* are not available to give further corroboration of the significance of economic differentials in internal migration. Limited data for the period around 1926 based on a variety of estimates, however, are available for various regions. These data indicate that in general migrants were moving to areas with a higher sown acreage per person and per household and to areas with a greater net agricultural production per person. The chief areas of out-migration were areas where these indicators were generally low.[18]

Migration is a complex phenomenon, related to a host of factors. This study does not presume fully to explain migration in the USSR, but it does attempt to isolate differences in income and relate these to the internal migration that occurred during this period. As a result of processing and analyzing an extensive array of data, we have shown that differences in income, derived indirectly from a variety of data, are closely related to internal migration in the USSR. There were striking similarities in respect to migration between the period prior to the 1897 census and that period prior to the 1926 census. The chief areas of out-migration and in-migration were roughly the same, and migrants in both periods moved primarily to areas of higher income.

[18] Frank Lorimer, *The Population of the Soviet Union: History and Prospects* (Geneva: League of Nations, 1946), pp. 75–79.