

## Migration and Regional Economy in Russia: Recent Trends and Their Backgrounds

Kazuhiro KUMO\*

### Abstract

This paper examined changes in interregional migration patterns in Russia before and after the collapse of the Soviet Union. The migration factors in 1994, 1997, and 2000 were investigated based on a simple quantitative analysis, and the significant effects of economic factors such as financial situations of firms or labor market conditions and those of environmental conditions on migration decisions were presented. Finally, the theoretical logic behind the large-scale out-migration from the Far North was briefly presented by the use of a traditional two-sector model. *JEL* Classification: P36, R12, R23. 4 maps, 3 figures, 1 table, 21 references.

**Keywords:** *Migration, Regional Economy, Far North Regions, Economic Efficiency*

### 1. Introduction

The objectives of this paper are (1) to overview interregional migration patterns in Russia after the collapse of the Soviet Union and (2) to examine the interrelationship between regional economic conditions and population migration. Although sociologic/geographical studies are full of fruitful results, studies based on stylized statistical analysis on interregional migration in Russia have started only recently. However, some have presented impressive results. Among them, based on gravity models, Andrienko *et al.* (2002) showed that migration decisions in Russia were strongly affected by regional economic conditions. This paper specializes in economic analysis on interregional population migration, as in our earlier study (Kumo, 2003) or Andrienko *et al.* (2002).

This paper is organized as follows. First, an overview on interregional migration patterns in Russia from 1990s to 2000 and changes in their tendency are presented in brief. Migration factors

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\* Ph.D. and Associate Professor of Economics, Department of Regional Science, Faculty of Economics, the University of Kagawa, Saiwai-cho 2-1, Takamatsu, Kagawa 760-8523, Japan; e-mail: k-kumo@ec.kagawa-u.ac.jp. This study was financially supported by a Grant-in-aid from the Japan Society for the Promotion of Science for Young Scientists (#14730043, 2002-04), the Mishima Kaiun Memorial Foundation (2002-03), the University of Kagawa Grant for the Promotion of Science (2002-03), and the University of Kagawa International Exchange Fund (2002-03), which are gratefully acknowledged. The original of this paper was presented at the 18<sup>th</sup> Russo-Japanese International Academic Symposium held in Kyoto in 2002. The author acknowledges a debt of gratitude to Dr. Peter Baklanov and anonymous referees for their valuable comments.

are examined in Section 3, with the use of recent *GosKomStat* data. Changes in migration patterns, especially an extremely large out-migration from the Far North regions, are theoretically explained. Concluding remarks are presented in the final section.

## **2. Migration Patterns in Russia under Transition: an Overview**

The collapse of the Soviet Union had critical effects on interregional population migration patterns in Russia, as is well known. Many studies have described their realities in detail, but some of them are reviewed briefly here for convenience.

### **2.1 Recent Research on Russian Regional Economies and Population Migration**

After the collapse of the Soviet Union in 1991, the Russian economy seriously stagnated. However, this stagnation presents different aspects from region to region, and this phenomenon is frequently cited as a research objective.

TACIS (1996a, 1996b) classified each region from the following points of view: (1) living conditions (income); (2) population dynamics (natural increases or migration rates); (3) labor market conditions (unemployment rates); (4) financial indicators (financial situations of regional governments); (5) structural changes (marketization or land reforms); (6) regional policy; and (7) reforms on banking systems. Their analysis was based on descriptive statistics, and their classification was very subjective.

After TACIS (1996a, 1996b), Russian regions were studied by many, especially by researchers in European states. Based on some quantitative analyses, Sutherland and Hanson (1996) clarified that the factors that characterized regional labor market conditions in 1992-1993 in Russia were (1) regional exports, (2) existence of military industries, and (3) real income. In an earlier paper (Kumo, 1997), interregional migration was examined, and the following factors were identified as the main ones determining interregional population migration patterns in Russia: (1) quality of life (residence or transportation conditions), (2) labor-market conditions, and (3) climate conditions. In addition, in yet another paper (Kumo, 2001, 2003), it was demonstrated that regional population/market size may stimulate in-migration in some regions.

However, when conducting econometric analyses, Russia still present numerous difficulties. In a 1997 paper (Kumo, 1997), income variables were found to be negatively related to in-migration, which is not typical of other developing countries. These phenomena could be attributed to the coexistence of high wages in Siberia or in the Far East regions, which were used as an enticement because of the severe climate and large out-migration occurring in these areas. The effects of economic factors themselves, however, may not be stable. Therefore, the results of the quantitative analyses are deemed questionable by some researchers.

Hanson (2000) examined the effects on regional real income of saving rates, inflows of foreign currency, and income transferred by the central government. Although some significant effects were

obtained, the results indicated that abnormal values must have critically distorted the analysis. Changing the explained variable from real income to net migration rates did not improve the results.

Some researchers investigated individual regions in detail, not on the basis of quantitative analyses. The methods adopted by Ohtsu (2000), which focus on the examination of labor-market conditions in the Far East, or those by Gimpelson and Monusova (2000), which focus only on public employment and income reallocation policies, appear to be effective.

Such microscopic analyses, however, must be based on individual surveys. These are typical methods in area studies; however, this study examines the possibility of using easily obtainable data from macroeconomics to explain interregional migration.

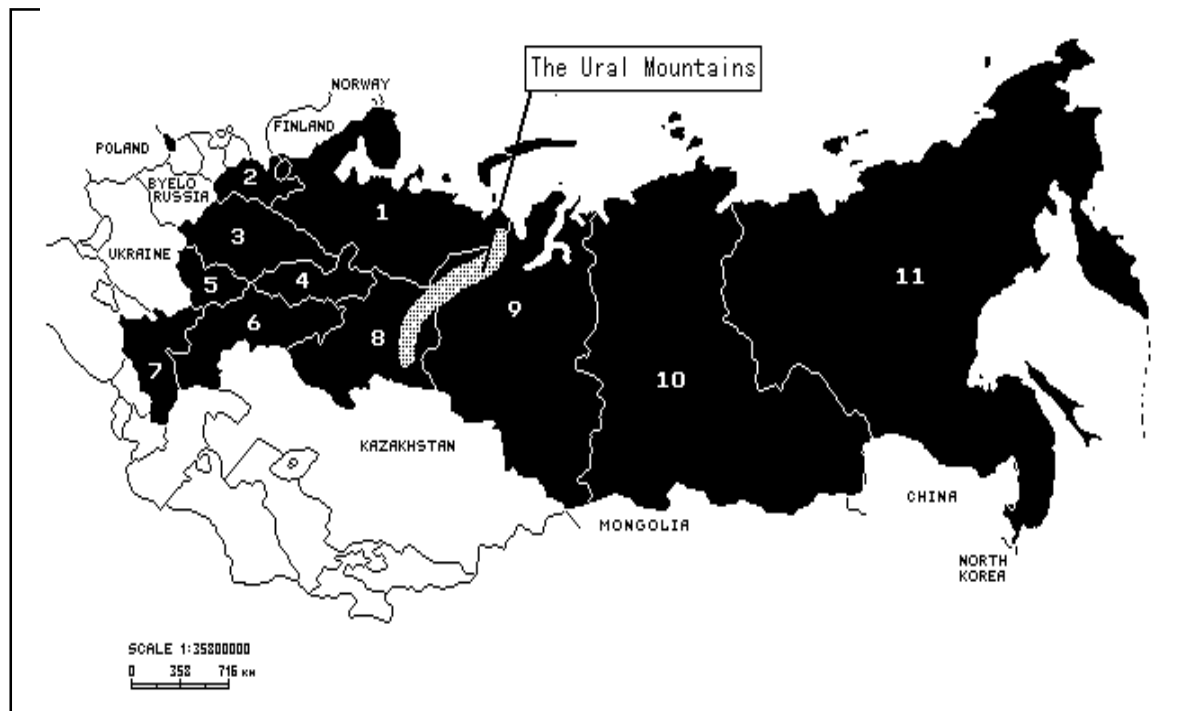
A pioneering study undertaken by Andrienko *et al.* (2002) uses in- and out-migration matrices by region (*oblast'*) and applies simultaneous gravity models. Although some of the results are ambiguous, analyzing by income strata demonstrates that income variables and regional economic conditions significantly affect migration decisions. The results make it possible to easily grasp the effects of economic factors on migration patterns in Russia.

## **2.2 Interregional Migration in Russia**

The most critical differences that become evident when comparing Russian migration patterns before and after the Soviet era are (1) the emergence of large out-migration from the Far North regions and (2) the increases in in-migration rates into advanced/ industrialized areas and into warm farming regions.

After the middle 1970s into the 1980s, when the Soviet society was recovering from exuberant government development strategies, great importance was placed on further development of already-advanced European regions and resource-mining regions. On the other hand, it was very difficult to entice laborers to settle in frontier areas. Higher wages in these areas were insufficient to offset the deficiencies in the infrastructure. In addition, it was quite expensive to develop the frontier because of the severe environmental conditions. However, big projects, such as constructing new industrial zones in peripheral regions, were discontinued in this period. Rather, seasonal or day workers were used in underdeveloped areas, but these workers were only provided with barracks (Milovanov, 1994). In order to avoid maintaining the infrastructure and to promote short-term efficiency, the government intended to entice day workers into the Far North by using wage incentives.

However, in the Far North, which has very large natural resources, development incentives were provided by the central administration with clearly positive results. Thus, large in-migration into such areas as Siberia or the Far East was observed until the end of the 1980s (Figure 2-2. As for regional division, see Figure 2-1).

**Figure 2-1. The Russian Federation and Its Regions**

1: North; 2: North-West; 3: Central; 4: Volga-Vyatka; 5: Central Black Earth; 6: Volga; 7: North Caucasus; 8: Ural; 9: Western Siberia; 10: Eastern Siberia; 11: Far East

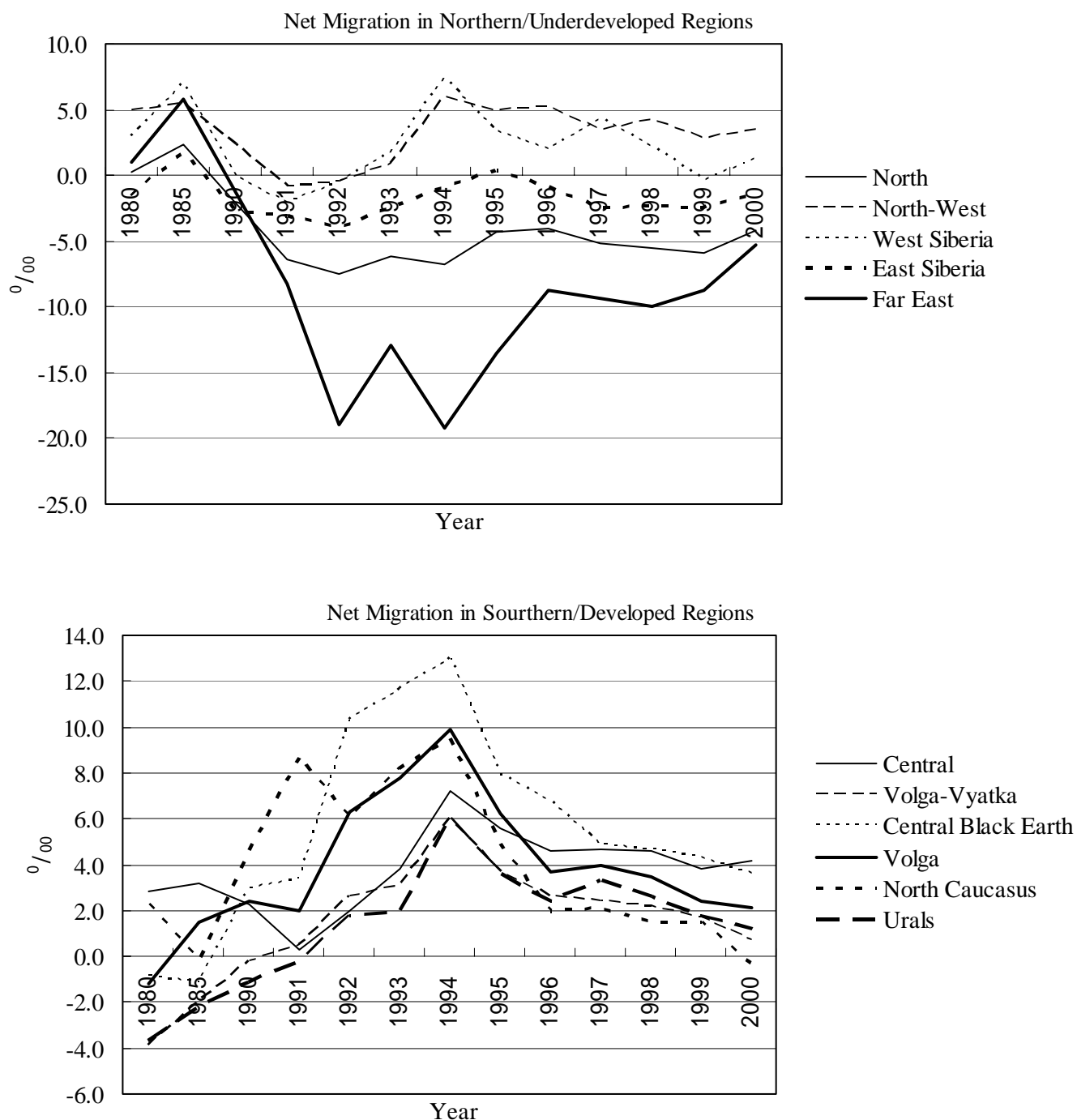
(Source: Goskomstat RF, *Avista ver.1.3*, 1995.)

The collapse of the Soviet Union caused drastic changes in the patterns. As pointed out earlier, in-migration into already-advanced areas and out-migration from the north emerged in 1990s (Figure 2-2). This can be clarified when plotting net migration as geographical information. After the 1990s, in many regions in Siberia or in the Far East, percentage-scale out-migration flows were observed, excluding Chumen', which included large mining bases. Comparing net-migration by region in 2000 and in 1985 may help understand the changes (Figure 2-3).

Numerous causes can be cited for this phenomenon. Especially significant are the racial/political factors (Chechen, North Osetiya, Ingush) and return migration (from Central Asia and the Baltic states) (Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii, 1999). It would, however, be impossible and beyond the scope of this study to consider every possibility. Based on the author's interest, this study is limited to economic factors.

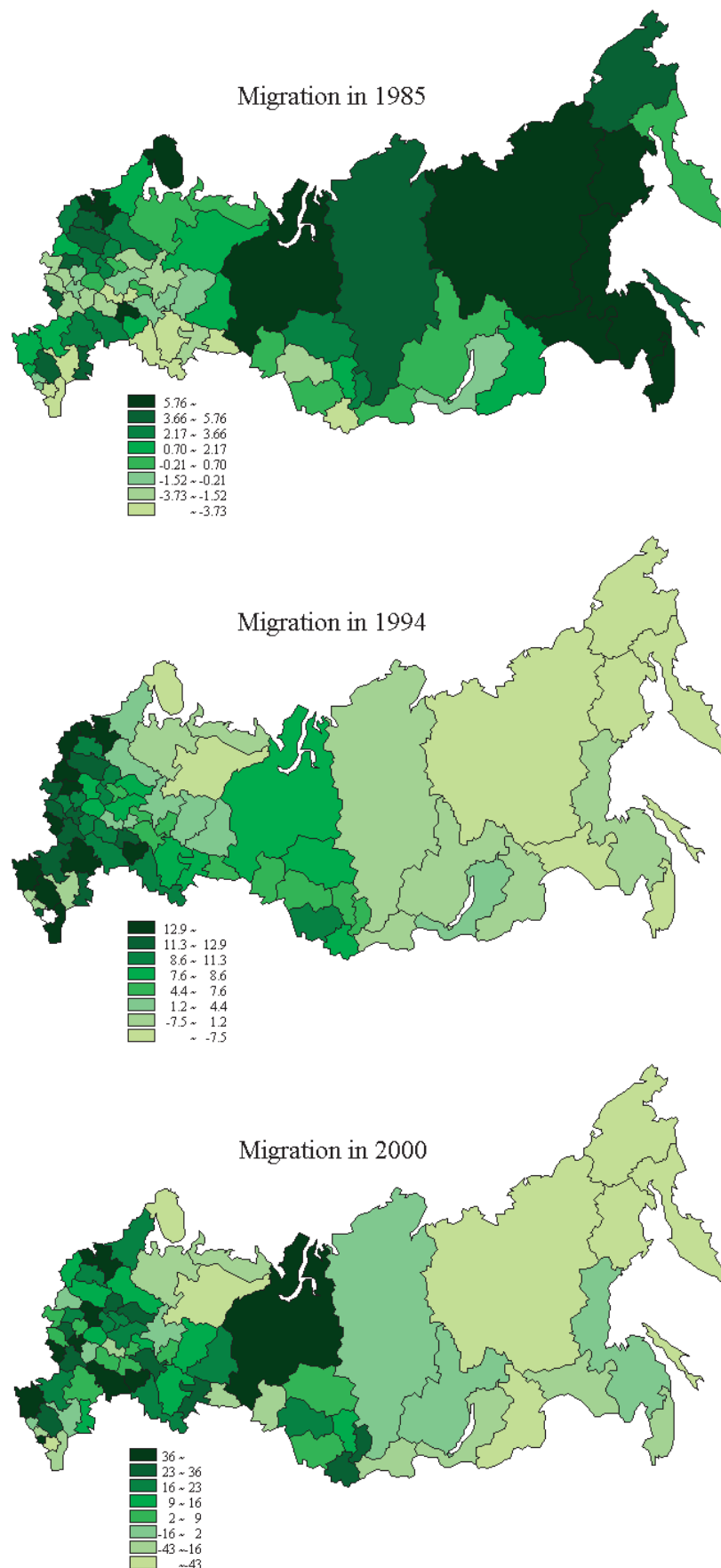
**Figure 2-2. Net Migration in Each Region, 1980-1999**

(Sources: TsSU RSFSR, 1980, pp.6-9, TsSU RSFSR, 1981, pp.6-8, Goskomstat Rossii, 1993, pp.26-28, Goskomstat Rossii, 1999, pp.64-65 and Goskomstat Rossii, 2001, pp.63-64.)



### Figure 2-3. Net Migration in Each Region

(Sources: Goskomstat Rossii, 1999, pp.64-65; Goskomstat Rossii, 2001, pp.63-64. The criterion of regional division is 12.5 %tile.)



### **3. Analysis of Economic Factors of Interregional Migration in Russia**

#### **3.1 Empirical Analysis**

Official statistics are used to analyze migration factors in this section. Net migration in each region in 1994, 1997, and 2000 is regarded as an explained variable. Although census-based gross population flow data is usually utilized in detailed migration analysis, official population census was not conducted through the 1990s in Russia; thus, the net migration rate is taken as a dependent variable. Factors thought to affect migration decisions are as follows:

Indicators of Economic Agglomeration:

Population (1000), Labor Power (1000), Gross Regional Products (million rubles), Gross Industrial Output (million rubles), Gross Agricultural Output (million rubles)

Indicators of Social Infrastructure:

Railroad Density (km/sq.km), Surfaced Road Density (km/sq.km)

Indicators of Regional Economic Conditions:

Unemployment Rates (%), Per Capita Income (Rubles), Per Capita Gross Regional Products (Rubles), Regional Economic Growth Rates (%), Growth Rates of Gross Industrial Output (%), Growth Rates of Gross Agricultural Output (%), Per Capita Newly Constructed Houses, Per Capita Retail Expenditure (Rubles), Per Capita Expenditure on Services (Rubles), Percentage Share of Firms in Debt (%), Capital Accumulation (million rubles), Consumer Price Index (%)

Indicators of Welfare/Cultural Conditions:

Percentage Share of Urban Population (%), Per Capita Housing Space (square m), Percentage Share of University Students in Total Population (%), Per Capita Hospital Beds, Per Capita Number of Doctors (100), Per Capita Number of Crimes Committed

Indicators of Climate Conditions:

A Dummy Variable for Far North Regions<sup>1</sup> which locate in the Arctic Circle (0/1)

All variables are for each region (*oblast'* and *kray*) and are given a one-year lag in comparison with the explained variable. Autonomic Regions (*Avtonomniy okrug*) are included in the respective *oblast'*. The Chechen and Ingush republics are excluded from the analysis because of their extraordinary environment. The number of samples is 77. All data were obtained from Goskomstat Rossii (2001). A simple OLS analysis was conducted. All variables were introduced linearly. The results using stepwise techniques are shown in Table 3-1.

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<sup>1</sup> "Far North regions" are officially defined as backward areas, where high wage rates had been set during the Soviet era to offset severe environmental conditions.

**Table 3-1. Estimation Results Obtained by Using a Stepwise Technique**

		1994	1997	2000
Infrastructure	Railroad Density	- (2.455)	0.008 (1.85)	0.061 * (2.28)
Economic Conditions	Per Capita Income	-0.026 ** (2.455)	-	-
	Firms in Debt	-0.359 ** (2.79)	-0.247 ** (4.56)	-0.870 ** (2.63)
	Growth in the Number of Laborers	0.937 ** (3.39)	0.303 * (2.15)	-
	Unemployment Rate	-	-0.229 (1.70)	-
	Growth of Capital Accumulation	-	-	-0.155 * (2.19)
	CPI	-	-0.192 (1.93)	-
	Expenditure on Services	-0.0003 (1.67)	-0.009 (1.93)	-
	Growth of Agricultural Products	-	-	0.496 * (2.30)
	Per Capita Newly Constructed Houses	-	-	0.127 ** (4.69)
Welfare/Cultural Indicators	Per Capita Housing Space		0.962 ** (3.06)	4.719 ** (2.68)
	Urban Population Share	-	-7.177 (1.65)	-
	Per Capita Hospital Beds	-0.096 (1.95)		
	Per Capita Number of Crimes Committed	-	-	0.010 * (2.24)
Climate	Dummy for North	-9.43 * (2.316)	-8.678 ** (5.32)	-45.844 ** (5.16)
	Constant	45.922 ** (6.876)	30.012 * (2.05)	-130.47 ** (2.67)
Adj. R-sq.		0.808	0.705	0.720
Degree of Freedom		70	69	68
F-Value		43.31	19.347	22.851
Significance		**	**	**

\*\* : Significant at 1% level; \* : Significant at 5% level. T-values are in the parentheses below the respective coefficient.



In general, the results are intuitively acceptable and are consistent with previous studies. The fact that per capita housing space, which is regarded as a welfare indicator, shows a positive coefficient in 1997 and in 2000 is easily understandable. It is notable, however, that regions that show large housing spaces may be in warm southern European areas, not in advanced regions, such as Moscow or Saint Petersburg.

The percentages of firms in debt show negative coefficients throughout the years surveyed, and growth rates of labor power in regions obtained positive coefficients in 1994 and 1997. All these results show that regional economic conditions have a clear effect on migration decisions. In 2000, improved production of agricultural products and gains in the number of newly constructed houses had positive effects on migration, which was quite understandable. It should be mentioned that regions that show high numbers of per capita newly constructed houses are near large cities, such as Moscow or Saint Petersburg. Railroad density, which is a condition of regional infrastructure, positively affected the flow of population in 1997 and 2000, which also seems quite natural.

The per capita crime numbers seem somewhat unusual. This percentage shows a positive and significant coefficient in 2000, which may suggest that larger cities with many crimes had attracted more people in recent years. From other point of view, brisk regions would attract both official and unofficial economic activity, hence, it is natural that positive correlation is observed between net migration and crime numbers<sup>2</sup>. The negative coefficient shown by growth rates of capital investment in 2000 and the negative effect that per capita income had on migration in 1994 may suggest that (1) backward regions have little infrastructure and (2) peripheral regions, which have severe climate conditions, are still given wage rate incentives, which still fail to offset the low standard of living in these areas.

All of these results clearly show that economic factors critically and rationally affect migration decisions in Russia. Thus, the application of western theories on the examination of interregional population migration in transformational Russia or on the analysis of Russian regional economies seems reasonable.<sup>3</sup>

A striking result is obtained for the dummy variable, which is given to the regions of the Far North. It was strongly significant for all years, and the regression coefficient was the largest, again for all years. The term dummy variable is the same as that used in the 1997 and 2003 papers (Kumo, 1997, 2003).

As repeated, large-scale out-migration from the Far North is well recognized and is pointed out by many previous studies (Heleniak, 1999; Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii, 1999; Mikheeva, 2001). In papers from 1997 and 2003 (Kumo, 1997, 2003), this phenomenon was shown to be a counteraction against Soviet-era development policies that were inefficient; the same was found by Heleniak (1999) or Mikheeva (2001). Mikheeva (2001), however, asserts the necessity for supporting individual regional economies. From an economic

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<sup>2</sup> I owe it to one of the anonymous referees that I got this explanation.

<sup>3</sup> Concerning econometric analysis comparing before and after the Soviet era, see Kumo (1997) and Kumo (2003). Some variables show peculiar results during the Soviet period.

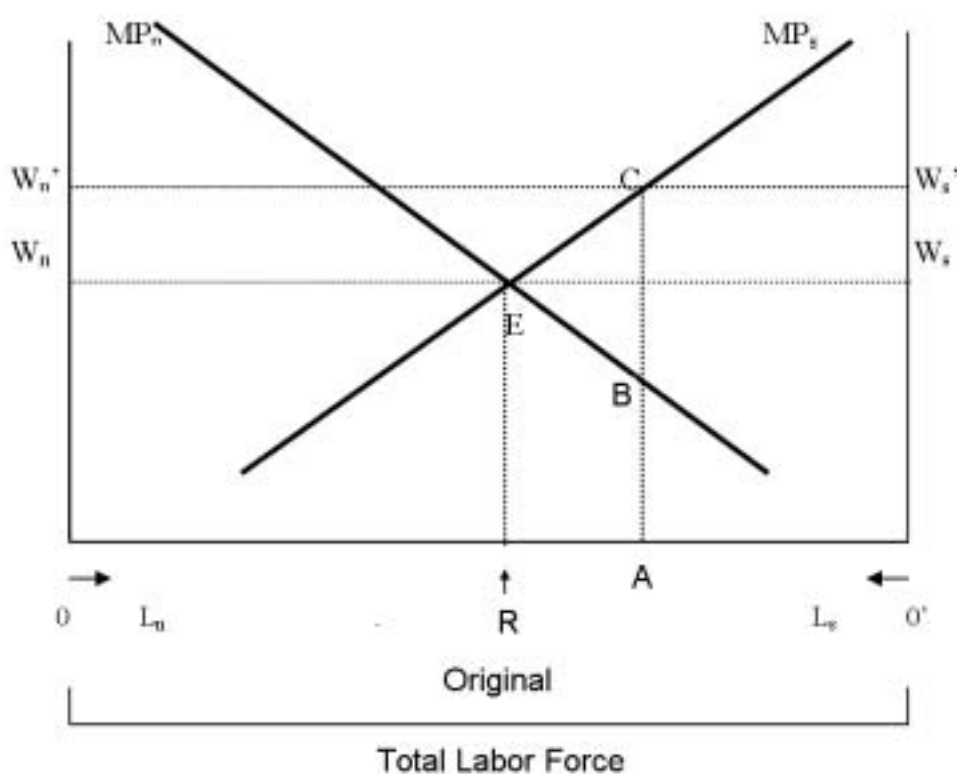
point of view, it is questionable that Mikheeva's (2001) view would be acceptable.

### 3.2 Interpretation

The scale of out-migration from the Far North is quite large and has been regarded as a problematic phenomenon in previous studies (Heleniak, 1999; Mikheeva, 2001). The emergence of out-migration from these northern areas is, however, an adjustment process caused by inefficient Soviet development strategies. It should be regarded as an economically rational phenomenon. This is explained as follows. The logic is the same as that in the two-sector analysis presented by Todaro (1969).

In Figure 3-1,  $MP_n$  and  $MP_s$  denote the marginal productivity of labor in the north and the south, respectively. The sum of  $L_n$  (labor force in the north) and  $L_s$  (labor force in the south) is the total labor force, which is assumed to be constant and is distributed at the equilibrium point E. Here, real wage rates are equalized between the north and the south. The social surplus shown assumes that the military requests that a large city be built in the north with a labor force of OA.

**Figure 3-1.**  
**Effects of South-to-North Migration Caused by the Government on Social Welfare**



(Source: Kumo, 1997, p.32. Reprinted with permission of *Review of Urban & Regional Development Studies*, vol.9, No.1, 1997)

First, in the north, the central government would set the wage rate  $W_n'$  higher than the equilibrium level in order to attract laborers in the south. This wage rate would be determined by politics rather than economics. Laborers in the south would respond to the wage differential and move to the north. The population flow would continue until the labor supply in the north was  $OA$ . The wage rate in the south would also increase to  $W_s'$ . Although wage rates were determined by the government in the USSR, the central government would have to increase the wage rate in the south in order to interrupt the excess population inflow into the north. If the wage rates in the south had been set lower than  $W_s'$ , a restriction would have to have been placed on population migration. However, this could have led to social conflict. In addition, the wage rates in the south would have no influence on the total social surplus. Regardless of the wage rates in the south, only a transfer of welfare would have occurred.

When the north attained the target population size  $OA$ , this economy would have attained an equilibrium. The excess cost  $W_n'W_nW_sW_s'$  to hire  $OA$  laborers in the north would only be transferred between the government and laborers. If workers were distributed at  $E$ ,  $RA$  workers would bring the nation products of  $ERAC$ . However,  $RA$  workers would now be in the north, yielding only  $ERAB$ . Therefore, the nation as a whole would lose (the triangle)  $EBC$ .

If the number of people migrating into the north were not so large (in other words, if the  $RA$  were small enough), this inefficiency would not be so meaningful. However, population in the Far North exceeded 12 million (Goskomstat Rossii, 1999). Furthermore, the population in the northern areas (Far East, East Siberia, West Siberia, and Northern regions) was above 38 million in 1991 (Goskomstat Rossii, 1999). The high out-migration rates of the northern regions during the 1990s (in Figure 2-2) were not attributed to the small population of these areas. The impact of the surplus population in the northern regions on the efficiency of the national economy may not have been as light as initially thought.

In addition, if the central government had set the wage rate in the south lower than  $W_s'$ , this would have then allowed people in the south to move to the north in spite of restrictions on free migration. Non-organized migration has contributed to the inefficient use of labor (e.g., Perevedentsev, 1975).

This economic inefficiency required a change in investment policy in the 1970s (Dienes, 1972). The large population outflows from the Far North (depicted by the absolute value of the dummy variable in Table 3-1) may denote the correction of the distortion that had accumulated during the Soviet era. From these points of view, the evident out-migration from the Far North after the collapse of the Soviet Union was inevitable. Such a phenomenon can be regarded as natural or as a necessary evil when considering the necessity of increases in economic efficiency in transformational Russia.

#### **4. Concluding Remarks**

This study investigated migration patterns in Russia after the collapse of the Soviet Union. The

migration factors in 1994, 1997, and 2000 were examined, and the significant effects of economic factors on migration decisions were analyzed. Finally, the theoretical logic behind the large-scale out-migration from the Far North was presented in brief.

As widely recognized, migration patterns in Russia drastically changed after the collapse of the Soviet Union. The most striking phenomenon is the large-scale out-migration from regions located in the Arctic Circle. It should be regarded, however, as an outgrowth of the distortion accumulated during the Soviet era and as an inevitable event. The Far North did not have any foundation for supporting a large population, and the out-migration seemed to be quite natural. Possibly, a change in the economic system was indispensable because the Soviet government could not afford the cost of the development strategy it had implemented in the peripheral regions.

Passport system, which had been applied in the Soviet Union was eliminated, and this relieved the migration process. Figure 2-2 shows some of these changes, including the low migration rates during the Soviet era and increases in migration after the 1990s. The elimination of limitations on the flow of interregional population undoubtedly had an effect on this phenomenon. Without massive government investment or an active invitation of foreign direct investment, population outflows from northern regions would continue indefinitely. Although one can observe that the scale of out-migration flows from the Far North is decreasing from Figure 2-2, this may only indicate the exhaustion of inhabitants in these areas.

Of course, the population outflows from the Far East could result in a shortage of labor resources, worsening of the public order, or other social unrests in the region. However, it may be able to be justified from the point of view of economic efficiency.<sup>4</sup>

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<sup>4</sup> Are high land prices in central business districts are problematic because some people cannot afford to buy houses? The answer is clearly 'NO'. Land prices in city centers are understandably high; if they were not, optimal land use patterns could not be maintained. A one-million square-meter one-story private home in a downtown area is clearly a misuse of public space. The problem that the ability to purchase housing is inequitable is concerned with income allocation. High land prices in densely inhabited districts are not problematic in this sense.

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