Prepared for the Japan-Korea Joint Symposium on Russian Studies
held at Slavic Research Center, Hokkaido University
May 16, 2005

Interregional Migration Patterns in Russia during the Transitional Period: An Economic Perspective

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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.

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

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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 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

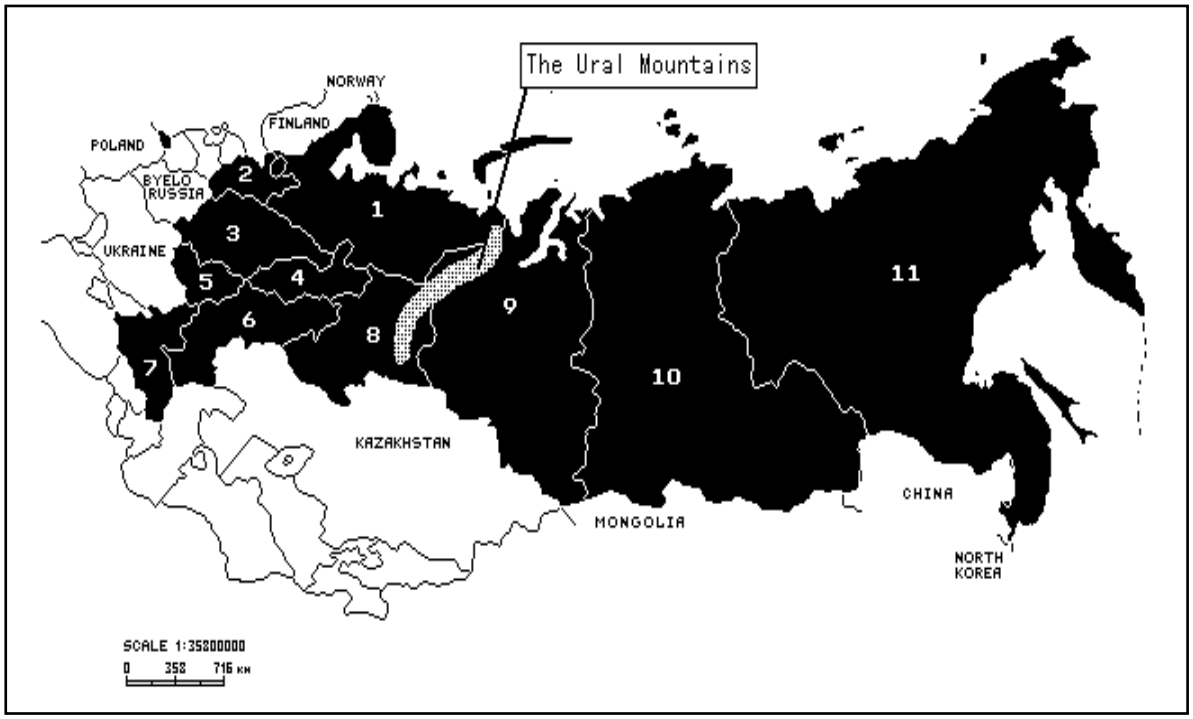
The most critical differences that become evident when comparing Russian migration patterns

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, 1980-2001

(*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.)

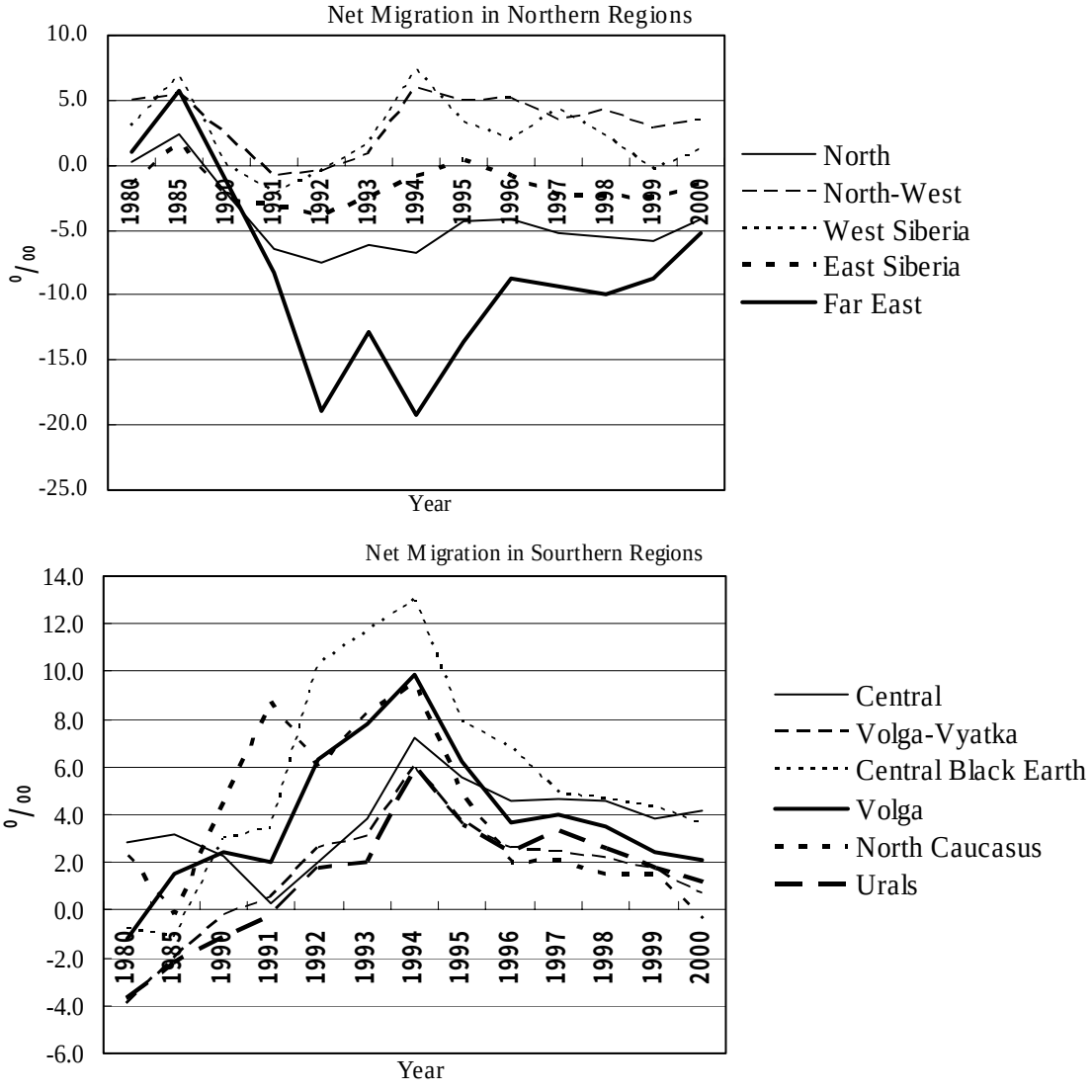
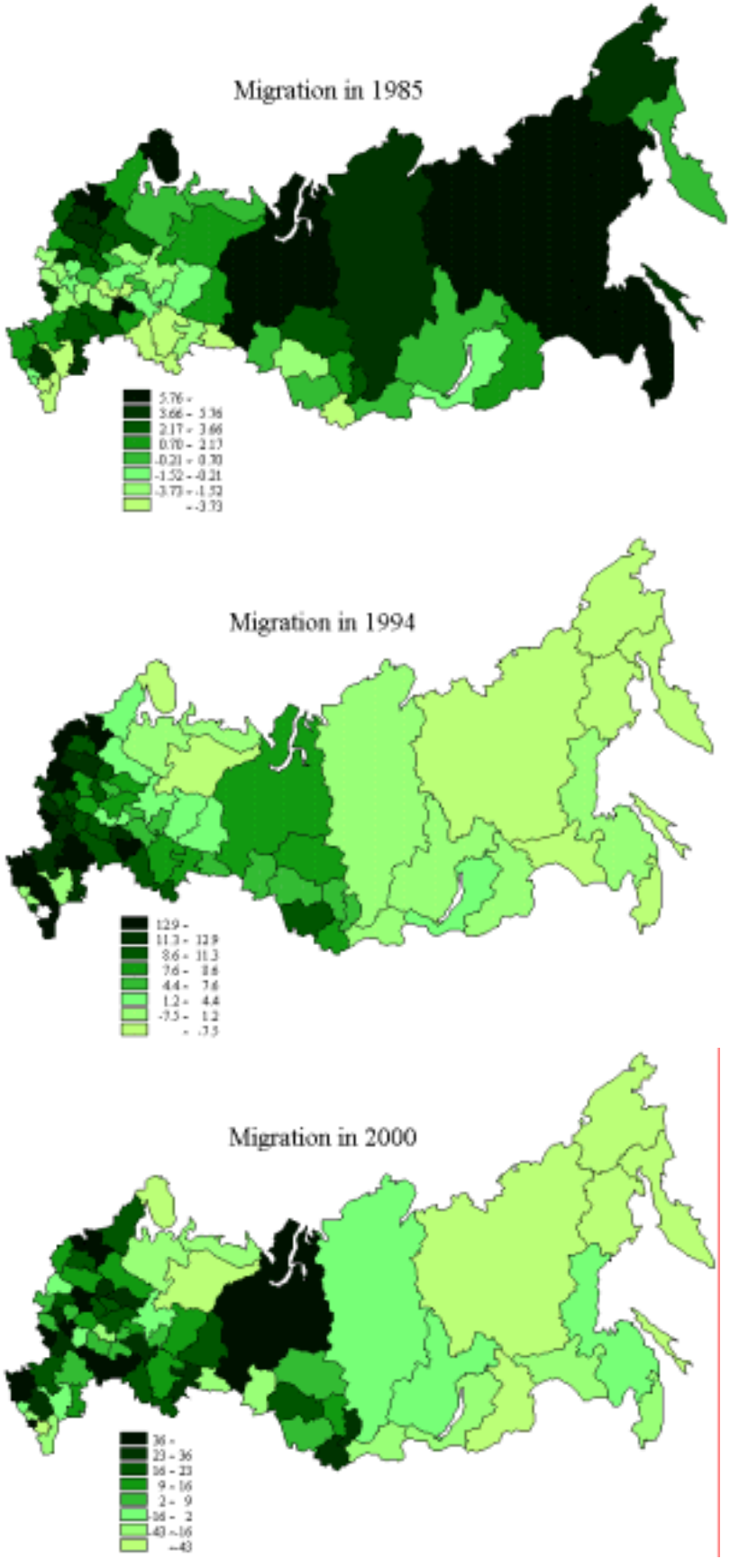


Figure 2-3. Net Migration in Each Region

(*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 rates in each region for 1994-2000 are regarded as explained variables. Migration in 1980 and in 1985 will be examined also for comparison. The scale of interregional migration flows after 2000 is very small in comparison with that during the preceding period; hence, population migration patterns in 2001 and after are not investigated. 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. Matrices of gross population flows among regions were reported in official data, but they were described based on eleven *Russian Economic Regions* or seven *Federal Districts*; thus, the net migration rate is taken as a dependent variable in this study.

The existence of larger markets may attract people and firms to a certain location through economies of scale. Therefore market scale can be regarded as an explaining variable. Better equipment of social infrastructure and urbanization economies may positively affect on population flows also. Intensive economic development and better employment situations are supposed to affect positive migration flows. On the other hand, the central government strongly induced regional development in the former Soviet Union; hence, governmental incentives on regional development during the Soviet era might have attracted people in peripheral areas. Climate conditions must play critical roles in areas with very severe weather especially in the Far North regions which locate in the Arctic areas.

The population size (POP_i, in thousand) is regarded as a proxy for economic size in each region *i*. Gross regional products or gross outputs of the industrial sector are not utilized because (1) the price index varies from region to region and (2) the amount of output is recorded not at the production nodes but in regions where the headquarters locate. Urbanization is measured directly by the percentage share of urban population ($URBAN_i$, in per cent).

As for the indicators of social infrastructure development, housing space per capita ($DWELL_i$, in meter square), and surfaced road per area ($ROAD_i$, in kilometers/kilometers square) were taken as a benchmark. These measures have been often utilized in this kind of analyses in Soviet economic studies.

Economic conditions in regions will be represented by the percentage share of firms in debt ($LOSS_i$). Per capita income and wages are not utilized because of the great differences in price indices by region. Unemployment rates is not taken because of unreliability in data in transitional period and we cannot analyze the effects of the unemployment variable on migration patterns during the Soviet era because of lack of data.

Governmental incentives to develop specific regions will be considered by introducing per capita governmental investment in regions ($INVEST_i$, in thousand rubles). To grasp how this factor affected on migration decision during the Soviet period, the same variable is introduced in analyzing population flows in transitional period also.

The effects of climate conditions is examined by using the dummy variable ($COLD_i$, unity for regions in Far North and zero for others) for Far North regions, which locate in the Arctic Circle and given special treatment by the central government in the Soviet Union and the Russian Federation.

Thus, the equation to be estimated takes the following form:

$$Mi = \alpha_0 + \beta_1 POPi + \beta_2 URBANi + \beta_3 DWELLi + \beta_4 ROADi + \beta_5 LOSSi + \beta_6 GOVINVESTi + \beta_7 COLDi$$

where M_i is net migration rate in region i ($^{o}/_{oo}$).

Table 3-1:

Simple OLS: Estimation Results

Variables/Year	1980	1985	1992	1993	1994	1995	1996	1997	1998	1999	2000
Population	0.45	0.13	15.00	9.65	18.71	16.02	8.28	8.82	7.72	7.66	4.31
(in thousand)	(0.25)	(0.07)	(3.10)*	(3.15)*	(3.42)*	(3.20)*	(3.06)*	(3.36)*	(3.69)*	(3.68)*	(2.20)*
Urban Population	3.43	16.37	-49.03	-32.58	-46.13	-18.43	-17.02	-10.53	-11.62	-14.32	-8.13
(in percent)	(2.73)*	(2.05)*	(2.60)*	(2.85)*	(2.50)*	(1.00)	(1.88)	(1.13)	(1.48)	(1.72)	(1.12)
Per Capita Housing Space	2.05	-6.42	128.82	59.60	-50.12	-48.84	-14.47	4.21	2.78	-23.33	-19.96
(sq.m)	(0.17)	(0.55)	(3.86)*	(2.72)*	(1.21)	(1.39)	(0.85)	(0.23)	(0.21)	(1.34)	(1.24)
Surfaced Road	0.40	0.33	-0.59	5.42	17.86	12.31	7.31	6.80	6.12	7.08	4.13
(km/sq. km)	(0.22)	(0.15)	(0.13)	(2.30)*	(5.96)*	(3.43)*	(3.93)*	(3.31)*	(3.73)*	(3.98)*	(2.60)*
Percentage of Firms in Debt	-7.28	-3.63	-5.36	-2.28	-6.52	1.16	-10.88	1.92	-0.77	-14.53	-17.38
(in percent)	(0.50)	(1.15)	(1.23)	(0.48)	(0.63)	(0.09)	(1.33)	(0.15)	(0.09)	(1.47)	(2.25)*
Per Capita Governmental Investment	29.70	30.43	8.25	2.39	6.82	1.57	1.49	1.40	-1.09	-2.66	0.89
(in rubles)	(6.37)*	(6.49)*	(0.69)	(0.44)	(0.81)	(0.22)	(0.45)	(0.47)	(0.58)	(1.05)	(0.70)
Dummy for Far North regions	-0.32	-1.99	-7.02	-13.98	-13.33	-14.33	-6.89	-9.32	-8.63	-5.50	-5.71
(unity for regions in the Arctic Circle	(0.17)	(0.97)	(1.37)	(4.25)*	(2.41)*	(2.74)*	(2.59)*	(3.31)*	(3.60)*	(2.08)*	(2.46)*
Constant	-86.24	79.28	-234.24	-119.30	-43.56	-14.87	-9.27	-52.92	-12.60	50.97	45.63
	(4.67)*	(3.65)*	(4.19)*	(4.04)*	(0.61)	(0.28)	(0.27)	(1.42)	(0.51)	(1.58)	(1.64)
Adj. R-squared	0.68	0.55	0.45	0.68	0.75	0.52	0.72	0.67	0.63	0.71	0.60
D.F.	61	61	68	68	68	70	70	70	70	70	70

T-values are given in the parenthesis below the respective coefficients. All variables except the dummy for Far North Regions take the logarithmic form.

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

All variables are for each region (*oblast'* and *kray*) are given a one-year lag in comparison with the explained variable. Autonomic Regions (*Avtonomniy okrug*) are included in the respective *oblast'*. The Chechen, North Ocetia and Ingush republics are excluded from the analysis because of their extraordinary environment. The number of samples is basically, as far as the data are

obtainable[1]. All data were obtained from Goskomstat Rossii, *Regiony Rossii* ****godu*, Goskomstat Rossii, Moscow, ****+1. A simple ordinary least squares analysis was conducted. All variables except the dummy variable were transformed into logarithm. The results are shown in Table 3-1.

Interpretation of the results follows. As for the analysis on migration patterns in 1992-1993, we reserve any comments because of the social disorders and unreliability of data during this period.

In the 1980s the amount of per capita governmental investment clearly showed positive and significant effects on migration. The critical role of development incentives during the Soviet era was presented. On the other hand, coefficients of this variable turned out to be insignificant, which can be accepted as a matter of course after the collapse of the centralized government of the Soviet Union.

It is at a glance strange that the percentage share of urban population and per capita housing space obtained insignificant coefficients. This phenomenon can be interpreted by the followings: (1) regions with the highest percentage share of urban population are observed in the Far North Regions (there may be no farmers and no areas are classified as farm ones in such regions) and (2) per capita housing areas in such scarcely populated areas are large in comparison to the national average. It may be a supporting evidence of this interpretation that these variables obtained positive coefficients during the 1980s.

The percentage share of firms in debt showed ambiguous results. When investigating regions individually, one can see that people flowed out from *Primorskiy Kray* with high percentage share of deficit firms, but on the other hand a large amount of population inflows is observed in south-western regions of Russia, where manufacturing industries are in severe conditions but good living environment can be enjoyed. These complicated phenomena might have affected on this result.

Surfaced road density, which is a condition of regional infrastructure, showed positive and significant coefficients throughout the 1990s, which indicates that maintenance of social infrastructure in regions positively affects on population migration. If interpreting this result connected with above one, one can think that people do not flow into regions in Far North, where the percentage share of urban population is high but social infrastructure is poorly equipped.

Population size in each region obtained insignificant coefficients during the 1980s and affected positively in the 1990s and after on migration flows. The critical effects of political incentives given to peripheral areas during the Soviet era and contribution of market effects on population flows in the transformational period show clear contrast.

All of these results clearly show that economic factors critically affect migration decisions in Russia in an intuitively understandable way. Thus, the application of stylized theories on the examination of interregional population migration in transformational Russia or on the analysis of Russian regional economies seems reasonable.[2]

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[1] In the Soviet period, data were not divided into this number of regions. Occasionally some data were lacked for a few regions; thus, the number of samples varies from year to year.

[2] Concerning econometric analysis comparing before and after the Soviet era, see Kumo (1997) and Kumo (2003). Some

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 during the 1990s. 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 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 0A.

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 0A. 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.

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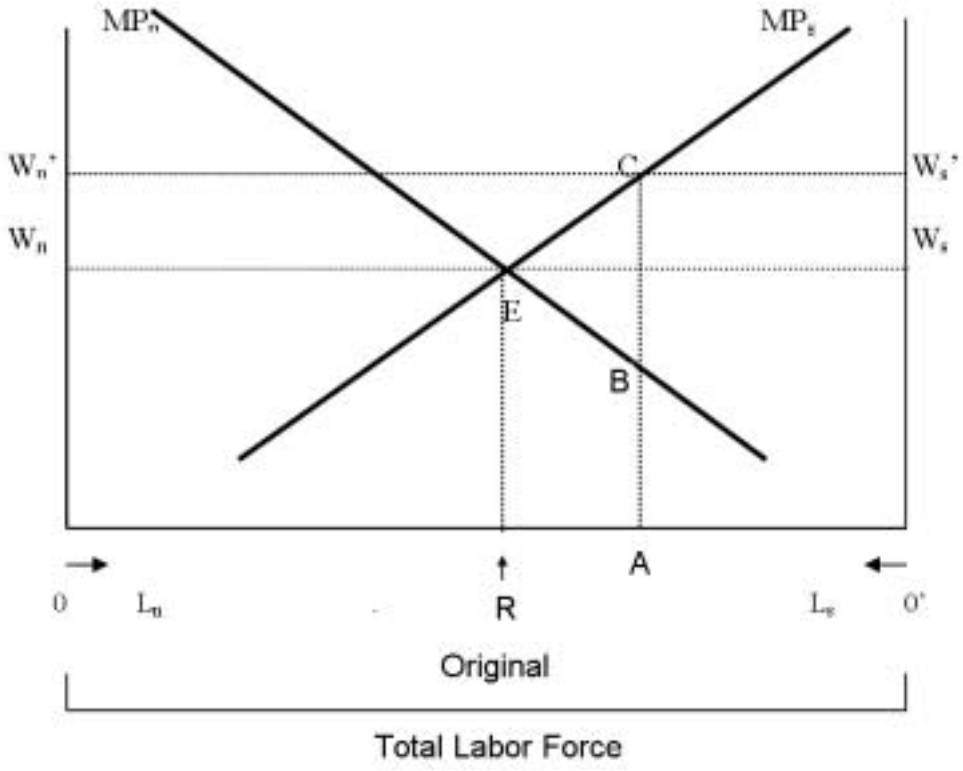
variables show peculiar results during the Soviet period.

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



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

When the north attained the target population size 0A, this economy would have attained an equilibrium. The excess cost $W_n'W_nW_sW_s'$ to hire 0A 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.[3]

[3] 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.

References

Andrienko, Y., and Guriev S. (2002)
Determinants of Interregional Mobility in Russia: Evidence from Panel Data, CEFIR Working Paper No.10.

Dienes, I. (1972)
"Investment Priorities in the Soviet Regions", *Annals of the Association of American Geographers*, Vol. 62, No. 3, pp.437-454.

Gimpelson, V., and Monusova, G. (2000)
"Public Employment and Redistributive Politics in Russian Regions", *Russian Regions: Economic Growth and Environment*, Murakami, T. and Tabata, S. eds., Slavic Research Center, Hokkaido University, Japan, pp.161-176.

Goskomstat Rossii (1999)
Regiony Rossii 1998 (Regions of Russia), Goskomstat Rossii, Moscow. (in Russian)

Goskomstat Rossii (2001)
Regiony Rossii 2001 (Regions of Russia), Goskomstat Rossii, Moscow. (in Russian)

Hanson, P. (2000)
"Understanding Regional Patterns of Economic Change in Post-Communist Russia", *Russian Regions: Economic Growth and Environment*, Murakami, T. and Tabata, S. eds., Slavic Research Center, Hokkaido University, Japan, pp.5-43.

Heleniak, T. (1999)
Migration from the Russian North During the Transition Period, Social Protection Paper SeriesNo.9925, The World Bank.

Kumo, K. (1997)
"Economic System Conversion and Migration Transition in Russia", *Review of Urban and Regional Development Studies*, Vol. 9, No. 2, pp.20-37.

Kumo, K. (2001)
Regional Economy in Transformational Russia: Regional Characteristics and Population Migration under Transition, Working Paper No.41, Institute of Economic Research, Kagawa University, Japan.

Kumo, K. (2003)
Migration and Regional Development in the Soviet Union and Russia: A Geographical Approach, Beck Publishers Russia, Moscow.

Milovanov, E.V. (1994)
"Voprosy Eksprluatatsiya Dal'nyego Vostoka (Problems of Exploitation in the Far East)", *Ekonomicheskaya Dzhizni Dal'nyego Vostoka*, Vol. 3, pp.37-41. (in Russian)

Mikheeva, N.N. (2001)
"Dokhody Naseleniya Dal'nevostochnykh Regionov: Sovremennye Tendentsii (Income of Residents in the Far East: Modern Tendency)", *Roshia Kyokutou Chiiki no Sougouteki Bunseki: Genjou to Tenbou*, Nichiro Kyokutou Gakujutu Kouryuu Kai, pp.133-141. (in Russian)

Ohtsu, S. (2000)
"Characteristics of Russian Regional Labor Market", *Russian Regions: Economic Growth and Environment*, Murakami, T. and Tabata, S. eds., Slavic Research Center, Hokkaido University, Japan, pp.177-202.

Perevedentsev, V.I. (1975)
Metody izucheniya Migratsii Naseleniya (Methods of Population Migration Analysis), Moscow, Nauka.

Sutherland, D., and Hanson, P. (1996)
"Structural Change in the Economies of Russia's Regions", *Europe-Asia Studies*, Vol. 48, No. 3, pp.367-392.

TACIS (1996a)
Analysis of Tendencies of Russia's Regional Development in 1992-1995: volume 1, Ekspertnyi Institut, Moscow.

TACIS (1996b)
Analysis of Tendencies of Russia's Regional Development: Typology of Regions, Conclusions and Recommendations, volume 2, Ekspertnyi Institut, Moscow.
Todaro, M.P. (1969)
"A Model of Labor Migration and Urban Unemployment in Less Developed Countries", *American Economic Review*, Vol. 59, pp.138-148.

Tsentr po Tekhnicheskomu Sotrudnichestvu po Evrope i Tsentral'noy Azii (1999)
Migratsya Naseleniya v Stranakh SNG: 1997-1998 (Population Migration in CIS Countries), Medzhdunarodnaya Organizatsiya po Migratsii, Moscow.

TsSU RSFSR (1980)
Narodnoe Khozyaystvo RSFSR 1979 (The National Economy of RSFSR), Statistika, Moscow. (in Russian)

TsSU RSFSR (1981)
Narodnoe Khozyaystvo RSFSR 1980 (The National Economy of RSFSR), Statistika, Moscow. (in Russian)