

Research Article

International Comparisons of Population Mobility in Russia

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The population of Russia is regarded as being quite immobile compared to other countries. There have been some recent methodological advances and new datasets on internal migration which make cross-national comparisons, though these do not extend to Russia. This paper adds comparisons of levels of mobility in Russia with other countries. The study finds that the population of Russia is not significantly less mobile than other large countries and that part of the myth of immobility stems from a deterioration of the migration registration system in the post-Soviet period. There are inconsistencies between lifetime mobility derived from population censuses and annual mobility from a population register which originated during the central-planning period. Given changes in the economic structure at both national and regional levels during the period of economic transition, migration theory predicted significant migration movements, and it seems as if many were not captured by the statistical system.

1. Introduction

In the closed economic system of the Soviet Union, regional wage disparities were minimal, and it was the state, not the market, which primarily determined the allocation of the population across Russia, territorially the world's largest country. According to one of the most cited works on Russia's post-Soviet human geography, what seems to be Russia's greatest asset—its enormous size—also gave Soviet central planners enormous room for error [1]. The study does not only describe why there has been so much migration in post-Soviet Russia but also why mobility needs to increase for Russia to become a more productive economy. With the opening up of the country and the transition to a market economy, which has brought about large economic and regional disparities, the result should have been large increases in spatial mobility of the population. However, it appears from official statistics that during the post-Soviet period, mobility of the population has fallen by half from already low levels and the spatial misallocation of human resources in Russia lingers. This paper examines the puzzle of the immobility of the population of Russia by comparing mobility rates to those in other countries. Especially important for Russia are comparisons with other large countries, where distances of migration are long. Among the questions examined are the following. In Russia, what percent of the

population changes place of residence in any given year as opposed to the populations of other countries? How many times do people in Russia move during their lifetimes compared to people in other countries? How many people in Russia remain in the same place they were born throughout their lives as compared to people in other countries? How efficient, in a demographic sense, has the migration that has taken place in Russia been in redistributing the population?

2. Regional Restructuring and Migration in Post-Soviet Russia

Because it was attempting to create a more egalitarian society, the Soviet government attempted to equalize the standard of living across all regions of the country. This tended to minimize regional differences in wages and living standards, thus dampening a major factor driving migration in other countries. Without explicitly realizing it, Soviet central planners used elements of neoclassical economic theories of migration by offering wage and other incentives to attract migrants to distant periphery and underdeveloped regions of the USSR [2]. One group of regions which received special attention and incentives was the Krayny Sever (Far North) because they contained so much of Russia's natural resource wealth. These regions of Siberia and the Far East

were the targets of special development policies including regional wage increments and other incentives for workers to migrate to these regions and heavily subsidized transport which made development of these regions possible.

The economic transition began in January 1992 with the liberalization of prices and the exchange rate of the ruble, removal of controls on foreign trade, and privatization of housing, small businesses, large enterprises, land, and agriculture [3]. This caused significant structural changes in the economy as the percent employed in industry fell from 40 percent in 1990 to 29 percent in 2007, while the underdeveloped service sector rose from 46 to 62 percent, with agriculture's share falling slightly from 14 to 9 percent [4]. This had a differential impact on regional economic growth depending on the local economic structure and was a major factor driving regional income disparities. The increased income and standard of living disparities have been cited by numerous analysts as a major factor driving migration in post-Soviet Russia [2, 5–7]. Regional wage disparities rose quickly after market reforms began in 1992, peaked in 1995, and have remained at persistently high levels ever since [8]. The ratio of the region with the highest income to the region with the lowest went from 4.9 in 1990 to 13.9 in 1995 before declining to 8.8 in 2008 [9]. The coefficient of variation followed a similar pattern going from 0.31 in 1990 to 0.65 in 2001 before declining to 0.50 in 2008. Under market conditions, there were numerous regions where economic activity at the levels which existed under central planning was simply unsustainable. Put differently, regional disparities mattered less than they would under market conditions so their influence on migration patterns should increase. Perhaps the largest social or political factor influencing migration was the lifting of controls on internal and international migration. In 1993, freedom of movement was allowed in the new constitution as well as the right to emigrate, whereas previously both were tightly controlled [10].

Several studies have demonstrated that one of the major factors driving interregional migration since 1990 was that Soviet development policies had caused Siberia and the Far East to be much more densely populated than they would have been if those regions had been developed under market conditions. Using Canadian behavior as a benchmark, one source estimated that the surplus population of Siberia and the Far East was 17.6 million [11]. Thus, the migration out of Siberia and the Far East is an expected consequence of the transition to a market economy, though the migration that has taken place is far less than these calculations suggest. In spite of considerable migration in the post-Soviet period, regional disparities in terms of incomes and unemployment remain large, indicating that the regional allocation of labor is still in disequilibrium.

There are a number of different factors which have been cited as barriers to mobility in Russia and the population's movement towards a spatial distribution of its population that is more productive, equitable, and consistent with a market economy. In the opinion of one leading Russian geographer, there are five major factors which limit mobility in Russia [12]. The first is the obligatory system of registration at an address where a person works. The

second are limitations on access to certain social services, many of which are still linked to permanent place of residence, and registration. A third is the poor development of the housing market and the high prices. A fourth is the underdevelopment of recruiters and employment agencies. A fifth factor is racism towards persons with non-Slavic names, which would include many from the Caucasus, which is the only region of Russia with a labor surplus. According to Hill and Gaddy [1], one of the major barriers to a more effective economic geography is simply the path dependency of the past and the amount of time it will take to overcome this legacy in the world's largest country.

With Russia being the largest country in the world, migration distances are long, which is a factor depressing mobility because of high transport and relocation costs [13]. The high costs of moves and the high shares of incomes spent on food make liquidity able to finance moves prohibitively expensive [10]. Many are stuck in poverty traps. As one study has shown, with the transition and the rise in transport costs, many firms and thus people in settlements, were left unconnected to markets [14]. This should not only provide an impetus for migration to more accessible locations including movements up the urban hierarchy but also leave many people trapped in places with poor access. In a series of studies and papers, Friebel and Guriev [15] demonstrate that a peculiarity of Russia's transition has significantly hampered mobility. This is the wage arrears which have persisted in Russia and other transition countries. Workers are often paid in-kind rather than in cash, and the transformation of compensation into cash, which is needed to finance migration, requires substantial transaction costs. They demonstrate that workers become tied to employers and thus regions due to cash constraints from wage arrears and are unable to bargain for on-time payments of wages because of concentrations in local labor markets. This attachment to an employer involves a degree of exploitation, as workers are forced to forgo the possible benefits of migration without being compensated for it. The degree of in-kind wages and fringe benefits in Russia are high and rising. In 1991, 3 percent of firms provided in-kind payments and in 1998, 27 percent were doing so. They estimate that one-third of Russian regions are locked in poverty traps [16].

This lack of mobility is also an explanation behind the lack of regional convergence. The disparity among regions in terms of unemployment rates is especially high at a time, when the national unemployment rate was falling. According to theory, migration should partially ameliorate these income and unemployment disparities among regions as people move from low-income, high-unemployment regions to high-income, low-unemployment ones. Interregional differentials in the ratios between vacancies and unemployment have increased rather than decreased and relocation of labor across regions has not been taking place [15]. A decomposition of factors explaining the total wage inequality in Russia and a number of other countries shows that the regional factor had the largest impact on the variation in hourly wages in Russia, and it is a much larger than other countries (USA, Canada, UK, Italy, Spain, Portugal, Austria, Belgium, France, Japan, and The Netherlands) [8].

Six reasons are postulated as to why the wage disparities have remained high in Russia, and migration has not ameliorated them: incomplete information about destination regions, underdeveloped housing market, liquidity constraints, family and social ties, labor migration depreciates human and social capital reducing the potential benefits from migration, and administrative barriers to migration.

There are reasons for both increased and decreased mobility in post-Soviet Russia, and some indicators show considerable population movements. Russia has had a net recorded immigration of over 6 million since the breakup of the Soviet Union [17]. Estimates of illegal or undocumented immigration amount to between 4 and 5 million [12]. The major internal migration movements were from the north and Siberia into central Russia. The regions defined as the "Russian North" have had a net outmigration of seventeen percent of their populations since 1989, with the extremes being Magadan which had a net outflow of nearly sixty percent of its 1989 population and Chukotka where three-quarters of the population left [18]. At the other extreme, the population of Moscow increased by thirty percent from migration between 1989 and 2009, according to official data.

3. Methods and Data

There are numerous difficulties in comparing internal migration and mobility among countries. There is no comparable league table of internal migration or mobility such as those which exist for fertility, mortality, and international migration [19]. There are not even an agreed-upon set of measures and methods for comparisons of internal migration as there is for international migration. Though, there is hardly universal adherence to the standards promulgated for international migration [20]. Among the problems in comparing mobility across countries are differences in the ways in which data are collected and measured, issues of temporal and spatial comparability, and differences in the coverage of the population.

Globally, data on internal migration and mobility are collected from a variety of sources. The main sources are population censuses, administrative statistics, and surveys. Census questions on migration include questions about place of birth to measure lifetime migration and/or some fixed interval to measure recent migration. Russia has a long history of conducting high-quality population censuses. Russia included several questions on lifetime and recent migration in its 2002 population census. Here, lifetime mobility rates were computed from the tabulated data on persons born outside their region of residence. Administrative data on internal migration are derived from population registers and other sources. Russia has such a system which is a remnant of the Soviet central planning period when persons were required to obtain permission before moving. Annual mobility rates were calculated by dividing the number of moves in these data by the total population. The coverage of this administrative system seems to have declined in the post-Soviet period. In the United States, data from tax returns filed with the Internal Revenue Service are used to create

a matrix of annual migration flows. While both the US and Russia systems produce origin-destination migration matrixes as byproducts of administrative data collection for other purposes, the incentives for people to be captured by these systems, and thus their coverage differ. In other countries, health system records and other administrative sources are used to track migration. In some countries, there are surveys which are used to track migration such as the Current Population Survey in the United States and now also the American Community Survey [21].

Changes of residence can be collected as a *transition*, where a person's place of residence is compared to that of some previous period such as at birth, 5 years previously, or 1 year previously. In Soviet and Russian censuses, a question has been included which asks when a person arrived to the place where they are living. Internal migration can also be measured as an *event*, where attempts are made to measure all movements as if often done with a population register or survey. In Russia, the former *propiska* (resident permit) system is still used to measure moves within the country and can be used to analyze internal migration. One of the main problems in comparison of internal movements within countries is the modifiable areal unit problem (MAUP). Since internal migration typically involves crossing an administrative boundary, the number of units in which a country is divided into greatly affects the intensity of migration. The more zones a country is divided into, the greater the intensity of migration is. The size of countries and the distance of internal moves is also a factor as is the shape of countries and physical barriers to moves.

There has recently been a call for a set of standards for comparison of internal migration along four dimensions: overall intensity of migration, distance of migration, migration connectivity, and the effect of migration on the redistribution of the population [19]. Fifteen different indices for cross-national comparisons of internal migration were proposed, of which five were suggested as a minimum set for calculation—crude migration intensity, age at peak intensity, Courgeau's index, migration efficiency, and aggregate net migration rate. This paper computes several of these measures of internal migration in Russia and compares them with levels in other countries, an attempt to bring Russia into global discussions of migration and mobility. Russia is an interesting country for studying processes of migration not only because of its sheer size, but also because it provides an interesting case study of the effects on migration of a significant economic shock.

4. Results

This section presents comparisons of population mobility in Russia with other countries for several measures including migration intensity, migration expectancies and age at peak migration, Courgeau's K, and migration efficiency. For some of these measures, data for the regions of Russia are shown and analyzed.

4.1. Lifetime Migration Intensity. In a background paper for a recent UNDP Human Development Report on migration



FIGURE 1: Administrative divisions of Russia.

[12, 22], comparisons were made of various dimensions about internal migration. The authors did this utilizing the census data contained in the IPUMS (Integrated Public Use Microdata Series) database [23]. In a survey of 191 UN member states, they found that 141 collected some form of migration data in their censuses, and that of these, a question of place of birth, used to measure lifetime migration, was the most common, collected by 115 countries. The data were used to compute five-year and lifetime migration intensities, that is, how many people were living outside their region of birth. “Region” includes district, province, municipality, commune, state, canton, or other census division, and many countries presented such data at more than one geographic scale. Russia collected such data in their census conducted in 2002, and the Soviet Union collected similar data in the census conducted in 1989. For Russia in 2002, data were presented at two geographic scales, for the 7 federal districts and for the 89 oblast-level regions. Russia has a rather complicated and changing administrative structure. The main administrative level consists of the “subjects of the federation,” similar to states in the United States, although in Russia some of these are designated ethnic homelands.

At the time of the 2002 census, there were 89 regions at this level consisting of 21 republics, 8 krais, 47 oblasts, 2 federal cities (Moscow and St. Petersburg), 1 autonomous oblast, and 10 autonomous okrugs (Figure 1). In 2000, these had been grouped into 7 federal districts, which have some limited powers to enforce federal laws at the regional level.

In 2010, there were 213 million international migrants defined as a person living outside their country of birth [24]. Russia had the second largest migrant stock in the world with 12.3 million, which amounted to 8.7 percent of the population. According to Russian census figures, there were 11.5 million foreign born in 1989 (7.8 percent of the population) and 13.5 million in 2002 (9.3 percent of the population) [25]. Of the 13.5 million in 2002, about 5 million could be classified as “new” migrants who had arrived after the breakup of the Soviet Union, as opposed to the others who moved within the Soviet Union but became classified as international migrants with the breakup. With this large migrant stock, Russia ranks among the top twenty countries in foreign-born percent. Thus, simply by virtue of having such a large foreign-born population, the population of Russia should have high lifetime migration intensity.

TABLE 1: Lifetime migration intensity by country and zonal system.

Country	Zonal system	Number of zones	Migrants	Intensity (percent)
Argentina	Province	24	6,691,210	19.9
Belarus	Region	6	944,270	10.8
Belarus	District	172	5,484,810	62.6
Brazil	Region	5	17,025,306	10.1
Brazil	State	27	26,059,033	15.4
Brazil	Municipality	1520	63,461,867	37.5
Cambodia	Province	24	1,308,780	11.7
Cambodia	District	149	2,024,170	18.0
Chile	Region	13	3,097,070	21.3
Chile	Province	44	4,324,420	29.7
Chile	Municipality	338	7,258,850	49.6
China, 1990	Province	31	73,087,300	6.2
Colombia	Department	33	8,108,168	20.3
Colombia	Municipality	532	12,452,428	32.5
Colombia	Municipality	1105	14,589,440	36.2
Ecuador	Province	22	2,431,310	20.2
Ecuador	Canton	128	3,641,200	30.3
India	State	35	42,341,703	4.1
Indonesia	Region	7	8,104,818	4.1
Indonesia	Province	26	16,729,095	8.4
Kenya	Province	8	3,496,560	12.6
Kenya	District	69	5,622,520	20.3
Malaysia	State	15	4,156,500	20.7
Mexico, 2000	State	32	17,791,208	18.5
Philippines, 1990	Region	16	6,879,231	11.7
Philippines, 1990	Province	77	8,722,805	14.9
Portugal	Region	7	1,240,580	12.8
Portugal	Subregion	22	1,817,780	18.8
Rwanda	Province	12	801,890	10.4
Russia	Federal districts	7	30,060,959	20.7
Russia	Oblasts	89	42,839,611	29.5
South Africa	Province	9	6,717,270	15.4
Spain	Province	52	8,641,300	22.4
Spain	Municipality	366	17,288,760	44.8
USA	Region	4	44,423,142	17.8
USA	Division	9	57,909,783	23.3
USA	State	51	78,583,779	31.6
Venezuela	State	24	5,184,850	23.8

Sources and notes: data for countries other than Russia from [19] Russian data from [26].

According to Bell and Muhidin, in addition to the roughly 200 million international migrants, there are another 740 million persons, or one-in-eight globally, who reside within their home country but outside their region of birth [22]. It is unclear from the methodology whether the figure for Russia is included in this total or not.

The data used for these estimates are from the IPUMS in which 35 countries are represented based on their 2000 round of censuses, but only 28 have data available for making internal migration comparisons. Russia is not currently included in the IPUMS database. Until Russia

is included in IPUMS, tabulated census must be used for comparison, rather than census microdata. The data for lifetime migration intensity is shown in Table 1 for Russia and selected other countries. There is considerable variation in lifetime mobility. In Chile, half of the population resides outside their municipality of birth, and two-fifths of people in Brazil and Spain live outside their municipality of birth. Astonishingly, Belarus is the country with the highest level of lifetime migration. However, these high figures come from dividing those countries into a fine degree of geographic granularity. For instance, there are 1,520 municipalities in

Brazil, a country of 174 million in 2000. At the low end of mobility are countries such as India, where only 4 percent of the population live outside their state of birth (35 states), and China where only 6 percent reside outside their province of birth (31 provinces). However, these data for China refer to 1990 before many of the current large-scale internal migration movements started and do not include the large floating population that migrates from the interior to the coastal cities each year.

For the 7 federal districts of Russia, lifetime migration intensity was 21 percent and for the 89 regions 30 percent. These mobility levels place Russia in the upper half of the countries in the sample in terms of lifetime mobility. According to data from the 1989 census, lifetime mobility for the 89 regions was 31.1 percent, indicating a very moderate decline in mobility over the 1990s [25]. An interesting and illuminating comparison is to that of the United States. The 21 percent of the Russian population which resides outside their federal district of birth is just below the 23 percent of the US population who reside outside their census division. Likewise, the 30 percent of the Russian population who resided outside their oblast of birth was just below 32 percent of the US population who lived outside their state of birth. In the more populous countries, these flows represent a considerable shift in the human settlement patterns within them: 78 million in the United States (states), 73 million in China (provinces), and 42 million in India (states) [22]. To this could be added 43 million people in Russia who resided outside their oblast of birth. Of these, 29.3 million had been born in another region of Russia (20.2 percent of the population in 2002), 11.5 million had been born in another FSU state (7.9 percent), and 2.0 million had either not responded to the question or had been born outside of the FSU.

4.2. Sending and Receiving Regions in Russia. An interesting extension of the above analysis on national-level lifetime mobility is to examine levels of lifetime migration by region in Russia and compare these to other countries. These patterns indicate regions that persistently lose population because of a lack of economic opportunities, structural change, or other factors and regions that persistently draw in people for the same reasons. For most of the history of the United States, there has been a westward drift of the population away from the early core of the settlement and economic activity in the northeast. While the economies of regions in the “rust-belt” in the northeast were in decline, much of the new economic growth has been found outside these areas causing outmigration to the south and west. More recently, there is some evidence that this trend has slowed down and that the population of the United States is developing a bicoastal distribution, with increasing portions of the population residing within 25 miles of either the east or west coasts and a hollowing out of the middle portions of the country [27]. This is not only the result of long-term structural change in the US economy away from manufacturing towards services but also the increased attraction of amenities as a pull factor in migration decisions. The middle sections of the country which have had persistent

outmigration over decades have been identified as “ghost regions of the United States” [28].

The western states have much larger portions of their populations who were born outside of these states. Over the past few censuses Alaska, Arizona, Florida, and Nevada have been the states with the largest shares of migrants among their populations, with less than 40 percent of their populations born in those states [29]. On the other hand over three-quarters of the populations of Louisiana, Pennsylvania, Michigan, Iowa, Ohio, and Mississippi had been born in those states. This is far above the US average of 60 percent of the population residing in the state in which they were born indicating that these are states of persistent and long-term outmigration. With this broad picture of changing patterns of settlement within the United States in mind, comparison is made to the patterns in Russia.

At the time of the 1989 census, 69.1 percent of the population of Russia lived in the region in which they were born, as compared to 60.0 percent of the US population. The populations of many of the northern periphery regions are composed of newcomers who were born outside the region [30]. The Murmansk, Khanty-Mansiy, Yamal-Nenets, Magadan, and Kamchatka regions stood out with more than 60 percent of their populations having come from elsewhere in Russia. Many of these people had been sent or induced to migrate to these newly-industrializing periphery regions from elsewhere in Russia or from other parts of the Soviet Union. In the closed economic space of the Soviet Union, it was a place where one could legitimately earn a high wage. This was part of the long-term eastward and northward drift of the population of Russia that was taking place up until the end of the Soviet period. On the other hand, many regions in central Russia around Moscow, much larger portions of their populations were composed of “natives” who had been born in those regions, in part because it was from many of these regions that people left to go to the periphery. In this way, these regions in central Russia are similar to those in the northeast core of the United States which have a long-term trend of outmigration to the periphery.

Figure 2 shows the percent of the population that was born outside each region according to data from the 2002 census [26]. There were some significant shifts between the censuses in terms of the shares of each region’s population born outside the region. In 2002, only two regions have more than 60 percent or more of their populations who had been born outside the region, whereas in 1989 there had been seven such regions. This was due to the large exodus of nonlocal-born in several northern and far eastern regions such as Murmansk, Magadan, and Kamchatka, people who had a place to go with ties to regions elsewhere in Russia. Many regions in Siberia and the Far East and in the European North had large declines in the populations of persons not born in those regions. Many regions in central Russia had increases in the shares of people born outside the region, as these were regions of considerable immigration during the 1990s, fueled as much by international migration as by internal migration. This represented a reversal of the long-term outward migration of the population of Russia to the periphery. Barring another political or economic

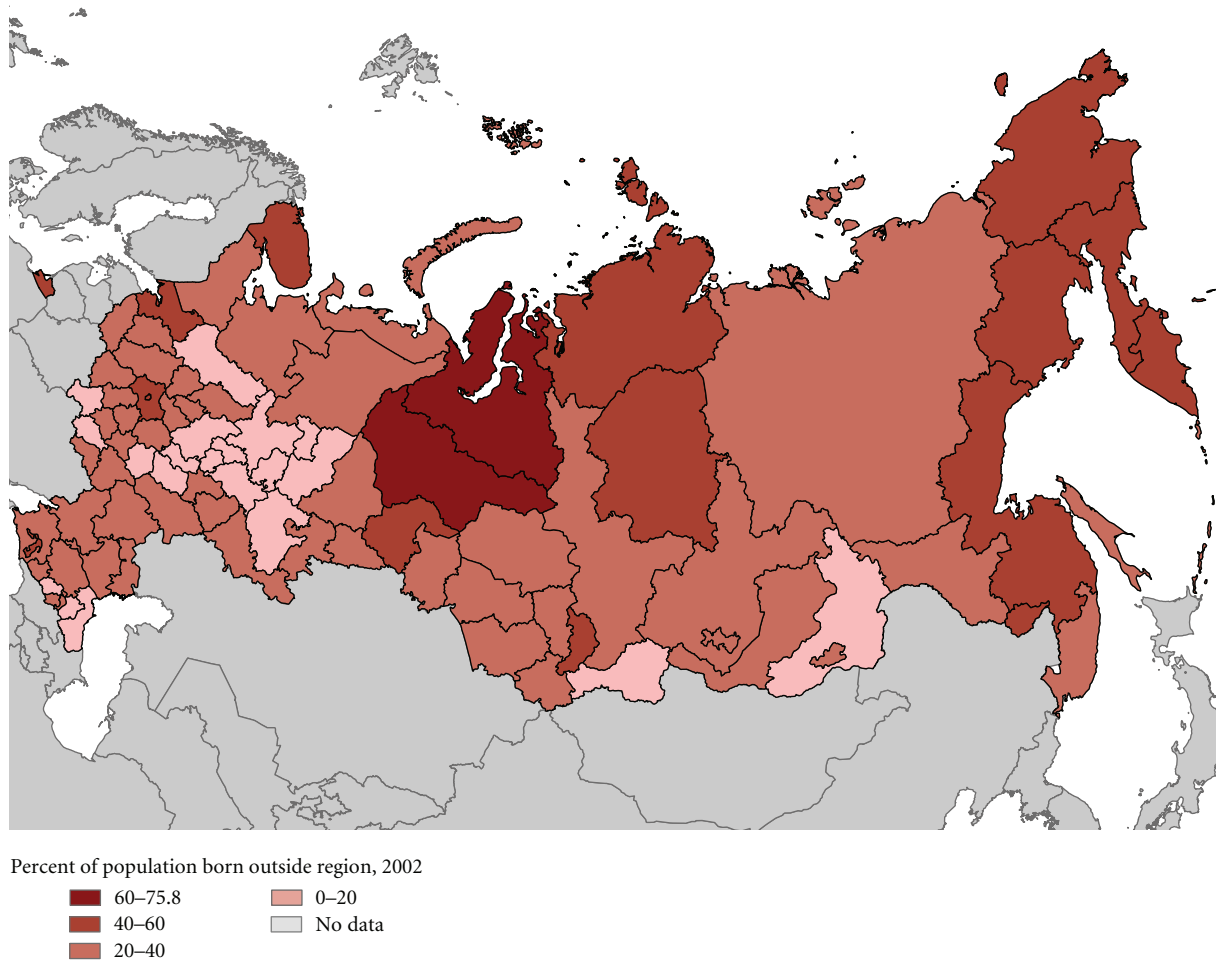


FIGURE 2: Percent of population born outside region, 2002.

shock, this westward drift of the Russian population will likely continue. The periphery regions will increasingly be composed less of outsiders and more of people who were born in those regions. Regions in central Russia which are the destinations of persons from both elsewhere in Russia and outside of Russia will increasingly be composed of migrants from elsewhere.

4.3. *Annual Migration Intensity.* Because five-year migration intensities are not available for Russia, this section discusses and compares annual migration turnover. The common definition of migration turnover is the crude migration intensity or probability (CMP):

$$CMP = \frac{M}{P} * 100, \tag{1}$$

where *M*: number of migrants in a period and *P*: the base population at risk of migrating.

Administrative data from the Russian migration register are used to compare annual migration turnover from other countries. Figure 3 shows the annual migration probability for Russia from the resident permits data which persons

are required to obtain when moving within Russia or from abroad [31], and for the United States from the current population survey [32]. Though the data sources differ, they are conceptually similar for both Russia and the United States as both are measuring the total number of people who changed their primary residence in a given year. For Russia, this only includes permanent moves and does not include short-term shuttle traders (*chelnoki*), business trips, or temporary labor movements. Likewise, for the United States, it excludes business trips and other short-term temporary movements which do not involve a change in residence. One limitation in making such a comparison is that the sources of error differ. In the US survey, the main errors are sampling, while in Russia it is coverage. For Russia, the numbers of movers are the sum of those who arrived from another region in Russia, those who moved with regions, and those who arrived from abroad (data for departures show similar trends and slightly lower levels). For the USA, the data show the number of movers from a different state, within the same state, and from abroad (those who did not move to a different state includes both those who moved within the same county and those who moved to a different county). The data

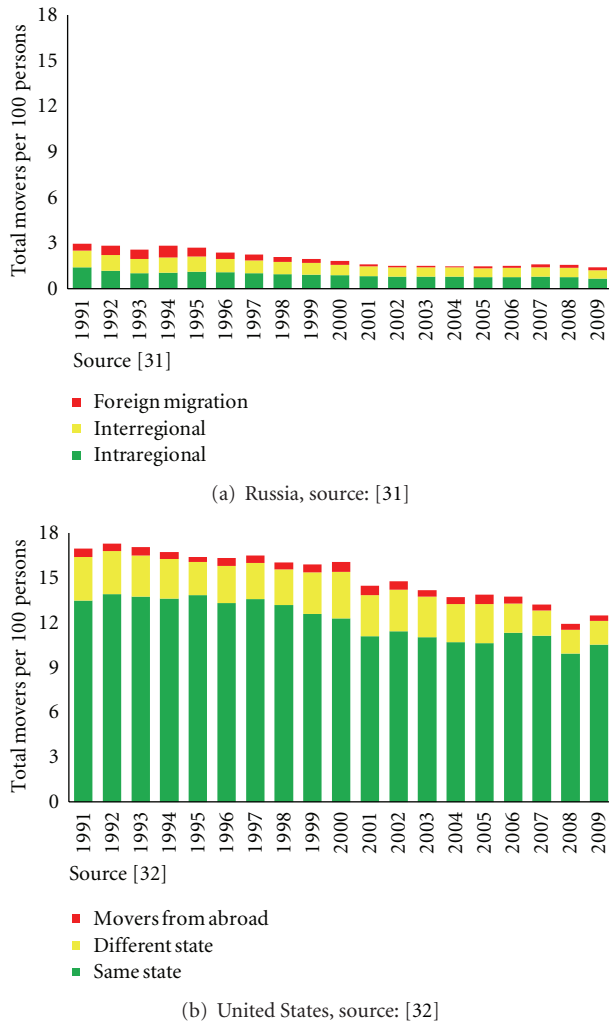


FIGURE 3: Annual migration intensity in Russia and the United States, 1991 to 2009.

indicate that in 1991, 3.0 percent of the Russian population changed residences. The percent declined to 1.5 percent of the population between the years 2002 and 2006 before rising slightly to 1.6 percent in 2007 and 2008, and the declining to just 1.4 percent in 2009, perhaps reflecting the effects of the economic crisis, when mobility typically slows. The number of movers from elsewhere in Russia was at a low of 72 percent of all moves in 1994, the peak year of return migration to Russia from other FSU (former Soviet Union) states. The number of moves within regions has always been higher than the number between regions. In 2009, 87 percent of moves were internal, of which 47 percent were within regions and 39 percent between regions, and 14 percent were from abroad. Thus, according to these data, post-Soviet Russia seems to be one of declining levels of population mobility from rather low starting levels, as the number of migrants has basically fallen in half at a time when the theoretical expectation would have called for substantial increases at a time of significant regional restructuring and increased regional disparities.

Over the same period, the percent of people migrating each year in the United States declined from 17.0 percent in 1991 to a low of 11.9 percent in 2008 before rising slightly to 12.5 percent in 2009. The percent of the population who moved in 2008 (from March 2007 to March 2008) was the lowest since the US Census Bureau began tracking mobility in 1948 [32]. Mobility rates were between 18 and 20 percent from 1948 until about 1985 when they began to decline. The decline in 2008 was due to the economic recession and the steep declines in the housing market. Loss of jobs, economic uncertainty, and being tied to a house and mortgage has severely limited the mobility of the US population during the economic downturn. Theory says that mobility should decline during periods of economic recession, and that certainly seems to be the case in the United States, and there are tentative signs of a slowdown in Russia as well, albeit for slightly different reasons as the housing and mortgage markets play a much less significant role in mobility in Russia.

In spite of the recent decline in mobility, still 37.1 million Americans moved in 2009, not a small number. Over the past two decades, the probability of people in the United States moving was between 6 and 10 times that of the population of Russia. Another source states that Americans are 4.5 times more mobile than Russians taking into account differences in data collection methodology [11]. In 2009, 85 percent of persons who moved in the United States did so within the same state and 13 percent moved to a different state. The total of 85 percent of US moves within the same state compares to 47 percent of moves in Russia being in the same oblast-level unit. In the United States, 13 percent of moves were to a different state while 39 percent of moves in Russia were to a different oblast. In the United States, 3 percent of moves were from abroad, while 14 percent of moves in Russia were from abroad. A comparison between mobility in the United States and Russia seems to point to much lower levels of mobility but a significantly higher share in Russia who move either to a different region or from abroad. While the US population makes a lot of local moves, those in Russia seem to affect the broader patterns of settlement within the country to a greater degree, which might explain why levels of lifetime migration by region in the two countries are similar.

There are limited amounts of migration turnover data available for other countries and it is not always certain whether the data are comparable. Some data are available for Australia and Britain which allow these data for the United States and Russia to be put into context [19]. In 1995-96, the crude migration probability for Australia was 18.3 for all moves and in Britain was 8.8 on 1990-91. Thus, the probability of an American moving used to be in the range of those for the Australia but have now fallen closer to the levels for Britain. All however, are far above the levels for Russia. One source gives the following migration probabilities: Russia 1.41 percent (internal migration as a percent of the total population), Canada 6.83 percent, and the United States 11.5 percent [5].

Another source gives the following mobility figures for selected countries for 1998 (moves as a percent of population): Korea (11.8), Finland (10.0), Australia (7.9), Norway

(6.5), Switzerland (6.1), Japan (4.9), and Netherlands (4.0), Hungary (4.0), Czech Republic (1.9), and Russia (1.8) [33]. These again place Russia at the bottom of a partial league table of migration probabilities for internal migration. Another comparison is made for the working-age population (ages 15 to 64) for 2003 [33]. This gave a rate of 30.3 per thousand people moved between states in the United States, while for Australia the rate was 20.1, for Canada was 9.5, and for Russia was 6.5, placing Russia at the bottom among large countries. For smaller countries rates of over 20 moves per thousand were given for Great Britain, New Zealand, Japan, and France. In Germany, the rate was 13.6 and in the Czech Republic, Austria, Italy, and Hungary, it varied from 4 to 8, and in Poland, Greece, Slovakia, and Spain, the rates were even lower. In one of the early works comparing mobility, Long gives data for 1981 for the number of people changing usual residence annually for fourteen developed countries for ranging 6.1 percent in Ireland to 17.5 percent in the United States and 18.0 percent in Canada [34].

From data available for the late Soviet period, it is possible to get some idea of migration turnover in Russia just prior to the breakup of the Soviet Union and to compare mobility in Russia with other FSU states [35]. In 1979, based on data for arrivals, 5.8 percent of the Russian population had moved in that year. Over the 1980s, migration turnover steadily declined so that by 1989, only 3.5 percent of the population migrated. This trend of declining migration has continued into the post-Soviet period in Russia. Data from different sources measuring slightly different concepts are roughly consistent and point to a trend of declining population mobility in Russia. Data from the 1989 census show that 3.7 percent of the Russian population had migrated in the previous year [25]. In 1991, this figure had declined to 3.0 percent and would continue to decline through the 1990s and 2000s. A portion of this decline in mobility in the post-Soviet period is likely real, but a portion likely stems from a deterioration in the statistical system established to capture such movements. The statistical system served as an audit function on fulfillment of the five-year and annual plans derived by communist central planners. One major input into economic growth in the country was the overall, composition, and spatial distribution of labor resources. When the law changed in 1993 allowing freedom of movement, permission to migrate is no longer mandatory and thus many people seem to be not even registering moves.

4.4. Migration Expectancies. Another way to measure lifetime migration is by computing a gross migraproduction rate (GMR) [36]. It is a measure of the number of moves a person is expected to make in their lifetimes using current age-specific mobility rates. The measures are analogous to the total fertility rate (TFR). The 2008 data shows that the average Russian will move just 1.23 times in their lifetimes. This includes all movements: international, interregional, and intraregional and uses the same administrative data in the computation of crude migration probabilities, and thus suffers some of the same flaws. The age structure of migration probabilities follows the typical pattern of a slight decline

from the youngest age group to late teens, a peak in the early 20s, and then steadily declining mobility rates through the rest of the life course. Data for 2001 show 1.31 lifetime moves and for 2007, 1.28 lifetime moves, showing the same low levels and trend of downward mobility. Unfortunately, there are not many calculations of this statistic for other countries with which to compare. According to data for the United States for 2007 from the American Community Survey, the average person can expect to move 11.7 times [32]. In 1995–1996, the average Australian could expect to move between 13 to 15 times in their lifetime and the average Brit 6 to 8 times [37]. Thus, according to the data from this quite small sample, it appears that mobility in Russia is quite low.

4.5. Courgeau's K. One problem with comparing internal migration among countries is that the number of spatial zones differs, and most countries have more than one level of geography with which to make comparisons. The greater the number of zones means the higher the intensity of migration. One measure that has been proposed to facilitate comparison is Courgeau's k [19]. Courgeau observed that there is a relationship between level of mobility and number of zones, into which a space is divided. The formula used is

$$\text{CMI} = k \log n^2, \quad (2)$$

where CMI: crude migration intensity, k : slope of line for various n , and n : number regions in zonal system.

This calculation was done for a number of countries and found to be a quite robust explanation for the intensity of internal migration [22]. Migration intensity is a linear function of $\log n^2$, and the higher the k , the greater the intensity of migration. This allows comparisons of migration intensity across countries with different zonal systems by comparing the implied level of intensity for a given number of zones. For Russia, lifetimes migration intensities are available for two different zonal systems, the seven federal districts and the 89 oblast-level regions. The k value for Russia is 1.730 which would place it at the lower end but not the lowest among countries for which data were available. Values for other large countries were 1.318 for Indonesia, 1.827 for the Philippines, 2.543 for Brazil, 3.493 for Spain, and 4.500 for the United States. These results are consistent with others showing that mobility in Russia is lower than some highly mobile countries but is hardly the lowest in the world and not as low as its reputation purports. One rather curious result was that the fellow former Soviet state of Belarus topped the league table of lifetime migration intensity with a k value of 5.751, a result that both warrants further investigation but which also points to the value of including former communist states of the former Soviet Union and Eastern Europe into comparisons and discussions of mobility and migration.

4.6. Migration Efficiency. Measures of migration efficiency have been applied to migration systems in the United States and other countries in order to describe and measure the extent to which migration is effective in redistributing the population temporally and spatially. These measures are

useful in detecting short-term fluctuations in migration systems in response to structural economic change. Migration efficiency measures can be calculated for the Russian migration system, the eighty-nine regions, and migration streams between two regions. Migration efficiency is not measured against some optimum level but is rather calculated to determine the extent that migration, as a component of population change, is distributing people within a migration system. During periods where there are considerable shifts in the spatial distribution of the population, such as during the two decades of economic and social transition in post-Soviet Russia, migration efficiency should be high.

The summary measure of migration system efficiency is:

$$E = \frac{100 \sum_j |N_j|}{\sum_j T_j}, \quad (3)$$

where $|N_j|$: absolute value of net migration for region j and T_j : total migration for region j (in-migration plus outmigration).

This can range from 0 when migration across regions within a system balances out among regions resulting in no redistribution to 100, when all migration results in redistribution of the population.

Migration system efficiency in Russia went from a high of 27 in 1994, to a low of 16 in 2002 before increasing to 22 in 2009. A level of 20 means that about one-fifth of the movements that took place among regions of Russia resulted in a redistribution of the population and were not cancelled out by countermigration. As shown in Figure 4, there was a strong negative association between migration system efficiency and annual employment change ($r = -0.63$) and an even stronger negative association with annual GDP change ($r = -0.67$). Migration system efficiency was highest in 1994 at 27 percent, when both employment and GDP declines were at their steepest declines. From this peak in the mid-1990s, migration system efficiency steadily declined before a slight upturn in recent years. From lows in the mid-1990s, both employment and GDP had smaller declines and eventual increases starting in 1999. These results support the notion that periods of high migration efficiency were associated with economic recession and employment contraction. The 1990s in Russia was a period of massive economic restructuring at the national and regional levels. This spurred what many would regard as a necessary alteration in the spatial distribution of the Russian population and labor force.

Bell et al. calculated lifetime and five-year migration efficiencies for a number of countries but it is not possible to compare these measures to Russia [19]. However, there are some limited calculations of migration efficiency that have been done for other countries in order to place the measures of migration efficiency for Russia into some context. Data for Australia show migration efficiency falling from 15 in 1976–1981 to 11 in 1991–1996 [37]. In Britain over the same period, system migration efficiency fell from 9 to 6. Thus, even at its peak, migration efficiency in Australia was less than that in Russia. During a period of considerable economic restructuring in the United States due to oil price

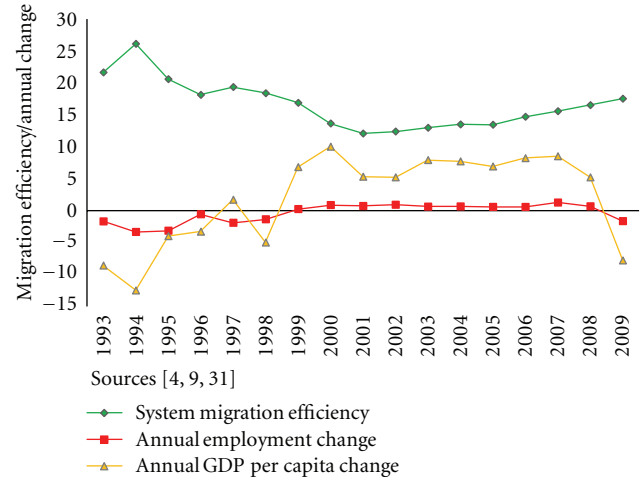


FIGURE 4: Migration system efficiency, annual employment, and GDP per capita change in Russia, 1993 to 2009. Sources: [4, 9, 31].

and supply fluctuations in the 1980s, system migration efficiency fluctuated between 13 and 10 percent [38]. The same negative association was found between employment growth and migration system efficiency. These are compared to levels of migration efficiency of 21 in the United States in 1935–1940, another period of considerable restructuring [36]. Thus, the levels for Russia even at their low points in the 1990s are above those of the United States, often thought to be a country of high mobility. A study of migration in China showed even higher rates than for Russia during the past several decades, which was also a time of considerable economic growth and regional restructuring in China [39]. Migration efficiency went from 28 in 1985–1990 to 63 in 1995–2000 indicating that the population movements were increasingly unidirectional during the latter period in large part due to the unbalanced regional economic growth which favored the coastal regions at the expense of the interior. This presumably includes counts or estimates of the large floating population which is estimated to be about 80 million, while there are only 20 million registered migrants.

5. Discussion

Thus, it appears as if the decline in mobility in post-Soviet Russia is more of a failure of statistical system to properly measure internal movements and not failure of Russian population to adjust to new economic situation in regions. The reason for the inconsistency between lifetime migration movements, which show considerable change in the spatial distribution of the population, and annual mobility data which show rather low levels, are the sources of data. While there have been some changes in census methodology between the Soviet era of central planning and the post-Soviet period of a market economy, the quality of census taking has remained high, especially for such questions as place of birth. However, the system for tracking annual population turnover, based on a complete register, seems to have deteriorated considerably.

Russia is an upper-middle income country with a highly educated population where one would expect people to use migration as a strategy of adaptation [40]. As with most other aspects of social and economic life in the Soviet Union, it was typical of Soviet statistical system to count everything and the use of sampling was quite rare. For this reason, there was an attempt to measure all migration movements in the country. While this was likely never fully achieved, far greater shares of total moves were recorded in the totalitarian system of the Soviet Union than in present-day Russia. The Federal State Statistics Service of Russia has made considerable strides in adjusting to measure social and economic change in a market as opposed to a centrally planned economy and in implementing international norms in many areas of statistics [41]. However, this is not the case in the measurement of internal mobility (nor international migration). It appears as if in current-day Russia, the statistical apparatus is not capable of capturing the increasing temporary movements, where in other countries a mix of statistical methods is required to capture mobility [42]. One estimate of internal migration for 2003 put the number of internal migrants at 5 million as opposed to the recorded 2.2 million, which would indicate that migration has stayed at about the same level in the post-Soviet period rather than declining in half as indicated by official statistics [43]. Another source based on retrospective migration histories over the period of 1985 to 2002 did not show any change in post-Soviet rates of internal migration [2]. Thus, a first place to investigate these trends might be factors which lead to a deterioration of the migration statistics system [33].

There appears to be evidence of an increase in temporary types of movements substituting for the permanent moves that characterized much migration during the Soviet period and that many of these go unrecorded [44]. This includes short-term commercial trips, chelnok or shuttle trade to supply food and nonfood goods to urban areas, as a result of the large informal economy in Russia. By one estimate, every tenth household in Russia was involved in such activity either internally or internationally. With the loosening of state controls on migration, there appears to have been an increase in temporary migration both to and within Russia that does not appear to have been captured by migration statistics. There is a considerable amount of long-distance labor migration in Russia, officially sanctioned, this is the called the "vakhtovyi" method, where workers spend long periods of time at home and then at a work site. It is difficult to determine exactly how many persons are engaged in such types of labor arrangements either now or in the Soviet period to determine changes in the levels. One study estimated that migration with a permanent change in residence is being replaced by various forms of temporary mobility, and that there might be 3 million persons involved in such movements in Russia which are not captured by the data on internal movements which only count permanent changes in place of residence, though these temporary movements are not included in permanent mobility statistics, nor should they be. Thus, it appears as if Russia needs to replace the previous system for tracking

annual mobility and institute a new system, perhaps based on a sample of the population.

While there has been considerable spatial readjustment of the Russian population during the past two decades, it appears as if the leadership would like even more in order to stimulate economic growth. This is especially the case in the some 400 company towns many of which remain heavily subsidized but where the government fears cutting off subsidies because of potential social backlash [45, 46]. In 2010, Prime Minister Vladimir Putin instructed federal agencies to simplify rules for internal migration and to abolish the system of compulsory residential registration in order to more easily allow laidoff Russian workers to be able to seek work in other regions [47]. Later in 2010, President Medvedev and the government went a step further and proposed that Russians should not live in the current 83 regions but be concentrated into 20 major urban agglomerations, where the resources are concentrated [48]. This seems to be an attempt to accelerate migration and induce the creation of nested systems of urban agglomerations and tributary regions. The proposal calls for an institutionalization of economic laws which people are already following in Russia including the development of suburbs, creation of common commercial, educational, and cultural spaces, and high-speed public transport systems. It states that the further development of small towns is futile though those current small towns will not be eliminated, and that the process will be allowed to develop on its own as there has already been the complete depopulation of some 20,000 towns in Russia through either aging of the population or outmigration. However, these proposals of attempting to reduce the remaining restrictions on migration while at the same time direct the population into a few large urban agglomerations seem contradictory and suggest of the top-down planning of Russia's period of central planning during the Soviet period.

Acknowledgments

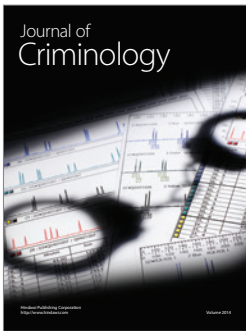
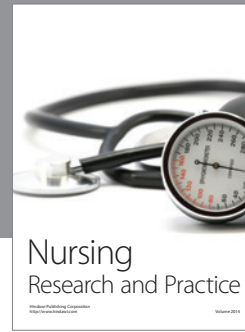
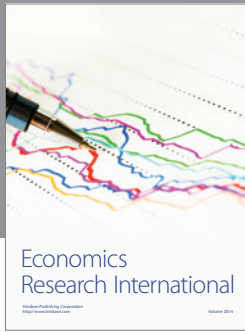
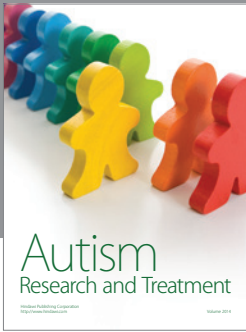
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