

**The Place of the Regions in the
Budgetary System of the Russian
Federation (the “Balance of
Accounts” and the Grounds for
Financial Support) and Assessment
of the Consequences of Mass
Migration**

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Introduction

The problem of regulating the socio-economic development of the Russian North remains one of the most critical components of reformation of the Russian economy. This problem is of a complex nature and encompasses numerous legal, social, economic, financial, ethno-national, historical, ecological, and other aspects. Some of the aspects mentioned above were analyzed at preceding stages of the study of the problems of the northern territories.¹ Two interconnected problems are examined in this work:

1) Financial flows from the federal budget into the budgets of the regions of the Far North.

2) Theoretical and empirical analysis of factors influencing migration of the population from the northern regions of the Russian Federation (RF). Assessment of the effectiveness of state programs for facilitating migration

The report contains this introduction, two parts of the basic text answering to the problems mentioned above, a conclusion with the basic conclusions from the study which was run, a list of the literature consulted, and seven appendices with the results of calculations.

In the first part of the study a quantitative analysis was conducted of the volumes of financial aid received into the budgets of the northern regions from the federal budget, taking into account the changes which had occurred since the preceding study was conducted within the framework of the CEPRA project devoted to problems in the regions of the Far North in the Russian Federation. In particular, tendencies were analyzed in the allocation of non-special purpose (non-targeted) and special purpose (targeted) federal financial aid to the budgets of constituent members of the Federation, and also the place of the northern regions from the given point of view among Russian regions was analyzed (analysis was conducted on such kinds of federal financial aid as transfers from the Fund for Financial Support of the Regions, grants to the budgets of closed townships, funds transferred within the framework of conducting mutual settlements, budgetary advances, subventions for supporting deliveries of supplies to the North ["severnii zavoz"], and also the subventions and subsidies from the Compensations' Fund which were introduced again beginning in 2001). Indicators of the revenue generating potential (fiscal capacity – *trans.'s note*) and expenditure requirements of constituent members of the Russian Federation calculated within the framework of the CEPRA "Impact of Intergovernmental Grants on the Fiscal Behavior of Regional Authorities in Russia" project were utilized for these purposes.

The second vector of the study run on the first problem is analysis of the so-called "fiscal position" of the Northern regions in relation to the federal budget. In other words, for purposes of studying the effectiveness of federal policies with regard to the northern constituent members of the Federation, and also of working out ways of increasing its effectiveness, it is necessary to have a notion not only of the volume of the resources directed to the Northern regions from the

¹ See "Finansovye otnosheniia federal'nogo..." (Financial relations of the federal...) (2001)

federal budget, but also of the contribution of the given regions to the revenues side of the federal budget. For that an analysis was done of taxes and payments from the territory of the northern regions coming into the federal budget, and also analysis was done of the balance of payments into the federal budget and of financial aid from the federal budget to the northern regions both by individual constituent members of the Federation and by the northern regions in the aggregate.

On the basis of the results obtained, proposals were prepared for further improvement of the system of federal financial support to the northern regions. The basic kind of such aid (aside from targeted and non-targeted kinds of financial aid allotted within the framework of general procedures) remains subsidies for state financial support for purchase and delivery of petroleum, petroleum products, fuel, and foodstuffs to the regions of the Far North and places equated to them with limited time periods for delivery of goods for supplying the population, enterprises, and organizations in the social sphere and public utilities (the so-called support of “deliveries of supplies to the North”).

Problems arising and accumulating in the northern regions which demand immediate solution are examined in the second part of the work. An increase in unemployment and also a lowering of the level of the population's well-being due to non-proportional increasing of the subsistence minimum and indexation of pensions and assistance are leading to a rise in social tension in the northern regions. Simultaneous with that, the increased payments to pensioners and the unemployed on the part of the state which they are entitled to by law, and also support of the aging network of buildings and structures in the northern regions, is costing the state dearly, especially taking into account the increasing likelihood that emergency situations will arise. All this speaks in favor of state programs to stimulate migration of the unemployable and poorly provided-for population.

Within the framework of the study which was done, a survey was prepared of the literature on migration. This survey permits singling out and formulating several of the basic problems to the solution of which state programs for facilitating migration should be directed. The basic results and theoretical premises constructed in the survey permitted formulation of several possible models for mass migration from the northern regions of the Russian Federation. A theoretical analysis was also done in the work of certain possible consequences of the inflow of migrants into the receiving regions, and, besides that, on the basis of econometric estimates, hypotheses about the influence of various factors on the inflow and outflow of the population from the regions of the RF were tested.

Variant calculations on estimating the budgetary effectiveness of programs for facilitating migration were conducted in the work. In the first variant, matrices were estimated of the annual economy resulting from migration of the population from the northern regions to all the regions of the Russian Federation. With that, as before, estimates were run on the assumption that with migration there occurs an increase of budget expenditures in the receiving region, but expenditures for construction of new housing are not made. This variant assumes that migration of a small number of families occurs such that the existing infrastructure is sufficient to provide for them, but at the same time this is not migration of just a few individuals; that is, the arrival of migrants leads to a proportional increase in the budget expenditures of the receiving region. These calculations,

taking into account the addition of statistics published for the year 2000, continue the preceding study of migrational flows from the northern regions carried out within the framework of the CEPRA project.

In the second variant of calculations, the most advantageous routes of migration from the point of view of budgetary efficiency were revealed, that is, the routes, migration along which leads to the greatest economies. This variant is suitable for small migration related programs and reveals narrowly oriented routes, migration along which should be stimulated for the greatest budgetary efficiency. This scheme is unacceptable when there is a significant number of migrants, since with a large number of arrivals it is necessary to take it into account that additional migrants can cause a disproportionately large growth of expenditures in the receiving region connected to the necessity of building additional infrastructure (housing, schools, polyclinics, etc). For a large number of migrants, it is logical and more advantageous to the budget for migrants to be spread among several regions.

The assumption of the limited capacity of the receiving regions was utilized directly in the third variant, where it was assumed that a region could receive an unemployable population migrating from the northern regions until the demographic load, taking into account arriving migrants, exceeds the demographic load which is average for the country and average for the neighboring regions (within the framework of a single federal district [*okrug*]). This migration model is socially balanced in a certain sense; that is, according to the assumption, it does not lead to a displacement of social tension connected to an increased demographic load ratio of the unemployable population per working person, together with migrants.

In the fourth variant of calculations, the assumption was utilized that migration is accomplished in proportion to the actual migrational flows from the northern regions of the Russian Federation. This variant is rather simple and is the most plausible one, since it corresponds to the results of population migration from the northern regions without special stimulation of migrational flows into any particular regions.

The most efficient migrational flows from the point of view of economizing on budgetary funds were calculated for each of the variants. Estimates were run separately for pensioners, children, and other categories of the population. The results obtained permit determining which migrational routes should be stimulated depending on migrational policy criteria.

The study was done within the framework of the SEPRA project (Russo-Canadian Consortium on Issues of Applied Economic Studies) financed by the Canadian International Development Agency (CIDA).

Part 1. Financial flows from the federal budget to the northern regions.

The financial interrelationships with the regions of the North have always occupied a special place in the system of relationships between the federal budget and the budgets of constituent members of the Federation. In the first place, as a consequence of the limited transport accessibility of certain of the northern regions, the federal government renders financial support to the regional authorities aimed at financing the early delivery of certain goods to these regions. In the second place, a large number of federal expenditure programs exist which are aimed at changing the existing proportions in the volume and structure of the population of the northern regions, at support for the native peoples of the North, etc. On the other hand, a number of the constituent members of the Federation territorially belonging to regions of the Far North and having reserves of minerals and carbohydrate raw materials are traditionally donors to the federal budget not laying claim to financial support from the federal budget. The purpose of this study is analysis of financial flows between the federal budget and the budgets of the northern regions for the purpose of working out recommendations for optimizing the system of federal financial support for the Northern regions.

For the reason that the concept “regions of the North” is not a term defined normatively, various criteria exist for assigning constituent members of the Federation to the category of northern ones: the location of a region, the presence in it of regions of the Far North, the application on the territory of a region of regional coefficients to wages, the presence of deliveries of supplies to the north to certain regions of a constituent member of the Federation, and the inconveniences and discomforts of living in the region. For the purposes of our study, we used several criteria for assigning a region to the category of northern ones, the basic weight thereby being given to geographic location. In sum, we consider below as northern ones sixteen constituent members of the Federation completely or partially lying north of sixty degrees northern latitude: Arkhangelsk Oblast, Kamchatka Oblast, Koriak Autonomous District, Krasnoyarsk Krai, Magadan Oblast, Murmansk Oblast, Nenets Autonomous District, the Karelian Republic, the Komi Republic, the Republic of Sakha, Taimyr Autonomous District, Tyumen Oblast, Khanty-Mansiisk Autonomous District, Chukotka Autonomous District, Evenki Autonomous District, and Yamalo-Nenets Autonomous District.

1.1. A general survey of relationships between the federal budget and the budgets of the northern regions

1.1.1. Non-targeted federal financial aid

Within the make-up of the non-targeted aid from the federal budget, we will separately examine transfers from the Federal fund for Financial Support of the

Regions, grants to closed townships (ZATO), funds transferred by mutual settlements, and budgetary advances.

1.1.1.1. The Federal fund for financial support to the constituent members of the Federation.

Beginning in 1994, transfers from the Fund for Financial Support of the Regions (FFPR) are allotted to the constituent members of the Federation in accordance with a unified methodology, and distribution of the transfer sums among the regions is approved annually in the law on the federal budget for the routine year. Over the last three years, transfers from the FFPR have been allocated on the basis of data on the average per capita fiscal capacity (tax potential) of constituent members of the Federation (calculated on the basis of the tax *иквют* on sectors of the Gross Regional Product) corrected by an index characterizing the inter-regional differentiation of objectively conditioned expenditure requirements. After calculation of the fiscal capacity – the so-called gross fiscal (revenue generating – *trans. 's note*) resources of the constituent members of the Federation, the funds of the Fund for Financial Support of the Regions (FFPR) are allocated in the following way: transfers in the total sum of twenty percent of the FFPR are allotted to the regions for the purpose of bringing the average per capita gross fiscal resources of the regions which are recipients of a transfer to one and the same level, a level determined by the volume of allocated funds. The remainder of the FFPR is allocated among the regions, the gross fiscal resources of which (taking into account the first part which has been received of the transfer) are below the level which is average for Russia as a whole, proportional to the deviation from the average level.

Over the period of its existence, the volume of funds allocated as transfers of the FFPR grew from 0.36 percent of the GDP in 1994 to 1.14 percent of the GDP in 2001. The share of the transfers mentioned over the same period in the expenditures of the federal budget, increased from 1.55 percent to seven or eight percent, while in the overall volume of federal financial aid which was granted it grew from ten percent to seventy percent in 1998-99. Attention has to be drawn to a decrease in the share of transfers from the Fund for Financial Support of constituent members of the Federation in the last two years which took place for an objective reason: [this was] in connection with creation within the make-up of the federal budget of the Compensations' Fund, at the expense of the funds of which constituent members of the Federation are allotted special purpose subsidies and subventions for financing a number of the expenditures of the regional budgets which previously were taken into account during allocation of funds of the FFPR.

TABLE 1.1

Dynamics of transfers from the FFPR in 1994-2002

	1994	1995	1996	1997	1998	1999	2000	2001	2002*
Million rubles	2250	19383	23389	32658	30059	44346	67999	103210	147490
%% of GDP	0.36%	1.17%	1.04%	1.22%	1.12%	0.98%	0.96%	1.14%	1.62%
%% of financial aid granted	10%	64%	44%	49%	70%	71%	62%	44%	54%

* planned

Source: the Ministry of Finances of the RF; calculations by the authors

Beginning in 1994, the Fund for Financial Support of the Regions was allocated according to two entirely different principles. In the period preceding approval of the Concept for Reformation of Interbudgetary Relationships (summer 1998), transfers from the Fund were allocated in proportion to the deviation of calculated revenues from calculated expenditures. With that, the special place of the Northern regions in calculation of transfers was set from outside at the stage of designing the methodology. Thus, according to the methodology of transfers allocation for 1998, all the constituent members of the Russian Federation were divided into three groups, for each of which a separate calculation of key indicators was performed. In this methodology, the northern regions were included in the first two groups on the basis of such factors as being at a long distance from the central areas of the country along with a lack or weak development of rail and motor vehicle transport, a longer heating season than in central areas, and limited time periods for delivery of goods.

Included in the first group were regions, which are located entirely within the areas of the Far North with high figures of per capita budgetary revenues (basically from exploitation of natural resources) and expenditures, and also with high indicators of the level of the subsistence minimum. These are the Khanty-Mansiisk Autonomous District, the Yamalo-Nenets Autonomous District, Magadan Oblast, the Chukotka Autonomous District, the Republic of Sakha (Yakutia), Kamchatka Oblast, the Taimyr Autonomous District, Evenki Autonomous District, the Koriak Autonomous District, and the Nenets Autonomous District.

Included in the second group were regions, which belong to areas of the Far North and which have areas in the Far North and localities equated to them (all remaining northern regions not belonging to the first group). In this group are also the constituent members of the Federation which previously were a part of the regions included in the second group (the Aginsk Buryat Autonomous District, the Ust-Orda Buryat Autonomous District, and the Jewish Autonomous District).

In accordance with the indicated methodology for allocating the Fund's funds, the right to transfers from the FFPR was granted only to those constituent members of the Russian Federation for which the calculated volume of revenues determined by this methodology did not exceed the calculated volume of expenditures. Among the northern territories, three regions did not have the right to transfers from the FFPR before 1999: the Khanty-Mansiisk and Yamalo-Nenets Autonomous Districts and also Krasnoyarsk Krai.

Beginning in 1999, the rules for allocating transfers from the Fund for Financial Support of the Regions have undergone significant changes. The very principle of equalization lying at the basis for allocating financial aid has changed: whereas before 1999 the basic criterion for calculating transfers was the gap between calculated revenues and expenditures of the regions, beginning with the methodology for allocating transfers for 1999 equalization is based only on the correlation of revenues indicators in the budgets of constituent members of the Federation. With that, to take into account inter-regional differentiation of expenditures requirements, the so-called index of budgetary expenditures was introduced by which the budgetary revenues of the regions was corrected.

Despite the fact that when the Concept for Reformation of Interbudgetary Relationships was adopted it was assumed that allocation of federal financial aid should be implemented on the basis of data on expenditure requirements and the fiscal capacity (tax potential) of the regions, calculation of transfers for 1999 was performed, as previously, on the basis of factual data on the revenues and expenditures of regional budgets with minimal corrections for size of arrears, the data having been coordinated with the leaders of the corresponding constituent members of the Federation. After calculation of the shares of the constituent members of the RF in the FFPR, these shares were subjected to correction for the purpose of minimizing the effect of adoption of the new methodology of calculating transfers. Nevertheless, an important step was made in 1999 on the way to increasing the fairness of inter-budgetary equalization in Russia.

It should be noted that during calculation of transfers from the Fund for Financial Support of the Regions for 1999, the grouping of the constituent members of the Federation was retained; however, in distinction from the preceding years, the regions were grouped analogous to economic areas. The grouping, as before, was used for averaging out calculated indicators. With this, the regions containing territories of the Far North were separated out into individual subgroups. As a result of putting into effect the new methodology for calculating FFPR to the northern regions not receiving a transfer from the FFPR, one more constituent member of the Federation was added in 1999 – the Komi Republic.

Reform of the mechanism for calculating transfers from the FFPR also continued during development of the methodology for allocating the Fund in 2000 and 2001. The basic changes in methodology for 2000, in comparison with 1999, proved to be a shift to more objective methods for calculating both the fiscal capacity (tax potential) and expenditure requirements of the regions. In particular, it was decided to refrain from dividing the regions into groups when calculating all indicators. Calculation of fiscal capacity (tax potential) was performed on the basis of averaging out the share of taxes levied in the gross added value of the basic sectors of the economy, and expenditure requirements – on the basis of the number of consumers of state services, of indirect factors influencing the inter-regional differentiation of the value of state services, and also of approved federal standards for the cost of certain state services. Amendments were also made to the principle for allocating transfers: beginning in 2000, twenty percent of the FFPR is allocated for the purpose of bringing the fiscal capacity (tax potential) of recipient regions to one and the same level, and the remaining eighty percent – proportional to the deviation of the average per capita fiscal capacity (tax potential) from the figure average for Russia on the whole.

In 2000 in the make-up of the transfer there were separated out into an individual line funds for financing delivery of supplies to the North (see below for more details on the problems of delivery of supplies to the North), subsidies for securing payments for aid to children, and also funds for compensating territories of the Far East and Arkhangelsk Oblast for electrical energy rates. Transfers from the Fund for Financial Support of the Regions were assigned in an absolute amount in the federal budget, in distinction from preceding years, when the volume of transfers was set in the form of a percentage share in the total volume of the Fund. As a result of the innovations, the number of northern regions not receiving aid from the FFPR increased by one region in 2000 – Tyumen Oblast.

Further improvement of the mechanism for allocating the Fund for Financial Support of the Regions took place during development of the draft of the law on the federal budget for 2001. In particular, the number of sectors and sub-sectors of the economy was increased which were taken into account when calculation of fiscal capacity (tax potential) was performed, and certain provisions for estimating the expenditures requirements of the regions were changed; however, the basic principles for estimating fiscal capacity, expenditure requirements, and allocating transfers remained unchanged. The methodology for calculating transfers was also corrected in connection with the fact that beginning in 2001 there was formed in the federal budget a Compensations' Fund, the funds of which are allocated among all regions without exception for the purpose of financing expenditures from regional budgets for payment of aid to children and also of expenditures for implementing the federal law "On social protection for the disabled in the Russian Federation." Accordingly, these kinds of expenditures were not taken into the calculations when determining the index for budgetary expenditures.

One more constituent member of the Federation – the Nenets Autonomous District – was added in 2001 to the regions not receiving a transfer from the FFPR. In this way, funds from the Fund for Financial Support of the Regions (including grants for state support for deliveries of supplies to the North) were not received by six northern regions in 2001: Krasnoyarsk Krai, the Nenets Autonomous District, the Komi Republic, Tyumen Oblast, the Khanty-Mansiisk Autonomous District, and the Yamalo-Nenets Autonomous District.

The methodology for allocating funds from the Fund for Financial Support of the Regions for 2002 did not undergo substantial changes in comparison with the preceding year. Within the transfer, as before there are separated out on an individual line funds for financial support for "deliveries of supplies to the North" and also payments to the regions of the Far East and to Arkhangelsk Oblast compensating the high level of electrical energy rates in these regions. As before, out of the eighteen constituent members of the Federation not receiving grants for equalization of budgetary security, six regions are northern ones in accordance with the classification we introduced previously.

On the whole it should be noted that the relative level of financial aid to the Northern regions has gone down (the share of transfers to the northern constituent members of the Federation in the overall volume of transfers grew from 12.5 percent in 1997 to sixteen percent in 2001). Together with growth of the share of the overall volume of FFPR directed to the northern regions, there was also an increase in the dependency of the budgets of these regions on funds from the FFPR – the share of transfers from the FFPR average for all the northern constituent members of the Federation in regional budgetary revenues grew from 4.3 percent in 1997 to 6.4 percent in 2001, at the same time as this indicator for the northern regions which simultaneously were recipients of transfers grew from 9.6 percent in 1997 to 15.3 percent in 2001. It has to be noted that the increase in dependence on transfers from the FFPR over the period under examination was characteristic not only of the northern regions: thus, the average share of financial aid in the revenues of the budgets of non-northern regions grew from 7.5 percent in 1997 to 8.4 percent in 2001 (for regions which were recipients of financial aid: from 10.6 percent to sixteen percent, respectively), while for all Russian regions

the average share of financial aid in budgetary revenues grew over this period from 6.9 percent to eight percent (for recipient regions: from 10.5 percent to 15.9 percent).

When analyzing the data adduced, attention should be directed to the fact that the average share of transfers in the budgetary revenues of the northern regions was lower than in the non-northern regions and lower than the average for all constituent members of the Federation. At the same time, for recipients of financial aid the analogous indicators and the rates of their growth are close for all three groupings of regions adduced. In our opinion, this situation is explained first of all by the make-up of the group of northern regions being examined: four traditional donors to the federal budget – the Komi Republic, Krasnoyarsk Krai, and the Khanty-Mansiisk and Yamalo-Nenets Autonomous Districts – enter into the sixteen regions of the North being studied. Accordingly, the share, or specific weight of financial aid in revenues calculated on the average for all northern regions proved far lower than the analogous indicator for northern regions which were recipients of financial aid and lower than the share, which was average for Russia on the whole of financial aid in regional budgetary revenues. The increase in the share of financial aid in the revenues of regions which were recipients of transfers was caused first of all by the change in the rules for allocation of transfers from the FFPR, which [change] entailed a decrease in the number of regions receiving a transfer.

TABLE 1.2

Dependence of northern regions on transfers from the Fund for Financial Support of the Regions in 1997-2002.

	1997	1998	1999	2000	2001	2002*
Share of transfers to northern regions in the overall volume of funds of the FFPR	12.5%	12.9%	12.0%	16.3%	16.0%	14.6%
Share of transfers from the FFPR in the budgetary revenues of northern regions						
- for all northern regions	4.3%	4.2%	3.4%	5.4%	6.4%	
- for northern regions which are transfer recipients	9.6%	9.7%	8.5%	18.6%	15.3%	
Share of transfers from the FFPR in the budgetary revenues of non-northern regions						
- for all non-northern regions	7.5%	6.7%	6.9%	8.4%	8.4%	
- for non-northern regions which are transfer recipients	10.6%	9.4%	10.7%	17.8%	16.0%	
Average share of transfers from the FFPR in the budgetary revenues of constituent members of the Federation						
- for all regions	6.9%	6.2%	6.2%	7.7%	8.0%	
- for regions which are transfer recipients	10.5%	9.5%	10.4%	17.9%	15.9%	

* planned

Source: the Ministry of Finances of the RF; calculations by the authors

Data are provided in Table 1.3 on the size of transfers from the Fund for Financial Support of constituent members of the Russian Federation to the Northern regions in 1997-2002. Despite the fact that beginning in 2000 the volume of transfers to constituent members of the Federation is approved in the law on the federal budget in the form of absolute amounts, and not as a share of the Fund, for purposes of achieving comparability, the data on the volume of transfers is added in percentages of the overall volume of transfers financed from the FFPR.

TABLE 1.3

Dynamics of transfers from the FFPR to northern regions in 1997-2002 (% of FFPR)

	1997	1998	1999	2000	2001	2002
Arkhangelsk Oblast	0.72%	1.14%	1.37%	1.90%	1.95%	1.97%
Kamchatka Oblast	0.96%	1.24%	1.47%	1.91%	1.59%	1.68%
Koriak Autonomous District	0.47%	0.49%	0.44%	0.76%	0.61%	0.58%
Krasnoyarsk Krai	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Magadan Oblast	1.71%	1.59%	1.38%	1.99%	1.70%	1.64%
Murmansk Oblast	0.57%	0.94%	0.59%	0.56%	0.13%	0.22%
Nenets Autonomous District	0.29%	0.18%	0.14%	0.26%	0.00%	0.00%
Karelian Republic	0.92%	1.01%	0.85%	0.91%	0.50%	0.51%
Komi Republic	0.40%	0.04%	0.00%	0.00%	0.00%	0.00%
Republic of Sakha	2.76%	2.68%	3.10%	4.97%	6.72%	5.43%
Taimyr Autonomous District	0.25%	0.07%	0.25%	0.58%	0.66%	0.67%

	1997	1998	1999	2000	2001	2002
Tyumen Oblast	1.63%	1.98%	1.05%	0.02%	0.00%	0.00%
Khanty-Mansiisk Autonomous District	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Chukotka Autonomous District	1.49%	1.28%	1.07%	1.78%	1.66%	1.51%
Evenki Autonomous District	0.38%	0.24%	0.30%	0.67%	0.46%	0.38%
Yamalo-Neenets Autonomous District	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

* planned

Source: the Ministry of Finances of the RF, the law "On the federal budget for 2002"

From Table 1.3 it can be seen that over the course of the period under examination in the majority of northern regions the corresponding shares in the FFPR either did not change or showed a tendency to drop. Growth in the share in the Fund occurred only in such constituent members of the Federation as Arkhangelsk Oblast, the Republic of Sakha, and the Taimyr Autonomous District (it should be noted that the share of the transfer from the FFPR planned for 2002 to the Republic of Sakha is at a level lower than that actually financed in 2001). At the same time formation in 2001 of the Compensations' Fund has to be taken into account, by means of subventions and subsidies from which expenditures which previously were taken into account when calculating transfers from the FFPR are subject to financing. Moreover, the list of federal mandates financed at the expense of funds from the Compensations' Fund beginning in 2002 has increased; therefore the regional structure of transfers from the FFPR in 2001 and 2002 may be impossible to compare to that of preceding periods.

In this way, despite an increase in the dependency of northern regions receiving grants on transfers from the Fund for Financial Support of constituent members of the Federation, the aggregate share of grants for equalization of minimal budgetary security directed to all the northern regions under examination in the overall volume of federal financial support has decreased over the course of the last five years. At the same time, it cannot be claimed that over the period under examination the real requirement for funds for interbudgetary equalization for northern regions has decreased so much that it has entailed a decrease in the volumes of federal financial resources directed to these regions. More likely, this decrease occurred as a consequence of changes in the rules for allocation of federal financial aid, of its being given a more formalized and objective nature, of inclusion of financial support for delivery of supplies to the North in the transfer from the FFPR, and also of separating out into an individual kind of financial aid of funds aimed at compensating budgetary expenditures brought about by federal mandates.

1.1.1.2. Grants to the budgets of closed townships (ZATO)

In the "Financial aid to other levels of authority" section of the federal budget, grants to the budgets of closed townships are singled out, within the limits of which are located sites belonging to the Ministry of Defense of the RF and the Ministry of Atomic Energy of the RF. A closed township, according to Federal Law №3297-FZ dated 14 July 1992 "On a closed township," is "a territorial formation having agencies of local self-government within the limits of which are located industrial enterprises for developing, manufacture, storage, and recycling

of weapons of mass destruction, for processing of radioactive and other materials, military and other sites (further – enterprises and (or) sites), for which there are established special procedures for the safe functioning and guarding of state secrets, including special conditions for citizens to reside.” The volume of federal financial aid to the budgets of closed townships actually financed in 2001 and also approved for 2002 is presented in Table 1.4.

However, in speaking of closed townships, it ought to be noted that even though located within the limits of the constituent members of the Federation which we consider northern ones, not all of them are located in areas of the Far North. For that reason it is impossible to consider federal financial aid to all closed townships located in the northern constituent members of the Federation as grants to northern territories. At the same time, relegating federal financial aid directed to the budgets of constituent members of the Federation only partially including territories of the Far North in their make-up to federal aid to Northern territories also possesses a certain degree of artificiality (since funds thusly received may be expended in the entire territory of the constituent member of the Federation, and not only in areas of the Far North). Accordingly, we consider financial aid to the budgets of closed townships one of the kinds of non-targeted federal financial aid to the northern regions.

It ought to be noted that closed townships occupy a special position in the Russian tax and budgetary system which in accordance with the clauses of Article 142 of the Budgetary Code of the Russian Federation is characterized by the following features:

- all kinds of federal, regional, and local taxes and other receipts accumulated on the territory of a closed township are directed in full to the revenues of the budget of the closed township;
- upon insufficiency of its own and regulated revenues in the budget of a closed township, grants are allotted from the federal budget for financing expenditures connected to the functioning of agencies of local self-government;
- an excess of revenues over expenditures in the budget of a closed township is not subject to being removed to the budgets of other levels of the budgetary system of the Russian Federation.

In this way, all tax receipts on the territory of closed townships are entered into the revenues of their budgets, while a deficit in a township’s budget is completely covered from the federal budget. Besides that, the agencies of authority in closed townships until 1998 had the right to introduce unlimited tax privileges for all kinds of taxes, including federal ones, to attract enterprises onto the territory of a closed township. The result of that situation was the transformation of closed townships into a sort of internal Russian “tax havens” attracting enterprises for the purpose of minimizing tax payments. Beginning in 1998 that practice began being stopped. In the law on the federal budget for 1998 it was established that all amounts of taxes and fees on the territory of a closed township shall be entered into the accounts of agencies of the federal treasury, and the granting of tax privileges not provided for by legislation is permitted only in accordance with the procedures approved by the government for granting such privileges which entered into force in May of 1998. In 1999 a law was adopted establishing that the right to receive tax privileges is had by enterprises having ninety percent of their

basic funds and accomplishing seventy percent of their activities on the territory of a closed township. Besides that, the law on the federal budget, beginning in 1998, established that the amount of grants to the budgets of closed townships may be decreased by the amount of tax privileges granted by the agencies of authority of closed townships.

The budgetary code which entered into force beginning 1 January 2000 provides that the agencies of authority of closed townships do not have the right to change tax rates and introduce tax privileges otherwise than in the manner provided for by federal legislation and the legislation of the constituent member of the Federation, on the territory of which the given closed township is located. Despite the fact that, in accordance with the laws on the federal budget for 2000 and 2001, the operation of this clause was suspended, simultaneously the operation was suspended of the clause according to which all taxes and fees coming in from the territory of a closed township are entered into its budget, and an excess of revenues over expenditures cannot be removed to the federal budget.² Beginning 1 January 2002 (in accordance with the law on the federal budget for 2002) the operation was suspended of the clause in the Budgetary Code, in accordance with which receipts of all taxes and fees from the territory of closed townships are entered into the revenues of the budgets of the closed townships. Along with that the operation of Clause 3 of Article 142 was restored, in accordance with which tax privileges on the territory of a closed township are granted by general procedures according to the provisions of federal legislation on taxes and fees. Simultaneously Appendix 3 to the law on the federal budget for 2002 approved the norms for withdrawals from taxes and fees into the budgets of closed townships, in accordance with which receipts of taxes and fees from the corresponding territory are entered into the budgets of closed townships, which [taxes and fees] are subject to entry both into the budgets of constituent members of the Federation and into local budgets.

As was already noted above, the federal budget makes funds available to the budgets of closed township to cover a gap between expenditures and revenues. It should also be noted that funds transferred as grants to a closed township cannot be completely relegated to the category of non-targeted, since within the make-up of financial aid to the budgets of closed townships since 1999 sums for capital investments have been allotted on a separate line, as also has been a subsidy for depopulating closed townships. Data on the actual size of grants to the budgets of closed townships located on the territory of northern regions are adduced in Table 1.4.

² Clause 1 of Article 5 of the Law of the RF dated 14 July 1992 №3297-1 “On a closed township” and Clause 1 of Article 142 of the Budgetary Code of the RF.

TABLE 1.4

**Scale of financial aid to closed township budgets according
to the law on the federal budget and the actual receipt
of funds in 2000-2002 (in thousands of rubles)**

	2000		2001		2002
	According to the law on the Fed. Budget	Actual size of grant	According to the law on the Fed. Budget	Actual size of grant	According to the law on the Fed. Budget
Arkhangelsk Oblast (City of Mirnyi)	54008	No data	106098	326121	228271
Murmansk Oblast (cities of Snezhnogorsk, Skalistyi, Ostrovnoi, Zaozersk, Polyarnyi, Severomorsk, Vidyaevo)	1060916	No data	1845677	2461389	2717337
Krasnoyarsk Krai (cities of Zheleznogorsk, Zelenogorsk, settlement of Solnechnyi, settlement of Kedrovyy)	907734	1522955	1109628	1368985	1555263
Kamchatka Oblast (City of Vilyuchinsk)	269613	No data	418723	540573	578479
Total for northern regions	2292271		3480126	4697068	5079350
Total for the Russian Federation	5483828		7836239	10587679	11544393
Share of northern regions	41.8%		44.4%	44.4%	44.0%

Source: Ministry of Finances of the RF

From the table above it can be seen that from forty-one to forty-four percent of all financial aid to the budgets of closed townships from the federal budget during the period under examination was allocated for the financing of the financial needs of closed townships located on the territory of the northern areas, and in the last two years the share for closed townships located on the territory of the northern areas is at a level of forty-four percent. In other words, despite their small numbers (the share of the population residing in closed townships on the territory of the northern regions comprises about twenty-seven percent of the aggregate population of closed townships located on Russian territory and receiving federal grants in recent years), the northern closed townships receive more than half of all federal financial aid allotted to the budgets of closed townships.

1.1.1.3. Other kinds of non-targeted federal financial aid

Aside from the kinds of federal financial aid to constituent members of the Federation considered above, funds transferred to the budgets of constituent members of the Federation as a result of the carrying out of mutual settlements and financing of the regions on a returnable basis – with the help of federal budgetary advances – also enter into the make-up of this category of federal financial support of the regions.

Prior to analysis of these forms of financial support, one ought to dwell in more detail on the content of the respective articles of the budget. One of the significantly large-volume channels for transfer of funds from the federal budget

to the regional level are mutual settlements, within the framework of which funds are transferred from the federal budget for compensation of additional expenditures from regional budgets connected to transfer of government agency housing to the balance sheet of local administrations, and also [for compensation of] other expenditures from regional budgets, the cause of which is decisions taken by federal authorities (unplanned pay raises for employees paid from the budget over the course of the fiscal year, implementation of various kinds of compensation payments, current financing of measures connected to liquidating the consequences of natural disasters and emergencies, etc.).

Funds from the federal budget are made available in the form of budgetary advances on a returnable basis for compensation of a cash gap during implementation of regional budgets, and also for other purposes (in particular, at the end of 1997, within the framework of the campaign for liquidating arrears in wages owed employees paid from the budget, significant sums for payment of wages were allotted in the form of budgetary advances). A feature of this kind of financial support is its returnable nature; that is, according to the year's results, the amount of the operations for budgetary advances may be either a positive sum or a negative one (a region may act as a net recipient of federal advances or as a net payer of previously taken funds). Nevertheless, the Budgetary Code (Article 137) establishes that budgetary advances to cover current cash gaps may be issued for a period of not more than six months, and in any event such advances must be repaid before the end of the fiscal year. Otherwise, repayment of budgetary advances is accomplished by less than full transfer of federal financial aid to debtor regions or by seizure of federal taxes and fees deposited into the budgets of constituent members of the Federation. In practice, however, some regions are granted extensions for repayment of federal budgetary advances. In particular, Article 69 of the law on the federal budget for 2002 establishes extension until 30 September 2002 of the time period for return of budgetary advances allotted from the federal budget before 1 January 2002 to cover temporary cash gaps arising during implementation of the budgets of constituent members of the Russian Federation in the amount of up to seventy-eight billion rubles.

A feature of these kinds of financial support to the regions is their irregular nature; that is, the volume of the funds for these purposes is not singled out on a separate line and is not allocated to the regions in the law on the federal budget for the routine year. Certain indicators are adduced in Table 1.5 characterizing allotment of funds within the framework of implementation of mutual settlements and of federal budgetary advances to the Northern regions.

TABLE 1.5

Funds transferred according to mutual settlements and federal budgetary advances to northern regions in 1997-2001

	1997	1998	1999	2000	2001
Share of funds transferred to northern regions in the framework of carrying out mutual settlements, in the overall volume of funds transferred to the budgets of constituent members of the Federation in the framework of carrying out mutual settlements	16.8%	6.6%	28.4%	3.4%	15.9%
Share of funds received in the framework of carrying out mutual settlements from the federal budget, in revenues of the budgets of constituent members of the					

Federation					
- average for the Russian Federation	4.2%	3.8%	1.2%	1.3%	0.3%
- average for recipients of funds from the federal budget in the framework of carrying out mutual settlements	4.4%	3.8%	1.5%	2.8%	0.4%
- average for Northern regions	3.5%	1.3%	1.6%	0.2%	0.3%
- average for Northern regions which were recipients of funds from the federal budget in the framework of carrying out mutual settlements	3.5%	1.3%	2.3%	1.5%	0.6%
Share of funds transferred between budgets in the form of settlements for budgetary advances, in expenditures from regional budgets					
- average for the Russian Federation	3.1%	-0.8%	-0.8%	0.1%	0.3%
- average for regions carrying out settlements for budgetary advances*	4.2%	-1.1%	-1.4%	0.3%	0.4%
- average for northern regions	3.6%	-0.5%	-0.8%	-0.01%	0.6%
- average for northern regions which carried out settlements for budgetary advances	4.3%	-0.7%	-1.6%	-0.01%	0.9%

* by regions which carried out settlements for budgetary advances are understood constituent members of the Federation which had a non-zero balance for federal budgetary advances according to the results of the reporting year. Source: Ministry of Finances of the RF; calculations by the authors

It can be seen from the data presented that the share of the northern regions in the funds allocated among the constituent members of the Federation and transferred according to mutual settlements does not have a clearly expressed tendency to growth or reduction: whereas in 1997, 1999, and 2001 the northern regions received from sixteen to twenty-nine percent of all federal funds thusly allocated, according to the results of 1998 and 2000 this proportion came to from 3.5 to 6.5 percent. However, on the average both for all constituent members of the Russian Federation and for the northern regions, the dependence of regional budgets on this kind of financial aid decreased over the course of the period under examination: on the average for the Russian Federation, the share of federal funds in budgetary revenues received as a result of carrying out mutual settlements decreased over the period under examination from 4.2 percent to 0.3 percent, and for the northern constituent members of the Federation – from 3.5 percent to 0.3 percent. A somewhat less clearly expressed tendency to a reduction in dependency on funds transferred within the framework of mutual settlements is to be observed for those constituent members of the Federation which were recipients of the kind of federal financial aid under examination: for recipients of this kind of funds on the average for the Russian Federation as a whole, the share of funds received through mutual settlements decreased in budgetary revenues from 4.4 percent in 1997 to 0.4 percent in 2001, and for the analogous northern regions – from 3.5 percent to 0.6 percent of budgetary revenues for the same period.

If we examine the average indicators for the dependence of regional budgets on funds received within the framework of the carrying out of mutual settlements, it can be seen that the share of these funds in the budgetary revenues for the regions of the North is lower than the average indicators for Russia as a whole for the majority of years. For the northern regions which were recipients of this kind of financial aid, the calculated indicator is also lower than the figure which was average for Russia as a whole; however, in 1999 and 2001 the dependence of the northern regions which were recipients of funds within the framework of the car-

rying out of mutual settlements on this kind of federal financial aid proved higher than the indicator which was average for Russia as a whole.

Analysis of the settlements of the regions for federal budgetary advances shows that the policies of the federal authorities with regard to this kind of financial flows between the center and the regions have grown significantly stricter: whereas in 1997, about 3.1 percent of regional budgetary expenditures were financed with the help of net advances received by constituent members of the Federation from the federal budget (4.2 percent for regions carrying out settlements on advances with the federal budget), over the course of 1998-1999 this indicator represented a negative value, that is, regional budgets settled advances taken earlier to a greater degree than they attracted new funds. An analogous tendency was characteristic of the northern regions. A positive balance of settlements for federal budgetary advances was also observed in 2000 and 2001; however, the magnitude of regional budgetary expenditures financed at the expense of federal loan funds decreased significantly in comparison with 1997 – on the average for the Russian Federation as a whole, no more than 0.3 percent of budgetary expenditures were financed at the expense of budgetary advances (not more than 0.4 percent for regions carrying out settlements for budgetary advances), and not more than 0.6 percent (0.9 percent for recipients) for the northern regions. With this, it ought to be noted that in 2000 the northern regions practically did not utilize the kind of financing of current budgetary expenditures under examination (the balance of received and repaid budgetary advances both for all northern regions and for northern regions carrying out settlements for budgetary advances came to –0.01 percent of their budgetary expenditures).

In this way, with regard to the settlements of the Northern regions for federal budgetary advances, it has to be noted that in 1997 the northern regions attracted budgetary advances more intensively than did the constituent members of the Federation on the average; however, in the following three years the northern regions repaid the funds received to the federal budget more intensively, although already according to the results of 2001 the positive balance of issued and repaid federal budgetary advances again proved higher for the Northern regions (by about two times).

According to the results from examining such kinds of financial aid as funds transferred within the framework of carrying out mutual settlements and [such as] budgetary advances, it has to be noted that, both for the Russian Federation on the whole and as applied to the regions of the North, the policies of the federal authorities with regard to granting these kinds of financial aid have grown gradually stricter. Thus, funds transferred within the framework of carrying out mutual settlements comprise an ever lesser share of the revenues of regional budgets, while an ever lesser share of regional budgetary expenditures is financed at the expense of the federal budgetary advances which are issued. With this, due to the irregularity and the lack of vividly expressed tendencies in the changing of indicators both of mutual settlements and of budgetary advances, the conclusion cannot be drawn that the northern regions receive more or fewer funds in the form of the kinds of federal financial aid under examination.

1.1.1.4. Additional kinds of non-targeted financial aid

Aside from the kinds of non-targeted financial aid examined above allotted from the federal budget to the budgets of constituent members of the Federation, in 2001 the regions were additionally allotted grants for compensation of losses connected to a change in the procedures for settlements of subventions and subsidies from the Compensations' Fund. The appearance of these grants was brought about by the fact that during the process of discussion of the draft law on the federal budget for 2001 it was decided to refrain from allotment from the Compensations' Fund of subsidies for financing expenditures from the budgets of constituent members of the Federation for implementation of the federal law "On veterans," increasing by the amount of the funds thus freed up the amount for non-targeted grants to the regional budgets. With this, the methodology for allocating these compensatory grants was not published, but it may be assumed that the amounts of the grants represented the amounts of the subsidies for implementation of the "On veterans" law initially assumed by the calculations for the draft law on the federal budget, these subsidies being shifted to the category of non-targeted financial aid and corrected taking into account the revenues security of constituent members of the Federation.

Aside from compensatory grants connected to a change in procedures for allocating the Compensations' Fund, other grants connected to receipt of additional federal budgetary revenues were also allotted from the federal budget and at the expense of which the section "Financial help to budgets at other levels" in the federal budget was increased by almost eighteen billion rubles (see below for more detail about this).

Altogether about thirty-seven billion rubles were allotted in the form of such additional grants in 2001, which came to 2.9 percent of the budgetary revenues of constituent members of the Federation (4.3 percent of the budgetary revenues of the recipients of these grants). For the Northern regions this indicator came to 0.6 percent (or 1.1 percent for the northern regions which were recipients of these grants). From the figures adduced it can be seen that in 2001 the dependence of the budgets of the constituent members of the Federation on federal grants was higher than the dependence on such kinds of financial aid as funds transferred within the framework of the carrying out of mutual settlements and [such as] federal budgetary advances. On the other hand, it has to be noted that the existence of these grants is limited to the year 2001 only, since they are of an irregular and unformalized nature, while the law on the federal budget for 2002 does not provide for allotment of such grants, either.

1.1.1.5. Overall assessment of the granting of non-targeted financial aid to the northern regions

Upon completion of examination of the concrete kinds of non-targeted financial aid to the northern regions, we will conduct an analysis of the place of the northern regions in the system of allocation of federal financial non-targeted aid. The shares of the Northern regions in the overall volume of non-targeted financial aid allocated among the constituent members of the Federation are presented in Table 1.6.

TABLE 1.6

Shares of the northern regions in the overall volume of federal non-special purpose (non-targeted) financial aid allocated in 1997-2001 (%)

	1997	1998	1999	2000	2001	2002*
Arkhangelsk Oblast	1.0895%	0.8396%	1.2593%	1.5079%	1.6820%	1.9693%
Kamchatka Oblast	1.3368%	1.5904%	1.7830%	1.8288%	1.4788%	1.9202%
Koriak AD	0.3080%	0.3494%	0.5966%	0.8293%	0.4635%	0.5380%
Krasnoyarsk Krai	1.7651%	0.8723%	0.7578%	0.1352%	0.8279%	0.9779%
Magadan Oblast	1.2115%	0.9582%	1.3735%	1.5232%	1.2139%	1.5193%
Murmansk Oblast	2.4246%	2.4699%	2.1055%	2.1835%	1.7739%	1.9150%
Nenets AD	0.1444%	0.1363%	0.2079%	0.2077%	0.0137%	0.0000%
Karelian Republic	0.8146%	0.6061%	0.8329%	0.5942%	0.3558%	0.4692%
Komi Republic	0.9150%	0.3092%	0.1887%	0.0176%	0.0256%	0.0000%
Republic of Sakha	4.6311%	1.7054%	3.7593%	4.0389%	5.6914%	5.0324%
Taimyr AD	0.1599%	0.0329%	0.4047%	0.4902%	0.5438%	0.6257%
Tyumen Oblast	1.0822%	1.1038%	0.9353%	0.0342%	0.0576%	0.0000%
Khanty-Mansiisk AD	0.0659%	0.4796%	0.0000%	0.0000%	0.0000%	0.0000%
Chukotka AD	1.0732%	1.0543%	1.5175%	1.6216%	1.1209%	1.4009%
Evenki AD	0.3572%	0.2601%	0.3889%	0.7495%	0.3018%	0.3508%
Yamalo-Nenets AD	0.0158%	0.0468%	0.0030%	0.1956%	0.1569%	0.0000%
Total for northern regions	17.39%	12.81%	16.11%	15.96%	15.71%	16.72%
Average per capita volume of non-targeted financial aid for northern regions (in rubles)	1054	490	652	838	2040	2167
Average per capita volume of non-targeted financial aid for northern regions which are recipients of federal aid (in rubles)	1054	490	733	943	2296	3380
Average per capita volume of non-targeted financial aid for non-northern regions (in rubles)	464	308	313	405	1004	990
Average per capita volume of non-targeted financial aid for non-northern regions which are recipients of federal aid (in rubles)	464	310	340	456	1004	1229

[*planned] Source: Ministry of Finances of the RF, calculations by the authors

From this table it can be seen that at the present time the northern regions on the whole receive about sixteen percent of all non-targeted financial aid; with this the given indicator took on a value of from 12.8 percent in 1998 to 17.4 percent in 1997. However, in the last three years the share of the northern regions in non-targeted financial aid received by constituent members of the Federation has been rather stable and has fluctuated from 15.7 to 16.1 percent. With this, it ought to be noted that on a per capita basis the regions of the North have been receiving about twice as much non-targeted financial aid as non-northern regions (with the exception of 1998, when the volumes of financial aid coming into the northern regions approached somewhat the amounts of federal financial support received by non-northern regions; however, even in this period the northern regions received more federal financial support than non-northern ones did). It ought to be

emphasized that only a little more than eight percent of the population of the Russian Federation resides in the regions of the North.

The structure of the federal financial aid made available to the regions of the North is presented in Table 1.7 (for the reason that federal budgetary advances less repayments may take on negative values, we did not take into account that source of financial support to the regions).

TABLE 1.7

Structure of non-special purpose (non-targeted) federal financial aid made available to northern regions in 1997-2001 (% of overall volume)

	1997	1998	1999	2000	2001
Northern regions					
Transfers from the FFPR	46.1%	59.3%	58.5%	81.7%	70.4%
Funds transferred according to mutual settlements	38.1%	18.5%	27.6%	2.8%	3.0%
Grants to closed townships	15.7%	22.2%	13.9%	15.4%	20.0%
Other grants	0%	0%	0%	0%	6.6%
Non-northern regions					
Transfers from the FFPR	61.2%	59.2%	84.7%	81.8%	65.7%
Funds transferred according to mutual settlements	35.8%	38.6%	13.7%	16.0%	2.8%
Grants to closed townships	3.0%	2.3%	1.6%	2.3%	4.5%
Other grants	0%	0%	0%	0%	27.0%
Average for the Russian Federation [as a whole]					
Transfers from the FFPR	58.8%	59.2%	80.4%	81.8%	66.4%
Funds transferred according to mutual settlements	36.2%	36.0%	16.0%	13.8%	2.9%
Grants to closed townships	5.0%	4.8%	3.6%	4.4%	6.8%
Other grants	0%	0%	0%	0%	23.8%

Source: Ministry of Finances of the RF, calculations by the authors

From the data presented above it can be seen that the structure of financial aid received by the northern regions on the whole is not significantly different both from the structure average for Russia as a whole and from the structure of financial aid received by non-northern regions. An exception is 1997 and 1999, when the share of transfers from the FFPR to the regions of the North comprises a lesser part of the financial aid than in the remaining constituent members of the Federation. It can also be seen from this table that a significantly larger share of the financial aid received by the northern regions is made up of grants to closed townships than is the case in non-northern regions. At the same time, the share of additional compensatory grants allotted to the regions in 2001 proved significantly lower in the make-up of financial aid received by northern regions than in non-northern regions and for Russia as a whole.

In this way, having examined the tendencies in the allocation of non-targeted financial aid from the federal budget to the budgets of constituent members of the Russian Federation and [having examined] the place of the regions of the North in the overall Russian structure of federal non-targeted financial aid, the conclusion may be drawn that in absolute figures (on a per capita basis) the northern regions receive more significant amounts of financial aid than do the remaining

constituent members of the Federation. However, at the same time, the share of non-targeted financial aid in the revenues of the budgets of the northern regions which are recipients of federal funds proved not much higher than the average indicators for Russia as a whole. Such an observation speaks in favor of the fact that the increased dimensions of financial aid to the northern constituent members of the Federation when calculated on a per capita basis are brought about on the whole by the high expenditure requirements of the northern regions, since, having a comparatively high revenues base, the northern constituent members of the Federation nevertheless require allotment of financial aid due to the higher cost of making basic state services available than in other constituent members of the Federation (which is brought about by the longer heating season, limited transport accessibility and the great distance to the northern territories, the presence of various supplements to wages, etc.). On the other hand, if all northern regions without exception are examined, and not just recipients of financial aid, then it can be noted that for this group of regions dependence on federal special purpose aid has proven lower than the average for Russia, the reason for which is the presence in the make-up of these regions of constituent members of the Federation with high tax incomes revenues, which has a negative influence on the share of financial aid in budgetary revenues.

1.1.2. Special purpose (targeted) financial aid

Aside from non-targeted financial aid directed from the federal budget to constituent members of the Federation, Russian budgetary legislation provides for the availability of other kinds of federal financial support allocated among the regions and aimed at financing individual kinds of expenditures from the budgets of constituent members of the Federation. The most important kind of targeted financial support to constituent members of the Russian Federation in recent times has been subventions and subsidies from the Compensations' Fund, which are aimed at compensating expenditures from the budgets of constituent members of the Federation connected to implementation of the federal laws "On state aid to citizens having children," "On social protection for the disabled in the Russian Federation," and a number of other legislative acts. Federal subventions and subsidies for road construction and repair and reconstruction of general use vehicular roads are also directed to the budgets of constituent members of the Federation in a targeted manner. Aside from the kinds of targeted financial aid which have been enumerated, targeted funds are directed to regional budgets for federal support of deliveries of supplies to the North and also subventions for compensating the cost of electrical energy rates in the Far East and Arkhangelsk Oblast. However, beginning 2000, these kinds of federal targeted financial aid have been included in the make-up of transfers from the Fund for Financial Support of the Regions.

The remaining kinds of targeted federal financial aid, among which are, first of all, funds for financing federal targeted programs, housing subsidies, and other expenditures, are financed directly from the federal budget. We will examine some of the kinds of targeted financial aid.

1.1.2.1. Subventions and subsidies from the Compensations' Fund

An substantial innovation intended to increase the effectiveness both of interbudgetary relationships and the system of social support in the Russian Federation was the creation in 2001 of a new kind of federal financial aid – subventions and subsidies from the Compensations' Fund. This fund was created in the federal budget at the expense of funds received from centralization of revenues from the value added tax,³ while the amounts of financial aid from this fund are allocated among all constituent members of the Federation and were initially directed in a targeted manner to the financing of expenditures for implementation of the federal laws “On state aid to citizens having children” and “On social protection of the disabled in the Russian Federation.” In this way, federal support for expenditures for financing obligations provided for by these laws was excluded from the system of non-targeted financial aid within the framework of transfers from the Fund for Financial Support of the Regions and transformed into a kind of federal subventions and subsidies.

The choice of these two kinds of federal mandates (initially it was also planned to include in this list expenditures from the budgets of the constituent members of the Federation for implementation of the “On veterans” law) was brought about by two reasons: in the first place, federal legislation directly orders the implementation of the financing of the kinds of help and privileges enumerated, not permitting regional authorities to accumulate arrears for aid to children; suits brought by recipients of help against regional authorities were always resolved in the plaintiffs' favor), in the second place, expenditures for financing these kinds of help and privileges comprise the greater part of the direct expenditures from the budgets of constituent members of the Federation for implementation of federal mandates ordered by federal legislation.

It ought to be noted that funds from the Compensations' Fund are allocated among the budgets of constituent members of the Federation in the form of two types of financial aid – subventions (funds for paying aid to citizens having children are allotted in the form of subventions) and subsidies (funds for implementation of the federal law “On social protection for the disabled in the Russian Federation” and other federal laws which were included in the make-up of subsidized expenditures beginning in 2002). The principle difference between these two kinds of targeted financial aid consists of the mechanism for utilization of the funds received by the budgets of constituent members of the Federation: in accordance with the Budgetary Code, subventions are budgetary funds made available to the budget at another level of the budgetary system of the Russian Federation or to a legal entity on non-reimbursable and non-returnable bases for implementation of certain targeted expenditures, while subsidies are budgetary funds made available to the budget at another level of the budgetary system of the Russian Federation, a physical person, or a legal entity under conditions of

³ In this connection it ought to be noted that the federal government solved two problems in this way: it increased the effectiveness of the system for allocating tax revenues among the levels of the budgetary system, having completed the process of centralizing the VAT begun in 1999, and also assured poorly provided-for regions of funds for paying for aid to children.

shared financing of targeted expenditures. In other words, constituent members of the Federation direct funds from the Compensations' Fund fully to payment of state aid to citizens having children at the base amount and utilize their own funds only to increase the amount of aid above the base level. Whereas funds allocated in the form of subsidies from the Compensations' Fund are directed by the recipients at co-financing of their own budgetary expenditures for implementation of the "On social protection for the disabled in the Russian Federation" law; the source for financing such expenditures thereby is not just funds from the Compensations' Fund. In this way, with the help of funds from the Compensations' Fund, the budgets of constituent members of the Federation are fully compensated for their outlays in payment of state aid to citizens having children, and partially for expenditures for implementation of the federal "On social protection for the disabled in the Russian Federation" law.

It ought to be noted that the source of funds for creating the Compensations' Fund was additional resources in the federal budget which were formed as a consequence of the complete centralization of receipts of the value added tax in the federal budget. The estimates we made show that for the country as a whole correlation mentioned was observed for 2001: the volume of the Compensations' Fund planned for 2001 (41,700,000,000 rubles) was only a little less than the possible revenues of the regional budgets according to the norm operative in 2000 of VAT budget allocations into the budgets of the constituent members of the Federation of fifteen percent (43,300,000,000 rubles).⁴ Thus regions with a traditionally high level of budgetary security such as the cities of Moscow and St. Petersburg, Samara, Sverdlovsk, and Perm oblasts, the Republics of Tatarstan and Bashkortostan, and the Khanty-Mansiisk and Yamalo-Nenets autonomous districts lost the most from replacing the depositing of the fifteen percent VAT into the budgets of constituent members of the RF with grants from the federal budget. At the same time, the volume of resources directed to highly subsidized constituent members of the Federation increased substantially: the positive balance of funds removed from regional budgets as a consequence of VAT centralization and of funds received additionally in the form of grants from the Compensations' Fund acquires maximum values (when calculated on a per capita basis) in such regions as the republics of Dagestan, Tyva, Sakha, and Northern Osetia, the Chukotka, Komi-Permiak, Ust-Orda, and Aginsk Buryat autonomous districts, Altai Krai, and Amur, Magadan, and Bryansk oblasts.

In accordance with the methodology for allocating funds from the Compensations' Fund among the budgets of the constituent members of the Federation, the overall volume of the Fund is divided into two basic parts – subsidies for financing payments of state aid to citizens having children (22,800,000,000 rubles in 2001 and 23,900,000,000 rubles in 2002) and for financing outlays connected to implementation of the "On social protection of the disabled in the Russian Federation" law (10,600,000,000 rubles in 2001 and 11,900,000,000 rubles in 2002). Altogether allocation among constituent members of the Federation of subventions and subsidies from the Compensations' Fund in the amount of 39,400,000,000 rubles (0.36 percent of the predicted GDP) is planned for 2002.

⁴ What was estimated was the volume of predicted federal VAT revenues minus the planned volume of reimbursement of the tax to exporters.

The Compensations' Fund is allocated among all regions without exception in accordance with a methodology taking into account the number of consumers of budgetary services thusly subsidized and of recipients of social transfers, and it also takes into account the average per capita cost of such services and the amount of aid per recipient. The basic difference between the mechanism for allocating subventions from the Compensations' Fund for financing aid to children and the methodology for allocating transfers from the FFPR as to accounting for expenditures for financing aid to children is the direct calculation of the amount of the subvention. Whereas when calculating the amount of the grant from the FFPR, the number of children having the right to receive aid rendered indirect influence on the magnitude of the transfer (through the index of budgetary expenditures), in the case of the Compensations' Fund the amount calculated by means of the formula adduced is fully allotted from the federal budget and compensates completely the expenditures from the budget of a constituent member of the Federation for payment of aid to citizens having children.

Beginning in 2002, financing of the execution of two additional federal expenditure mandates is done at the expense of funds from the Compensations' Fund: in addition to subventions for implementation of the "On state aid to citizens having children" law and to subsidies for implementation of the "On social protection of the disabled in the Russian Federation" law, subsidies are allotted from the Compensations' Fund to the budgets of constituent members of the Russian Federation for reimbursement of privileges relating to payment of public utilities services, communications services, and travel on public transport for citizens subjected to radiation effects at the Chernobyl Atomic Energy Station, at the accident at the "Mayak" production amalgamation, and at nuclear tests at the Semipalatinsk testing grounds, and also subsidies for reimbursement of privileges relating to payment of public utilities services and communications services for military personnel, employees of the police [*militia*], internal affairs agencies (under the Ministry of the Interior – *trans.'s note*), and the tax police, and for customs bodies personnel. The amounts of the newly introduced subsidies are calculated proceeding from the number of recipients of these privileges in the constituent members of the Federation, from the minimal size of the subsidy calculated on a per person basis, and also from the federal standard for the cost of public utilities services for the given constituent member of the Federation.

The basic features of receipt by the northern constituent members of the Federation of funds from the Compensations' Fund in 2001 and the volume of funds planned for 2002 are presented in Table 1.8.

TABLE 1.8

Indicators characterizing receipt by regions of the North of subventions and subsidies from the Compensations' Fund in 2001-2002

	2001	2002
Share of northern regions in the overall volume of subventions received from the Compensations' Fund	10.8%	10.4%
Share of subventions from the Compensations' Fund in the budgetary revenues of northern regions	1.4%	no data
Share of subventions from the Compensations' Fund in the budgetary revenues of non-northern regions	2.9%	no data
Subventions from the Compensations' Fund received by northern regions calculated on a per capita basis (in rubles)	294	335
Subventions from the Compensations' Fund received by non-northern	223	264

regions calculated on a per capita basis (in rubles)		
--	--	--

*planned

Source: Ministry of Finances of the RF, calculations by the authors

From the table presented it can be seen that the regions of the North receive somewhat more than ten percent of the funds of the Compensations' Fund, which corresponds approximately to the numbers of the population residing in these regions. On the other hand, the dependence of the northern regions in the aggregate on financial aid from the Compensations' Fund in 2001 proved twice as low as for regions not belonging to the northern territories, while such a scales is not observed with regard to the volumes of subventions and subsidies received by the northern and non-northern regions when calculated on a per capita basis. Such a situation is explained by the fact that when calculated on a per capita basis budgetary revenues of the regions of the North in the aggregate in 2001 exceeded by more than two and a half times the analogous indicator for constituent members of the Federation not belonging to the northern ones. As a result, the dependence of northern regions on federal financial support, even when the amounts of financial aid directed to these regions exceed the amounts directed to non-northern regions, proves to be far lower.

1.1.2.2. Subsidies for state financial support for purchase and delivery of petroleum, petroleum products, fuel, and foodstuffs to the regions of the Far North and localities equated to them with limited time periods for delivery of goods for supplying the population, enterprises, and organizations in the social sphere and public utilities ("deliveries of supplies to the North").

A special kind of targeted financing of regional expenditures exists in the Russian Federation – financing delivery of certain kinds of products to areas with limited time periods for delivery. This kind of financial aid is utilized for securing the early delivery of petroleum products and fuel to difficult-to-access areas during the period of navigation or for securing other means of access to these areas. On the whole, about ten percent of aggregate regional outlays for financing "deliveries of supplies to the North" are covered at the expense of federal funds; however, the dependence of certain individual regions on federal financial support of deliveries of supplies to the North is rather high. Funds for support of deliveries of supplies to the North are directed to the regional authorities, who conduct open bidding for supplying products and allocate funds among transport organizations.

Funds allotted from the federal budget for support of "deliveries of supplies to the North" remain one of the substantial items in expenditures for financial aid to the regions at a federal level despite the fact that the volume of funds from the federal budget allotted to financing deliveries of supplies to the North has decreased significantly over the course of the last nine years. Thus, whereas in 1992 about two hundred billion rubles or 1.1 percent of the GDP (5.1 percent of the expenditures of the federal budget) was allotted from the federal budget for support of deliveries of supplies to the North to the regions being examined, according to the results of 1997 this value comprised three and a half billion rubles in denominated prices (0.13 percent of the GDP, 0.86 percent of expenditures).

According to the results of 1999, something on the order of three billion rubles or about 0.07 percent of the GDP (0.45 percent of the expenditures of the federal budget) were allotted for these purposes; the law on the budget for 2002 provides for allotment of 8,963,000,000 rubles (0.082 percent of the GDP) to the regions for support of deliveries of supplies to the north

Such a kind of financing deliveries of supplies to the North as issuance of budgetary advances for delivery of products ought to be dwelled on separately. In 1994-1995 not only the transport component of delivery of fuel and petroleum products, but also purchase of these goods, was financed from the federal budget, for which budgetary advances to the amount of 1.2 percent of the GDP in 1994 and 0.5 percent of the GDP were allotted from the federal budget. Subsequently, when the regional authorities were unable to return these sums, these funds were transferred annually to be managed by the agencies of authority of constituent members of the Federation taking accrued interest into account. In particular, an amount equivalent to 0.5 percent of the GDP was transferred to be managed by the regions in 1999.

At the present time twenty-seven constituent members of the Federation with one hundred forty-three administrative *raions* have been put into the category of areas with limited time periods for deliveries. For the reason that a part of these regions do not, in accordance with the criteria adopted by us, belong to the northern regions, henceforth we will examine only the constituent members of the Federation mentioned earlier. Due to the fact that we do not possess detailed information on receipt by the regions of funds within the framework of the financing of deliveries of supplies to the North, we will perform quantitative assessment of the financial funds received by the regions below within the framework of overall assessment of federal financial aid to the northern regions.

1.1.3. Overall assessment of financial aid received by the regions.

We performed detailed analysis above of tendencies in the receiving of targeted and non-targeted financial aid from the federal budget by the northern constituent members of the Federation. We will examine the overall volumes of federal financial aid received by the regions in the period from 1997 through 2001. Certain indicators characterizing the receiving of financial aid by the northern regions are presented in Tables 1.9 – 1.10.

Indicators characterizing tendencies in the receiving of federal financial support by concrete constituent members of the Federation which we consider northern regions in this work are presented in Table 1.9. It can be seen from the table that regions of the North represent a highly heterogeneous group of constituent members of the Federation with various degrees of dependence on federal budgetary resources. Thus, in the make-up of the northern regions are such constituent members of the Federation as the Republic of Sakha and Murmansk Oblast, which in various years received up to ten percent of all the federal financial aid to the budgets of lower-standing levels [which aid is] being examined. On the other hand, among northern regions are the Khanty-Mansiisk and Yamalo-Nenets autonomous districts and other constituent members of the Federation, the share of federal financial resources received [by which] is extraordinarily low in the overall volume of financial aid allocated.

TABLE 1.9

Receiving of federal financial aid by northern regions in 1997-2002.

	Share in the overall volume of federal financial aid	Share in expenditures of the budget of a constituent member of the Federation	Per capita financial aid received (in rubles)	Share in the overall volume of federal financial aid	Share in expenditures of the budget of a constituent member of the Federation	Per capita financial aid received (in rubles)	Share in the overall volume of federal financial aid	Share in expenditures of the budget of a constituent member of the Federation	Per capita financial aid received (in rubles)
	1997			1998			1999		
Arkhangelsk Oblast	1.05%	22.91%	566.1	0.83%	13.46%	276.7	1.24%	16.43%	537.1
Kamchatka Oblast	1.29%	42.73%	2726.2	1.57%	37.86%	2074.8	1.91%	44.31%	3301.9
Koriak AD	0.30%	35.79%	7301.6	0.34%	49.27%	5367.1	0.83%	62.40%	17184.1
Krasnoyarsk Krai	1.71%	12.37%	442.1	0.86%	4.27%	137.7	1.42%	5.60%	293.5
Magadan Oblast	1.27%	36.51%	3974.4	0.94%	28.05%	1854.8	1.46%	30.46%	3766.4
Murmansk Oblast	2.34%	37.35%	1780.6	2.43%	27.17%	1156.4	1.70%	16.13%	1056.8
Nenets AD	0.18%	29.94%	3082.9	0.13%	16.76%	1380.6	0.29%	21.83%	3788.9
Karelian Republic	0.79%	24.34%	792.2	0.60%	13.26%	371.9	0.67%	10.81%	540.2
Komi Republic	0.88%	10.79%	591.3	0.30%	2.46%	126.8	0.31%	2.84%	166.6
Republic of Sakha	4.48%	35.29%	3462.5	1.70%	11.13%	821.6	10.83%	39.89%	6806.1
Taimyr AD	0.15%	25.76%	2637.7	0.03%	2.44%	356.5	0.56%	28.82%	8038.1
Tyumen Oblast	1.05%	13.43%	606.8	1.09%	9.66%	387.6	0.75%	5.83%	344.9
Khanty-Mansiisk AD	0.06%	0.19%	37.4	0.47%	1.02%	168.2	0.00%	0.00%	0.0
Chukotka AD	1.04%	40.81%	9578.6	1.04%	51.73%	6197.9	1.94%	68.38%	15643.4
Evenki AD	0.35%	64.75%	13550.4	0.26%	43.09%	6193.6	0.53%	70.69%	17475.6
Yamalo-Nenets AD	0.02%	0.08%	24.4	0.05%	0.16%	44.8	0.15%	0.49%	186.2
	2000			2001			2002*		
Arkhangelsk Oblast	1.40%	14.62%	686.9	1.57%	37.13%	2598.4	1.82%	no data	2556.3
Kamchatka Oblast	1.71%	28.06%	3355.7	1.18%	50.79%	7790.3	1.61%	no data	9049.9
Koriak AD	0.82%	51.09%	19667.4	0.35%	64.94%	28117.0	0.44%	no data	30051.2
Krasnoyarsk Krai	0.15%	0.41%	34.3	1.25%	9.39%	981.0	1.22%	no data	810.3
Magadan Oblast	1.50%	28.30%	4467.3	1.03%	45.88%	10310.3	1.27%	no data	10856.1
Murmansk Oblast	2.03%	16.50%	1430.7	1.44%	42.16%	3434.4	1.70%	no data	3436.8
Nenets AD	0.19%	6.98%	2908.9	0.10%	8.42%	5032.1	0.01%	no data	559.9
Karelian Republic	0.55%	7.34%	499.7	0.51%	19.28%	1559.7	0.50%	no data	1289.7
Komi Republic	0.11%	0.74%	66.4	0.26%	4.80%	528.7	0.17%	no data	301.6
Republic of Sakha	3.93%	11.52%	2787.9	4.79%	34.98%	11486.8	4.32%	no data	8767.5
Taimyr AD	0.46%	12.49%	7343.1	0.39%	24.88%	21204.7	0.51%	no data	23561.6
Tyumen Oblast	0.03%	0.17%	16.2	0.31%	4.05%	534.0	0.20%	no data	285.5
Khanty-Mansiisk AD	0.00%	0.00%	0.0	0.19%	0.50%	331.2	0.19%	no data	276.1
Chukotka AD	1.53%	53.67%	14757.7	0.93%	55.23%	30205.7	1.15%	no data	31579.5
Evenki AD	0.70%	57.76%	26820.3	0.22%	26.73%	28279.6	0.29%	no data	31786.5
Yamalo-Nenets AD	0.18%	0.43%	254.5	0.53%	3.52%	2489.4	0.07%	no data	280.1

*planned

Source: Ministry of Finances of the RF, Goskomstat of the RF, calculations by the authors

It ought also to be noted that regions receiving small volumes of federal financial aid do not in all instances belong to regions with a small degree of budgetary dependence on federal financial support. Northern regions with the greatest degree of dependence of federal financial support (understood in this instance as the share of regional budgetary expenditures financed at the expense of federal financial aid) include the Chukotka, Koriak, and Evenki autonomous districts (the share of financial aid in the budgetary expenditures of which is from fifty to sixty percent) and Magadan, Murmansk, and Kamchatka oblasts (in which from twenty to fifty percent of regional budgetary expenditures were financed at the expense of financial aid in various years). Differentiation of northern regions by the indicator of per capita federal financial aid received is also extraordinarily high.

TABLE 1.10

Basic features of the receiving of federal financial aid by constituent members of the Russian Federation (including regions of the North)

	1997	1998	1999	2000	2001	2002*
Share of federal financial aid directed to northern regions	16.96%	12.65%	24.59%	15.29%	15.04%	15.47%
Per capita receipt of federal financial aid by northern regions	1063.0	490.5	1233.0	864.3	2869.2	2501.9
Per capita receipt of federal financial aid by non-northern regions	482.9	313.6	348.7	439.1	1486.7	1253.5
Share of federal financial aid in the budgetary expenditures of northern regions	14.1%	7.6%	11.4%	4.7%	13.1%	no data
Share of federal financial aid in the budgetary expenditures of non-northern regions	17.8%	12.6%	9.4%	7.6%	19.5%	no data

*planned

Source: Ministry of Finances of the RF, Goskomstat of the RF, calculations by the authors

If one examines the aggregated indicators characterizing receipt of financial aid by the regions of the North (see Table 1.10), it ought to be noted that with the exception of certain deviations in 1998 and 1999, the share of the northern regions in the overall volume of financial aid received by constituent members of the Federation was rather stable and was in the range of fifteen to seventeen percent. Taking into account the fact that the share of the population residing in the northern regions in the overall numbers of the population of the Russian Federation is twice as low, the volume of federal financial aid received by northern regions when calculated on a per capita basis exceeds by two times, on the average, the analogous indicator for non-northern regions (again – with the exception of deviations in 1998 and 1999). On the other hand, the dependence of northern regions on financial support from the federal budget for the greater part of the period being examined was lower than the analogous dependence for non-northern regions. Thus the share of regional budgetary expenditures of northern regions financed at the expense of federal funds turned out to be three to six percentage points lower than the analogous indicator for non-northern regions. Such a situation was not observed only for 1999, when the dependence of non-northern regions on federal financial aid proved to be higher.

When analyzing financial flows from the federal budget into the northern regions, one has to direct attention toward the correlation of funds allocated with application of a formalized procedure for calculating amounts of aid and without application of such a procedure. Due to noncomparability of methodologies and

procedures for allocation of federal financial support in various years, we will conduct an analysis of such a structure of financial aid for 2001. With this, we will assume that, in accordance with a definite procedure formalized and unified for all regions without exception, the funds represented by the “Transfers from the FFPR” and “Subventions and subsidies from the Compensations’ Fund” channels are being allocated. In this instance, the share of financial aid allocated through formalized channels comprises 14.7 percent in the overall volume of financial aid received by northern regions in 2001, while the analogous indicator for non-northern regions over the same period comes to over eight-five percent.

Such a serious difference in the structure of financial aid received is explained by several factors. In the first place, as a consequence of a higher cost of public utilities services, the regions of the north traditionally receive greater amounts of grants to closed townships and funds for compensating layouts connected to the transfer of government agency owned housing to municipal property ownership (mutual settlements). In the second place, significant amounts (in addition to those envisioned earlier) were allocated to financing “deliveries of supplies to the North,” aid to the Republic of Sakha for liquidation of the consequences of flooding, and also additional subventions to compensate energy rates – to the amount of over one billion rubles – from additional revenues in the federal budget for 2001 in accordance with the law “On introduction of changes and additions to the federal law “On the federal budget for 2001” №161-FZ dated 14 December 2001. Besides that, additional revenues in the federal budget served as the source for additional financial aid in the form of grants for taking government agency housing into property ownership (1,800,000,000 rubles), grants for compensating losses in connection with increasing wages to employees in the budgetary sphere (2,300,000,000 rubles), and also grants for preparations for the fall-winter heating season (five billion rubles). It is obvious that due to the reasons examined above (increased level of outlays for public utilities services and the greater length of the fall-winter heating season, and also a higher level of wages in northern regions), the basic part of funds allocated was directed to regions of the North. As a result, the most important feature of the financial inter-relationships of the federal budget and the budgets of the northern regions is also the low share of regular formalized kinds of financial aid for the latter.

In this way, the following conclusions may be drawn from the results of analyzing the granting of financial aid to the northern regions from the federal budget:

1. The constituent members of the federation grouped by us in the category of northern ones for the purposes of this study on the whole receive all the kinds of financial aid from the federal budget provided for by legislation, although the degree of dependence of the regions examined on federal funds varies substantially.

2. The volume of non-targeted financial aid received by northern regions when calculated on a per capita basis exceeds both the level average for Russia as a whole and the analogous indicator for non-northern constituent members of the Federation. At the same time, the structure of non-targeted funds received by the northern regions does not differ substantially from the structure which is average for Russia as a whole.

3. The northern constituent members of the Federation also receive all the kinds of targeted financial aid there are. With that, whereas the volume of subventions and subsidies received by constituent members of the Federation from the Compensations' Fund when calculated on a per capita basis are not substantially lower than the analogous indicator for non-northern regions, the volume of irregular subventions and subsidies to the northern regions is substantially higher than the volume which is average for Russia as a whole.

4. The overall volume of funds received by the northern constituent members of the Federation from the federal budget far exceeds the analogous indicators for the remaining regions. With this, the increased level of dependency of the northern regions on federal financial aid is explained basically by the small numbers of the population of the northern regions, and also by the increased cost of making social benefits available. One also has to note the substantial inter-regional differentiation among the northern regions – both constituent members of the Federation with maximum volumes of financial aid for Russia and regions with a high level of budgetary security occur in the group.

5. One of the basic differences between the northern regions and the remaining constituent members of the Federation from the point of view of receipt of federal financial support is the structure of financial aid from the point of view of its division into regular formalized aid and irregular unformalized aid: the share of financial funds allocated in accordance with formalized procedures which are unified for all regions is several times lower in the northern regions (at least, according to the results of 2001) than the analogous indicator for the remaining constituent members of the Federation. Such a situation is explained by the fact that a greater volume of targeted and non-targeted financial support is directed to the regions of the North in accordance with decisions taken over the course of the fiscal year, which is brought about by the great requirements for making social benefits available and the high cost of the latter.

1.2. The balance of financial flows between the federal budget and the budgets of the northern regions

When analyzing financial flows between the federal budget and the budgets of the northern constituent members of the Federation, it is of interest to determine the so-called fiscal position of the budgets of the northern regions in relation to the federal budget, that is, the correlation of budgetary funds coming into the federal budget from the territory of a constituent member of the Federation and the funds received from the federal budget. For these purposes, in distinction from the analysis conducted in the preceding section, one has to take into account not only the volumes of financial aid from the federal budget, but also the amounts of tax revenues and other payments transferred to the federal budget from the territory of the northern regions. The indicator “balance of accounts between a regional and the federal budgets” calculated as a result will permit determining the status of the regions, including the northern ones, in relation to the federal budget from the point of view “donor/recipient,” which, in turn, will permit determining the contribution of the northern regions, both on the whole and separately, to the formation of the revenue base of the federal budget. This indicator will be calculated for 2001.

The balance of accounts between the federal budget and the budget of a constituent member of the Federation was defined as the difference between the amount of all tax payments received into the federal budget from the territory of a constituent member of the Federation and the amount of all kinds of federal financial aid received (transfers from the Fund for Financial Support of the Regions, subventions and subsidies from the Compensations' Fund, other grants and subventions, funds transferred to regional budgets within the framework of carrying out mutual settlements, and budgetary advances).

The results of the calculations showed that in accordance with the methodology of computations adduced the majority of Russian regions (sixty-one) are "donors" to the federal budget, that is, the federal budgetary revenues from the territory of a region exceed the amounts transferred in the reverse direction in the form of financial aid. For the Russian Federation as a whole the figure for the balance of accounts between the federal and the regional budgets came to 649,000,000,000 rubles. With this, if one examines this indicator on a per capita basis, then one should note that for the northern regions its value came to almost 12,500 rubles, while for the non-northern constituent members of the Federation, the value of this indicator was fixed at a level of 4,500 rubles, while the average for Russia as a whole came to about five thousand rubles. In other words, despite the fact that the northern regions receive comparatively higher volumes of financial aid from the federal budget than do the non-northern constituent members of the Federation (as was shown in the preceding section), their contribution to the formation of the tax revenues of the federal budget is more than twice as high as the contribution of the non-northern regions, which is connected to the high figures for the tax base in the regions of the North.

The figures for the indicator of the balance of accounts between the federal and the regional budgets for 2001 by individual northern regions are presented in Table 1.11.

TABLE 1.11

Balance of accounts between the federal and the regional budgets in 2001

	thousands of rubles	rubles per person
Arkhangelsk Oblast	-995867	-704.3
Kamchatka Oblast	-1408490	-3978.8
Koriak AD	-681797	-23510.2
Krasnoyarsk Krai	14819065	4976.2
Magadan Oblast	-2076557	-8912.3
Murmansk Oblast	1570948	1598.1
Nenets AD	1819175	39547.3
Karelian Republic	149315	194.9
Komi Republic	12433594	10954.7
Republic of Sakha	-4704925	-4815.7
Taimyr AD	-2563384	-59613.6
Tyumen Oblast	6515523	4797.9
Khanty-Mansiisk AD	88213624	64483.6
Chukotka AD	278016	3861.3
Evenki AD	772546	42919.2
Yamalo-Nenets AD	38566265	77911.6

Source: Ministry of Finances of the RF, Ministry of the RF for Taxes and Fees, calculations by the authors

From this table it can be seen that the northern regions differ substantially among themselves both by size and by the value of the balance under examination. Thus the largest “donors” to the federal budget are four northern regions – the Khanty-Mansiisk and Yamalo-Nenets autonomous districts and also Krasnoyarsk Krai and the Komi Republic, the summary contribution of which to the tax revenues of the federal budget was assessed at 154,000,000,000 rubles. With this, the figures for the indicator under examination for the Khanty-Mansiisk and Yamalo-Nenets autonomous districts are the maximum ones for the Russian Federation.

If one examines the figure for the balance when calculated on a per capita basis, one can add the Nenets and Evenki autonomous districts to the regions enumerated; in these regions the figures for the balance of accounts when calculated on a per capita basis proved significant due to the small numbers of the population. As in the preceding instance, four northern regions – the Khanty-Mansiisk, Yamalo-Nenets, Nenets, and Evenki autonomous districts show the four maximum figures for the balance when calculated on a per capita basis for the Russian Federation as a whole.

Aside from “donors” to the federal budget, there is a large number of net recipients of federal funds among the northern regions, among which one ought to single out such constituent members of the Federation as the Republic of Sakha, the Taimyr Autonomous District, and also Kamchatka and Magadan oblasts. The Republic of Sakha thereby is the number two net recipient of federal funds in 2001 in absolute volume (after the Republic of Dagestan), and the Taimyr AO and Magadan Oblast are among the top ten recipients.

On a per capita basis, among the northern regions very large net recipients of federal funds are such constituent members of the Federation as the Taimyr and Koriak autonomous districts, which fell into this group due to the small numbers of their populations, and also the Republic of Sakha and Magadan Oblast. All three of the regions enumerated head up thereby the list of the largest net recipients of federal funds when calculated on a per capita basis.

In this way, the results of calculating the indicator of the balance of accounts of the federal and regional budgets for the group of Northern regions have shown that this group is extremely heterogeneous both from the point of view of the plus or minus correlation of federal financial aid received and tax payments transferred to the federal budget and from the point of view of the scale of this correlation. Just as for the average for Russia as a whole, more than half of the northern regions are net donors to the federal budget. However, the degree of differentiation of the northern regions from the point of view of their tax base and financial aid received is characterized by the fact that among the northern constituent members of the Federation are both the largest Russian net donors to the federal budget and the largest net recipients of federal budgetary funds for the Russian Federation [as a whole] (moreover, this assertion is also correct when this indicator is calculated on a per capita basis). Accordingly, the group of northern regions has united within itself the constituent members of the Federation with extreme values for the balance of accounts with the federal budget. However, it ought to be noted that on the average for northern regions as a whole a positive figure for the balance of accounts is to be observed, that is, the northern regions on the aggregate are a net donor to the federal budget.

1.3. Proposals for improving the system of budgetary inter-relations with the regions of the North

The analysis of financial flows between the federal budget and the budgets of constituent members of the Federation performed in the preceding sections has shown that, being extremely heterogeneous in their make-up, the group of northern regions receives significant volumes of federal financial aid, ones which exceed the amounts of federal financial aid transferred to the non-northern constituent members of the Federation. Accordingly, the mechanism for allocating federal financial aid acquires special significance for the northern constituent members of the Federation, and moreover not only its specific forms such as federal financial support for deliveries of supplies to the North, but also all forms of federal financial aid directed to the budgets of constituent members of the Federation. The basic vectors for increasing effectiveness both of federal financial aid on the whole and its individual forms will be examined below.

As to the vectors for improving overall effectiveness of the system of federal financial aid to constituent members of the Federation, it ought to be noted that such proposals are relevant not only to the northern regions, but to all the constituent members of the Federation. With regard to reforming the system of federal financial support to the regions, one has to agree with the basic vectors for its improvement laid out in the Program for Developing Budgetary Federalism in the Russian Federation up to 2005 approved by Resolution #584 of the Government of the Russian Federation dated 15 August 2001.

1. Separation is necessary of financial aid depending on goals set and on the allocation mechanisms into current aid and investment aid, and also into equalizing aid and “stimulating” aid. The mechanisms for allocating current equalizing financial aid to the northern constituent members of the Federation should take into account thereby the factors of increased expenditure requirements in the budgets of these regions connected to their northern location. Simultaneously mechanisms should be worked out for allocating investment and stimulating financial aid, including from the point of view of the priorities of the federal authorities with regard to developing the regions of the North.
2. Allotment of financial aid should be limited to being through the following basic forms of financial support: grants, subventions, and subsidies. It is essential thereby to implant in the Budgetary Code the right of federal authorities to allot subsidies in proportion to the dimensions of the financing of the production of the subsidized social benefit produced by the recipient of financial aid with retention of the coefficient of shared financing assigned upon allocation of the subsidies. A more active usage of the mechanism of subsidies, which in their essence are close to share grants, would permit the federal center to exert greater influence on the expenditures policies of the regional authorities.
3. It is essential to secure in legislation a clause on the compulsory nature of allocating equalizing forms of financial aid (first of all – of funds from the Fund for Financial Support of the Regions and the Compensations’ Fund) in accordance with principles which are uni-

fied for all constituent members of the Federation of performing allocations on the basis of transparent formulae with verifiable (reproducible) calculations and objective criteria for the budgetary security of the regions. Other kinds of financial aid should be allocated on the basis of conditions established ahead of time for calculating and granting financial support and of procedures for competitive selection of recipients of financial aid. As was already said above, in such formulae for allocating equalizing transfers the taking into account of the factor of “northernness” should make available the possibility of declining the necessity of allocating special kinds of federal financial aid such as specially allocated subventions for preparations for the heating season.

4. For purposes of avoiding negative stimuli for the system of allocating financial aid with regard to the tax and budgetary policies of the agencies of authority in the constituent members of the Federation, calculations of budgetary security for the recipients of federal financial aid should not be based on usage of reporting data on the budgetary expenditures actually made by constituent members of the Federation and the actually received (accrued) tax revenues. For that what is necessary is objective and transparent assessment of the relative differences in expenditure requirements and also assessment of the comparison of the fiscal capacity (tax potential) of the various constituent members of the Federation taking into account the level and structure of development of the regional economy.
5. It is necessary to secure in the operative budgetary legislation basic principles for the methodologies and procedures for allocating financial aid (with a detailed description of the methodologies and procedures in the normative-legal acts of the Government of the Russian Federation adopted on its basis) or directly for the methodology and procedures for making federal financial aid available. Such a securing of the rules for allocating financial aid should facilitate creation of the maximum possible stability and predictability of the volume and principles for allocating financial aid for its recipients, the predictability permitting constituent members of the Federation to forecast on their own the basic volume of financial aid receivable in the mid-term and creating stimuli for increasing their own revenues.
6. Simultaneously it is necessary to introduce changes into federal legislation aimed at creating strict budgetary limitations for recipients of federal financial aid. What is meant first of all is approval of the amounts of financial aid to concrete regions by the law on the federal budget for the respective year, and also limitations on transfer over the course of the budgetary year of funds not allocated among constituent members of the Federation by the law on the federal budget. When analyzing the issue of creating strict budgetary limitations for regional authorities, it is necessary to emphasize especially the inadmissibility of allotting over the course of the financial year volumes of financial aid additional to the amounts approved by

the law on the federal budget, since that decreases the stimuli for regional authorities to expend budgetary funds efficiently.

It is also essential in the near future to adopt the following measures in the area of reformation of concrete forms of federal financial aid to the northern territories.

1.3.1. Transfers from the Fund for Financial Support of the Regions.

With regard to vectors for reforming the mechanism for allocating funds from the Fund for Financial Support of Constituent Members of the Federation, it ought to be noted that despite certain deficiencies in the methodology for allocating the Fund's funds, at the contemporary stage what is of greater significance is not so much improving concrete formulae for allocating financial aid as it is of legislative assurance of application of a methodology for allocating transfers which formalized and unified for all regions, this methodology to be based on objective assessments of fiscal capacity (tax potential) and expenditure requirements. In this connection it seems necessary to concentrate on the search for the most effective mechanism for legislative consolidation of such a procedure.

In the mid-term the Fund for Financial Support of Constituent Members of the Russian Federation should keep its significance as the channel which is basic by volume for allocating financial aid to constituent members of the Federation within the framework of the program for horizontal equalization of budgetary security. With this the basic tenets of the methodology introduced in 1999-2000 for allocating grants for equalization of minimal budgetary security should be consolidated in budgetary legislation with simultaneous creation and consolidation in legislation of demands providing stability for the principles for allocating such grants. A change in legislation should be done first of all in the direction of refraining from usage of non-existent minimal social standards as a criterion for allocating federal equalizing transfers and of consolidating basic principles and procedures for calculating and allocating grants for equalizing minimal budgetary security.

As a consequence of the fact that targeted financial aid for financing "deliveries of supplies to the North" is at the present time a part of the transfer from the FFPR, it has to be noted that within the framework of improving the mechanism for calculating and allocating this Fund in the prospective future it is necessary to relinquish the existing system for calculating these subventions, when the overall volume of the transfer is first calculated, and subsequently the amount of funds for supporting "deliveries of supplies to the North" is allotted by means of calculations. At the present time the following deficiencies are inherent to the system of financing deliveries of supplies to the North at the regional level:

1. Lack of effective monitoring on the part of federal financial agencies of observation of procedures for competitive allocation of financial funds among supplies of products and transport enterprises. Despite the fact that a part of the funds for financing deliveries of supplies to the North are allotted from the federal budget, allocation of these funds among suppliers and transport enterprises is done at the regional level on a competitive basis. At the present time federal agencies of authority do not thereby have effective levers for monitoring the well-foundedness of the adoption of any particular decision on granting an order for supplying products to any particular enterprise.

2. Lack of monitoring the well-foundedness of prices and rates of producers of public utilities services. Despite the fact that public utilities enterprises remain the recipients of funds from territorial budgets subsidizing the difference between rates for public utilities services and the cost of such services, at the present time in the majority of regions there is no possibility of creating a transparent system for establishing rates for public utilities services. This leads to situations arising when additional layouts for early delivery of fuel and petroleum products financed at the expense of state support for deliveries of supplies to the North are included in the cost of public utilities services at the stage of approval of rates. Additional outlays for accomplishing early deliveries of fuel and petroleum products for the needs of the public utilities are thereby paid for twice: the first time – by the budget at the stage of paying for deliveries of supplies to the North, and by the consumers of public utilities services at the stage of paying for these services.

It is obvious that despite substantial rationalization of the system for allocating federal funds for supporting deliveries of supplies to the North, the deficiencies enumerated lead to significant losses in efficiency of utilization of state funds. As a consequence of this, in our opinion, what is necessary in the near future is adoption of radical measures in the area both of reforming the system of deliveries of supplies to the North and of reforming public utilities. As was said above, the formal basis for deliveries of supplies to the North is the need for additional funds during the period of seasonal delivery of fuel, petroleum products, and other goods. However, from the point of view of economics, this requirement is an additional factor in the rise in prices of public utilities services, that is, of the raising of the level of expenditure obligations in the budgets of constituent members of the Federation having areas on their territory with limited transport accessibility connected to the necessity for early deliveries of freight.

For this reason, in the case where obligations for organizing early deliveries of freight are placed upon public utilities enterprises or their associations, the cost of deliveries of supplies to the North may be included in the rates for public utilities services. When necessary, the level of rates may be subsidized from the territorial budget in the form of categorical or earmarked grants. That means that federal support for deliveries of supplies to the North should be included in the overall volume of financial aid to the budgets of constituent members of the Federation allocated in the form of transfers from the FFPR by rules which are unified for all regions and which take into account an objectively caused requirement for budgetary expenditures. With this, the rule of the seasonality of allotting funds for deliveries of supplies to the North can be rescinded, since attracting additional funds during the time periods of transport accessibility can also be included in rates for public utilities services and subsidized in the traditional way.

A beneficial consequence of including funds for supporting deliveries of supplies to the North in the overall volume of the transfer from the FFPR is, in our opinion, giving support for deliveries of supplies to the North a non-targeted nature. With overall monitoring of targeted utilization of budgetary funds at all levels of state authority and with transparency of the process for establishing rates by natural monopoly enterprises, this should lead to an increase in the efficiency of utilization of funds allotted and to a decrease in abuses in the process of their expenditure in the event regional agencies of authority planned expenditures

connected to early deliveries of products in volumes less than the amount allotted for these purposes from the federal budget, then the targeted nature of the resources made available (that is, the possibility of expending funds only for purposes agreed upon ahead of time) leads to a decrease in the efficiency of utilization of federal funds.

1.3.2. Subventions and subsidies from the Compensations' Fund

The Compensations' Fund created in 2001 should be utilized in the future, too, for making targeted financial aid (subventions and subsidies) available to constituent members of the Federation for implementation of federal laws providing, as a rule, for social payments (aid) to or privileges for individual categories of the population. With this the obligations of regional and local budgets for social payments and privileges established by federal laws, but not secured by funds from the Compensations' Fund, should be curtailed with simultaneous expansion of the rights of constituent members of the Federation to regulate on their own, in instances provided for by federal legislation, the make-up and level of expenditures taken on for financing at a scale not less than the subvention (subsidy) allotted from the Compensations' Fund. Allocation of subventions from the Compensations' Fund should be done among constituent members of the Federation in accordance with the numbers of the respective categories of the population (taking into account, in the instances where such is necessary, of other factors in the differentiation of expenditure requirements).

For the reason that funds from the Compensations' Fund are allotted to all constituent members of the Federation without exception, we see no need to introduce any special procedures for calculating this kind of financial aid for regions of the North different from the rules used for all the regions of Russia.

1.3.3. Grants for reimbursement of expenses connected to transfer of a government agency's housing to municipal property ownership

As has already been mentioned above, grants for reimbursement of losses from maintenance of public utilities sites and sites in the socio-cultural sphere transferred to the jurisdiction of agencies of local self-government comprise a substantial part of federal financial aid to the regions. However, it can be shown that when utilizing the existing methodology for allocating funds from the FFPR, there is no need to allot additional financial aid from the federal budget for reimbursement of additional expenditures borne as a consequence of agencies of local self-government taking public utilities sites and sites in the socio-cultural sphere onto their balance sheets (since this methodology takes such expenditures into account when allocating transfers), and all amounts allotted from the federal budget should be aimed at liquidating arrears for these payments which formed earlier. In this connection it is proposed that this kind of financial aid be renounced after existing arrears have been liquidated.

As a compromise creating stimuli for municipal authorities to take public utilities sites and sites in the socio-cultural sphere into [their] property ownership, development is possible of a mid-term (for two to three years) program for completion of the process of transfer of housing and sites in the social sphere by enterprises to municipal property ownership, in accordance with which after com-

pletion of the program no settlements with the budgets of constituent members of the Federation on this basis will be done.

The measures adduced bear also on the northern constituent members of the Federation in which transfer to municipal property ownership has not been completely effectuated up to the present time.

1.3.3.1. Budgetary advances

It is necessary in the near future to secure in legislation an approach which is different in principle for utilizing federal budgetary advances as an instrument of financial support for the budgets of constituent members of the Federation, including the “northern regions.”

In the first place, it is necessary to establish that budgetary advances may be issued to regions from the federal budget for emergency financial aid to constituent members of the Federation (financing and reimbursing expenditures for liquidation of the consequences of natural disasters and other emergency situations) upon granting the respective territory the status of a “disaster zone (emergency situation).”

In the second place, budgetary advances can be utilized (under the condition that the appropriate changes are introduced into the legislation) as one of the instruments for the financial support of regions which are in a difficult financial state (financial crisis). However, in this instance, issuance of a budgetary advance should be preceded by the moving of the constituent member of the Federation into a special mode of operations entailing conclusion of an agreement on improving the health of state finances and the taking upon itself by the region of a number of obligations in the area of adopting certain measures in the area of budgetary and tax policy.

In other instances the granting of federal budgetary advances should be stopped. With regard to the northern constituent members of the Federation, it has to be noted that a mechanism for liquidating the remaining arrears for advances allotted for support of “deliveries of supplies to the North” in 1994-1995 should be worked out in the near future.

1.3.3.2. Financial aid to the budgets of closed townships

By analogy with transfers from the Fund for Financial Support of the Regions, non-targeted federal financial aid to the budgets of closed townships should be calculated on the basis of a unified methodology and objective criteria for assessing budgetary security. At the same time, the procedures for granting the targeted part of this kind of federal financial aid (subventions for implementation of programs for developing closed townships) should be regulated in the context of other legislative norms concerning targeted financial aid from the federal budget.

Part 2. Theoretical and empirical analysis of factors influencing migration flows from the northern regions of the Russian Federation (RF). Assessment of the effectiveness of state migration programs.

The significant number of the unemployed and of pensioners in the northern regions which took shape as a consequence of the stimulating of an inflow of the population there in the second half of the twentieth century at the present time is leading to the creation of social and economic problems which are complicated by the fact that the unemployable population does not have the means to leave and to settle themselves in the central and southern regions of Russia, and also the possibility for engaging in small-scale agriculture because of the climate.

The problems arising and accumulating in the northern regions demand solution, since the increase in unemployment and also the lowering of the level of well-being of the population because of the lag in indexation of pensions and aid behind the growth of the subsistence minimum are leading to a growth in social tension in the northern regions. Simultaneous with this, increased payments to pensioners and the unemployed on the part of the state, to which they are entitled by law, and also maintenance of an aging network of buildings and structures in the northern regions is costing the state dearly, especially taking into account the increased likelihood of unforeseen expenditures for emergency measures or liquidation of the consequences of emergency situations when equipment and structures wear out. All this speaks to the benefit of state programs to stimulate migration of the unemployable and poorly provided-for population.

A survey of theoretical and empirical works on problems of studying migrational flows and factors influencing migration was prepared within the framework of the study. On the basis of a signalization model a theoretical model was constructed which, taking into account asymmetry of information in the labor market, takes into account the influence of an inflow of migrants on the equilibrium forming in a receiving region. It is noted thereby that a small number of arriving migrants, aside from creation of an additional labor supply, under the preconditions being examined, lowers the wages of individual categories of the local population. Simultaneous with an increase in the number of arrivals, a situation may form when an even greater increase in the inflow of migrants leads to an increase in the wages of the local population.

Econometric assessments of the dependence of gross migrational flows – outflow of people from northern regions and inflow into non-northern regions – on various factors, hypotheses on the influence of which follow from the survey of theoretical and empirical works, are also adduced in the work.

Besides that, results are adduced in the work of calculations of analysis of costs and benefits of implementing state programs to facilitate migration – of economies of budgetary funds effected and time periods for programs to pay for

themselves in which the moving expenses of migrants are paid. Those adduced in this work continue studies carried out earlier at the Institute of the Economy in Transition (IET)⁵, which were devoted to an assessment of the budgetary effectiveness of various migrational programs. This work, aside from updating calculations conducted earlier taking into account new data received for 2000, contains the following results of analysis of costs and benefits, and also of the budgetary and overall economic effectiveness of migrational programs:

- Singling out of the migrational routes which are most effective from the point of view of effecting budgetary economies
- Calculation of economies of budgetary funds when the population migrates according to migrational flows which have actually formed at the present time
- Solving the problem of optimizing budgetary economies when there are limitations on the coefficients of the demographic load during migration of the unemployable population (in diverse variants)
- Results of assessments in the change in the well-being of the employable population as a consequence of changes in real wages upon migration
- Results of assessments in the change in the well-being of the unemployed taking into account the change in their real income with the probable possibility of getting work in the receiving regions.

⁵ See “Finansovye otnosheniia federal’nogo...” (Financial relations of the federal...) (2001).

2.1. Survey of theoretical approaches for analyzing migration flows and factors influencing migration of the population⁶

Ravenstein's work (1885) may be considered one of the ground-breaking theoretical works on migration; the basic laws of migration were formulated in this work. A definition of migration close to the contemporary one, classification of factors influencing migration, and also basic hypotheses on influence on the volume and features of migrational flows, and the number and make-up of migrants were formulated in Lee's work (1966). The further development of the theory of migration includes both theoretical works with formalized models of migration and empirical studies of migrational flows. The basic works on studying migration are enumerated and structured in this section, and a survey of works including macro- and micro-economic approaches to singling out factors influencing migration and to modeling migrational flows is adduced.

2.1.1. A definition and basic factors influencing migration

According to Lee's work (1966), **migration** – is a permanent or almost permanent change of place of residence. This definition places no limits on the distance to which displacement occurs, or on the voluntary or forced nature of the change of place of residence, and draws no distinctions between internal and external migration. In this way, both a change of apartments and a move from one country to another are considered migration, although the causes and consequences of these displacements differ greatly. However, not just any change of places of residence satisfies this definition. For example, permanent displacement of workers not having a definite place of residence from a long-term point of view, and temporary moves of people, such as leaving to go on vacation, are not migration.

On the whole we will stick to this definition during analysis within the framework of this work with one substantial distinction. Insofar as the purpose of the analysis is factors and results of inter-regional migration of the population, when speaking of migration of the population, we will not take into account moves by residents within regions.

Independently of at what distance a migration is accomplished and to what difficulties this migration is linked, it can be characterized by the old and new

⁶ This section was prepared on the basis of materials which were prepared by Mr. KB Newbold (see K. Bruce Newbold «Theories and frameworks of domestic migration»), some additional papers and works were also reviewed. In the domestic literature, migration issues were examined, mainly, from the point of view of reproducing labor resources (see, for example, “Vosproizvodstvo naseleniia i...” (Reproduction of the population and...) (1976), “Demograficheskie issledovaniia” (Demographic studies) (1988), “Matematika v sotsiologii...” (Mathematics in sociology...) (1977), “Matematicheskoe modelirovanie v sotsiologii” (Mathematical modeling in sociology) (1977), “Metologicheskie problemy sotsiologicheskogo...” (Methodological problems of sociological...) (1974), “Sotsial'no-ekonomicheskie problemy...” (Socio-economic problems...) (1988), “Trudovye resursy: problemy...” (Labor resources: problems...) (1988), “Trudovye resursy. Sotsial'no-...” (Labor resources. Socio-...) (1976).)

place of residence, and also by intermediate obstacles (barriers) to the migration, among which, for example, are the distance of displacement and, accordingly, outlays for the move. In addition to this, Lee singles out personal factors which may for some personal reasons attract or repel migrants, or to which certain migrants may be indifferent. As examples one may adduce climatic and geographical conditions, taxation, the quality of the availability of social benefits (the health and education systems and others).

In addition to differences in conditions of residence in the new place compared to the old one, assessments of conditions of residence made by migrants themselves are often shifted in favor of the old place of residence. This may be caused by the economic, social, and psychological costs of settling in a new place, attachment to the old place of residence, and also by the features of the life – the beginning part of the cycle is often connected to the old place of residence, a time characterized on the average by good health and the absence of burdensome duties.

In examining volume of migration, Lee advances the following hypotheses in his work:

1. Volume of migration within the limits of a single territory depends on heterogeneity of the regions entering into it – migration is not great where regions may be considered homogenous in their features.
2. Volume of migration depends on heterogeneity of population of regions – migration is not great between regions with similar culture and ethno-national make-ups of the population.
3. Volume of migration depends on the difficulty of overcoming intermediate obstacles, including distance of displacement and costs of moving – the more difficult the displacement from one region to another, the fewer migrational flows move along that route.
4. An absence of natural or artificial (administrative) barriers for migration leads to an increase in migrational flows over the course of time.
5. Volume of migration depends on economic stability in the given territory – with a heightening of uncertainty and an increase in instability the migrational activity of the population also increases.

In addition to that, it may also be noted as characteristic features of migrational flows that migration is rarely chaotic (multi-vectored) and usually takes place along certain routes (vectors). With this, for every significant flow of migration a flow of migration in the opposite direction is usually observed. Besides that, simultaneously with an increase in migrational flows when there is a heightening of instability, Lee, citing Ravenstein's work, points out that volume and intensity of migration increase when there is a heightening of economic activity (an immobile population is one of the signs of stagnation).

Migration of a population causes various economic effects, including an increase in the well-being of migrants. Among characteristic results of migration, Lee notes that the economic effectiveness of migration is high if the migration was brought about by repulsion factors, if there are great intermediate obstacles to migration, or if there is a significant differentiation between the region of resi-

dence and the place of the migrants' destination. With that, the effectiveness is increased during a period if increase in economic activity.

Accordingly, the general observations Lee generalized in the work indicate that voluntary migration is usually elective (not mass in character). Migrants who displace in response to attracting factors at the new place of residence are usually economically active and successful people. On the contrary, migrants who displace in response to repelling factors at the old place of residence are usually non-working and unemployable people or people of low economic activity. It is also pointed out that certain stages in the life cycle (such as the beginning of the employable period or marriage) increases the inclination to migration. Besides that, it may be noted that the cultural and social characteristics of migrants are usually intermediate between the same characteristics of the population at the old and new places of residence.

Issues of the methodology of studying the migration of labor resources as applicable to the socialist means of production were also studied in such works as, for example, V.G. Kostakov (1976), R.V. Ryvkina (1974), and T.V. Ryabushkin (1976).

2.1.2. Macroeconomic approaches to modeling migrational flows

Beginning with the work by Hicks (1930), inter-regional migration was considered to be a reaction of the population to differences in wages between regions, when as a result of migrational flows an equalization of wages occurs. Formally, the mechanisms of such equalization can be analyzed within the framework of the model of macro-equalization (the macro-adjustment model). If wages in one of the regions are higher, the work force migrates to that region from regions with lower wages (See . Borts, Stein (1965); Greenwood (1975); Hicks (1932); Rossi (1980)). As a result, the labor supply in the region with low wages decreases, forcing wages to grow, and, conversely, the labor supply grows in the region with high wages, and wages drop until they become identical in both regions.

Denton and Spencer (see Denton, Spencer (1974)) in their work, basing themselves on the macro-equalization model, ran computer simulation modeling of migration flows arising under various shocks (a surge in the birthrate, outbreak of war, etc.). The model offered in this work relies on studies examining migration within the framework of neo-classical theory (Mundell (1957), Johnson (1955), Meade (1955), Gordon (1955), Thomas (1973)). The model, which examines two countries between which trade in goods is absent, but mobility of labor exists – people move from one country to the other in response to differences in wages – includes an economic and a demographic submodel. The countries being examined are considered initially to be very close by basic indicators, then the result of the impact of four kinds of shock occurring in one of the countries is examined: a surge in the birthrate, changes in inclination to migrate, war, and the discovery of a new country. Calibration of the model was run on the basis of data on the economic and demographic indicators in Canada (see the works by Denton, Spencer (1970); Murphy (1972)).

When there is a surge in the birthrate in one of the countries, net migration is observed into the second country from the country in which the surge occurred during equalization. Upon completion of equalization, the volumes of migration

in both countries prove higher than the initial ones. This occurs because the population becomes younger on the average, and the young are more inclined to migrate. Per capita production responds to this surge in the following manner: the greater the sensitivity of migration to a difference in income, the lesser the decrease of this output in the country in which the surge in the birthrate occurred, and the greater the decrease in per capita output in the other country. The reason is that the greater the migration from the country in which the surge in the birthrate occurred, the lesser the influence of population growth on per capita output in that country, and the greater that effect in the other country.

When there is a temporary heightening of inclination to migration in one of the countries, at first per capita output in that country increases, and then it gradually returns to the initial level. The opposite process is observed in the other country. The scale of that process depends on the sensitivity of migration to a difference in income. The greater this sensitivity, the less the effect rendered on distribution of the population between the countries, and, consequently, on the difference in per capita output.

If as a result of war in one of the countries a significant part of the fixed assets and a certain share of young able-bodied men are destroyed, a per capita fall in income occurs in that country and an outflow of population from it to the other country. This is connected to the fact that, with a given quantity of fixed assets, the departure from the country of a part of the population increased the marginal product of the remaining population. Migration also is an equalizing mechanism which decreases the per capita level of income in the country which war did not damage.

The last shock which Denton and Spencer examine is the opening of the borders between two countries with greatly differing population numbers. Denton and Spencer call one of these countries the "old world" and the other the "new world." Economic and demographic equalization between these countries occurs when the borders are opened. However, the behavior of migrational flows depends on the sensitivity of migration to a difference in incomes. If this sensitivity is not very great, a large net flow of population to the "new world" is observed during the first few years, then this flow decreases. If, however, it is great, then after a certain time a reverse migration is observed from the "new world" to the "old world." Then the migration flow again changes direction, and migration continues until the income level in both countries is equalized.

Empirical works using methods of regressive analysis indicate that wages at the new place of residence render a significant positive impact on the numbers in the migrational flows (see Courchene (1970)). Despite the presence of the influence of wages on migrational flows, such assessments give no answer to the question of whether migration actually leads to wage equalization. The existence of significant regional differences in income in such countries with great mobility of the work force as the U.S.A. and Canada means that migration does not render the influence on wage equalization of which the macro-equalization model speaks. Moreover, the very choice of income differences as an indicator determining migration has been subjected to discussion. Probably a difference in wages is material to those who receive wages, which means for explanation of the migration of those who no longer are a part of the work force, wages will not be such an important indicator. Grant and Vanderkamp (1976) studied whether mi-

grants react to a difference in average wages in regions or are they capable of calculating income in a more complex way, which presumes access to accurate information and sufficient far-sightedness in predicting their own incomes. Their study showed that migrants react to a difference in average incomes, and not to temporary or random components in income. With that it is also noted that the premise that migrants calculate wages in a more complex way is apparently unrealistic.

The assumption that migrational flows equalize wages in regions through a change in supply in the labor markets assumes complete mobility of labor resources and does not take into account the possible presence of barriers to migration. In the capacity of such barriers, aside from possible administrative limitations on moving (requirements for accreditation or registration of place of residence), one ought to mention social programs including unemployment insurance, which can hinder or delay migration, and incompleteness of the information about the receiving regions which a part of the potential migrants possess. Besides that, important significance may be had by limitations in the labor market which may be brought about by the activities of labor unions or agencies of state regulation and may be expressed, for example, by the establishment of minimum wages.

The influence of the establishment of minimum wages on migrational flows is analyzed in considerable detail in the work by Harris and Todaro (1970). The work's authors note that economic models assuming full employment of the work force provided for by flexibility of wages and prices do not permit one to explain the behavior of people migrating from rural areas to urban ones despite the fact that there is high unemployment in the cities, and the value of the marginal labor productivity in the rural areas is positive.

The two-sector model of migration (agriculture and the urban sector producing industrial goods) constructed in the work allows the existence of a minimum level of wages determined by social and political considerations noticeably exceeding income in rural areas. The authors examine the influence of this minimal level on the economic behavior of individuals under conditions when there is no labor surplus in the agricultural sector – the marginal product in agriculture is a positive one and diminishes with the growth of the work force in that sector. The key premise of the model is that migration continues until the expected marginal income in the urban sector exceeds the marginal product in agriculture, that is, we will consider that migrants, in determining their economic behavior, maximize expected utility. The distinctive feature of the model is that migration arises in response to differences in expected incomes between agricultural and industrial areas, and unemployment in the urban area is a mechanism leading to equilibrium. With this, equilibrium in the model constructed represents a non-optimal situation for the economy on the whole, but is in accord with a rational choice by individual migrants maximizing utility at a given minimal wage.

The standard solution to the problem of minimal wages established higher than the equilibrium level is hiring labor in the private sector at a shadow price and/or paying private employers subsidies which equalize private costs with shadow wages. That solution generates two problems: in the first place, how to determine the appropriate shadow wages, and, in the second place, what are the consequences of such a solution in the event that the established minimal wage

continues to be paid out to employed workers. The model constructed in Harris and Todaro's work (1970) permits answering both these questions.

When examining an economy in stasis, shadow wages represent imputed costs of the work force employed by the industrial sector. Consequently, if the work force is employed to a level at which its marginal product in industry is equal to the shadow wages, which, in turn, are equal to the marginal product in agriculture, the marginal labor productivity will be identical in both sectors, which is a necessary condition for optimal distribution of resources. Naturally, that assumes a positive marginal product in agriculture and sufficient labor mobility, which assures full employment. The existence of unemployment in urban areas, however, permits assuming the existence of a certain volume of the work force which can be taken advantage of without damage to the volume of production. Consequently, it may be assumed that while the rural work force is fully employed, the shadow wages of urban workers is less than the marginal product in agriculture. This assumption would be correct, if both work forces – the rural one and the urban one – were separate non-competing groups, and each could have its own shadow wages.

However, in the model being examined, the two sectors are tightly bound to each other by means of migration. If one additional job with minimum wages appears in the industrial sector, the expected wages increase and migration arises. It can be shown that in response to creation of one additional job, more than one worker will migrate from the rural area. Consequently, the imputed costs of an industrial worker will exceed the marginal product of a rural worker. On the other hand, an increase in income in a rural area generates reverse migration without curtailment of production in the industrial sector. Consequently, the imputed costs of the work force in the agricultural sector are lower than in the industrial one.

Besides that, Harris and Todaro refer to a work (Stolper (1966)) which pointed out that subsidies to wages generate fiscal problems.

Upon dynamic examination it turns out that an established minimal wage causes excess consumption, displacing a part of the resources from investments to consumption (Little (1965) and Mirrlees (1969)). In this way, consumption left slip in the future has to be taken into consideration, which leads to an increase in the imputed costs of the work force employed in industry, and, accordingly, to a growth in shadow wages. Moreover, subsidies for wages or outlays for a government loan have to be financed, and if budget revenues cannot be increased at the expense of non-distorting lump-sum taxes, imputed costs connected to taxes have to be taken into account. Both these effects decrease the desired volume of subsidizing of wages in the industrial sector.

An alternative approach to solving the problem of urban unemployment consists of physical control of migration from rural areas. Naturally, such a limitation on civil liberties is unacceptable from the ethical point of view; however the economic consequences of such a policy are of interest. From the model constructed in the work by Harris and Todaro (1970), it follows that although limitation of migration improves the general well-being of the economy under reasonable values of the parameters of the task, the rural sector has to receive significant compensation for it not to suffer from losing the possibility to migrate freely. The permanent urban work force apparently would gain from a limitation on migra-

tion, since it would become fully employed at a high level of minimum wages, and it could also thereby buy agricultural goods at a lower price. Each labor unit exported by the rural sector would receive a greater income, but that effect would be partially neutralized by a decrease in the quantity of exported labor and by lower prices for agricultural products.

It also follows from the model that limited subsidizing of wages and limiting migration leads to an improvement in public well-being. Which of these two instruments leads to a better state of the economy cannot be determined without knowing the respective parameters of the concrete economy. Nevertheless, it is clear that neither of them separately can move the economy into the optimal state which could be achieved with free competition in the labor market.

At first glance it may seem strange that one instrument cannot fully cope with the only failure of the market – the minimum wage level. The reason is that wages perform a dual role in this model. They determine both the level of employment in the industrial sector and the distribution of labor between the urban and the rural area. Although a subsidy changes the effective wages determining the magnitude of urban unemployment, until the real wages in the urban area exceeds income in the rural area, migration and urban unemployment will exist. Limiting migration does not let minimum wages influence unemployment by means of migration, but it does not lead to an increase in employment in the industrial sector. Consequently, it is necessary to utilize a combination of these instruments for achievement of the optimal state of the economy. In order to reach the optimal point, a subsidy for wages has to be established increasing employment in the industrial sector so much that with full employment the marginal product of labor in industry and in agricultural will be identical. The subsidy will be positive and equal to the difference of the minimal wage and marginal productivity.

However, the financing of subsidies (or of a government loan in the private sector) is linked to difficulties. The state may encounter difficulties upon the attempt to implement a non-distorting system of taxes allowing collection of the necessary funds. It is possible that a personal income tax on urban residents can be implemented as such a system, although it generates a new question: how is the minimum wage established? The labor unions may try to achieve retention of a certain level of wages after deduction of taxes. A tax on agricultural lands is precluded if net compensation to the rural sector is necessary.

All the above-said permits supposing that a change in the minimum wages helps avoid problems of taxation, administration, and mobility of individuals accompanying the policy instruments which were examined. An alternative solution is a policy aimed at decreasing the gap between urban and rural incomes.

Bencivenga and Smith in their work (Bencivenga, Smith (1997)) examine a modification of the model constructed by Harris and Todaro in which surplus wages are not assigned exogenously, but arise as a result of the problem of negative selection in the labor market. Bencivenga and Smith added to the model elements of a model of overlapping generations (two simultaneously living generations) and the assumption that the productivity of an individual from the younger generation is known only to him himself. As a result of this asymmetry of information in the labor market in the urban area (Bencivenga and Smith as-

sume that in the rural area individuals work for themselves or the problem of negative selection does not arise), surplus wages and unemployment arise.

As grounds for such an approach, that is, of endogenous determination of surplus wages in the rural area and of unemployment, Bencivenga and Smith refer to works (see Hatton, Williamson (1992); Williamson (1988)) in which these two effects are examined in the U.S.A. and Great Britain in the nineteenth centuries, which labor unions were not strong enough to establish minimum wages at a level higher than the equilibrium level.

One more problem consists of the fact that aside from wages, others factors, including informational limitations and the personal preferences of migrants may also render substantial influence on migrational flows. Macro-equalization models, in particular, do not take unemployment into account, which, as the depression in the U.S.A. in the 1930s showed, influences migration. During that period a net outflow of the population to rural regions was observed despite the fact that wages in them remained substantially lower than in the cities. A high level of unemployment should lead to an increase in migration from a region, while migration into a region should be connected negatively to the level of unemployment (see the works by Shaw (1985); Anderson, Papageorgiou (1992); Liaw (1990)).

A number of studies indicate that the levels of unemployment at the old and the new place of residence are not comparable for their influence on migration and for their significance for migrants. In particular, in a number of works (see Cushing (1999); Graves (1983); Morrill, Falit-Baiamonte (1999)) the premise is discussed that migration is an equalizing mechanism, and arguments are adduced in favor of the premise that significant migrational flows, on the contrary, lead to an increase in social and economic polarization.

To resolve these problems, macro-economic migration models were supplemented with factors presumably rendering influence on migrational flows, including economic policy measures, ethnic and racial divisions, crime, features of the environment and convenience of residence, the state of housing construction, and others.

In order to take such factors into account, the process of deciding to migrate is often divided into two components: into deciding to migrate in general and into choice of a new place of residence (see the work of Ledent, Liaw (1985)). Of these factors, an important one for deciding to migrate is environmental characteristics, evidence for which is the growth of cities located in the "sun belt" in post-industrial America. Conveniences of residence such as a warm climate, the presence of colorful landscapes and leisure-time possibilities (skiing and tourism) are becoming ever more important factors in explaining migration.

When analyzing the influence of climate on migration, Haurin (Haurin (1980)) notes in his work that previous works including modeling of the influence of climatic conditions on migrational flows (see, for example, Graves (1979); Graves, Linneman (1979); Izraeli (1973)) do not take into account a model of the system of city areas which would define the equilibrium size of such areas. On the basis of macro-equalization models, Haurin constructs a theoretical model in which he assumes that differences in climate are a non-commercial and non-producible social benefit, with that a favorable climate is a factor in produc-

ing housing, and the cost of living in a region increases with the numbers of the population residing in it.

Haurin examines two regions, one of which is endowed with a better climate. Insofar as it is assumed that the work force is absolutely mobile, equilibrium is achieved when the levels of utility received by the population in both regions equalize. This permits determining the equilibrium numbers of the population of both regions, wages, and the cost of housing. As a result, the conclusion Haurin drew was that the population numbers will be greater, and wages less, in the region with the better climate than in the region with the worse climate. The correlation between the equilibrium costs of housing in the regions is ambiguous and depends on the model's parameters.

Conveniences made available by the environment participate in a phenomenon which is the opposite of urbanization – the drop in the population of megalopolises and the increase in the population of small towns and even rural localities which was observed in the 1980s in Western societies, signaling circulation in migration flows (Berry (1976); Berry (1980); Champion (1989); Long, Nucci (1998)). However, conveniences of the environment represent an incomplete and over-simplified explanation of that effect. Frey showed in his work (see Frey (1989)) that circulation of migrational flows is caused not just by these conveniences, but also by redistribution of employment (that is, by macro-equalization) and by restructuring of the economy.

Linguistic, ethnic, and race differences also participate in creation and direction of migration flows. A substantial difference in the migration of French- and English-speaking Canadians is observed in Canada (Beaujot (1991), Liaw and Ledent (1987), Shaw (1985)). In the U.S.A., observations of many years give a different picture of the migration of Afro-Americans and the white population (Long 1988; Newbold 1997; Sandefur *et al.* 1991). Analogously, ethnic differences and the desire to be in a familiar society influence the internal migration of those who migrated to a given country from other countries earlier, leading to the appearance of ethnic enclaves (Clark 1998; Edmonston and Passel 1994; Portes 1996; Roseman *et al.* 1996).

The literature treating migrant settlements and assimilation also utilizes, overtly or not, a theory of internal migration. In particular, discussion has touched upon the special attractiveness to immigrants of California and New York. The hypothesis was put forth that flows of immigrants into these regions led to the departure of indigenous Americans from them. Frey (1995) notes that two independent flows of migration from California arose, California being the leader for the number of immigrants arriving there (see also Frey, Liaw (1998)). The first flow consisted of highly educated and wealthy people who migrated long distances. The second consisted of poorly educated, low-income people who migrated to neighboring states. This flow was caused by increasing competition for low-skill work and indirect costs connected to an inflow of immigrants with ethnic and racial differences. Information about neighboring states was relatively accessible and unemployment in them was less, that is, migrants acted in accordance with the theory of macro-equalization and the theory of human capital (see below).

Questioning the importance of individual choice in the equalizing effect of inter-regional migration, McKay and Whitelay studied in their works (see

McKay, Whitelaw (1977); McKay, Whitelaw (1978)) the role of organizations in creating migrational flows. In their work, migration was connected to the activities of major organizations and the nature of the development of cities. Large corporations with divisions in many regions often send beginning employees to various regions to get experience as a stage in their careers. Such official travel is also widespread in the armed forces and other state organizations. In other words, the system foists the choice of place of residence upon individuals.

Speaking of empirical verifications of hypotheses on the influence of the factors enumerated above on migrational flows, one ought to mention a general and very important problem connected to the fact that implementations of the model of macro-equalization utilized in the studies were usually based either on the volume of net migration (the number of those migrating into a region minus the number of those migrating out of the region), or on the intensity of net migration (the relation of the volume of net migration to the overall numbers of the population in the region). However, usage of such indicators as dependent variables is linked to difficulties, insofar as there are no "net migrants" in the real world (for more detail see Rogers (1990)).

Ideas close to those presented above were also utilized in the domestic demographic literature. One may note such works as F.M. Borodkin, S. V. Soboleva (1977), F. M. Borodkin, S.V. Soboleva, V. A. Sukharev (1977), Yu. N. Gavrilets, L.E. Mints (1976), V. G. Kostakov (1976a), I.S. Ladenko (1974), Ye. D. Malinin (1974), A.F. Mudretsov, Ye. G. Shargunov (1976), B. V. Sazonov, B. L. Shmulian (1982), and L.S. Trus (1977).

2.1.3. Microeconomic approaches to studying factors influencing migrational flows

Micro-economic approaches to studying migration differ greatly from macro-economic models. In the first place, they represent an alternative point of view on migration and the process of decision-making, usually replacing economic rationality with behavior under which the individual assesses only a part of the alternatives available to him. In the second place, micro-economic studies study the consequences of migration and the decisions of individuals on the basis of census and other data concerning separate individuals, while macro-economic approaches (although not always) utilize aggregated data. In the third place, micro-economic theory usually draws a distinction between the decision to move, choice of a new place of residence, and the inter-connection between change of place of residence and other changes in the migrant's status.

Empirical works based on the micro-economic approach have two additional advantages over assessments based on macro-economic data. In the first place, they permit studying migration as applicable to individuals with certain characteristics (for example, studying departure of the unemployed from a region), in distinction from works dealing with aggregated data (where, for example, one may speak of population departure from a region with high unemployment). In particular, it is easier by means of micro-economic models to discover the repelling factor of unemployment in a region (see the works of DaVanzo (1976); DaVanzo (1983)) than by means of the model of macro-equalization (see, for example, Courchene (1970)). In the second place, when determining the impact of a key factor (for example, the level of education), micro-economic approaches

permit separating it out better from the operation of other factors (for example, ethnic origin and age), and therefore they usually give results which are less shifted.

At the inter-regional scale, the theory of human capital proposed in one work (Sjaastad (1962)) considers migration as investments in that capital. Outlays for these investments are compared with the income which the individual would receive from them over the course of a lifetime (see also Milne 1991). If the benefits exceed the costs, the individual will migrate, choosing a new place of residence which will bring the greatest income. The benefits and the cost may be both monetary (for example, the cost of moving) and psychological (for example, costs connected to being located far from one's family and friends).

Analyzing data on migration for the state of Mississippi, Sjaastad comes to the conclusion that analysis of migrational flows should be conducted separately for various categories of the population, dividing them, at the least, by age and occupation. Besides that, he points out that net migration is not always an adequate indicator of the ability of the labor market to eliminate inequality of incomes, the behavior thereby of gross migration not fitting into the traditional hypotheses according fully with the difference in incomes arising as a consequence of the impossibility of changing both place of residence and of vocation.

As in macro-equalization models, Sjaastad devotes basic attention to a search for answers to questions of how a difference in wages influences the direction and magnitude of migrational flows and of how effectively is migration capable of eliminating that difference.

The majority of works concerning the influence of wages on migrational flows concentrate on net migration. As a rule, these works reveal a weak, but significant, dependence of net migration on income, and moreover in the expected direction (that is, a net inflow of population is observed in a region with high incomes, and a net outflow in a region with low incomes).

However, as was noted above, one should also consider gross migration. Apparently net migration is necessary not only for those sectors of the economy (or spheres of activities) which are characterized by wages which are low in comparison with those in other regions. If such a situation occurs for all, or for a majority of sectors of the economy in a region, net migration from the region, which will lead to an increase in wages, is necessary. If, however, in certain of the region's sectors of the economy wages are high in comparison with other regions, and the population leaving sectors with low wages does not have sufficient qualifications to find work in these high-paying sectors, a population flow into the region should also arise. But such a division of sectors leads to a weakening of the expected connection between the average level of income in the region and net migration, although it does leave grounds for assuming that a low average level of income leads to net migration from the region.

On the whole, the studies enumerated above confirm these assumptions and are in agreement with the hypothesis that migration arises as a response to differences in incomes among regions and is a consequence of seeking more highly paid work. However, although migration is accomplished in the direction of the higher income, the reaction which has been assessed of the magnitude of migration to a difference in incomes is too slight for migration to be considered a mechanism for equalizing incomes.

As an alternative, Sjaastad proposes considering the problem as a problem of allocating resources and he proposes regarding migration as investments in increasing the productivity of human resources – investments connected to costs and bringing benefits. When utilizing this approach, a ready criterion exists for assessing the effectiveness of migration as a mechanism for eliminating a difference in incomes. Economic viability of resources spent on migration is such a criterion. The difficulty of this method consists of the fact that it is necessary to determine and measure the costs and benefits of migration.

Costs of migration may be divided into monetary and non-monetary costs. Monetary costs (see also the works of Maddox (1960); Nelson (1957)) include a migrant's transport expenses for the move and also an increase in the migrant's living expenses in the new place in comparison with the former place of residence. Among non-monetary costs are lost income (time not spent working and spent on the move, the search for work, and apprenticeship at it).

One should also list psychological costs connected to the move with the non-monetary costs. A typical illustration of this kind of costs is the fact that migrants experience discomfort when they leave familiar surroundings, family, and friends, and other things. These costs are difficult to express quantitatively, but even if they could be, they should be considered separately from all the costs discussed above which represented the costs of material inputs.

Although psychological costs ought not be included in costs of migration, they create a problem for analysis of economic viability of investments in migration. The problem will be shifted to the degree to which a part of the difference in income is brought about by the preferences of individuals, these preferences generating psychological costs at migration. One of the ways of resolving this problem is considering only individuals with zero psychological costs. Distributing migrants by the distance they migrate should be relatively free of the influence of psychological costs in comparison with the general share of people who have decided to migrate.

The monetary benefits (see also Schultz (1960)) from migration consist of the change in the flow of his real income which he will receive from displacement to a new place. This change takes place because of the difference in nominal income and in costs of employment and prices.

The simplest approach to assessing monetary benefits consists of studying the difference in income for an individual of a given age, gender, and vocation. However, this approach does not take into account that the best alternative for an individual may be not only a change in place of residence, but also a change of vocation.

For consideration of this possibility, Sjaastad proposes considering migration and training as investments in human capital. These investments are subject to depreciation both in the physical and economic senses. With a fall in wages in a sector of the economy, those employed in this sector encounter a loss of capital and are forced to choose between decreased income and additional investments which will permit them to receive greater income in a more favorable market, having changed vocation. If wages in the sector are low only in an individual region, migration alone is sufficient. If, however, such a situation is characteristic of the entire country, migration makes sense only if the migrant receives new skills.

A key factor when deciding the question of the advisability of such investments is age. Young people effect relatively small layouts to get the skills necessary for a concrete vocation; the getting of a general education comprises the basic part of their layouts. For older people, experience gotten is of great significance, due to which experience they receive greater incomes in comparison with young people. In order to shift to a different vocation and receive the same income as individuals of the same age who are already working in it, older people have to effect great outlays for training.

Such a division permits making the assumption that a large difference in incomes between regions does not signify the ineffectiveness of migration as a mechanism for equalizing incomes. This mechanism may work well in the sense that the marginal benefit from migration is not great, and nevertheless it can lead to the existence of a significant difference in incomes.

Besides monetary ones, there are also non-monetary benefits reflecting preference for a new region to the old place of residence. Preferences for a familiar environment over an unfamiliar one have already been taken account of in psychological costs and do not enter into this. Non-monetary benefits also include such factors as climate or the level of ecological pollution. Benefits of net consumption – the satisfaction or dissatisfaction which an individual received during his travel – belong here, too.

Aside from private costs and benefits, migrational flows are also accompanied by the arising of public costs and benefits, which may be substantially different from the private ones. Thus, for example, with a given structure of taxes in the regions, migration, leading to equalization of income of the inhabitants of the regions, may lead to changes in the incomes of regional budgets. Differences between private and public costs may also arise if payment for collectively rendered services (such as schools) is determined, proceeding from per capita expenditures, and not from marginal costs for rendering these services to migrants. One more reason for the differences between private and public benefits consists of the fact that migrants do not take into account the benefits which their as yet unborn descendents will receive who will now live in a new, more favorable, place.

Taking into account public costs and benefits includes taking into account budgetary costs and benefits, which includes change in income and expenditures of the regional budget. Calculations of the budgetary effectiveness of migrational flows are rather important, especially if one analyzes the possibilities for budgetary financing of programs for facilitating migration.

The theory described above has a number of advantages over the approach based on differences in incomes. What is very important is that it does not consider migration as a purely economic decision, since not only economic factors influence an individual's decision, but also factors not connected to income. It also explains the dependence of intensity of migration on age, referring to the fact that psychological costs of migration increase with age. Moreover, young individuals receive benefits from migration over the course of a longer period of time. Finally, it takes into account the geographic factor by means of the costs of the move, which depend on distance. As a result, the model, on the one hand, utilizes the micro-economic approach, but, on the other hand, it allows aggregated study of migration by categories of the population.

An interesting development of the theory of human capital is the work by Schwartz (see Aba Schwartz (1976)), in which for explanation of migrational flows only general education and specific skills received at the work place are considered, and also the costs of geographic displacement. Schwartz in his analysis of the connection of migration with age and education relies on Sjaastad's work (Sjaastad (1962)) and also on other works (see, for example, Folder, Nam (1967)), Shryock (1959); Schwartz (1971)), which show that the relationship of net migration to gross migration decreases with an increase in level of education. Noting the deficiencies of works based on the theory of human capital (see Stouffer (1940); Levy, Wadycki (1974); Brennan (1965); David (1974)), a number of hypotheses are formulated in Schwartz's work concerning the connection of migration with distance, age, and education, these hypotheses being verified empirically.

Schwartz considers migration as a consequence of a change of jobs by individuals (which may include geographic displacement). The education gotten by an individual provides general skills which may be transferred from one kind of activities to another. Besides that, education increases the effectiveness of getting specific skills at a concrete place of work. Many jobs assume career advancement according to the getting of experience. The deeper the education an individual has, the more such jobs are available to him.

Assuming that in equilibrium, the income of an individual depends only on the level of education, the age at which the individual began getting experience at the given work place, and his current age, Schwartz examines the direct costs of displacement, in particular of geographic displacement. The costs of geographical displacement have both components which do not depend on distance (for example, costs connected to sale of property at the old place of residence and to purchase at the new one) and costs connected to distance.

The empirical study adduced in the work showed that the model taking into account distance of migration, the age of the migrant, his vocation, and his vocational experience explains to a significant degree the observed dependence of migrational indicators (intensity of migration, net migration) on distance, age, and education, and no other assumptions are required for the explanation such as attributing a lesser inclination to risk to more educated individuals, or greater psychological costs to older people.

Although the theory of human capital does permit explaining a number of phenomena in addition to the models of macro-equalization, it contains a number of the following deficiencies (see the works by Morrison (1978); Mincer (1978); Miron (1978)). In the first place, it assumes that the potential migrant possesses perfect information. In the second place, it implies that the migrant is able to estimate the income in various places of residence which he will receive over the course of his life, which is also difficult to do without examining the prospective future. This difficulty usually led to replacing this income with current income, which lessened the attractiveness and applicability of the model. As a compromise, contemporary works utilize a "modified" theory of human capital (see, for example, the works of Foulkes, Newbold (2000); Greenlees, Saenz (1999)). These works consider that instead of estimating all his future income, the potential migrant utilizes indirect estimates, including his own age and education. Besides that, as additional factors in them influencing the migrant's behavior, vari-

ous economic, sociological, and environmentally determined factors are considered, including characteristics of the labor market, labor policy, and socio-cultural factors (for example, the existence of ethnic groups).

An alternative micro-economic approach – the looking-for-work model – examines displacement of the work force, distinguishing speculative migration, which is accomplished in the hope of finding a suitable place of work, and contract migration, which occurs when the individual already has a contract for work in the new region (see Molho 1986). A migrant's potential income is usually greater in urban areas, and the model emphasizes continuing migration into large metropolises (movement “up the urban hierarchy” from small cities to large ones). Contract migration may be the most widely spread form of displacement, especially over great distances, insofar as it minimizes the risk of migration by means of concluding contracts for work ahead of time.

Application of micro-economic models to migration was brought about to a significant degree by the indefiniteness of aggregated analysis (see the work by Alonso (1965)). One of the basic distinguishing features of such models is separation of the decision to migrate from choice of a new place of residence. Under that approach, migration permits individuals to adapt to changing demands dictated by the life cycle.

Rossi in his work (see Rossi (1955)) points out that such events as marriage, growth of the family, and worsening health influence choice of place of residency by means of changing requirements for housing (usually for its dimensions). Each of an individual's life stages impels him to change place of residence. If the individual decides to migrate, a process begins of searching for a new place of residence, the search reflecting needs, social aspirations, income, and the role of institutes, including real estate agencies and banks. Consequently, migration over great distances is connected to a change of housing by migrants (see the works of Clark, Onaka (1983); Clark, Onaka (1985); Davies (1991); Gober (1992); Kendig (1990); McHugh et al (1990); Myers et al (1997)). Besides that, it is assumed that influence on migrational decisions is rendered by characteristics of the individual (age, gender, family situation), characteristics of housing (size, structure, availability and affordability), and other, more general characteristics of the old and new places of residence, such as ethnic or racial structure and availability and affordability of housing.

Brown and Moore assert in their works (see Brown, Moore (1970); Moore (1972)) that a large share (possibly up to twenty-five percent) of changes of place of residence were “forced,” and not “voluntary,” which impelled them to distinguish these two types of migration. Further limitations on freedom of decisions by individuals or households are imposed by the activities of various kinds of institutes. In North America, Australia, and New Zealand (where the majority of studies on migration were conducted) the limitations imposed by institutions are relatively weak. Nevertheless, other social factors such as racism or discrimination, the housing supply, and the activities of certain agents (for example, real estate agents) may limit choice of housing by individuals.

Besides that, additional studies show that the life cycle theory is worse at describing migrational flows in societies where traditional families are becoming less widespread and their place is being taken by alternative means of creating a family – families with a single parent, households with separate incomes, house-

holds with an alternate life style, or individuals living alone. Such households dominate in certain areas (comprising more than fifty percent of all households), and each group has its own housing requirements and preferences. The view migration through the stress model (see the work by Huff, Clark (1978)) reflects these changes and their influence on migration (for discussion of the model see the works by Bianchi, Casper (2000); Gober (1993); Treas (1995); Miron (1993)).

Micro-economic approaches were also utilized for analyzing migration of the older population. Although division into the decision to migrate and into choosing a new place of residence remains, the factors influencing this migration differ from those which are examined when analyzing migration of the population of all age groups. The reason is that the older population does not work and therefore is less sensitive to changes in the labor market. Consequently, a decision to migrate will depend on personal preferences and one's own resources, such as health and income (see the works by Longino (1994); Longino, Serow (1992); Rogers (1992); Wiseman (1980)). People somewhat older than middle age (from age fifty-five on) who possess good health and incomes will probably migrate to regions having greater living conveniences. The older part of the older population (from age seventy-five on) is less independent and can displace seeking help either from relatives or from organizations providing the appropriate help. For these reasons, the picture of the migration of the older population differs from migration of the population as a whole (see the works of Liaw, Kanaroglou (1986); Longino (1994)). As surveys and studies show, for older people in need of help, choice of place of residence is limited to regions in which their relatives reside or where facilities for the aged are located.

Micro-economic approaches to studying migration were also utilized in the domestic literature (see, for example, M. M. Baizel, S.L. Solomonov (1981), N. Keifitz (1977), V.I. Orlov (1978), V. I. Orlov (1990), and O.V. Staroverov (1983)).

2.1.4. Bridging macro- and micro-economic models for analyzing migration

Application of macro- and micro-economic approaches to analysis of migrational flows separately allows seeing only a part of the full picture of migration. As an example of amalgamation of these approaches, a mixed approach is proposed in Cadwallader's work (see Cadwallader (1989)) based on four sets of connections, including connections between aggregated migration and regional indicators, connections between regional indicators and the subjective perceptions of migrants, integration of these perceptions into a utility function, and estimation of migrational flows. The basic difficulties of utilizing this approach are connected to construction of a quantitative assessment of individual perceptions (of the migrant's preferences). Empirical assessments are being conducted on the basis of a logit model which coordinates the move and the choosing of a new place of residence without the limitations to which earlier approaches were connected (Kanaroglou et al (1986a); Kanaroglou et al (1986b); Haynes, Fotheringham (1984); Plane, Rogerson (1994, Chapter 4); Stillwell, Congdon (1991, pp. 9-13)).

Logit models applicable to assessment of migrational flows may be applied to any binary (stay/move) or discrete choice (choosing a new place of residence from several possible ones) (see work by Newbold, (2001)). One of the advantages of utilizing such models is that they permit assessing various components of the migrational decision. Following micro-economic approaches, a migrational decision is a two-level process. At the upper level, the process of migration (the decision to stay in place or to move) depends on the time interval under consideration. More lengthy intervals, everything else being equal, increase probability of migration due to an increase in the probability of the beginning of a new stage in the life cycle or a change in factors repelling/attracting migrants in the region of residence and in the receiving region. The process of choosing a new place of residence from a set of the ones possible is on the lower level. Decisions taken at each of these levels are inter-connected (see work by Kanaroglou et al (1986b)).

In the nested logit model of migration, migration is considered as a random phenomenon, and a probability approach is used for description of inclinations towards migration. Additionally, variables are taken into account in the model which describe the economic, geographic, and social characteristics of the regions (wage levels, unemployment), and also the individual indicators observed (age, level of education, the migrant's gender). Studies conducted within the framework of discrete choice have shown that the nested logit model can be applied for description of consistent choice. In particular, the two-level nested logit model was applied successfully to explanation of the space-time picture of inter-regional migration in Canada (Ledent and Liaw 1987; Liaw 1990; Newbold and Liaw 1994) and in the U.S.A. (Newbold 1996; Frey et al 1996), and also for explanation of choice processes in other situations (Ben-Akiva and Lerman 1985).

The survey of basic approaches to analysis of migrational flows adduced in this section permits structuring and singling out the basic groups of factors influencing migration. It has to be noted with that that a difference in a migrant's income in the receiving region and the preceding region of residence actually can influence migrational flows, but with that there also have to be taken into account other factors, such as a change in climatic conditions of residence as a consequence of migration, demographic factors, and the social group to which the migrant belongs, and others. In addition to these factors, problems may also arise connected to the squeezing out of the indigenous population in the receiving regions connected to an influx of arriving migrants (see Frey (1995)). In the next section results are adduced of a theoretical analysis conducted by us of the influence of an inflow of migrants on the wages (well-being) of the indigenous inhabitants of the region using a model taking into account asymmetry of information in the labor market in the receiving region (see Spence, (1972)).

2.2. The connection of immigration and internal migration: the influence of asymmetry of information in the labor market

When examining inter-regional migration in Russia, it is rational to assume that in the majority of instances migrants are informed ahead of time about the climatic and geographic conditions in the presumed receiving regions and that it

is also possible to estimate ahead of time the necessary costs for the move and for acquisition of housing in the new place. The greatest uncertainty connected to migration arises in relation to the labor market in the receiving region; in particular, will the migrant be able to find work in the new region of residence in his specialty or, possibly, in a new one, and what will his wages be as a result of migration? As experience in implementing migrational programs in Russia shows, including construction of settlements for miners and military personnel, one of the most serious problems is the influence of migrants arriving in the receiving region on the condition of the labor resources market, especially taking into account that arriving migrants often have rather high qualificational levels in comparison with the average qualifications of the receiving region's own unemployed work force.

State facilitation of migration from the northern regions may create a significant flow of migrants, including those with a rather high level of qualifications, into receiving regions, creating additional pressure on labor markets in those regions. With that, it may be assumed that an inflow of migrants from the north may lead to stimulation of migrational flows, this time from the receiving regions, creating additional socio-economic problems. Such a situation requires additional analysis for assessment of the possible consequences of organized migration.

The connection of immigration to internal migration of indigenous inhabitants is pointed out in works on migration. For example, in his work, Frey (see Frey (1995)) notes that the inflow of immigrants into California stimulated by factors of attraction, among which were favorable economic and climatic conditions, caused two separate flows of migration of the indigenous population from that region. One of these flows consisted of people with a high level of education and a high level of income, the second – of people with a low level of education and a low level of income. While appearance of the second flow can be explained by competition and a squeezing out of low-productivity employees, explanation of how the first flow arose requires additional analysis.

It can be assumed that the arrival of a significant number of migrants into a region can also create similar migrational flows, for the study of which we will construct a theoretical model by means of which we will verify whether or not asymmetry of information in the labor market can actually lead to a lowering of incomes for highly productive employees, including the instance when arriving immigrants have lower productivity. We propose to study the question of how an inflow of immigrants into a region influences incomes of the local population. Within the framework of this model we will not utilize other factors not connected to income, taking into account, however, asymmetry of information between the employee and the employer in the labor market and possible employee costs for signalization.

We will utilize the model of signalization proposed by Spence (Spence, (1972)) in the work as the basis for our study. We will assume that in the economy there exist employees with various degrees of productivity (high and low), who can with certain costs create signals for employers (for example, level of education), and the magnitude of the costs for signalization is negatively connected to the employee's productivity. One of the important results of Spence's model is the existence of separating equilibrium, whereby highly productive em-

employees make efforts for signalization (they spend time on education), while that is not advantageous to low productivity employees. Separating equilibrium may not always exist, but only where there is a relationship of the number of high productivity employees to the number of low productivity ones not exceeding a certain magnitude. If, however, it is greater than this magnitude, a mixed equilibrium occurs whereby all employees receive identical wages calculated on the basis of the expected employee productivity which the employer can count on.

In order to analyze the influence of migrants arriving in a region on the labor market, we will first assume that some kind of equilibrium (mixed or separating) takes shape in the region, and then we will analyze how arrival of migrants with a certain productivity influences this equilibrium.

For assessment of the influence of the equilibrium taking shape in the labor market on the incomes of high productivity employees, we will orient ourselves toward the relationship of the net wages received by them (wages minus the costs for signalization adduced) to wages in the absence of asymmetry of information, that is, to the marginal product.

2.2.1. Initial equilibrium in the labor market in the receiving region

We will examine the presumed receiving region and assume that there are workers of two types in it: low productivity ones and high productivity ones. We will take the productivity of the first type as equal to I , and we will designate the productivity of the second type as k_2 ($k_2 > I$). If there were no asymmetry of information, workers of the second type would always receive wages exceeding the wages of employees of the first type by k_2 times. Specific, or proportional costs for signalization comprise 1 for employees of the first type and $1/k_2$ for workers of the second type.

We assume that signalization influences employees only by means of the costs connected to it, and these costs may be expressed in monetary form, that is, taking into account the positive dependence of individuals' utility on wages, our analysis amounts to study of net employee wages (wages minus costs of signalization).

Workers of the second type decide whether it is worth their while to make efforts for signalization which would allow the employer to distinguish them from the first low productivity type. Insofar as companies compete for labor, signal level y_{12} will establish itself at the minimum level, that is, at a level at which it is a matter of indifference to low productivity employees whether they receive low wages, not making outlays for signalization, or make these outlays and receive high wages:

$$w_1 = k_2 w_1 - y_{12} \quad \text{or} \quad y_{12} = w_1(k_2 - 1), \quad (1)$$

where y_{12} are the minimum costs for signalization necessary for separation of employees of the second type from employees of the first type in the eyes of the employer, and w_1 are the wages which low productivity employees would receive in the absence of asymmetry of information (their marginal product). We assume here that acquisition of the signal influences employees only by means of the costs connected to it; therefore, taking into account the positive dependence of individuals' utility on wages, our analysis amounts to study of net wages of employees (that is, wages minus costs of signalization).

Однако работники второго типа не всегда будут сигнализировать. However, employees of the second type do not always signalize. At a sufficiently large share of high productivity employees among the population, it is more advantageous to them not to do that. In this instance, a mixing equilibrium will be established in the labor market, and everyone will receive identical wages. The condition for the existence of separating equilibrium is the following:

$$k_2 - \frac{y_{12}}{k_2} \geq \frac{N_1 w_1 + N_2 k_2 w_1}{N_1 + N_2} \quad (2)$$

Here N_1 and N_2 is the number of workers in the region of the first and second types, respectively. We will assume, following Spence's work, that the "productivity" of an employee of the second type with signalization is the same (in comparison with the productivity of employees of the first type) as when participating in production. Then outlays per unit of costs of signalization for him prove to be k_2 times less than for an employee of the first type, which is reflected in the left part of inequality (2). While in the right part of the inequality stand the wages which employees will receive if they do not use the signal. Having solved this inequality relative to N_2 , we get the condition:

$$N_2 \leq (k_2 - 1)N_1 \quad (3)$$

We will assume that initially the number of employees of the first and second type satisfied this correlation, that is, the equilibrium in the labor market was a separating one. The net wages of employees of the second type (wages minus costs for the signal) in this instance comprise

$$w_2^n = w_2 - \frac{y_{12}}{k_2} = w_1 \frac{k_2^2 - k_2 + 1}{k_2} \quad (4)$$

2.2.2. Arrival of immigrants and its influence on the initial equilibrium

Let us examine the arrival in the region of immigrants, the number of which we will designate N_3 . We will consider that arriving migrants possess intermediate productivity k_3 , and that specific, or proportional costs of signalization for them comprise $1/k_3$:

$$1 < k_3 < k_2. \quad (5)$$

In this way, a third type of employees has appeared in our examination. If the number of arriving migrants is small, the following will happen: insofar as their number is small relative to the number of employees of the first type, they will separate out from them in the eyes of the employer with the help of signalization. On the other hand, insofar as their number is small in comparison to the number of employees of the second type, separation in the labor market of the third type (of immigrants) from the second type will not occur: they will receive identical wages

$$w_{(23)} = \frac{N_2 k_2 w_1 + N_3 k_3 w_1}{N_2 + N_3} \quad (6)$$

Index "(23)" designates that employees of the second and third type mix in the eyes of the employer. The corresponding level of signalization is the mini-

num level at which it is disadvantageous for employees of the first type to signalize:

$$\frac{N_2 k_2 w_1 + N_3 k_3 w_1}{N_2 + N_3} - y_{1(23)} = w_1 \quad \text{or}$$

$$y_{1(23)} = w_1 \frac{N_2(k_2 - 1) + N_3(k_3 - 1)}{N_2 + N_3} \quad (7)$$

From here we can derive the net wages of employees of the second type:

$$w_2^n = w_{(23)} - \frac{y_{1(23)}}{k_2} = w_1 \left[\frac{N_2 k_2 + N_3 k_3}{N_2 + N_3} - \frac{1}{k_2} \frac{N_2(k_2 - 1) + N_3(k_3 - 1)}{N_2 + N_3} \right] \quad (8)$$

It can be shown (by differentiation w_2^n according to N_3 taking into account that $k_2 > k_3 > 1$), that these wages depend negatively on the number of arriving migrants. In other words, until equilibrium in the labor market is accomplished at which the second and third types of employees, mixing into one category for the employer, separate out from the first type, the greater the number of migrants, the worse the position of the employees of the second type.

However, this kind of equilibrium will occur only as long as two conditions are fulfilled:

1 It is advantageous to the third type to signalize and not mix with the first type:

$$\frac{N_2 k_2 + N_3 k_3}{N_2 + N_3} - \frac{1}{k_3} \frac{N_2(k_2 - 1) + N_3(k_3 - 1)}{N_2 + N_3} \geq \frac{N_1 + N_3 k_3}{N_1 + N_3} \quad (9)$$

from this condition, taking into account that we are interested in positive values N_3 , from which we can derive limitation from the top by N_3 .

2 It is disadvantageous to the second type to signalize and separate out from migrants. The minimal level of signalization necessary for such separating out is determined by the behavior of the migrants, that is, of employees of the third type. For them, besides signalization at the level at which employees of the second time signalize, two alternatives exist: separating out from employees of the first type or mix in with them. The minimum signal necessary for separation of employees of the third type from employees of the second type is $y_{13} = w_1(k_3 - 1)$. Consequently, the alternative of acquisition of the same level of signal as employees of the second type is receiving net wages equal to

$$w_3^{alt} = \max \left[\left(k_3 - \frac{k_3 - 1}{k_3} \right) w_1, \frac{N_1 + N_3 k_3}{N_1 + N_3} w_1 \right] \quad (10)$$

In this way, the minimum signal necessary for separation of the second type from the third is the condition

$$\max \left[\left(k_3 - \frac{k_3 - 1}{k_3} \right) w_1, \frac{N_1 + N_3 k_3}{N_1 + N_3} w_1 \right] = k_2 w_1 - \frac{y_{23}}{k_3} \quad (11)$$

from this condition it is possible to determine the required signal level, and then derive the condition whereby employees of the second type do not separate out from employees of the third type:

$$k_2 - \frac{y_{23}}{k_2} \leq \frac{N_2 k_2 + N_3 k_3}{N_2 + N_3} - \frac{y_{1(23)}}{k_2} \quad (12)$$

This condition also gives the limitation from above on N_3 .

2.2.3. Possible scenarios for the labor market when the number of arriving migrants increases

With an increase in the number of immigrants, one of two conditions, (10) or (12), will cease being fulfilled, with that the development of events depends on which of the inequalities is violated first.

If N_3 increases first, inequality (10) is violated, that is, employees of the third type decide to mix with employees of the first type, but employees of the second type have to decide whether to separate out from them or not. It is possible that with that value for N_3 it will be more advantageous for them to mix with them, but with a further increase in N_3 the second type will decide to separate out from them.

If, on the other hand, inequality (12) is violated first, that is, the second type decides to separate out from the third, then after that the third type can either mix with the first type or separate out from it. However, with an increase in N_3 , sooner or later employees of the third type will decide to mix with employees of the first type.

And so, depending on the number of employees of the first and second types and on the correlation of the productivities of employees of all three types, three scenarios for the development of events are possible, or, more exactly, three kinds of dependence of the nature of the equilibrium in the labor market on the number of arriving migrants. The final stage of any scenario is the separation out of employees of the second type from employees of the first and third type, who mix among themselves (see illustration 2.1).

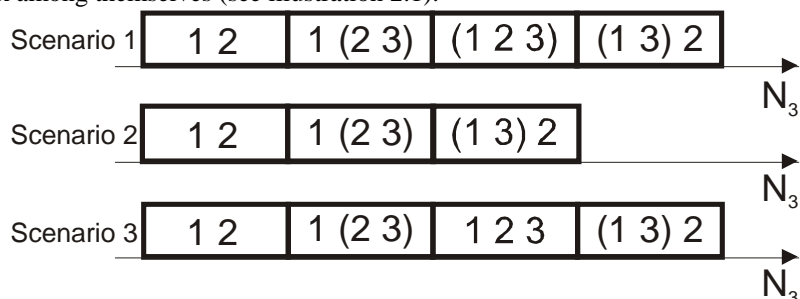


Illustration 2.1.

The brackets in the illustration mean that the types indicated in them are mixing. The net wages of employees of the second type in the final stage common to all scenarios can be found from the condition that costs for signalization are at the minimum level at which it is disadvantageous for employees of the third type to signalize (from which it follows that it will also be disadvantageous for employees of the first type to acquire it).

$$k_2 w_1 - \frac{y_{(13)2}}{k_3} = \frac{N_1 w_1 + N_3 k_3 w_1}{N_1 + N_2} \quad (13)$$

$$y_{(13)2} = \left(k_2 - \frac{N_1 + N_3 k_3}{N_1 + N_3} \right) k_3 w_1 \quad (14)$$

From this condition the net wages of employees of the second type when there is a large number of immigrants in the region can be found:

$$w_2^n = k_2 w_1 - \frac{y_{(13)2}}{k_2} = \left(k_2 - k_3 + \frac{k_3}{k_2} \frac{N_1 + N_3 k_3}{N_1 + N_3} \right) w_1 \quad (15)$$

For graphic illustration of what happens when the number of immigrants increases, we will examine a numerical example. When examining scenarios, it has to be remembered that this model is not dynamic and does not permit saying that the system will move from one equilibrium to another at a certain fixed number of migrants. This model permits distinguishing various situations in the labor market at certain migrational flows [which are] different in magnitude (in other words, finding the dependence of the result of shock in the form of the arrival of immigrants on the scales [magnitudes] of that shock), but does not permit elucidation of the labor market behaves in response to the arrival of each additional migrant if they arrive in an unbroken flow. Indeed, it is hard to expect instantaneous reaction from the labor market to the arrival of the routine portion of migrants in the form of a change in wages, in the required signals, and all the more so in the kind of equilibrium in and of itself – separating or mixing. The concept “scenarios” and “stages” also ought not be understood in the sense of sequential accomplishment of the stages internal to the respective scenarios. They are stages only when there is a speculative increase in the magnitudes of immigration and when there is observation of how the labor market reacts to immigration.

We will examine the dependence of the nature of the equilibrium in the labor market through the following example. Assume initially that there are 900,000 low qualification employees in a region and 100,000 high qualification ones, the productivity of which is twice as high as the productivity of the low qualification ones. Under these parameters in the premises of the model examined above, the equilibrium in the labor market will be a separating one. Then the region experiences shock in the form of the arrival of immigrants with intermediate productivity, a productivity which is one and a half times higher than the productivity of the low qualification employees.

Analysis of conditions (10) and (12) which we derived shows under the given parameters that with an increase in N_3 it is condition (12) which will be violated first, that is, type two employees will separate out from type three employees. And third type employees (immigrants) in turn will separate out from low qualification employees, that is, the third scenario will be realized. The boundary between the first and second stage of this scenario is a number of immigrants equal to 100,000 persons. In turn, this equilibrium will become disadvantageous to the immigrants themselves when their number exceeds 450,000 persons (this number is determined by the obvious condition $N_3 \leq (k_3 - 1)N_1$, which is analogous to condition (3)). In this situation they will decide to mix with low qualification employees.

The net wages of high qualification employees are adduced in illustration 2.2. It can be seen from the illustration that the first stage is characterized by a

sharp drop in the net wages of high productivity employees, wages do not change at the second stage, and at the third stage they begin to increase.

The influence of a migration of up to one million persons (which is equal to the numbers of the indigenous population) is depicted on the chart. However, if the chart is continued to the right, then the net wages of high qualification employees will strive towards a certain magnitude which exceeds the net wages of these employees in the initial equilibrium.

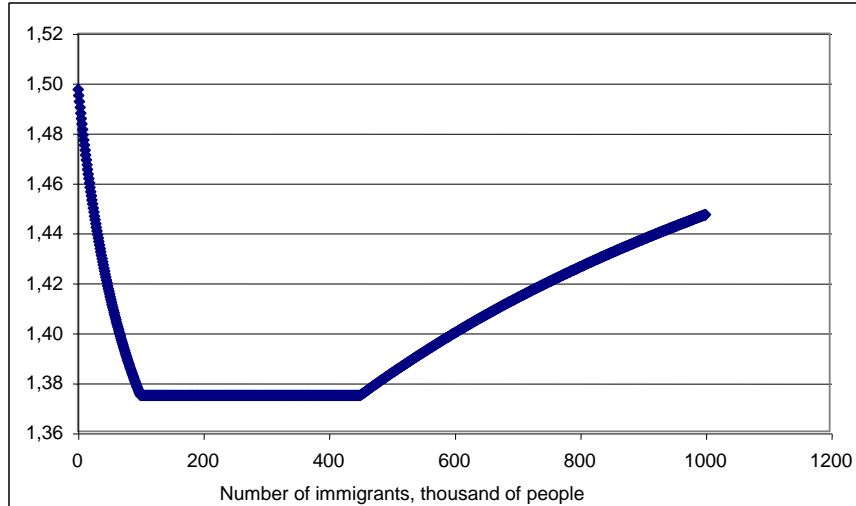


Illustration 2.2. Net wages of high qualification employees in relation to the marginal product of low productivity employees

We will examine the influence of immigration on the well-being of indigenous inhabitants of a region, both high qualification ones and low qualification ones. For that we will need an additional premise on constant feedback from the scale [magnitude] of the production function of the region's economy, since otherwise immigration, in changing the overall numbers of the work force in the region, influences the marginal product of all employees and, consequently, their wages.

All the kinds of dependence of the equilibrium forming in the labor market which we have derived are united by the fact that when the number of immigrants increases, first the immigrants mix with high qualification employees, separating out from low qualification ones, and, in the end, conversely, they mix with low qualification ones, and the high qualification ones separate out from them.

Influence is rendered on the well-being of low qualification employees only by the last stage at which they melt into the large number of immigrants, gaining due to their greater productivity and due to the fact that it is not advantageous to the immigrants to separate out from them. In this way, the influence of immigration on the well-being of low qualification employees when the immigration is of large scales is positive.

The influence of immigration on the well-being of high qualification employees is more complex. Let us turn to the chart we constructed for a numerical example, the chart showing the dependence of the net wages of these employees in relation to the marginal product of low qualification employees on the scales

of immigration. The fall in net wages at the first stage (when the magnitudes of migration are small) and their increase at the last stage (when the magnitudes of migration are large) are effects not depending on which of the scenarios we constructed is realized, and therefore the conclusion which we can draw will be a general one.

The first stage of immigration undoubtedly renders a negative impact on high qualification employees, lowering their net wages. Mixing with immigrants, these employees receive the corresponding wages, but it is even less advantageous to separate out from them by signaling additionally. However, at the last stage of immigration, when a very large inflow of immigrants melts the low qualification indigenous inhabitants of the region into itself, high qualification employees benefit from immigration.

At the margin, if one takes the inflow of immigrants with intermediate productivity to be infinitely large the net wages of high qualification employees will be equal to

$$w_2^{\text{lim}} = \frac{k_2^2 + k_3^2 - k_2 k_3}{k_2} w_1 \quad (16)$$

It is easy to see that this value exceeds the corresponding net wages at the initial equilibrium.

The analysis run of the influence of shock in the form of an inflow of immigrants with intermediate productivity on the nature and parameters of the equilibrium forming in the labor market shows that, although the influence of immigration of intermediate scales depends on the correlation of the numbers of high productivity and low productivity employees and their productivities, the influence of small immigration always leads to a worsening of the position of high qualification employees because of their mixing with immigrants, not affecting low qualification employees, while large immigration increases the wages of low qualification employees. At the same time, the negative influence of large immigration on the well-being of high qualification employees decreases with the growth of the magnitudes of migration, and if immigration takes place on such scales that that low qualified indigenous inhabitants melt into the a huge number of immigrants, then both high qualification and low qualification employees end up gaining.

It can also be assumed that the qualifications of migrants may be both higher than that of the high qualification local population and lower than that of the low qualification population. These instances are less probable, and in a certain sense less interesting, since in the instance of the arrival of a very qualified work force, migrants mix with the more qualified local population, raising their wages, and then, if there are enough of them, they separate out from them, investing additional costs in signalization. Analogously, if a low qualification work force arrives, then at first migrants mix with low qualification employees, lowering their incomes; when the number of migrants increases, local inhabitants will signalize additionally in order to separate out from migrants in the new equilibrium. The situation whereby arriving migrants differ from each other in qualifications is far more complex and requires additional analysis, which may be done in development of this study.

The results obtained testify to the fact that an inflow of migrants into a receiving region can lead to a lowering in the incomes of the region's indigenous inhabitants; it may be assumed thereby that under certain conditions this may cause an outflow of the indigenous population from the given region. We will carry verification below of the hypothesis concerning the influence of the intensity of migration into a given region on the intensity of those leaving the given region. Besides that, in order to correctly specify the appropriate model of dependence of migrational flows, we will formulate and verify the hypotheses concerning the influence of other factors on gross population outflow and population inflow into regions of the Russian Federation.

2.3. Econometric testing of hypotheses on the influence of individual factors on the volumes of migrational flows

The survey of theoretical works conducted above permits formulating a number of hypotheses on the influence of various factors on migrational flows. In this section we will try to carry out econometric verifications of certain hypotheses; special attention will be devoted thereby to the following factors:

- Differences in possible factors of attraction and repulsion. Departure of the population from the northern regions is brought about mainly by factors of repulsion, among which climatic conditions and the standard of living have to be noted first of all. Conversely, arrival of a population in the receiving regions, aside from a favorable climate, may also be grounded on differences in the level of incomes and other things, that is, by factors of attraction. In order to separate these possible approaches, we will study separately below gross migration from northern regions and gross migration into non-northern regions. A substantial difference between factors of attraction and factors of repulsion is the presence of moving costs, which, as studies show, influence not so much the decision to leave a current place of residence as choice of receiving region.
- Incomes of the population in receiving regions. It is assumed that migrational flows are higher into those regions where wages are higher. Taking into account the significant inter-regional differentiation in prices in the Russian Federation, real wages have to be calculated taking into account the differences, for example, in the magnitude of the subsistence minimum between regions. We assume thereby that the magnitude of real wages has a positive influence on the inflow of population into a region. When analyzing the influence of average incomes of the population in a region on the magnitude of migration, as has already been mentioned above, the prospects also have to be taken into account for the incomes of the unemployable population (pensions for pensioners and aid for children), and also the possible probability of getting work, since there is practically always a certain level of unemployment in the receiving region.

- Living conditions. Climato-geographical conditions, and also the volumes of the granting of and expenditures on social benefits, belong to this group of factors. It is assumed thereby that a greater volume of available social benefits has a positive influence on population inflow into receiving regions and a negative influence on population outflow from northern regions.

Taking into account the considerations adduced above, it may be assumed that repelling factors such as living and climatic conditions influence gross population outflow from regions (the lower the standard of living and the provisions for social benefits, the greater the population outflow from the respective region will be; analogously, the worse the climatic conditions and the longer the heating season, the greater the population outflow from a region). Correspondingly, the stronger the factors of the attraction of population into the receiving regions, the greater the population inflow into these will be.

Data from *Goskomstat* [the State Statistics Committee] of the Russian Federation on gross migrational flows (population outflow from northern regions and population inflow into receiving regions separately) for the year 2000 (the most recent available data, published in 2001) were used for the calculations.

It has to be noted that analysis of influence on migrational flows can be done for two indicators – of the numbers of migrants leaving or arriving in a given region, and of intensity of migrational flow (the relationship of the number of migrants to the population numbers in a region). Both these variables were used below for calculations, the influence of the following factors on these variables were verified thereby:

1. Average population income in relation to the cost of the consumer basket (Income), which was computed according to the formula: $\text{Income} = [\text{average salary} * (1 - \text{unemployment}) * \text{share of the employable population} + \text{average pension} * \text{share of pensioners} + \text{aid for children} * \text{share of children}] / \text{magnitude of the subsistence minimum}$.
2. Share of the population older than working age (Old). We assume that the psychological costs of migration increase with an increase in an individual's age (an individual of an older age is more attached to the environment in which he is located).
3. Level of provisions for social benefits characterized by expenditures on making them available (per capita):
4. Expenditures on health care/population numbers in a region (Health)
5. Expenditures on education/the number of children (Schools)
6. Expenditures on social policy/population numbers in a region (Social)
7. Expenditures on the move (in rubles) (Travel). Insofar it is unknown where each migrant is traveling to (we work on an aggregated level), as a measure of the distance of a region from the remaining regions we will use an average magnitude constructed according to the costs of moving from the given region to all non-northern regions weighed proportionally to the actually flows of migration into these regions.

8. Climatic features. Length of the heating season was used as the indicator characterizing a region's climate (Heating).
9. Unemployment (the share of the unemployed in a region) (Unemployment). Separate taking into account of unemployment (aside from the fact that it influences the average income of a population) is explained by the assumption that individuals regard risk negatively and therefore when choosing a place of residence they orient themselves not only on expected wages, but also on the probability of finding themselves without work. This factor is not taken into account when analyzing migration from northern regions, since individuals are in a fully defined situation (they know whether they have work at the given moment or not).

When constructing a regression for migrational flows from northern regions, in view of the high correlation of expenditures on health care, education, and social policy, they were replaced by the aggregated indicator of provisions secured for social benefits for the population (*Public*) equal to the amount of these expenditures per inhabitant of the region.

The results of assessing the dependence of migrational flows from the northern regions on the factors enumerated above are given in Table 2.1.

As follows from the results of the assessments, the share of the unemployable population renders a negative influence on the intensity of population outflow from the northern regions. This may indicate that, in the first place, people of an older age experience less desire to migrate both due to personal attachments and due to the peculiarities of age (state of health, a familiar climate, and so on). In the second place, this may indicate that people older than working age do not have the funds for a move (see also the work "Finansovye otnosheniia federal'nogo..." (Financial relationships of the federal...) (2001). A significant positive dependence of migration intensity on the number of days in the heating season was also revealed; that is, the longer the heating season (the more severe the climate), the greater the intensity of migrant outflow from the given region. Besides that, a significant negative dependence of the intensity of gross population outflow on expenditures for making social benefits available was observed; that is, population outflow is less in regions where these expenditures are higher per capita (better living conditions).

Table 2.1.

**Results of assessment of a model for migrational flows
from northern regions.**

Variable explained	Volume of migration from northern regions		
Number of observations	27		
	Coefficient value	t-statistics value	t-statistics significance
Constant	57096.14	1.340	0.193
Length of the heating season (heating)	-132.621	-1.418	0.170
Share of the population older than working age (old)	-69733.85	-0.551	0.587
Expenditures on making social benefits available	-0.483	-0.457	0.652
R ²	0.128		
R ² adjusted	0.015		

Significance of F-statistics	0.358		
Assessments were done after adding White's correction for heteroscedasticity			
Variable explained	Intensity of migration from northern regions		
Number of observations	27		
	Coefficient value	t-statistics value	t-statistics significance
Constant	-31.045	-1.309	0.204
Length of the heating season (heating)	0.287	2.907	0.008
Share of the population older than working age (old)	-147.14	-2.822	0.010
Expenditures on making social benefits available	-0.0023	-2.573	0.017
R ²	0.696		
R ² adjusted	0.656		
Significance of F-statistics	0.000		

Assessments were done after adding White's correction for heteroscedasticity

It also has to be noted that statistically significant results were obtained for the model of dependence of intensity of population outflow on factors of repulsion, but not for the number of migrants. This result can be explained by the fact that under conditions of mass population outflow from northern regions repelling factors render influence all at once on entire categories of the population, that is, on the share of the population leaving. Accordingly, the number of migrants leaving depends to a significant degree on the region's population numbers.

When modeling migrational flows from northern regions it was not possible to discover a significant dependence on the population's income and costs for the move, which is in complete agreement with the hypothesis that these factors influence the decision to migrate from northern regions to a lesser degree in comparison with expenditures on making social benefits available in the region and with the share of the unemployable population.

The results of assessing the dependence of the gross volume of migrational flows into the receiving (non-northern) regions on the factors enumerated above are given in Table 2.2..

TABLE 2.2

Results of assessing the model for migrational flows into receiving regions

Variable explained	Volume of migration into receiving regions		
Number of observations	61		
	Coefficient value	t-statistics value	t-statistics significance
Constant	-323.28	-0.021	0.983
Length of the heating season (heating)	-139.68	-1.859	0.068
Real income of the population (income)	21356.61	3.073	0.003
Expenditures on social policy	27.78	1.659	0.103
R ²	0.382		
R ² adjusted	0.349		
Significance of F-statistics	0.000		

Assessments were done after adding White's correction for heteroscedasticity

Variable explained	Intensity of migration into the receiving regions		
Number of observations	61		
	Coefficient value	t-statistics value	t-statistics significance

Constant	13.517	1.449	0.153
Length of the heating season (heating)	-0.022	-0.836	0.407
Real income of the population (income)	-2.666	-0.682	0.498
Expenditures on social policy	0.008	1.358	0.180
R ²	0.104		
R ² adjusted	0.057		
Significance of F-statistics	0.096		

Assessments were done after adding White's correction for heteroscedasticity

As the results of the calculations show, such factors as real incomes of the population and expenditures on social policy (per capita) render a positive influence on the gross inflow of population into the receiving regions. Besides that, a significant negative dependence of the intensity of immigrants on the length of the heating season is observed, that is, the number of those traveling into such regions increases with a decrease in the length of the heating season (a warmer climate). With this for population inflow into receiving regions, statistically significant dependences are observed for only one indicator characterizing migrational flows – for the number of arriving migrants; with this the coefficients prove insignificant in the regression for intensity of population inflow. This indicates that when choosing a receiving region, migrants make a decision which is an individual one to a significant degree, one which does not depend on the number of those migrating into the given region and which is based mainly on differences in the values of the attraction factors for various regions.

It was not possible to discover a significant dependence on costs for a move, which agrees with the results described in section 2.1 of other studies which indicate that costs for a move most often are not a substantial obstacle for migrants. In the course of the assessments it was also not possible to discover a significant dependence of the volume of migrational flows on unemployment in the receiving region. This indicates that, apparently, the productivity and qualifications of employable migrants in the majority of cases allows them to find work in the receiving region; in the case of unemployable migrants (pensioners and children) this factor is of less significance.

For verification of the hypothesis concerning the influence of migrant inflow into a region on internal migration, the econometric model for intensity of population outflow was assessed into which, aside from the repelling factors enumerated above, the intensity of migrant inflow into the given region was added. Two variables were examined separately thereby – overall intensity of migrant inflow and intensity of migrant inflow from countries of the near and far abroad. Assessments were done for all regions of the Russian Federation except Chechnya.

From the theoretical analysis given above, it follows that small volumes of arriving migrants with intermediate qualifications lead to a lowering in wages for the indigenous population of a region; therefore it may be assumed that for migrational flows small in number, conditions for the indigenous inhabitants of receiving regions will deteriorate; accordingly, an increase in population outflow can be observed. Results of assessments of the dependence of population outflow intensity from regions of the Russian Federation on length of the heating season, share of the population older than working age, and intensity of population inflow into the region are given in Table 2.3 (expenditures on making social benefits available proved insignificant and were excluded from the model):

The results of the assessments indicate that intensity of migrant inflow has a positive influence on the intensity of population outflow from a region; the inflow of migrants from other countries has an especially strong influence thereby. On the whole, this is in agreement with the fact that the arrival of migrants leads to a worsening of the position of inhabitants of the region, causing population outflow from the region.

TABLE 2.3

Result of assessment of the model for dependence of intensity of migration from regions of Russia on migrant inflow into the given region.

Variable explained	Intensity of migration from regions of Russia		
Number of observations	88		
	Coefficient value	t-statistics value	Значимость t-статистики-statistics significance
Constant	-7.338	-0.595	0.554
Length of the heating season (heating)	0.091	2.013	0.047
Share of the population older than working age (old)	-0.352	-2.621	0.010
Intensity of migrant inflow into the region, including inflow from other regions of the RF	0.263	1.561	0.122
R ²	0.498		
R ² adjusted	0.480		
Significance of F-statistics	0.000		

Assessments were done after adding White's correction for heteroscedasticity

Variable explained	Intensity of migration from regions of Russia		
Number of observations	88		
	Coefficient value	t-statistics value	t-statistics significance
Constant	-2.558	-0.236	0.814
Length of the heating season (heating)	0.084	2.006	0.048
Share of the population older than working age (old)	-0.492	-4.106	0.000
Intensity of inflow of immigrants into the region from other countries	0.867	2.580	0.012
R ²	0.505		
R ² adjusted	0.487		
Significance of F-statistics	0.000		

Assessments were done after adding White's correction for heteroscedasticity

2.4. Methodology of cost-benefit analysis of state programs for facilitating migration of the population

The present section of this work continues preceding studies on conducting analysis of costs and benefits of state programs for facilitating migration from northern regions (see the work "Finansovye otnosheniia federal'nogo..." (Financial relationships of the federal...) (2001) carried out within the framework of the CEPRA project). This study, aside from renewal of previously performed calcu-

lations taking into account new data received for the year 2000, contains the following results of analysis of costs and benefits, and also of the budgetary and overall economic effectiveness of migrational programs:

- Singling out of the most effective migrational routes from the point of view of budgetary economy
- Calculating economy of budgetary funds when the population migrates according to migrational flows actually formed at the present time
- Resolving the problem of optimizing budgetary economy when demographic load coefficients are limited when there is migration of the unemployable population (under diverse variants)
- Results of assessment of the change in well-being of the employable population as a consequence of a change in real wages upon migration
- Results of assessment of the change in well-being of the unemployed upon migration taking into account the change in their real income with the probable possibility of getting work in the receiving regions.

2.4.1. Calculation of matrices of budgetary economy when there is migration of the population

A source of economy when population migrates from northern region is a decrease in budgetary expenditures for making social benefits available (mainly expenditures on heating and transportation costs for delivery of products to these regions). Besides that, the presence of legislatively established northern coefficients and supplements to wages and pensions leads to personal payments (pensions, unemployment benefits) in northern regions being higher, which creates additional economy of budgetary funds when the population migrates. As calculations of diverse variants for consolidating infrastructure when there is population departure from northern regions have shown, the variant most advantageous to the budget is the one accompanied by one hundred percent consolidation of infrastructure (liquidation of individual micro-regions and settlements). Within the framework of this study, we will not examine the diverse variants for consolidating infrastructure, assuming full consolidation of infrastructure when there is population departure, and will concentrate attention on other aspects of migrational programs.

Assessments of economy of budgetary expenditures arising when population migrates are the base data for the calculations. We will examine all possible routes for inter-regional population migration from northern regions to all regions of the Russian Federation (except the Chechen Republic). Calculations were done for three different population categories – for the employable population, pensioners, and children, and calculations of average weighted economy were also carried out. Economy was calculated as the difference of budgetary expenditures on a migrant depending on social category in the northern region and in the receiving region.

The decrease in expenditures in the northern region upon departure of a migrant from the category of the employable population was calculated as the summary expenditures of the regional budget minus expenditures for education and

expenditures for aid to citizens having children divided by the overall number of inhabitants in the region.

The decrease in expenditures per child was calculated as the amount of expenditures per working person, expenditures for education per child, and the amount of aid to children.

The decrease in expenditures per pensioner, aside from the overall decrease in expenditures analogous to working people, also includes a lowering of the northern coefficient to pensions to the marginal value of 1.5.

Diverse variants of increase in expenditures in a receiving region were assessed at the preceding state of the study. In this study, as has already been mentioned above, we will concentrate on aspects of mass migration; therefore when making calculations we assumed that an increase in expenditures for public utilities, health care, transport, education (for children), and aid to children occurs in receiving regions.

Data from the Ministry of Finances of the Russian Federation on the implementation of regional budgets with ending turnovers for the year 2000 were used for the calculations; data from Goskomstat of the RF were used for assessment of the demographic structure of migrants. Calculations were done in U.S.A. dollars; the average exchange rate of U.S.A. dollars for the year 2000 were used for recalculations (28.13 rubles/\$). The results of calculations of annual economy of budgetary funds when there is migration of population from various social categories are given in Appendix 1.

As the calculations showed, a number of migrational routes are characterized by positive values for economy of budgetary expenditures. For assessment of the effectiveness of state programs for facilitating migration, it is necessary to compare the present value of the resulting economy with outlays for implementing a program for facilitating migration.

For assessment of outlays we proposed that the state pay migrants for travel and shipping of five tons of baggage⁷ between regional centers in the northern region and the receiving region. This premise is sufficiently strict and gives a low assessment of outlays for a move taking into account the limited transport accessibility of certain areas in the northern regions. When examining the more difficult migration routes from distant northern areas, it can be assumed that programs for facilitating migration are implemented on the condition that financing of a part of the expenditures for a move is done by the migrants themselves or by enterprises.

Besides that, it was assumed that outlays for a move include purchase of housing proceeding from a norm of twelve square meters per person at average prices in the secondary market for housing (officially published data from Goskomstat of the RF were used for the assessments).

Time periods over which costs of resettlement of employable inhabitants, pensioners, and children would be recouped were figured according to values of annual economy and outlays for a move and acquisition of housing. The rate of discount was assumed to equal nine percent. The results of assessments of time periods for recoupment are given in Appendix 2.

⁷ Data on travel by rail were used for calculation of the cost of travel. Additional concluding assessments on the basis of the average cost of travel per kilometer of road and distance were done for those regions for which the respective data were unavailable.

Matrices of economy and time periods of recoupment when there is migration from northern regions to all regions of the Russian Federation are base ones and can serve for assessing the effectiveness of facilitating and stimulating various migrational routes. The migrational routes most advantageous from the point of view of budgetary effectiveness were revealed after calculations of economy and time periods of recoupment, that is, the routes, migration along which leads to the arising of the greatest economies. This variant is suitable for small migrational programs and reveals narrowly oriented routes, migration along which should be stimulated for the greatest budgetary effectiveness. The results for this scheme of migrational flows are that it is more advantageous for the budget for resettlement to occur from the northern regions of the European part into the European region with the lowest budgetary expenditures (Ivanovo Oblast), and from the Siberian and Far Eastern part of the country into the Siberian region with minimal per capita budgetary expenditures (the Republic of Mari El).

It has to be noted that this scheme is inapplicable when there is a significant number of migrants, since when there is a large number of people moving it has to be taken into account that additional migrants may cause a growth in the demographic load in the receiving region (in the relationship between the numbers of the unemployable population and the numbers of the employable population) which is not taken into account when there is simple calculation of the time periods of recoupment. Calculations taking into account the capacities of receiving regions were done in order to take into account the possible consequences of mass migration.

2.4.2. Calculation taking capacity of the receiving regions into account

Migrational programs are often aimed at the least provided-for social categories – for example, at facilitating migration of pensioners or the unemployed from northern regions, that is, of people who want to, but cannot migrate on their own. In the case where migration encompasses a small number of people or when migrants choose the receiving region, the demographic consequences in a receiving region as a result of the arrival of migrants may not be very significant as a consequence of the dispersal of the migrants among the receiving regions. Whereas in the case of mass migration of an unemployed population from northern regions, the demographic load on the working population in the receiving regions may grow very greatly and lead to creation of social tension and a worsening of living conditions both for local inhabitants and arriving migrants.

We used coefficients of demographic load for limiting the capacity of receiving regions which we calculated according to the formula:

$$k_i = \frac{ND_i^S + ND_i^N}{NW_i}, \quad (17)$$

where

ND_i^S -is the numbers of its own unemployable population in receiving region i ;

ND_i^N -is the numbers of the unemployable population which has arrived in receiving region i from northern regions;

NW_i -is the numbers of its own employable population in receiving region i .

With this, when the inflow of unemployable migrants into a given region increases, we assumed that the number of migrants who have arrived could increase until the coefficient of demographic load exceeded the average weighted coeffi-

cient (proportional to the numbers of the population) for the neighboring regions within the limits of a federal district before the beginning of migration. Besides that, analogous calculations were done using limitations whereby coefficients of demographic load were not to exceed the average value for Russia (before the beginning of migration).

The problem of maximizing budgetary economy (the problem of linear programming) under the condition of migration of the entire unemployable population from the northern regions was solved taking these limitations into account. The results of solving the problem of maximizing with limitations on the coefficients of the demographic load are given in Appendix 3 (comparison with values in neighboring regions) and Appendix 4 (comparison with the value which is average for the Russian Federation).

The results of the calculations show that under such limitations on the capacity of the receiving regions, migration of population is accomplished along a larger number of routes and inhabitants of the northern regions disperse more evenly through the territory of the southern regions and the regions of the central part of the Russian Federation. The net present value in the instance when equalization of the demographic load is done up to the level of the neighboring regions proves positive.

2.4.3. Calculation of budgetary effect for actual migrational flows

It was mentioned in Section 2.1 of this work that informational limitations are rather important obstacles to migration. This often leads to migration being accomplished along routes which have already formed and the number of which is not very great. In particular, it may be expected that without special stimulation of departure to certain concrete regions, migrants from the northern regions will move along the migrational routes actually observed at the present time. In order to assess the budgetary effectiveness of paying for a move and purchase of housing for this instance, we assumed that the entire population of the northern regions would migrate proportionally to the existing migrational flows. Accordingly, calculations were done of the net adduced cost of such a program (as before, it is assumed that the move and purchasing of housing is paid for from budgetary funds; the economy thereby arises due to the difference in the expenditures from regional budgets in the northern region and in the receiving one). The results of the calculations (see Appendix 5) showed that the net present value of such a program for facilitating migration is negative, which means that migration of the population in the same directions in which it has migrated on its own will not lead to economies and will cause significant outlays of budgetary funds. Simultaneously with this, this means that state migrational policy should include special stimulation measures not simply for departure of population from northern regions, but also for increasing the attractiveness of the concrete routes which are most effective from the point of view of budgetary expenditures.

The economy of budgetary funds arising when population migrates, aside from budgetary effectiveness due to lessening of budgetary expenditures in the northern regions, where these expenditures are greater than the corresponding expenditures in the receiving regions, leads to redistribution of budgetary expenditures among the levels of the budgetary system and the budgets of the regions. It has to be taken into account that the positive economies for the budget-

ary system on the whole are distributed between the significant economies in the northern regions and the increase in expenditures in the receiving regions. This means that the economies should be redistributed to avoid the arising of serious budgetary problems in the receiving regions.⁸ Redistribution can be implemented, for example, through the system of federal financial aid, which should be re-examined when there is massive outflow of population from the northern regions, since in this instance the volume of financial aid to the northern regions can be decreased. Correspondingly, when financial aid to northern regions is cut, it has to be remembered that population migration may require an increase in financial aid to the receiving regions. In order to assess the scales [dimensions] of redistribution of funds, we ran calculations of the change in budgetary expenditures in northern regions and in receiving regions. The results of the calculations are given in Appendix 6.

2.4.4. Assessment of change in the welfare of citizens as a consequence of increasing their real income (income in relation to the magnitude of the subsistence minimum)

Aside from budgetary economies, the overall economic effect from migration of population from northern regions also includes change in the well-being of citizens, a significant part of which is change in the real incomes of the population upon moving from a northern region which can arise both as a consequence of an increase in wages and as a consequence of a decrease in the subsistence minimum in regions with a more favorable climate. Количественно данное изменение благосостояния можно оценить по следующей формуле:

$$\Delta_{kij} = W_{kj}^S - \frac{W_{ki}^N}{I_i^N} I_j^S, \quad (18)$$

where

I – is the index of the northern region from which migration occurs;

J – is the index of the receiving region where the migrant arrives;

K – is the index of the social category of the migrant (differences in social category indicate differences in the incomes of migrants: for the employable population, this is average wages; for pensioners, it is the pension; for children, it is aid to children);

Δ_{kij} – is the change in well-being of a citizen of social category k upon moving from northern region i to receiving region j ;

W_{kj}^S – is the income of a citizen in the receiving region;

W_{ki}^N – is the income of a citizen in the northern region;

I_i^N – is the subsistence minimum in the northern region;

I_j^S – is the subsistence minimum in the receiving region.

⁸ Redistribution of budgetary expenditures among regions when population migrates may also be accompanied by redistribution of the revenues of regional budgets. Such redistribution of revenues may arise because of displacement of the tax base (of added value created by an employee, of wages, etc.) together with the migrant. Within the framework of this study we did not examine in detail problems of redistribution of tax revenues among regional budgets as a consequence of migration, concentrating in significant measure on migration of the unemployable population.

The results of the calculations of change in the well-being of citizens are given in Appendix 7.

The change in well-being can also be calculated for the unemployed, assuming that they will, with some probability, get work. The probability of getting work utilizing the available statistical information may be assessed on the basis of the share of the employable population taking the unemployment in the receiving region into account. When assessing the change in the well-being of citizens as a consequence of the possibility migrants would get work, it was previously assumed that unemployment in the receiving region would remain at the previous level. This is a rather strict premise, which may be considered possible of fulfillment only under conditions whereby the number of migrants is not large. If it is fulfilled, then the employable migrant may with great probability find work in the receiving region; accordingly the change in his well-being can be assessed in the following way (the optimistic assessment is from above):

$$\Delta(U)_j = (1 - u_j^S) W_j^S, \quad (19)$$

where

$\Delta(U)_j$ – is the change in well-being of an unemployed person migrating to receiving region j (assessment from above);

W_j^S – is the average wages in receiving region j ;

u_j^S – is the unemployment in receiving region j .

This assessment is applicable if the migrational flows basically consist of the unemployed. In the case where mass migration is effected, the unemployed are forced to compete with those previously employed in the northern regions in the labor market in the receiving regions. Therefore, on the whole the change in well-being for the employable population may be calculated according to the following formula:

$$\Delta(W)_{ij} = (1 - u_j^S) \cdot W_j^S - \frac{(1 - u_i^N) \cdot W_i^N}{I_i^N} I_j^S, \quad (20)$$

where

i – is the index of the northern region from which migration occurs;

j – is the index of the receiving region where the migrant arrives;

$\Delta(W)_{ij}$ – is the change in well-being of an employable citizen upon moving from northern region i to receiving region j ;

W_j^S – is the income of a citizen in the receiving region;

W_i^N – is the income of a citizen in the northern region;

I_i^N – is the subsistence minimum in the northern region;

I_j^S – is the subsistence minimum in the receiving region;

u_j^S – is unemployment in receiving region j ;

u_i^N – is unemployment in northern region i .

It has to be noted that the variants adduced above of assessment of change in well-being are applicable to various situations by number and structure of migrants, but are not clarifications of each other. When the migration numbers of the employed are not very great, it would be more correct to use the first assessment, and when city micro-areas and settlements are closed and there is mass migration of inhabitants, the second assessment of change in well-being is more correct.

The results of calculations in change in well-being are given in Appendix 7.

Conclusions

The analysis of the quantitative and qualitative characteristics of the financial flows between the federal budget and the budgets of the constituent members of the Federation belonging to areas of the Far North conducted in the first part of the work has permitted certain conclusions rich in content to be drawn. Proposals on increasing the effectiveness of the system for allocating the financial resources of the federal authorities among the budgets of the northern regions were worked out on the basis of these conclusions.

Analysis of taxes and payments from the territory of the northern regions coming into the federal budget and also analysis of the balance of payments into the federal budget and of financial aid from the federal budget to the northern regions, both by individual constituent members of the Federation and by the northern regions as a whole, showed that a high degree of differentiation of the regions of the North by indicators of revenues and of expenditure requirements is to be observed, and consequently by the indicator of the balance of financial flows between regional budgets and the federal budget. On the one hand, among the northern regions are constituent members of the Federation having a high degree of endowment with natural resources (what is meant first of all are oil, gas, and nonferrous metals) unevenly distributed through the country's territory which are some of the basic donors to the federal budget. On the other hand, among the regions of the north there are no few constituent members of the Federation with a low level of development of their own tax base and high expenditure requirements (just as in all the regions of the North). It is this last group of constituent members of the Federation in particular which determines the status of the Northern regions as basic recipients of financial aid from the federal budget. It is obvious that the conclusions from this part of the study can be utilized when working out differentiated measures for increasing the effectiveness of the policies of the federal authorities with regard to the constituent members of the Federation belonging to areas of the Far North.

At the present time two variants exist for improving the system of federal financing of "deliveries of supplies to the North." In the first place, allotment is possible of this kind of financial aid as a separate kind of subsidies in the Budgetary Code and development of a special methodology for determining requirements for these funds. However, this way does not seem entirely effective to us, since its implementation means in fact perpetuation of the existing situation in legislation. In our opinion, isolation of subsidies for support of deliveries of supplies to the North in the form of a separate kind of targeted financial aid should be relinquished completely in the prospective future. This envisages allotment of funds to compensate requirements for additional budgetary funds in connection with the necessity for implementation of early deliveries of products, fuel, and petroleum products to areas with limited transport accessibility through two channels. It is necessary that the basic volume of funds be allotted through non-targeted equalizing transfers, taking into account, when calculating their volume, factors of limited transport accessibility as factors increasing the requirements of constituent members of the Federation for expenditures (possibly, a part of the

transfers to these regions would have to be allotted in accordance with a schedule which would run ahead in time in comparison with other constituent members of the Federation). With that, constituent members of the Federation for which there is a necessity for additional monitoring on the part of the federal authorities of utilization of financial aid and implementation of “deliveries of supplies to the North” as a consequence of the high volumes of additional need for funds and of a low revenues potential possibly should be shifted to the category of highly subsidized constituent members of the Federation (or of regions in financial crisis) with allotment of additional financial aid by targeted assignment and by introduction of certain limitations on disposal of funds in accordance with the status of a highly subsidized region.

In this way, the conclusion may be drawn that in absolute terms (calculated on a per capita basis) the northern regions receive more significant amounts of financial aid than do the remaining constituent members of the Federation. However, at the same time, the share of non-targeted financial aid in the revenues of the budgets of the northern regions which are recipients of federal funds turned out to be not much higher than the indicators which are average for Russia as a whole. This observation testifies in favor of the fact that the increased dimensions of federal aid to the northern constituent members of the Federation when calculated on a per capita basis are brought about, on the whole, by the high expenditures requirements of the northern regions, since, while possessing a comparatively high revenues base, the northern constituent members of the Federation nevertheless require allotment of financial aid due to the higher cost of making basic state services available than in other constituent members of the Federation (which is brought about by the longer heating season, limited transport accessibility and the great distance to the northern territories, the presence of various supplements to wages, etc). On the other hand, it may be noted that for this group of regions dependence on federal targeted financial aid proved lower than the average for Russia, the reason for which is the presence in the make-up of these regions of constituent members of the Federation with high tax revenues, which has a negative influence on the share of financial aid in budgetary revenues.

In this way the following conclusions may be drawn from the results of analyzing the granting of financial aid to the northern regions from the federal budget.

1. The constituent members of the Federation which for the purposes of this study we have placed in the category of northern ones receive on the whole from the federal budget all the kinds of financial aid legislatively provided for, although the degree of dependence of the regions examined on federal funds varies substantially.

2. The volume of non-targeted financial aid received by the northern regions calculated on a per capita basis exceeds both the level which is average for Russia as a whole and the analogous indicator for the non-northern constituent members of the Federation. At the same time, the structure of the non-targeted funds received by the northern regions does not differ substantially from the structure which is average for Russia as a whole.

3. The northern constituent members of the Federation also receive all the kinds of targeted financial aid there are. With that, while the volume of subventions and subsidies received by constituent members of the Federation from the

Compensations' Fund calculated on a per capita basis is not substantially lower than the analogous indicator for the non-northern regions, the volume of non-regular subventions and subsidies to the northern regions is substantially higher than the average for Russia as a whole.

4. The overall volume of funds received by the northern constituent members of the Federation from the federal budget far exceeds the analogous indicators for the remaining regions. With that, the increased level of dependence of the northern regions on federal financial aid is explained basically by the small numbers of the population in the northern regions and also by the increased cost of making social benefits available. The substantial inter-regional differentiation among the northern regions also has to be noted – both constituent members of the Federation with volumes of financial aid which are maximum ones for Russia and regions with a high level of budgetary security [ones which are well-off budgetarily] are present in the make-up of the group.

5. One of the basic differences between the northern regions and the remaining constituent members of the Federation from the point of view of receiving federal financial aid is the structure of financial aid from the point of view of its division into regular formalized aid and non-regular non-formalized aid: the share of financial funds allocated in accordance with procedures which are formalized and unified for all regions is several times lower in the northern regions (at least, according to the results for the year 2001) than the analogous indicator for the remaining constituent members of the Federation. This situation is explained by the fact that a large volume of targeted and non-targeted non-regular financial support is directed to the Northern regions in accordance with decisions taken over the course of the financial year, which is brought about by high requirements for making social benefits available and the high cost of the latter.

As to vectors for increasing overall effectiveness of the system of federal financial support for constituent members of the Federation, it ought to be noted that such proposals are relevant not only to the northern regions, but to all the constituent members of the Federations. With regard to reforming the system of federal financial support for the regions, one has to agree with the basic vectors for its improvement laid out in the Program for Development of Budgetary Federalism in the Russia Federation up to the year 2005 approved by Resolution №584 of the Government of the Russian Federation dated 15 August 2001.

6. There has to be separation of financial aid depending on the goals set and on the allocation mechanisms into current aid and investments aid, and also into equalizing aid and “stimulating” aid. With that, the mechanisms for allocating current equalizing financial aid to the northern constituent members of the Federation should take into account factors of the increased expenditure requirements of the budgets of these regions connected to their northern location. Simultaneously, mechanisms for allocation of investment aid and stimulating financial aid should be worked out, including from the point of view of the priorities of the federal authorities with regard to developing the regions of the North.

7. Allotment of financial aid ought to be limited to being done through the following basic forms of financial support: grants, subventions, and subsidies. With that, it is necessary to incorporate in the Budgetary Code provision allowing the federal authorities to allot subsidies in proportion to the size of the financing of production of the subsidized social benefit produced by the recipient of

financial aid with retention of the coefficient of shared financing assigned upon allocation of subsidies. A more active utilization of the mechanism of subsidies, which in their essence are close to shared grants, would permit the federal center to influence the expenditures policies of regional authorities to a greater degree.

8. It is necessary to consolidate legislatively the provision that allocation of equalizing kinds of financial aid (first of all – of funds from the Fund for Financial Support of the Regions and the Compensations' Fund) in accordance with principles which are unified for all the constituent members of the Federation for allocation on the basis of transparent formulae with variable (reproducible) calculations and objective criteria for the budgetary security of the regions be obligatory. Other kinds of financial aid should be allocated on the basis of previously established conditions for calculating and granting financial support and for procedures for competitive selection of financial aid recipients. As was already said above, the taking into account of the factor of “northernness” in such formulae for allocating equalizing transfers should make available the possibility of refraining from the necessity of allocating special kinds of federal financial aid such as specially allocated subventions for preparation for the heating season.

9. For purposes of avoiding negative stimuli in the system for allocating financial aid with regards to the tax and budgetary policy of the agencies of authority of constituent members of the Federation, calculations of the budgetary security of recipients of federal financial aid should not be based on utilization of reporting data on budgetary expenditures of constituent members of the Federation actually made and on tax revenues actually received (accrued). For this what is necessary is objective and transparent assessment of the relative differences in expenditure requirements and also assessment of the comparison of the fiscal [revenue generating] capacity of various constituent members of the Federation taking into account the level and structure of development of the regional economy.

10. It is necessary to include in the effective budgetary legislation the basic principles of the methodologies and procedures for allocating financial aid (with detailing of the methodologies and procedures in the normative acts (resolutions, regulations, instructions, etc. – *tran. 's note*) of the Government of the Russian Federation adopted on its basis) or to incorporate directly the methodologies and procedures for granting federal financial aid. Such incorporation of the rules for allocating financial aid should facilitate creation of the maximum possible stability and predictability of the volume and principles for allocating financial aid for its recipients, permitting the constituent members of the Federation to forecast on their own the basic volume of financial support received for the mid-term future and creating stimuli for increasing their own revenues.

11. Simultaneously it is necessary to introduce changes into federal legislation aimed at creating strict budgetary limits for recipients of federal financial aid. What is meant first of all is approval of the amounts of financial aid to concrete regions by the law on the federal budget for the respective year and also limitations on transfer over the course of the budgetary year of funds not allocated among constituent members of the Federation by the law on the federal budget. When analyzing the issue of creating strict budgetary limitations for regional authorities, it is necessary to emphasize especially the inadmissibility of allotment over the course of the fiscal year of volumes of financial aid in addition to

the amounts approved by the law on the federal budget, since that lowers the stimuli for regional authorities to expend budgetary funds efficiently.

The results of the second part of the study done are connected to the problem of purposeful stimulation of migrational flows.

A significant number of pensioners and the unemployed in the northern regions, not having the funds for departure and settlement in the central and southern regions of Russia, are forced to remain in the northern regions despite the impossibility of engaging in small-scale agriculture because of the climate.

The problems arising and accumulating in the northern regions demand solution, since an increase in unemployment and also a lowering of the level of the population's well-being because of a non-proportional increase in the subsistence minimum and in indexation of pensions and aid are leading to a growth of social tension in the northern regions. Simultaneous with that, increased payments to pensioners and the unemployed on the part of the state, to which they are entitled by law, and also maintenance of an aging network of buildings and structures in the northern regions is costing the state dearly, especially in wintertime, when there is increased likelihood that some buildings and even settlements and towns may find themselves without heat. A survey of the literature on emigration permitted singling out and formulating the basic problems, at the solution of which economic policy with regard to population migration from the northern regions should be aimed. Thus, for example, important factors for deciding to migrate are expected income in the receiving region and distance of the move, and with this, aside from the cost of the move, other reasons may also influence the decision to migrate such as, for example, a decrease in the availability of information depending on distance of resettlement or deviation from traditional (usual) routes, or else social and personal psychological costs connected to changing place of residence. This indicates that even if, for example, the move and getting settled in the receiving region are paid for by the state, just the same there are barriers to migration, that is, one may not expect that inhabitants of northern regions will move evenly throughout the entire territory of the country or throughout the territory of the southern regions of the regions of the central section.

Among other factors, one has to point to improvement in living conditions; with that it should be taken into account that under Russian conditions, a move to southern regions for those who work and for pensioners in the majority of instances is accompanied by a decrease in monetary income in nominal terms, and a negative influence on the health of pensioner migrants caused by a change in climate is also possible. Improvement of well-being in this instance may be connected to a decrease in the subsistence minimum (an increase in income in real terms), and also, for example, to a milder climate and the appearance of the possibility of engaging in small-scale agriculture for pensioners and getting work for the unemployed.

The theoretical analysis done of the influence of an inflow of immigrants with intermediate productivity in comparison to that of local inhabitants on the nature and parameters of the equilibrium forming in the labor market under conditions of asymmetry of information between employees and employers in the receiving region showed that the influence of small-scale immigration always leads to a worsening of the position of high qualification employees. At the same

time, the negative influence of large-scale immigration on the well-being of high qualification employees decreases with the growth of the scale of the migration, and if immigration occurs at such a scale that the numbers of a region's own low qualification work force in the region are far fewer than the number of immigrants, then both high qualification and low qualification employees end up gaining.

As follows from the results of econometric assessments, the share of the unemployable population renders a negative influence on the gross outflow of population from the northern regions, which agrees with the hypothesis that people older than working age are limited in resources for a move (in this instance their migration requires state support), or due to personal attachment to the place of residence they do not wish to move to other regions.

Improvement of climatic conditions renders a significant influence both on intensity of population outflow (the outflow is higher from regions where the length of the heating season is greater) and on intensity of inflow of migrants into non-northern regions. A significant positive influence on inflow and a negative one on population outflow are also rendered by expenditures from regional budgets, including expenditures on social policy, which agrees with the hypothesis that migrants choose regions with a developed budgetary network and a high level of social support and of making social benefits available.

Besides that, the results of econometric assessments indicate that an inflow of migrants into a region has a positive influence on population outflow; with that, this influence is manifested more strongly when there is verification of the influence of population inflow from other countries.

The basic results and the theoretical premises structured in the survey permitted formulating several possible models of mass migration from the northern regions of the Russian Federation. For each model, analysis was conducted of costs and benefits, including calculations of matrices of economies from the migration of population from the northern regions to all regions of the Russian Federation, and also calculations of the time periods for recoupment under the assumption that the migrant receives funds for the move and purchase of minimal housing space in the secondary market, these calculations being done in the concluding section of the work.

These results were supplemented by a solution to the problem of maximizing budgetary effectiveness with limitations on coefficients of demographic load for prevention of a growth in social tension when there is migration of unemployable population, and also with calculations of the change in the well-being of various categories of migrants when moving from northern regions as a consequence of a change in real income. Additionally, included in the section were assessments of the effectiveness of the migrational routes from the northern regions which have formed. The results of these calculations are of important practical significance and can be utilized as reference points for assessment of the effectiveness of economic policy with regard to migrational flows.

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Appendices

Appendix 1. Public funds saved subsequent upon migration of population from diverse social strata, per annum

TABLE 1.

Annual fiscal economy effect from migration of working
population (USD per one able-bodied migrant)

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	77	75	88	104	263	1025	173	424	195	1181	98	64	83	142
Altai krai	64	62	75	91	250	1012	160	411	182	1168	85	51	70	129
Astrakhan Oblast	59	56	70	86	245	1007	155	406	177	1163	80	46	65	124
Belgorod Oblast	62	59	73	89	247	1010	157	409	179	1165	83	48	67	127
Bryansk Oblast	77	74	88	104	263	1025	173	424	195	1181	98	64	83	142
Vladimir Oblast	62	59	72	89	247	1010	157	409	179	1165	82	48	67	126
Volgograd Oblast	61	58	72	88	246	1009	157	408	179	1165	82	47	67	126
Vologda Oblast	14	12	25	41	200	962	110	361	132	1118	35	1	20	79
Voronezh Oblast	74	71	84	101	259	1022	169	421	191	1177	94	60	79	138
City of Moscow	-125	-128	-114	-98	61	823	-29	222	-7	979	-104	-138	-119	-60
City of St. Petersburg	-1	-3	10	26	185	947	95	346	117	1103	20	-14	5	64
Ivanovo Oblast	63	60	74	90	249	1011	159	410	181	1167	84	50	69	128
Ingush Republic	68	66	79	95	254	1016	164	415	186	1172	89	55	74	133
Kabardino-Balkar Republic	57	55	68	84	243	1005	153	404	175	1161	78	44	63	122
Kaliningrad Oblast	41	39	52	68	227	989	137	388	159	1145	62	28	47	106
Kaluga Oblast	46	43	57	73	232	994	142	393	164	1150	67	33	52	111
Karachaev-Cherkes Republic	78	76	89	105	264	1026	174	425	196	1182	99	65	84	143
Kemerovo Oblast	27	24	38	54	212	975	123	374	145	1131	48	14	33	92

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Kirov Oblast	65	62	76	92	250	1013	160	412	182	1168	86	51	70	130
Komi-Perm AD	78	76	89	105	264	1026	174	425	196	1182	99	65	84	143
Kostroma Oblast	64	61	75	91	250	1012	160	411	182	1168	85	51	70	129
Krasnodar krai	70	67	81	97	255	1018	166	417	188	1174	91	57	76	135
Kurgan Oblast	75	72	86	102	260	1023	171	422	193	1179	96	62	81	140
Kursk Oblast	81	78	91	108	266	1029	176	428	198	1184	102	67	86	145
Leningrad Oblast	40	37	50	67	225	988	135	387	157	1143	61	26	45	104
Lipetsk Oblast	35	32	46	62	220	983	130	382	152	1138	56	21	40	100
Moscow Oblast	38	35	48	65	223	986	133	385	155	1141	59	24	43	102
Nizhni Novgorod Oblast	63	61	74	90	249	1011	159	410	181	1167	84	50	69	128
Novgorod Oblast	42	39	52	68	227	989	137	388	159	1145	62	28	47	106
Novosibirsk Oblast	57	54	68	84	242	1005	152	404	175	1161	78	43	63	122
Omsk Oblast	75	73	86	102	261	1023	171	422	193	1179	96	62	81	140
Orenburg Oblast	36	34	47	63	222	984	132	383	154	1140	57	23	42	101
Orel Oblast	72	69	82	99	257	1020	167	419	189	1175	93	58	77	136
Penza Oblast	80	77	91	107	265	1028	176	427	198	1184	101	67	86	145
Perm Oblast	13	10	23	40	198	961	108	360	130	1116	34	-1	18	77
Pskov Oblast	52	49	63	79	237	1000	147	399	169	1155	73	38	57	116
Republic of Adygeya	74	71	85	101	259	1022	169	421	191	1177	95	60	79	139
Republic of Bashkortostan	6	3	17	33	191	954	101	353	123	1109	27	-8	12	71
Republic of Dagestan	65	62	75	91	250	1013	160	411	182	1168	85	51	70	129
Kalmyk Republic	65	62	76	92	250	1013	161	412	183	1169	86	52	71	130
Republic of Mari El	85	82	96	112	270	1033	180	432	202	1188	106	71	90	150
Republic of Mordovia	72	69	83	99	257	1020	168	419	190	1176	93	59	78	137
Republic of N. Osetia	62	59	72	88	247	1009	157	408	179	1165	82	48	67	126
Republic of Tatarstan	-4	-7	7	23	182	944	92	343	114	1100	17	-17	2	61
Republic of Khakasia	69	66	79	95	254	1016	164	415	186	1172	89	55	74	133
Rostov Oblast	72	70	83	99	258	1020	168	419	190	1176	93	59	78	137
Ryazan Oblast	66	64	77	93	252	1014	162	413	184	1170	87	53	72	131
Samara Oblast	32	30	43	59	218	980	128	379	150	1136	53	19	38	97
Saratov Oblast	69	67	80	96	255	1017	165	416	187	1173	90	56	75	134
Sverdlovsk Oblast	48	45	58	74	233	995	143	394	165	1151	68	34	53	112
Smolensk Oblast	59	56	70	86	244	1007	154	406	176	1162	80	45	64	124
Stavropol krai	76	73	87	103	261	1024	171	423	193	1179	97	62	81	141
Tambov Oblast	82	79	92	109	267	1030	177	429	199	1185	102	68	87	146

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Tver Oblast	54	51	65	81	240	1002	150	401	172	1158	75	41	60	119
Tula Oblast	56	54	67	83	242	1004	152	403	174	1160	77	43	62	121
Republic of Udmurtia	42	39	52	69	227	990	137	389	159	1145	63	28	47	106
Ulyanovsk Oblast	65	63	76	92	251	1013	161	412	183	1169	86	52	71	130
Ust-Orda Buryat AD	72	69	82	99	257	1020	167	419	189	1175	93	58	77	136
Chelyabinsk Oblast	37	34	47	63	222	984	132	383	154	1140	57	23	42	101
Chechen Republic	104	101	115	131	289	1052	199	451	221	1207	125	90	110	169
Chuvash Republic	79	76	89	105	264	1026	174	425	196	1182	99	65	84	143
Yaroslavl Oblast	31	29	42	58	217	979	127	378	149	1135	52	18	37	96

TABLE I (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	210	616	71	243	1694	146	81	164	1944	44	773	1416	1801
Altai krai	196	603	57	230	1681	133	68	151	1931	31	760	1403	1788
Astrakhan Oblast	191	598	52	225	1676	128	63	145	1926	26	755	1397	1783
Belgorod Oblast	194	600	55	228	1678	131	66	148	1929	29	758	1400	1786
Bryansk Oblast	209	616	70	243	1694	146	81	163	1944	44	773	1415	1801
Vladimir Oblast	194	600	55	228	1678	131	65	148	1929	29	758	1400	1786
Volgograd Oblast	193	600	54	227	1678	130	65	147	1928	28	757	1399	1785
Vologda Oblast	146	553	7	180	1631	83	18	101	1881	-19	710	1353	1738
Voronezh Oblast	206	612	67	240	1690	143	77	160	1941	41	769	1412	1798
City of Moscow	7	414	-132	41	1492	-56	-121	-39	1742	-158	571	1214	1599
City of St. Petersburg	131	538	-8	165	1616	68	3	86	1866	-34	695	1338	1723
Ivanovo Oblast	195	602	56	229	1680	132	67	149	1930	30	759	1401	1787
Ingush Republic	201	607	61	234	1685	137	72	155	1935	35	764	1407	1792
Kabardino-Balkar Republic	189	596	50	223	1674	126	61	143	1924	24	753	1396	1781
Kaliningrad Oblast	174	580	35	207	1658	110	45	128	1908	8	737	1380	1765

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Kaluga Oblast	178	585	39	212	1663	115	50	132	1913	13	742	1384	1770
Karachaevo-Cherkes Republic	210	617	71	244	1695	147	82	165	1945	45	774	1417	1802
Kemerovo Oblast	159	566	20	193	1644	96	31	113	1894	-6	723	1365	1751
Kirov Oblast	197	603	58	231	1681	134	69	151	1932	32	761	1403	1789
Komi-Perm AD	210	617	71	244	1695	147	82	165	1945	45	774	1417	1802
Kostroma Oblast	196	603	57	230	1681	133	68	150	1931	31	760	1403	1788
Krasnodar krai	202	609	63	236	1687	139	74	156	1937	37	766	1408	1794
Kurgan Oblast	207	614	68	241	1692	144	79	161	1942	42	771	1413	1799
Kursk Oblast	213	619	74	247	1697	150	84	167	1948	48	777	1419	1805
Leningrad Oblast	172	578	33	206	1656	109	43	126	1907	7	736	1378	1764
Lipetsk Oblast	167	573	28	201	1651	104	38	121	1902	2	731	1373	1759
Moscow Oblast	170	576	31	204	1654	107	41	124	1905	5	734	1376	1762
Nizhni Novgorod Oblast	196	602	57	229	1680	132	67	150	1930	30	759	1402	1787
Novgorod Oblast	174	580	35	207	1658	110	45	128	1909	9	737	1380	1765
Novosibirsk Oblast	189	596	50	223	1674	126	61	143	1924	24	753	1395	1781
Omsk Oblast	208	614	68	241	1692	144	79	162	1942	42	771	1414	1799
Orenburg Oblast	169	575	30	202	1653	105	40	123	1903	3	732	1375	1760
Orel Oblast	204	610	65	238	1688	141	75	158	1939	39	768	1410	1796
Penza Oblast	212	619	73	246	1697	149	84	166	1947	47	776	1418	1804
Perm Oblast	145	551	6	179	1629	82	16	99	1880	-20	709	1351	1737
Pskov Oblast	184	590	45	218	1668	121	55	138	1919	19	748	1390	1776
Republic of Adygeya	206	612	67	240	1691	143	78	160	1941	41	770	1412	1798
Republic of Bashkortostan	138	545	-1	172	1623	75	10	92	1873	-27	702	1344	1730
Republic of Dagestan	197	603	58	231	1681	134	68	151	1932	32	760	1403	1789
Kalmyk Republic	197	604	58	231	1682	134	69	151	1932	32	761	1403	1789
Republic of Mari El	217	623	78	251	1701	154	88	171	1952	52	781	1423	1809
Republic of Mordovia	204	611	65	238	1689	141	76	158	1939	39	768	1410	1796
Republic of N. Osetia	194	600	55	228	1678	130	65	148	1929	29	757	1400	1785
Republic of Tatarstan	128	535	-11	162	1613	65	0	82	1863	-37	692	1334	1720

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Khakasia	201	607	62	234	1685	137	72	155	1936	36	764	1407	1792
Rostov Oblast	204	611	65	238	1689	141	76	159	1939	39	768	1411	1796
Ryazan Oblast	199	605	60	232	1683	135	70	153	1933	33	762	1405	1790
Samara Oblast	165	571	26	198	1649	101	36	119	1900	0	728	1371	1756
Saratov Oblast	201	608	62	235	1686	138	73	156	1936	36	765	1408	1793
Sverdlovsk Oblast	180	586	41	214	1664	116	51	134	1915	15	743	1386	1771
Smolensk Oblast	191	597	52	225	1675	128	63	145	1926	26	755	1397	1783
Stavropol krai	208	614	69	242	1692	145	80	162	1943	43	772	1414	1800
Tambov Oblast	214	620	75	248	1698	151	85	168	1949	49	777	1420	1806
Tver Oblast	186	593	47	220	1671	123	58	140	1921	21	750	1392	1778
Tula Oblast	188	595	49	222	1673	125	60	143	1923	23	752	1395	1780
Republic of Udmurtia	174	580	35	208	1658	111	45	128	1909	9	738	1380	1766
Ulyanovsk Oblast	197	604	58	231	1682	134	69	152	1932	32	761	1404	1789
Ust-Orda Buryat AD	204	610	65	238	1688	141	75	158	1939	39	768	1410	1796
Chelyabinsk Oblast	169	575	30	203	1653	105	40	123	1904	4	732	1375	1761
Chechen Republic	236	643	97	270	1721	173	108	190	1971	71	800	1442	1828
Chuvash Republic	211	617	72	245	1695	147	82	165	1946	46	774	1417	1802
Yaroslavl Oblast	164	570	24	197	1648	100	35	118	1898	-2	727	1370	1755

TABLE 2.

Annual fiscal economy effect from migration of older than working age population (USD per one older than working age migrant)

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	82	80	93	109	270	1032	178	431	201	1187	103	69	88	147
Altai krai	69	67	80	96	257	1019	165	418	188	1174	90	56	75	134
Astrakhan Oblast	64	62	75	91	252	1014	160	413	182	1169	85	51	69	129
Belgorod Oblast	67	64	77	94	255	1017	163	416	185	1171	88	53	72	132
Bryansk Oblast	82	80	93	109	270	1032	178	431	201	1187	103	69	88	147
Vladimir Oblast	67	64	77	94	254	1016	162	416	185	1171	88	53	72	131
Volograd Oblast	66	64	77	93	254	1016	162	415	184	1170	87	53	71	131
Vologda Oblast	19	17	30	46	207	969	115	368	138	1124	40	6	25	84
Voronezh Oblast	79	76	89	106	266	1028	174	427	197	1183	100	65	84	143
City of Moscow	-120	-122	-109	-93	68	830	-24	229	-1	985	-99	-133	-114	-55
City of St. Petersburg	4	2	15	31	192	954	100	353	123	1109	25	-9	10	69
Ivanovo Oblast	68	66	79	95	256	1018	164	417	187	1173	89	55	74	133
Ingush Republic	73	71	84	100	261	1023	169	422	192	1178	94	60	79	138
Kabardino-Balkar Republic	62	60	73	89	250	1012	158	411	181	1167	83	49	68	127
Kaliningrad Oblast	46	44	57	73	234	996	142	395	165	1151	67	33	52	111
Kaluga Oblast	51	49	62	78	239	1001	147	400	170	1156	72	38	57	116
Karachaevo-Cherkes Republic	83	81	94	110	271	1033	179	432	202	1188	104	70	89	148
Kemerovo Oblast	32	30	43	59	220	982	128	381	150	1137	53	19	37	97
Kirov Oblast	70	67	80	97	258	1020	166	419	188	1174	91	56	75	135
Komi-Perm AD	83	81	94	110	271	1033	179	432	202	1188	104	70	89	148
Kostroma Oblast	69	67	80	96	257	1019	165	418	188	1174	90	56	75	134
Krasnodar krai	75	73	86	102	263	1025	171	424	193	1179	96	62	80	140
Kurgan Oblast	80	78	91	107	268	1030	176	429	198	1185	101	67	85	145
Kursk Oblast	86	83	96	113	274	1036	182	435	204	1190	107	72	91	151
Leningrad Oblast	45	42	55	72	232	995	140	394	163	1149	66	31	50	110
Lipetsk Oblast	40	37	50	67	228	990	136	389	158	1144	61	26	45	105
Moscow Oblast	43	40	53	70	230	993	138	392	161	1147	64	29	48	108
Nizhni Novgorod Oblast	68	66	79	95	256	1018	164	417	187	1173	89	55	74	133
Novgorod Oblast	46	44	57	74	234	996	142	395	165	1151	67	33	52	111
Novosibirsk Oblast	62	60	73	89	250	1012	158	411	180	1166	83	49	67	127
Omsk Oblast	80	78	91	107	268	1030	176	429	199	1185	101	67	86	145
Orenburg Oblast	41	39	52	68	229	991	137	390	160	1146	62	28	47	106
Orel Oblast	77	74	87	104	265	1027	173	426	195	1181	98	63	82	142

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Penza Oblast	85	83	96	112	273	1035	181	434	203	1190	106	72	90	150
Perm Oblast	18	15	28	45	205	968	113	367	136	1122	39	4	23	83
Pskov Oblast	57	54	67	84	245	1007	153	406	175	1161	78	43	62	122
Republic of Adygeya	79	76	89	106	267	1029	175	428	197	1183	100	65	84	144
Republic of Bashkortostan	11	9	22	38	199	961	107	360	129	1115	32	-2	16	76
Republic of Dagestan	70	67	80	97	257	1019	165	418	188	1174	91	56	75	134
Kalmyk Republic	70	68	81	97	258	1020	166	419	188	1175	91	57	75	135
Republic of Mari El	90	87	100	117	278	1040	186	439	208	1194	111	76	95	155
Republic of Mordovia	77	75	88	104	265	1027	173	426	195	1182	98	64	82	142
Republic of N. Osetia	66	64	77	94	254	1016	162	415	185	1171	88	53	72	131
Republic of Tatarstan	1	-1	12	28	189	951	97	350	120	1106	22	-12	7	66
Republic of Khakassia	73	71	84	101	261	1023	169	422	192	1178	94	60	79	138
Rostov Oblast	77	75	88	104	265	1027	173	426	196	1182	98	64	83	142
Ryazan Oblast	71	69	82	98	259	1021	167	420	190	1176	92	58	77	136
Samara Oblast	37	35	48	65	225	987	133	386	156	1142	58	24	43	102
Saratov Oblast	74	72	85	101	262	1024	170	423	193	1179	95	61	80	139
Sverdlovsk Oblast	52	50	63	80	240	1002	148	401	171	1157	74	39	58	117
Smolensk Oblast	64	61	74	91	252	1014	160	413	182	1168	85	50	69	129
Stavropol krai	81	78	91	108	269	1031	177	430	199	1185	102	67	86	146
Tambov Oblast	87	84	97	114	274	1036	182	435	205	1191	108	73	92	151
Tver Oblast	59	57	70	86	247	1009	155	408	178	1164	80	46	65	124
Tula Oblast	61	59	72	88	249	1011	157	410	180	1166	82	48	67	126
Republic of Udmurtia	47	44	57	74	235	997	143	396	165	1151	68	33	52	112
Ulyanovsk Oblast	70	68	81	97	258	1020	166	419	189	1175	91	57	76	135
Ust-Orda Buryat AD	77	74	87	104	264	1027	172	426	195	1181	98	63	82	142
Chelyabinsk Oblast	42	39	52	69	229	991	137	390	160	1146	63	28	47	106
Chechen Republic	109	107	120	136	297	1059	205	458	227	1213	130	96	114	174
Chuvash Republic	83	81	94	111	271	1033	179	432	202	1188	105	70	89	148
Yaroslavl Oblast	36	34	47	63	224	986	132	385	155	1141	57	23	42	101

TABLE 2(CONT.)

	Republic of Коми	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khaborovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	215	624	76	250	1701	152	87	169	1951	49	781	1421	1808

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk Krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Altai krai	202	611	63	237	1688	139	74	156	1938	36	768	1408	1795
Astrakhan Oblast	197	606	57	231	1683	133	68	151	1933	31	763	1403	1790
Belgorod Oblast	200	609	60	234	1686	136	71	154	1936	34	766	1406	1793
Bryansk Oblast	215	624	76	249	1701	151	86	169	1951	49	781	1421	1808
Vladimir Oblast	200	609	60	234	1685	136	71	154	1935	34	766	1406	1792
Volgograd Oblast	199	608	59	233	1685	135	70	153	1935	33	765	1405	1792
Vologda Oblast	152	561	13	186	1638	88	23	106	1888	-14	718	1358	1745
Voronezh Oblast	211	621	72	246	1697	148	83	165	1947	46	778	1418	1804
City of Moscow	13	422	-126	47	1499	-51	-116	-33	1749	-153	579	1219	1606
City of St. Petersburg	137	546	-2	171	1623	73	9	91	1873	-29	703	1343	1730
Ivanovo Oblast	201	610	62	235	1687	137	72	155	1937	35	767	1407	1794
Ingush Republic	206	615	67	241	1692	143	78	160	1942	40	772	1412	1799
Kabardino-Balkar Republic	195	604	56	229	1681	131	66	149	1931	29	761	1401	1788
Kaliningrad Oblast	179	588	40	214	1665	116	51	133	1915	13	745	1385	1772
Kaluga Oblast	184	593	44	218	1670	120	55	138	1920	18	750	1390	1777
Karachaev-Cherkes Republic	216	625	77	251	1702	153	88	170	1952	50	782	1422	1809
Kemerovo Oblast	165	574	25	199	1651	101	36	119	1901	-1	731	1371	1758
Kirov Oblast	203	612	63	237	1689	139	74	157	1939	37	769	1409	1796
Komi-Perm AD	216	625	77	251	1702	153	88	170	1952	50	782	1422	1809
Kostroma Oblast	202	611	63	236	1688	138	73	156	1938	36	768	1408	1795
Krasnodar krai	208	617	68	242	1694	144	79	162	1944	42	774	1414	1801
Kurgan Oblast	213	622	73	247	1699	149	84	167	1949	47	779	1419	1806
Kursk Oblast	219	628	79	253	1704	155	90	173	1955	53	785	1425	1812
Leningrad Oblast	178	587	38	212	1663	114	49	132	1914	12	744	1384	1771
Lipetsk Oblast	173	582	33	207	1658	109	44	127	1909	7	739	1379	1766
Moscow Oblast	176	585	36	210	1661	112	47	130	1912	10	742	1382	1769
Nizhni Novgorod Oblast	201	610	62	236	1687	138	73	155	1937	35	767	1407	1794
Novgorod Oblast	179	588	40	214	1665	116	51	133	1915	13	745	1385	1772
Novosibirsk Oblast	195	604	55	229	1681	131	66	149	1931	29	761	1401	1788
Omsk Oblast	213	622	74	248	1699	150	85	167	1949	47	779	1419	1806
Orenburg Oblast	174	583	35	209	1660	111	46	128	1910	8	740	1380	1767
Orel Oblast	210	619	70	244	1695	146	81	164	1946	44	776	1416	1803
Penza Oblast	218	627	78	252	1704	154	89	172	1954	52	784	1424	1811
Perm Oblast	151	560	11	185	1636	87	22	105	1887	-15	717	1357	1744
Pskov Oblast	190	599	50	224	1675	126	61	144	1926	24	756	1396	1783
Republic of Adygeya	212	621	72	246	1698	148	83	166	1948	46	778	1418	1805
Republic of Bashkortostan	144	553	4	178	1630	80	15	98	1880	-22	710	1350	1737

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Dagestan	202	612	63	237	1688	139	74	156	1938	36	769	1409	1795
Kalmyk Republic	203	612	63	237	1689	139	74	157	1939	37	769	1409	1796
Republic of Mari El	223	632	83	257	1709	159	94	177	1959	57	789	1429	1816
Republic of Mordovia	210	619	70	244	1696	146	81	164	1946	44	776	1416	1803
Republic of N. Osetia	199	608	60	234	1685	136	71	153	1935	33	765	1405	1792
Republic of Tatarstan	134	543	-6	168	1620	70	5	88	1870	-32	700	1340	1727
Republic of Khakasia	206	615	67	241	1692	143	78	160	1942	40	772	1412	1799
Rostov Oblast	210	619	71	244	1696	146	81	164	1946	44	776	1416	1803
Ryazan Oblast	204	613	65	239	1690	141	76	158	1940	38	770	1410	1797
Samara Oblast	170	579	31	205	1656	107	42	124	1906	4	736	1376	1763
Saratov Oblast	207	616	68	241	1693	143	78	161	1943	41	773	1413	1800
Sverdlovsk Oblast	185	594	46	220	1671	122	57	139	1921	19	751	1391	1778
Smolensk Oblast	197	606	57	231	1683	133	68	151	1933	31	763	1403	1790
Stavropol krai	214	623	74	248	1700	150	85	168	1950	48	780	1420	1807
Tambov Oblast	219	629	80	254	1705	156	91	174	1955	54	786	1426	1812
Tver Oblast	192	601	53	226	1678	128	63	146	1928	26	758	1398	1785
Tula Oblast	194	603	55	228	1680	130	65	148	1930	28	760	1400	1787
Republic of Udmurtia	180	589	40	214	1665	116	51	134	1916	14	746	1386	1773
Ulyanovsk Oblast	203	612	64	237	1689	139	74	157	1939	37	769	1409	1796
Ust-Orda Buryat AD	210	619	70	244	1695	146	81	164	1946	44	776	1416	1803
Chelyabinsk Oblast	174	583	35	209	1660	111	46	128	1910	8	741	1381	1767
Chechen Republic	242	651	102	276	1728	178	113	196	1978	76	808	1448	1835
Chuvash Republic	216	625	77	251	1702	153	88	170	1952	50	782	1422	1809
Yaroslavl Oblast	169	578	30	204	1655	106	41	123	1905	3	735	1375	1762

TABLE 3.

**Annual fiscal economy effect from migration of younger than working
age population (USD per one younger than working age migrant)**

	Amur Oblast	Arkhangel'sk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	48	93	90	104	501	2040	330	701	374	2028	66	72	20	231
Altai krai	94	139	136	150	547	2086	377	748	421	2075	113	119	67	278
Astrakhan Oblast	74	119	116	130	527	2066	357	728	401	2055	93	99	47	258
Belgorod Oblast	68	113	110	124	521	2060	350	721	394	2048	86	92	40	252
Bryansk Oblast	92	137	134	148	545	2084	375	746	418	2073	111	117	64	276
Vladimir Oblast	91	136	133	147	544	2083	373	745	417	2072	110	115	63	275
Volgograd Oblast	72	117	114	128	525	2064	355	726	399	2053	91	97	45	256
Vologda Oblast	-132	-86	-90	-76	322	1861	151	522	195	1849	-113	-107	-159	52
Voronezh Oblast	142	187	184	198	595	2134	424	796	468	2123	161	167	114	326
City of Moscow	-292	-247	-250	-236	161	1700	-10	362	34	1689	-274	-268	-320	-108
City of St. Petersburg	-99	-54	-57	-43	355	1894	184	555	228	1882	-80	-74	-126	85
Ivanovo Oblast	128	173	170	184	581	2120	410	782	454	2109	147	152	100	312
Ingush Republic	160	205	202	216	614	2153	443	814	487	2141	179	185	133	344
Kabardino-Balkar Republic	65	110	107	121	518	2057	348	719	392	2046	84	90	37	249
Kaliningrad Oblast	65	110	107	121	518	2057	347	718	391	2045	83	89	37	249
Kaluga Oblast	46	91	88	102	500	2039	329	700	373	2027	65	71	19	230
Karachaev-Cherkes Republic	135	180	177	191	588	2127	417	789	461	2116	154	159	107	319
Kemerovo Oblast	-31	15	11	25	423	1962	252	623	296	1950	-12	-6	-58	153
Kirov Oblast	88	133	130	144	542	2081	371	742	415	2069	107	113	61	272
Komi-Perm AD	14	60	56	70	468	2007	297	668	341	1995	33	39	-13	198
Kostroma Oblast	91	137	133	147	545	2084	374	745	418	2072	110	116	64	275
Krasnodar krai	108	154	150	164	562	2101	391	762	435	2089	127	133	81	292
Kurgan Oblast	132	178	174	188	586	2125	415	786	459	2113	151	157	105	316
Kursk Oblast	138	183	180	194	591	2130	420	792	464	2119	157	162	110	322
Leningrad Oblast	36	81	78	92	489	2028	318	690	362	2017	55	61	8	220
Lipetsk Oblast	15	60	57	71	468	2007	297	668	341	1995	33	39	-13	199
Moscow Oblast	35	81	77	91	489	2028	318	689	362	2016	54	60	8	219
Nizhni Novgorod Oblast	77	123	119	133	531	2070	360	731	404	2058	96	102	50	261
Novgorod Oblast	-6	39	36	50	447	1986	276	648	320	1975	13	18	-34	178
Novosibirsk Oblast	69	115	111	125	523	2062	352	723	396	2050	88	94	42	253
Omsk Oblast	154	199	196	210	607	2146	436	808	480	2135	173	178	126	338
Orenburg Oblast	14	59	56	70	467	2006	297	668	341	1995	33	39	-13	198

	Amur Oblast	Arkhangelsk Oblast	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Orel Oblast	68	113	110	124	521	2060	350	721	394	2048	86	92	40	251
Penza Oblast	148	193	190	204	601	2140	430	802	474	2129	167	172	120	332
Perm Oblast	-46	0	-4	10	408	1947	237	608	281	1935	-27	-21	-73	138
Pskov Oblast	60	105	101	115	513	2052	342	713	386	2040	78	84	32	243
Republic of Adygeya	122	167	164	178	575	2114	405	776	449	2103	141	147	95	306
Republic of Bashkortostan	-51	-6	-9	5	402	1941	231	602	275	1929	-33	-27	-79	132
Republic of Dagestan	122	167	164	178	575	2114	405	776	449	2103	141	147	95	306
Kalmyk Republic	109	154	151	165	562	2101	391	763	435	2090	128	133	81	293
Republic of Mari El	150	195	192	206	604	2143	433	804	477	2131	169	175	123	334
Republic of Mordovia	113	158	155	169	567	2106	396	767	440	2094	132	138	86	297
Republic of N. Osetia	126	171	168	182	579	2118	408	780	452	2107	145	151	98	310
Republic of Tatarstan	-90	-45	-48	-34	363	1902	192	564	236	1891	-71	-65	-118	94
Republic of Khakasia	41	86	83	97	494	2033	324	695	368	2022	60	66	14	225
Rostov Oblast	134	179	176	190	587	2126	416	787	460	2114	152	158	106	318
Ryazan Oblast	115	160	157	171	569	2108	398	769	442	2096	134	140	88	299
Samara Oblast	21	66	63	77	474	2013	303	675	347	2002	40	46	-7	205
Saratov Oblast	132	177	174	188	585	2124	414	786	458	2113	151	156	104	316
Sverdlovsk Oblast	38	84	80	94	492	2031	321	692	365	2019	57	63	11	222
Smolensk Oblast	88	133	130	144	541	2080	370	742	414	2069	107	112	60	272
Stavropol krai	139	184	181	195	592	2131	422	793	466	2120	158	164	112	323
Tambov Oblast	131	176	173	187	584	2123	413	784	457	2111	149	155	103	314
Tver Oblast	84	129	126	140	537	2076	366	738	410	2065	103	108	56	268
Tula Oblast	88	133	130	144	541	2080	370	741	414	2069	106	112	60	272
Republic of Udmurtia	0	45	42	56	453	1992	282	654	326	1981	19	24	-28	184
Ulyanovsk Oblast	149	194	191	205	602	2141	431	803	475	2130	168	174	121	333
Ust-Orda Buryat AD	69	114	111	125	522	2061	352	723	396	2050	88	94	42	253
Chelyabinsk Oblast	39	84	81	95	492	2031	321	693	365	2020	58	63	11	223
Chechen Republic	218	263	260	274	671	2210	501	872	545	2199	237	243	191	402
Chuvash Republic	132	177	174	188	585	2124	414	786	458	2113	151	157	104	316
Yaroslavl Oblast	33	79	75	89	487	2026	316	687	360	2014	52	58	6	217

TABLE 3 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	326	1142	50	357	2955	161	-24	210	2845	-16	1304	1897	2573
Altai krai	372	1189	96	404	3002	207	22	257	2892	30	1350	1944	2620
Astrakhan Oblast	352	1169	76	384	2982	187	2	237	2872	10	1330	1924	2600
Belgorod Oblast	346	1162	70	377	2975	181	-4	230	2865	4	1324	1917	2594
Bryansk Oblast	370	1187	94	402	3000	205	20	255	2890	28	1348	1942	2618
Vladimir Oblast	369	1185	93	401	2999	204	19	253	2889	27	1347	1940	2617
Volgograd Oblast	351	1167	74	382	2980	185	0	235	2870	9	1329	1922	2598
Vologda Oblast	147	963	-129	178	2776	-18	-204	31	2666	-195	1125	1718	2394
Voronezh Oblast	420	1237	144	452	3050	255	70	305	2940	78	1398	1992	2668
City of Moscow	-14	802	-290	17	2615	-179	-364	-130	2505	-356	964	1557	2234
City of St. Petersburg	180	996	-96	211	2809	14	-171	64	2699	-162	1158	1751	2427
Ivanovo Oblast	406	1222	130	437	3035	241	56	290	2926	64	1384	1977	2654
Ingush Republic	439	1255	162	470	3068	273	88	323	2958	97	1417	2010	2686
Kabardino-Balkar Republic	343	1160	67	375	2973	178	-7	228	2863	1	1321	1915	2591
Kaliningrad Oblast	343	1159	67	374	2972	178	-7	227	2862	1	1321	1914	2591
Kaluga Oblast	325	1141	48	356	2954	159	-26	209	2844	-17	1303	1896	2572
Karachaevo-Cherkes Republic	413	1229	137	445	3043	248	63	297	2933	71	1391	1984	2661
Kemerovo Oblast	248	1064	-28	279	2877	83	-103	132	2767	-94	1226	1819	2495
Kirov Oblast	367	1183	90	398	2996	201	16	251	2886	25	1345	1938	2614
Komi-Perm AD	293	1109	17	324	2922	128	-58	177	2812	-49	1271	1864	2540
Kostroma Oblast	370	1186	94	401	2999	205	19	254	2889	28	1348	1941	2617
Krasnodar krai	387	1203	111	418	3016	221	36	271	2906	45	1365	1958	2634
Kurgan Oblast	411	1227	135	442	3040	245	60	295	2930	69	1389	1982	2658
Kursk Oblast	416	1232	140	448	3046	251	66	300	2936	74	1394	1987	2664
Leningrad Oblast	314	1131	38	346	2944	149	-36	199	2834	-28	1292	1886	2562
Lipetsk Oblast	293	1109	17	324	2922	128	-57	177	2812	-49	1271	1864	2541
Moscow Oblast	314	1130	38	345	2943	148	-37	198	2833	-28	1292	1885	2561
Nizhni Novgorod Oblast	356	1172	80	387	2985	190	5	240	2875	14	1334	1927	2603
Novgorod Oblast	272	1088	-4	304	2902	107	-78	156	2792	-70	1250	1843	2520
Novosibirsk Oblast	348	1164	72	379	2977	182	-3	232	2867	6	1326	1919	2595
Omsk Oblast	432	1248	156	463	3061	267	82	316	2952	90	1410	2003	2680
Orenburg Oblast	292	1109	16	324	2922	127	-58	177	2812	-50	1270	1864	2540
Orel Oblast	346	1162	70	377	2975	181	-4	230	2865	4	1324	1917	2594
Penza Oblast	426	1243	150	458	3056	261	76	310	2946	84	1404	1997	2674
Perm Oblast	233	1049	-43	264	2862	68	-118	117	2752	-109	1211	1804	2480

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	TOmsk Oblast	Tyumen Oblast	Khabarovsk Krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Pskov Oblast	338	1154	62	369	2967	173	-13	222	2857	-4	1316	1909	2585
Republic of Adygeya	401	1217	124	432	3030	235	50	285	2920	59	1378	1972	2648
Republic of Bashkortostan	227	1043	-49	258	2856	62	-123	111	2746	-115	1205	1798	2474
Republic of Dagestan	400	1217	124	432	3030	235	50	285	2920	58	1378	1972	2648
Kalmyk Republic	387	1203	111	419	3017	222	37	271	2907	45	1365	1958	2635
Republic of Mari El	429	1245	153	460	3058	263	78	313	2948	87	1407	2000	2676
Republic of Mordovia	392	1208	115	423	3021	226	41	276	2911	50	1370	1963	2639
Republic of N. Osetia	404	1221	128	436	3034	239	54	289	2924	62	1382	1976	2652
Republic of Tatarstan	188	1005	-88	220	2818	23	-162	73	2708	-154	1166	1760	2436
Republic of Khakasia	319	1136	43	351	2949	154	-31	204	2839	-23	1297	1891	2567
Rostov Oblast	412	1228	136	443	3041	247	62	296	2931	70	1390	1983	2660
Ryazan Oblast	394	1210	117	425	3023	228	43	278	2913	52	1372	1965	2641
Samara Oblast	299	1116	23	331	2929	134	-51	184	2819	-43	1277	1871	2547
Saratov Oblast	410	1227	134	442	3040	245	60	294	2930	68	1388	1981	2658
Sverdlovsk Oblast	317	1133	41	348	2946	151	-34	201	2836	-25	1295	1888	2564
Smolensk Oblast	366	1182	90	398	2996	201	16	250	2886	24	1344	1937	2614
Stavropol krai	418	1234	141	449	3047	252	67	302	2937	76	1396	1989	2665
Tambov Oblast	409	1225	133	440	3038	244	59	293	2928	67	1387	1980	2657
Tver Oblast	362	1178	86	394	2992	197	12	246	2882	20	1340	1933	2610
Tula Oblast	366	1182	90	397	2995	201	16	250	2885	24	1344	1937	2614
Republic of Udmurtia	278	1095	2	310	2908	113	-72	162	2798	-64	1256	1849	2526
Ulyanovsk Oblast	427	1244	151	459	3057	262	77	312	2947	85	1405	1999	2675
Ust-Orda Buryat AD	347	1164	71	379	2977	182	-3	232	2867	5	1325	1919	2595
Chelyabinsk Oblast	317	1133	41	348	2946	152	-33	201	2837	-25	1295	1888	2565
Chechen Republic	497	1313	220	528	3126	331	146	381	3016	155	1475	2068	2744
Chuvash Republic	410	1227	134	442	3040	245	60	295	2930	68	1388	1982	2658
Yaroslavl Oblast	312	1128	36	343	2941	146	-39	196	2831	-30	1290	1883	2559

TABLE 4

Weighted annual fiscal economy effect from migration of population (USD per one migrant)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	72	79	89	105	311	1276	207	480	229	1389	93	67	68	161
Altai krai	72	78	90	105	310	1277	207	478	227	1391	91	70	70	159
Astrakhan Oblast	63	70	81	97	302	1268	198	470	219	1382	83	61	61	151
Belgorod Oblast	64	71	82	97	303	1269	199	471	220	1383	84	61	61	152
Bryansk Oblast	81	88	99	115	320	1286	216	488	237	1400	101	79	79	169
Vladimir Oblast	69	76	87	103	307	1274	204	475	225	1388	89	67	67	157
Volograd Oblast	64	71	82	98	303	1269	199	471	221	1383	84	62	62	152
Vologda Oblast	-17	-7	-1	16	225	1184	119	394	144	1298	7	-28	-24	75
Voronezh Oblast	89	95	108	123	327	1296	224	495	244	1410	108	90	89	176
City of Moscow	-161	-151	-145	-128	81	1040	-24	250	1	1153	-137	-173	-168	-69
City of St. Petersburg	-21	-13	-5	11	219	1181	115	388	138	1294	1	-30	-27	69
Ivanovo Oblast	78	84	97	112	316	1285	213	484	233	1398	97	79	77	165
Ingush Republic	89	95	108	123	326	1297	224	495	243	1410	108	91	89	176
Kabardino-Balkar Republic	60	67	78	93	298	1265	195	467	216	1378	80	57	57	148
Kaliningrad Oblast	47	54	65	81	286	1253	182	454	203	1366	67	46	45	135
Kaluga Oblast	47	54	65	80	286	1252	182	454	204	1365	67	44	44	135
Karachaevo-Cherkes Republic	91	98	110	125	329	1298	226	497	246	1411	111	92	90	179
Kemerovo Oblast	15	23	32	48	255	1218	151	424	174	1332	37	9	11	105
Kirov Oblast	71	78	89	104	309	1276	206	478	227	1390	91	69	69	159
Komi-Perm AD	65	73	82	98	305	1268	201	474	224	1382	87	58	60	155
Kostroma Oblast	71	78	89	105	309	1276	206	478	227	1390	91	69	69	159
Krasnodar krai	79	86	97	113	317	1285	214	486	235	1399	99	78	78	167
Kurgan Oblast	88	95	107	122	326	1295	223	494	243	1408	108	89	87	175
Kursk Oblast	94	100	113	128	332	1300	229	500	249	1414	113	94	93	181
Leningrad Oblast	40	47	58	73	279	1244	175	447	197	1358	60	36	37	128
Lipetsk Oblast	31	39	49	65	270	1235	167	439	189	1349	52	27	28	120
Moscow Oblast	38	45	56	72	277	1243	173	445	195	1356	59	35	35	126
Nizhni Novgorod Oblast	67	74	85	101	306	1272	202	474	223	1386	87	65	65	155
Novgorod Oblast	32	40	49	65	272	1235	167	440	190	1349	53	26	28	121
Novosibirsk Oblast	60	67	78	94	299	1266	196	467	217	1379	81	58	58	149
Omsk Oblast	93	99	112	127	330	1300	228	499	247	1414	112	95	93	180
Orenburg Oblast	32	40	50	66	271	1236	168	440	190	1350	53	28	29	121
Orel Oblast	72	79	89	105	311	1276	207	479	228	1390	92	68	69	160
Penza Oblast	96	102	114	130	333	1302	230	501	250	1416	115	96	95	183
Perm Oblast	1	9	18	34	241	1204	136	409	159	1318	22	-5	-4	90
Pskov Oblast	54	61	72	88	293	1259	190	461	211	1373	75	52	52	142
Republic of Ady-	85	92	104	119	323	1291	220	491	240	1405	105	85	84	173

	Amur Oblast	Arkhangel'sk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
geya														
Republic of Bashkortostan	-6	2	11	27	234	1197	130	403	153	1311	16	-12	-10	84
Republic of Dagestan	78	84	96	112	316	1284	213	484	233	1398	97	78	77	165
Kalmyk Republic	75	82	94	109	313	1281	210	482	231	1395	95	75	74	163
Republic of Mari El	100	106	118	134	337	1307	235	506	255	1420	119	101	99	187
Republic of Mordovia	82	88	100	116	320	1288	217	488	237	1401	101	81	80	169
Republic of N. Osetia	76	82	95	110	314	1283	211	482	231	1397	96	77	76	163
Republic of Tatarstan	-22	-13	-5	11	218	1180	114	387	137	1294	0	-30	-27	68
Republic of Khakassia	63	71	81	97	303	1267	199	471	221	1381	84	59	60	152
Rostov Oblast	86	93	105	120	324	1293	221	492	241	1407	106	87	86	173
Ryazan Oblast	78	84	96	112	316	1284	213	484	233	1398	97	78	77	165
Samara Oblast	31	38	48	64	270	1235	166	438	188	1349	51	27	28	119
Saratov Oblast	84	90	102	118	321	1290	219	490	238	1404	103	84	83	171
Sverdlovsk Oblast	46	54	64	80	285	1251	182	454	203	1365	67	43	43	135
Smolensk Oblast	66	73	84	100	304	1272	201	473	222	1385	86	65	64	154
Stavropol krai	91	97	109	124	328	1297	225	496	245	1411	110	91	90	177
Tambov Oblast	93	99	111	127	331	1299	228	499	248	1413	113	93	92	180
Tver Oblast	61	68	80	95	300	1267	196	468	217	1381	81	60	60	149
Tula Oblast	64	70	82	98	302	1270	199	470	220	1383	84	63	62	152
Republic of Udmurtia	33	41	51	67	273	1237	169	442	191	1351	55	28	29	123
Ulyanovsk Oblast	84	90	103	118	321	1291	219	490	238	1405	103	86	84	171
Ust-Orda Buryat AD	72	79	90	105	311	1277	207	479	229	1390	92	69	69	160
Chelyabinsk Oblast	38	45	56	71	277	1243	173	445	194	1356	58	35	35	126
Chechen Republic	130	135	149	164	366	1338	264	535	283	1451	148	133	130	216
Chuvash Republic	91	97	109	125	329	1297	226	497	246	1411	110	91	90	178
Yaroslavl Oblast	33	40	50	66	271	1237	168	440	189	1351	53	30	30	121

TABLE 4 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	235	761	64	267	1999	150	57	174	2161	31	891	1550	1992
Altai krai	234	764	71	266	2000	149	58	173	2162	32	891	1554	1994
Astrakhan Oblast	226	755	61	258	1991	141	49	165	2154	23	882	1544	1985
Belgorod Oblast	227	755	60	259	1992	142	50	166	2154	24	883	1545	1986

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Bryansk Oblast	244	773	79	276	2009	159	67	183	2172	41	900	1562	2003
Vladimir Oblast	232	761	68	263	1997	146	55	170	2160	29	888	1551	1991
Volograd Oblast	227	756	61	259	1992	142	50	166	2155	24	883	1545	1986
Vologda Oblast	147	666	-37	181	1907	64	-33	87	2070	-61	802	1455	1901
Voronezh Oblast	252	784	93	283	2018	166	76	190	2181	51	909	1574	2013
City of Moscow	4	521	-183	37	1763	-80	-177	-56	1926	-205	658	1310	1756
City of St. Petersburg	142	664	-36	175	1904	58	-37	82	2067	-64	798	1453	1897
Ivanovo Oblast	240	773	81	272	2007	155	65	179	2170	39	897	1562	2002
Ingush Republic	251	785	95	283	2019	165	76	190	2181	51	908	1575	2013
Kabardino-Balkar Republic	223	751	56	254	1987	137	46	162	2150	19	879	1540	1982
Kaliningrad Oblast	210	740	46	242	1975	125	34	149	2138	7	866	1529	1970
Kaluga Oblast	210	738	43	242	1975	125	33	149	2137	6	866	1527	1969
Karachaevo-Cherkes Republic	254	786	94	285	2020	168	78	193	2183	52	911	1575	2015
Kemerovo Oblast	179	703	5	211	1942	94	0	118	2104	-27	834	1492	1935
Kirov Oblast	233	763	69	265	1999	148	57	172	2161	31	890	1552	1993
Komi-Perm AD	229	753	54	261	1991	144	50	168	2154	23	884	1542	1985
Kostroma Oblast	234	763	70	265	1999	148	57	172	2162	31	890	1553	1993
Krasnodar krai	242	772	79	273	2008	156	66	181	2170	40	898	1562	2002
Kurgan Oblast	251	783	91	282	2017	165	75	190	2180	49	908	1572	2012
Kursk Oblast	256	788	96	288	2023	171	81	195	2185	55	913	1578	2017
Leningrad Oblast	203	731	35	235	1967	118	26	142	2130	-1	859	1520	1961
Lipetsk Oblast	194	721	25	227	1958	109	17	133	2121	-10	850	1510	1952
Moscow Oblast	201	729	34	233	1966	116	24	140	2128	-2	857	1518	1960
Nizhni Novgorod Oblast	230	759	65	262	1995	145	53	169	2158	27	886	1548	1989
Novgorod Oblast	195	720	22	228	1958	111	17	135	2121	-10	851	1509	1952
Novosibirsk Oblast	223	752	58	255	1988	138	47	162	2151	20	880	1542	1982
Omsk Oblast	255	789	98	287	2023	170	80	194	2185	55	912	1578	2017
Orenburg Oblast	195	722	26	228	1959	111	18	135	2122	-9	851	1511	1953
Orel Oblast	235	762	67	267	1999	150	58	174	2162	31	891	1552	1993
Penza Oblast	258	790	99	289	2025	172	82	197	2187	57	915	1580	2019
Perm Oblast	164	689	-10	197	1927	80	-14	104	2090	-41	820	1478	1921
Pskov Oblast	217	746	51	249	1982	132	40	156	2145	14	873	1535	1976
Republic of Adygeya	248	779	86	279	2014	162	72	187	2176	46	904	1568	2008
Republic of Bashkortostan	158	682	-16	190	1920	73	-21	97	2083	-48	813	1471	1914
Republic of Dagestan	240	772	80	272	2007	155	65	179	2169	39	897	1562	2001
Kalmyk Republic	238	769	76	270	2004	152	62	177	2166	36	894	1558	1998

	Republic of Komii	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T'Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Mari El	262	795	103	294	2029	177	87	201	2191	61	919	1584	2023
Republic of Mordovia	244	775	82	276	2010	159	68	183	2173	42	901	1565	2005
Republic of N. Osetia	239	771	79	270	2005	153	63	177	2168	37	896	1561	2000
Republic of Tatarstan	142	664	-36	175	1904	57	-37	81	2066	-64	797	1453	1897
Republic of Khakasia	226	753	56	259	1990	142	49	166	2153	22	882	1542	1984
Rostov Oblast	249	781	89	280	2015	163	73	188	2178	47	906	1570	2010
Ryazan Oblast	240	772	79	272	2007	155	64	179	2169	39	897	1561	2001
Samara Oblast	194	721	25	226	1958	109	17	133	2121	-10	850	1510	1952
Saratov Oblast	246	778	86	278	2013	160	70	185	2175	45	903	1568	2007
Sverdlovsk Oblast	209	737	41	241	1974	124	32	148	2136	6	865	1526	1968
Smolensk Oblast	229	759	65	260	1994	143	52	168	2157	26	885	1548	1988
Stavropol krai	253	785	93	284	2020	167	77	192	2182	52	910	1575	2014
Tambov Oblast	256	787	94	287	2022	170	80	194	2184	54	912	1576	2016
Tver Oblast	224	754	61	256	1990	139	48	163	2152	22	880	1543	1984
Tula Oblast	227	757	63	258	1992	141	50	165	2155	24	883	1546	1986
Republic of Udmurtia	197	722	25	229	1960	112	19	136	2123	-8	852	1511	1954
Ulyanovsk Oblast	246	780	89	278	2014	161	71	185	2176	46	903	1570	2008
Ust-Orda Buryat AD	235	763	68	267	1999	150	58	174	2162	31	891	1552	1994
Chelyabinsk Oblast	201	729	34	233	1965	116	24	140	2128	-3	857	1518	1960
Chechen Republic	292	827	138	323	2060	205	117	230	2222	92	949	1617	2055
Chuvash Republic	253	785	93	285	2020	168	78	192	2182	52	910	1574	2014
Yaroslavl Oblast	195	724	29	227	1960	110	18	134	2123	-8	852	1513	1954

Appendix 2.

Migration related recoupment periods

TABLE 5

Migration related pay back periods (years)⁹

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	no	no	no	no	5.7	1.1	10.8	3.3	9.3	1.1	no	no	no	17.9
Altai krai	no	no	no	no	12.1	2.0	29.6	6.3	23.8	1.8	no	no	no	no
Astrakhan Oblast	no	no	no	no	9.3	1.6	19.3	5.1	15.6	1.4	no	no	no	no
Belgorod Oblast	no	no	no	no	8.0	1.5	15.4	4.5	12.4	1.3	no	no	no	33.2
Bryansk Oblast	no	no	no	no	9.9	1.8	20.4	5.5	15.7	1.6	no	no	no	no
Vladimir Oblast	no	no	no	no	11.7	1.9	31.9	6.1	21.0	1.7	no	no	no	no
Volograd Oblast	no	no	no	no	20.3	2.5	no	8.8	no	2.3	no	no	no	no
Vologda Oblast	no	no	no	no	17.2	1.8	no	6.8	no	1.6	no	no	no	no
Voronezh Oblast	no	no	no	no	13.4	2.2	44.6	7.0	25.9	1.9	no	no	no	no
City of Moscow	no	no	no	no	no	14.5	no	no	no	11.7	no	no	no	no
City of St. Petersburg	no	no	no	no	no	5.7	no	no	no	4.9	no	no	no	no
Ivanovo Oblast	no	no	no	no	5.4	1.1	8.8	3.2	7.4	0.9	no	no	no	12.4
Ingush Republic	no	no	no	no	22.9	2.8	no	9.7	no	2.5	no	no	no	no
Kabardino-Balkar Republic	no	no	no	no	9.1	1.6	19.8	5.0	15.2	1.4	no	no	no	no
Kaliningrad Oblast	no	no	no	no	no	3.8	no	17.2	no	3.4	no	no	no	no
Kaluga Oblast	no	no	no	no	15.1	2.1	no	7.1	47.2	1.8	no	no	no	no
Karachaev-Cherkes Republic	no	no	no	no	5.9	1.2	9.8	3.6	8.5	1.1	no	no	no	14.2
Kemerovo Oblast	no	no	no	no	16.3	2.0	no	7.0	no	1.8	no	no	no	no
Kirov Oblast	no	no	no	no	9.4	1.7	19.2	5.2	15.1	1.5	no	no	no	no
Komi-Perm AD	no	no	no	no	13.7	2.1	no	6.9	30.4	1.9	no	no	no	no
Kostroma Oblast	no	no	no	no	9.5	1.7	19.5	5.2	15.0	1.5	no	no	no	no
Krasnodar krai	no	no	no	no	38.7	3.2	no	11.5	no	2.8	no	no	no	no
Kurgan Oblast	no	no	no	no	10.5	1.9	21.0	5.8	17.6	1.7	no	no	no	no
Kursk Oblast	no	no	no	no	8.5	1.6	15.2	4.9	12.7	1.4	no	no	no	27.5
Leningrad Oblast	no	no	no	no	13.0	1.9	no	6.3	27.8	1.7	no	no	no	no
Lipetsk Oblast	no	no	no	no	18.3	2.2	no	7.8	no	1.9	no	no	no	no
Moscow Oblast	no	no	no	no	no	3.3	no	13.9	no	2.9	no	no	no	no

⁹ The optimal directions in the migration of small groups, in terms of shortest pay back periods, are given in **bold**.

	Amur Oblast	Arkhangel'sk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Nizhni Novgorod Oblast	no	no	no	no	no	3.8	no	15.9	no	3.3	no	no	no	no
Novgorod Oblast	no	no	no	no	22.8	2.4	no	8.8	no	2.1	no	no	no	no
Novosibirsk Oblast	no	no	no	no	no	3.2	no	12.0	no	2.8	no	no	no	no
Omsk Oblast	no	no	no	no	8.9	1.7	15.6	5.1	14.2	1.5	no	no	no	37.7
Orenburg Oblast	no	no	no	no	13.7	1.9	no	6.5	41.5	1.7	no	no	no	no
Orel Oblast	no	no	no	no	12.5	2.0	40.6	6.5	23.2	1.8	no	no	no	no
Penza Oblast	no	no	no	no	8.1	1.6	14.0	4.7	12.3	1.4	no	no	no	24.4
Perm Oblast	no	no	no	no	24.5	2.2	no	8.4	no	2.0	no	no	no	no
Pskov Oblast	no	no	no	no	10.7	1.8	28.9	5.6	18.4	1.5	no	no	no	no
Republic of Adygeya	no	no	no	no	5.9	1.2	9.4	3.5	8.4	1.1	no	no	no	14.0
Republic of Bashkortostan	no	no	no	no	no	2.9	no	12.5	no	2.5	no	no	no	no
Republic of Dagestan	no	no	no	no	12.2	2.0	35.5	6.4	23.1	1.8	no	no	no	no
Kalmyk Republic	no	no	no	no	9.0	1.6	17.4	5.0	14.6	1.4	no	no	no	61.0
Republic of Mari El	no	no	no	31.5	5.5	1.2	8.6	3.4	7.5	1.0	no	no	no	11.7
Republic of Mordovia	no	no	no	no	6.5	1.3	10.9	3.8	9.2	1.1	no	no	no	16.2
Republic of N. Osetia	no	no	no	no	10.2	1.8	22.6	5.6	17.3	1.6	no	no	no	no
Republic of Tatarstan	no	no	no	no	39.9	2.3	no	9.2	no	2.0	no	no	no	no
Republic of Khakasia	no	no	no	no	7.3	1.4	14.2	4.2	12.8	1.3	no	no	no	40.4
Rostov Oblast	no	no	no	no	23.7	2.9	no	9.9	no	2.6	no	no	no	no
Ryazan Oblast	no	no	no	no	15.8	2.3	no	7.7	43.1	2.1	no	no	no	no
Samara Oblast	no	no	no	no	no	3.7	no	16.9	no	3.3	no	no	no	no
Saratov Oblast	no	no	no	no	13.6	2.2	52.9	7.0	28.5	1.9	no	no	no	no
Sverdlovsk Oblast	no	no	no	no	14.8	2.1	no	7.0	55.0	1.8	no	no	no	no
Smolensk Oblast	no	no	no	no	no	4.7	no	26.2	no	4.1	no	no	no	no
Stavropol krai	no	no	no	no	8.3	1.6	15.3	4.8	12.7	1.4	no	no	no	28.1
Tambov Oblast	no	no	no	no	12.3	2.1	30.3	6.6	21.6	1.9	no	no	no	no
Tver Oblast	no	no	no	no	15.4	2.2	no	7.4	44.5	1.9	no	no	no	no
Tula Oblast	no	no	no	no	15.9	2.3	no	7.6	54.7	2.0	no	no	no	no
Republic of Udmurtia	no	no	no	no	11.5	1.7	41.6	5.7	24.1	1.5	no	no	no	no
Ulyanovsk Oblast	no	no	no	no	10.7	1.9	22.8	5.8	18.5	1.7	no	no	no	no
Ust-Orda Buryat AD	no	no	no	no	25.8	2.8	no	10.0	no	2.6	no	no	no	no
Chelyabinsk Oblast	no	no	no	no	12.8	1.9	no	6.2	30.9	1.6	no	no	no	no
Chechen Republic	no	no	no	no	13.0	2.4	29.9	7.2	22.5	2.1	no	no	no	no

	Amur Oblast	Arkhangel'sk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Chuvash Republic	no	no	no	no	8.6	1.6	15.7	4.9	13.0	1.4	no	no	no	28.5
Yaroslavl Oblast	no	no	no	no	no	2.9	no	11.5	no	2.6	no	no	no	no

TABLE 5 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	8.9	2.0	no	6.9	0.7	20.8	no	13.6	0.7	no	1.7	0.9	0.8
Altai krai	20.6	3.5	no	16.2	1.2	no	no	no	1.1	no	3.0	1.5	1.2
Astrakhan Oblast	14.1	2.9	no	12.0	1.0	no	no	no	0.9	no	2.4	1.3	1.0
Belgorod Oblast	11.6	2.6	no	10.2	0.9	no	no	28.0	0.8	no	2.2	1.2	0.9
Bryansk Oblast	14.6	3.1	no	12.7	1.1	no	no	no	1.0	no	2.6	1.4	1.1
Vladimir Oblast	18.9	3.4	no	15.7	1.2	no	no	no	1.1	no	2.9	1.5	1.2
Volgograd Oblast	no	4.7	no	39.2	1.5	no	no	no	1.4	no	3.9	2.0	1.5
Vologda Oblast	no	3.5	no	38.1	1.1	no	no	no	1.0	no	2.8	1.5	1.1
Voronezh Oblast	22.7	3.9	no	18.1	1.3	no	no	no	1.2	no	3.3	1.8	1.3
City of Moscow	no	no	no	no	6.3	no	no	no	5.6	no	no	9.6	6.3
City of St. Petersburg	no	13.5	no	no	3.2	no	no	no	2.9	no	9.9	4.4	3.2
Ivanovo Oblast	6.9	1.9	no	6.6	0.7	15.2	no	12.3	0.6	no	1.6	0.9	0.7
Ingush Republic	no	5.1	no	59.1	1.7	no	no	no	1.6	no	4.3	2.3	1.7
Kabardino-Balkar Republic	14.0	2.8	no	11.8	1.0	no	no	no	0.9	no	2.4	1.3	1.0
Kaliningrad Oblast	no	7.5	no	no	2.3	no	no	no	2.1	no	6.0	3.0	2.2
Kaluga Oblast	34.1	3.8	no	22.7	1.3	no	no	no	1.2	no	3.2	1.7	1.3
Karachaevo-Cherkes Republic	7.9	2.1	no	7.2	0.8	17.0	no	13.4	0.7	no	1.8	1.0	0.8
Kemerovo Oblast	no	3.7	no	28.0	1.2	no	no	no	1.1	no	3.0	1.5	1.2
Kirov Oblast	13.8	2.9	no	12.0	1.0	no	no	57.2	0.9	no	2.5	1.3	1.0
Komi-Perm AD	25.4	3.8	no	19.3	1.3	no	no	no	1.2	no	3.2	1.7	1.3
Kostroma Oblast	13.9	3.0	no	12.1	1.0	no	no	76.0	0.9	no	2.5	1.3	1.0
Krasnodar krai	no	5.9	no	no	1.9	no	no	no	1.7	no	4.8	2.5	1.9
Kurgan Oblast	15.6	3.3	no	13.5	1.1	no	no	no	1.0	no	2.8	1.5	1.1
Kursk Oblast	11.9	2.9	no	10.5	1.0	44.8	no	24.6	0.9	no	2.4	1.3	1.0
Leningrad Oblast	24.7	3.4	no	18.6	1.2	no	no	no	1.1	no	2.9	1.5	1.1
Lipetsk Oblast	no	4.1	no	34.1	1.3	no	no	no	1.2	no	3.4	1.8	1.3
Moscow Oblast	no	6.5	no	no	2.0	no	no	no	1.8	no	5.2	2.6	2.0
Nizhni Novgorod Oblast	no	7.3	no	no	2.2	no	no	no	2.0	no	5.9	3.0	2.2
Novgorod Oblast	no	4.5	no	no	1.5	no	no	no	1.3	no	3.7	1.9	1.4
Novosibirsk Oblast	no	5.9	no	no	1.9	no	no	no	1.7	no	4.9	2.5	1.9
Omsk Oblast	12.9	2.9	no	11.1	1.0	58.9	no	28.2	0.9	no	2.5	1.3	1.0

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansyysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Orenburg Oblast	29.4	3.5	no	20.4	1.1	no	no	no	1.0	no	2.9	1.5	1.1
Orel Oblast	21.0	3.6	no	17.0	1.2	no	no	no	1.1	no	3.0	1.6	1.2
Penza Oblast	11.3	2.8	no	10.0	1.0	32.5	no	22.1	0.9	no	2.3	1.3	1.0
Perm Oblast	no	4.3	no	no	1.3	no	no	no	1.2	no	3.5	1.7	1.3
Pskov Oblast	17.1	3.1	no	14.3	1.1	no	no	no	1.0	no	2.6	1.4	1.1
Republic of Adygeya	7.8	2.1	no	7.1	0.7	16.3	no	13.5	0.7	no	1.8	1.0	0.7
Republic of Bashkortostan	no	5.7	no	no	1.7	no	no	no	1.5	no	4.6	2.3	1.7
Republic of Dagestan	20.5	3.6	no	16.4	1.2	no	no	no	1.1	no	3.0	1.6	1.2
Kalmyk Republic	13.2	2.9	no	11.5	1.0	no	no	36.5	0.9	no	2.4	1.3	1.0
Republic of Mari El	7.0	2.0	no	6.6	0.7	13.9	no	11.7	0.7	no	1.7	1.0	0.7
Republic of Mordovia	8.5	2.2	no	7.9	0.8	20.6	no	15.8	0.7	no	1.9	1.0	0.8
Republic of N. Osetia	15.8	3.2	no	13.2	1.1	no	no	no	1.0	no	2.7	1.4	1.1
Republic of Tatarstan	no	4.4	no	no	1.3	no	no	no	1.2	no	3.6	1.8	1.3
Republic of Khakasia	12.1	2.4	no	9.2	0.8	54.3	no	22.5	0.8	no	2.0	1.1	0.9
Rostov Oblast	no	5.2	no	no	1.7	no	no	no	1.6	no	4.3	2.3	1.7
Ryazan Oblast	32.6	4.2	no	23.1	1.4	no	no	no	1.3	no	3.5	1.9	1.4
Samara Oblast	no	7.3	no	no	2.2	no	no	no	2.0	no	5.8	2.9	2.2
Saratov Oblast	23.9	3.9	no	18.7	1.3	no	no	no	1.2	no	3.3	1.7	1.3
Sverdlovsk Oblast	32.9	3.8	no	22.1	1.2	no	no	no	1.1	no	3.1	1.6	1.2
Smolensk Oblast	no	9.5	no	no	2.7	no	no	no	2.5	no	7.5	3.7	2.7
Stavropol krai	11.8	2.8	no	10.4	1.0	51.7	no	24.2	0.9	no	2.4	1.3	1.0
Tambov Oblast	19.6	3.7	no	16.2	1.3	no	no	no	1.2	no	3.1	1.7	1.3
Tver Oblast	33.0	4.0	no	22.8	1.3	no	no	no	1.2	no	3.3	1.8	1.3
Tula Oblast	35.8	4.1	no	23.8	1.4	no	no	no	1.3	no	3.4	1.8	1.4
Republic of Udmurtia	20.4	3.1	no	16.0	1.0	no	no	no	0.9	no	2.6	1.3	1.0
Ulyanovsk Oblast	16.4	3.3	no	13.9	1.1	no	no	no	1.0	no	2.8	1.5	1.1
Ust-Orda Buryat AD	no	5.2	no	no	1.7	no	no	no	1.6	no	4.3	2.3	1.8
Chelyabinsk Oblast	24.4	3.4	no	18.4	1.1	no	no	no	1.0	no	2.8	1.5	1.1
Chechen Republic	20.2	4.1	no	16.8	1.5	no	no	no	1.3	no	3.5	1.9	1.5
Chuvash Republic	11.9	2.9	no	10.7	1.0	68.6	no	26.1	0.9	no	2.4	1.3	1.0
Yaroslavl Oblast	no	5.6	no	no	1.7	no	no	no	1.6	no	4.6	2.3	1.7

Appendix 3.

Budget optimal migration of unemployable population reckoning in demographic capacities of recipient regions, with “demographic capacity” defined as

demographic load in the receiving region and its neighboring regions within the same federal district

TABLE 6

Current and marginal migration related demographic load ratios in the receiving regions (number of unemployable population per 1,000 employable people)

Region	Current demographic load ratio	Marginal demographic load ratio	Region	Current demographic load ratio	Marginal demographic load ratio
Aginsk Buryat AD	789	643	Orenburg Oblast	716	712
Altai krai	667	660	Orel Oblast	747	756
Astrakhan Oblast	679	721	Penza Oblast	719	698
Belgorod Oblast	751	779	Perm Oblast	662	720
Bryansk Oblast	782	734	Pskov Oblast	738	681
Vladimir Oblast	714	695	Republic of Adygeya	776	761
Volgograd Oblast	719	715	Republic of Bashkortostan	752	693
Vologda Oblast	697	650	Republic of Dagestan	841	763
Voronezh Oblast	780	759	Kalmyk Republic	729	744
City of Moscow	686	673	Republic of Mari El	690	719
City of St. Petersburg	643	662	Republic of Mordovia	719	715
Ivanovo Oblast	725	716	Republic of N. Osetia	785	757
Ingush Republic	723	817	Republic of Tatarstan	721	700
Kabardino-Balkar Republic	778	757	Republic of Khakasia	643	648
Kaliningrad Oblast	624	686	Rostov Oblast	722	748
Kaluga Oblast	699	710	Ryazan Oblast	768	709
Karachaevo-Cherkess Republic	774	760	Samara Oblast	653	708
Kemerovo Oblast	658	642	Saratov Oblast	697	677
Kirov Oblast	701	700	Sverdlovsk Oblast	664	600
Komi-Perm AD	804	676	Smolensk Oblast	709	703
Kostroma Oblast	739	714	Stavropol krai	754	766
Krasnodar krai	761	737	Tambov Oblast	773	766
Kurgan Oblast	727	631	Tver Oblast	755	682
Kursk Oblast	776	764	Tula Oblast	768	700
Leningrad Oblast	662	696	Republic of Udmurtia	651	715
Lipetsk Oblast	738	771	Ulyanovsk Oblast	686	698
Moscow Oblast	673	739	Ust-Orda Buryat AD	903	643
Nizhni Novgorod Oblast	727	706	Chelyabinsk Oblast	684	676
Novgorod Oblast	723	690	Chechen Republic	858	786
Novosibirsk Oblast	656	655	Chuvash Republic	712	716

Region	Current demographic load ratio	Marginal demographic load ratio	Region	Current demographic load ratio	Marginal demographic load ratio
Omsk Oblast	672	635	Yaroslavl Oblast	705	733

TABLE 7

Demographic capacity of receiving regions (thous. unemployable people)

Aginsk Buryat AD	0.00	Orenburg Oblast	0.00
Altai krai	0.00	Orel Oblast	4.69
Astrakhan Oblast	25.72	Penza Oblast	0.00
Belgorod Oblast	23.60	Perm Oblast	103.95
Bryansk Oblast	0.00	Pskov Oblast	0.00
Vladimir Oblast	0.00	Republic of Adygeya	0.00
Volgograd Oblast	0.00	Republic of Bashkortostan	0.00
Vologda Oblast	0.00	Republic of Dagestan	0.00
Voronezh Oblast	0.00	Kalmyk Republic	2.82
City of Moscow	0.00	Republic of Mari El	12.98
City of St. Petersburg	54.31	Republic of Mordovia	0.00
Ivanovo Oblast	0.00	Republic of N. Osetia	0.00
Ingush Republic	26.67	Republic of Tatarstan	0.00
Kabardino-Balkar Republic	0.00	Republic of Khakasia	1.63
Kaliningrad Oblast	36.24	Rostov Oblast	65.44
Kaluga Oblast	6.81	Ryazan Oblast	0.00
Karachaevo-Cherkes Republic	0.00	Samara Oblast	110.65
Kemerovo Oblast	0.00	Saratov Oblast	0.00
Kirov Oblast	0.00	Sverdlovsk Oblast	0.00
Komi-Perm AD	0.00	Smolensk Oblast	0.00
Kostroma Oblast	0.00	Stavropol krai	18.20
Krasnodar krai	0.00	Tambov Oblast	0.00
Kurgan Oblast	0.00	Tver Oblast	0.00
Kursk Oblast	0.00	Tula Oblast	0.00
Leningrad Oblast	34.12	Republic of Udmurtia	62.98
Lipetsk Oblast	23.58	Ulyanovsk Oblast	10.86
Moscow Oblast	255.16	Ust-Orda Buryat AD	0.00
Nizhni Novgorod Oblast	0.00	Chelyabinsk Oblast	0.00
Novgorod Oblast	0.00	Chechen Republic	0.00
Novosibirsk Oblast	0.00	Chuvash Republic	3.03
Omsk Oblast	0.00	Yaroslavl Oblast	23.14

TABLE 8

Optimal migration of unemployable population (thous. people)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Altai krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Astrakhan Oblast	0.00	0.00	0.00	0.00	0.00	10.41	15.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bryansk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vladimir Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volgograd Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vologda Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Voronezh Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of Moscow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of St. Petersburg	0.00	40.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ivanovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ingush Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kabardino-Balkar Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaliningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaluga Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Karachaevo-Cherkes Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kemerovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Komi-Perm AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kostroma Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Krasnodar krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kurgan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kursk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.12	0.00
Lipetsk Oblast	0.00	0.00	0.00	0.00	23.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moscow Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nizhni Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novosibirsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Omsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orenburg Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orel Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Penza Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perm Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89.34	0.00
Pskov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Republic of Adygeya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Bashkortostan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Dagestan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kalmyk Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mari El	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mordovia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of N. Osetia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Tatarstan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Khakassia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.63
Rostov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ryazan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Samara Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	87.54	0.00	0.00
Saratov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sverdlovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Smolensk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stavropol krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.20	0.00	0.00	0.00
Tambov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tver Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tula Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Udmurtia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ulyanovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ust-Orda Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chelyabinsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chechen Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chuvash Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yaroslavl Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 8 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Altai krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Astrakhan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.60	0.00	0.00	0.00	0.00	0.00

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	TOmsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Bryansk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vladimir Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volgograd Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vologda Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Voronezh Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of Moscow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of St. Petersburg	0.00	0.00	0.00	0.00	14.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ivanovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ingush Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.67
Kabardino-Balkar Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaliningrad Oblast	0.00	0.00	0.00	36.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaluga Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.81
Karachaevo-Cherkes Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kemerovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Komi-Perm AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kostroma Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Krasnodar krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kurgan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kursk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lipetsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moscow Oblast	0.00	0.00	0.00	0.00	0.00	0.00	255.16	0.00	0.00	0.00	0.00	0.00	0.00
Nizhni Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novosibirsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Omsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orenburg Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orel Oblast	0.00	0.00	0.00	0.00	0.00	0.00	2.29	0.00	0.00	2.41	0.00	0.00	0.00
Penza Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perm Oblast	0.00	0.00	14.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pskov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Adygeya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Bashkortostan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Dagestan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kalmyk Republic	0.00	0.00	0.00	1.37	0.00	0.00	1.45	0.00	0.00	0.00	0.00	0.00	0.00

	Republic of Komii	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T'Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Mari El	12.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mor-dovia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of N. Osetia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Tatarstan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Khasia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rostov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.44	0.00	0.00	0.00	0.00
Ryazan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Samara Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	23.11	0.00	0.00	0.00
Saratov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sverdlovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Smolensk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stavropol krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tambov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tver Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tula Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Udmurtia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.98
Ulyanovsk Oblast	0.00	0.00	10.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ust-Orda Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chelyabinsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chechen Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chuvash Republic	0.00	3.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yaroslavl Oblast	0.00	0.00	0.00	1.11	0.00	0.00	0.00	0.00	0.00	0.00	22.03	0.00	0.00

Fiscal economy effect, p.a.: \$ 315.05 M.

NPV (moving expenses accounted for): \$ 846.22 M.

Appendix 4

Budget optimal migration of unemployable population against demographic capacities of recipient regions, with “demographic capacity” defined as demographic load in the receiving region vis-à-vis the all Russia average.

TABLE 9

Current and marginal migration related demographic load ratios in the receiving regions (number of unemployable population per 1,000 employable people)

Region	Current demographic load ratio	Marginal demographic load ratio	Region	Current demographic load ratio	Marginal demographic load ratio
Aginsk Buryat AD	789	686	Orenburg Oblast	716	686
Altai krai	667	686	Orel Oblast	747	686
Astrakhan Oblast	679	686	Penza Oblast	719	686
Belgorod Oblast	751	686	Perm Oblast	662	686
Bryansk Oblast	782	686	Pskov Oblast	738	686
Vladimir Oblast	714	686	Republic of Adygeya	776	686
Volgograd Oblast	719	686	Republic of Bashkortostan	752	686
Vologda Oblast	697	686	Republic of Dagestan	841	686
Voronezh Oblast	780	686	Kalmyk Republic	729	686
City of Moscow	686	686	Republic of Mari El	690	686
City of St. Petersburg	643	686	Republic of Mordovia	719	686
Ivanovo Oblast	725	686	Republic of N. Osetia	785	686
Ingush Republic	723	686	Republic of Tatarstan	721	686
Kabardino-Balkar Republic	778	686	Republic of Khakasia	643	686
Kaliningrad Oblast	624	686	Rostov Oblast	722	686
Kaluga Oblast	699	686	Ryazan Oblast	768	686
Karachaevo-Cherkes Republic	774	686	Samara Oblast	653	686
Kemerovo Oblast	658	686	Saratov Oblast	697	686
Kirov Oblast	701	686	Sverdlovsk Oblast	664	686
Komi-Perm AD	804	686	Smolensk Oblast	709	686
Kostroma Oblast	739	686	Stavropol krai	754	686
Krasnodar krai	761	686	Tambov Oblast	773	686
Kurgan Oblast	727	686	Tver Oblast	755	686
Kursk Oblast	776	686	Tula Oblast	768	686

Region	Current demographic load ratio	Marginal demographic load ratio	Region	Current demographic load ratio	Marginal demographic load ratio
Leningrad Oblast	662	686	Republic of Udmurtia	651	686
Lipetsk Oblast	738	686	Ulyanovsk Oblast	686	686
Moscow Oblast	673	686	Ust-Orda Buryat AD	903	686
Nizhni Novgorod Oblast	727	686	Chelyabinsk Oblast	684	686
Novgorod Oblast	723	686	Chechen Republic	858	686
Novosibirsk Oblast	656	686	Chuvash Republic	712	686
Omsk Oblast	672	686	Yaroslavl Oblast	705	686

TABLE 10

Demographic capacity of receiving regions (thous. unemployed people)

Aginsk Buryat AD	0.00	Orenburg Oblast	0.00
Altai krai	30.24	Orel Oblast	0.00
Astrakhan Oblast	4.26	Penza Oblast	0.00
Belgorod Oblast	0.00	Perm Oblast	42.85
Bryansk Oblast	0.00	Pskov Oblast	0.00
Vladimir Oblast	0.00	Republic of Adygeya	0.00
Volgograd Oblast	0.00	Republic of Bashkortostan	0.00
Vologda Oblast	0.00	Republic of Dagestan	0.00
Voronezh Oblast	0.00	Kalmyk Republic	0.00
City of Moscow	0.00	Republic of Mari El	0.00
City of St. Petersburg	122.92	Republic of Mordovia	0.00
Ivanovo Oblast	0.00	Republic of N. Osetia	0.00
Ingush Republic	0.00	Republic of Tatarstan	0.00
Kabardino-Balkar Republic	0.00	Republic of Khakasia	15.21
Kaliningrad Oblast	36.24	Rostov Oblast	0.00
Kaluga Oblast	0.00	Ryazan Oblast	0.00
Karachaevo-Cherkes Republic	0.00	Samara Oblast	65.82
Kemerovo Oblast	50.43	Saratov Oblast	0.00
Kirov Oblast	0.00	Sverdlovsk Oblast	60.98
Komi-Perm AD	0.00	Smolensk Oblast	0.00
Kostroma Oblast	0.00	Stavropol krai	0.00
Krasnodar krai	0.00	Tambov Oblast	0.00
Kurgan Oblast	0.00	Tver Oblast	0.00
Kursk Oblast	0.00	Tula Oblast	0.00
Leningrad Oblast	24.19	Republic of Udmurtia	34.64
Lipetsk Oblast	0.00	Ulyanovsk Oblast	0.00
Moscow Oblast	50.62	Ust-Orda Buryat AD	0.00
Nizhni Novgorod Oblast	0.00	Chelyabinsk Oblast	4.36

Novgorod Oblast	0.00	Chechen Republic	0.00
Novosibirsk Oblast	49.72	Chuvash Republic	0.00
Omsk Oblast	18.11	Yaroslavl Oblast	0.00

TABLE 11

Optimal migration of unemployable population (thous. people)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Altai krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	30.24
Astrakhan Oblast	0.00	0.00	0.00	0.00	0.00	4.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bryansk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vladimir Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volgograd Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vologda Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Voronezh Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of Moscow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of St. Petersburg	0.00	108.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ivanovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ingush Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kabardino-Balkar Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaliningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaluga Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Karachaevo-Cherkes Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kemerovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Komi-Perm AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kostroma Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Krasnodar krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kurgan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kursk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.19	0.00
Lipetsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moscow Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nizhni Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Amur Oblast	Arkhangel'sk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Novosibirsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Omsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orenburg Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orel Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Penza Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perm Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.88	0.00
Pskov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Adygeya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Bashkortostan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Dagestan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kalmyk Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mari El	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mordovia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of N. Osetia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Tatarstan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Khakasia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.21
Rostov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ryazan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Samara Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.82	0.00	0.00
Saratov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sverdlovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Smolensk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stavropol krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tambov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tver Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tula Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Udmurtia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ulyanovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ust-Orda Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chelyabinsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chechen Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chuvash Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yaroslavl Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 11 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	T Omsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Altai krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Astrakhan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Belgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bryansk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vladimir Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Volgograd Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Vologda Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Voronezh Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of Moscow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
City of St. Petersburg	0.00	0.00	0.00	0.00	14.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ivanovo Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ingush Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kabardino-Balkar Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaliningrad Oblast	0.00	0.00	0.00	36.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kaluga Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Karachaevo-Cherkes Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kemerovo Oblast	0.00	50.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kirov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Komi-Perm AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kostroma Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Krasnodar krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kurgan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kursk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Leningrad Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lipetsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moscow Oblast	0.00	0.00	0.00	0.00	0.00	0.00	50.62	0.00	0.00	0.00	0.00	0.00	0.00
Nizhni Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novgorod Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Novosibirsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.72	0.00	0.00	0.00
Omsk Oblast	0.00	0.00	0.00	0.00	0.00	18.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Orenburg Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

	Republic of Konni	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khamy-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Orel Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Penza Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perm Oblast	0.00	0.00	20.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pskov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Adygeya	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Bashkortostan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Dagestan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kalmyk Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mari El	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Mordovia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of N. Osetia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Tatarstan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Khakasia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rostov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ryazan Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Samara Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Saratov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sverdlovsk Oblast	0.00	0.00	0.00	0.00	0.00	60.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Smolensk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Stavropol krai	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tambov Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tver Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tula Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Republic of Udmurtia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	34.64
Ulyanovsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ust-Orda Buryat AD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chelyabinsk Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.36	0.00	0.00
Chechen Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Chuvash Republic	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yaroslavl Oblast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Fiscal economy effect, p.a.: \$ 161.74 M.

NPV (moving expenses accounted for): \$ 139.93 M.

Appendix 5

Budgetary effect of actual migration flows

TABLE 12.

**Current migration to other than Northern regions
(in numbers of people and % of all migrants to other than Northern regions)**

Aginsk Buryat AD	594	0.06%	Orenburg Oblast	11785	1.24%
Altai krai	17088	1.80%	Orel Oblast	6086	0.64%
Astrakhan Oblast	7466	0.78%	Penza Oblast	9493	1.00%
Belgorod Oblast	15678	1.65%	Perm Oblast	16408	1.72%
Bryansk Oblast	9437	0.99%	Pskov Oblast	6720	0.71%
Vladimir Oblast	13527	1.42%	Republic of Adygeya	5448	0.57%
Volgograd Oblast	20390	2.14%	Republic of Bashkortostan	25430	2.67%
Vologda Oblast	8716	0.92%	Republic of Dagestan	12684	1.33%
Voronezh Oblast	18363	1.93%	Kalmyk Republic	3637	0.38%
City of Moscow	87613	9.20%	Republic of Mari El	5761	0.61%
City of St. Petersburg	46774	4.91%	Republic of Mordovia	4097	0.43%
Ivanovo Oblast	9811	1.03%	Republic of N. Osetia	3989	0.42%
Ingush Republic	1499	0.16%	Republic of Tatarstan	25412	2.67%
Kabardino-Balkar Republic	3580	0.38%	Republic of Khakasia	8685	0.91%
Kaliningrad Oblast	10553	1.11%	Rostov Oblast	28456	2.99%
Kaluga Oblast	10964	1.15%	Ryazan Oblast	8580	0.90%
Karachaevo-Cherkes Republic	3383	0.36%	Samara Oblast	26504	2.78%
Kemerovo Oblast	19492	2.05%	Saratov Oblast	19407	2.04%
Kirov Oblast	9504	1.00%	Sverdlovsk Oblast	29951	3.15%
Komi-Perm AD	693	0.07%	Smolensk Oblast	8621	0.91%
Kostroma Oblast	6727	0.71%	Stavropol krai	31099	3.27%
Krasnodar krai	46443	4.88%	Tambov Oblast	8009	0.84%
Kurgan Oblast	8682	0.91%	Tver Oblast	13402	1.41%
Kursk Oblast	7944	0.83%	Tula Oblast	11212	1.18%
Leningrad Oblast	30051	3.16%	Republic of Udmurtia	9304	0.98%
Lipetsk Oblast	8608	0.90%	Ulyanovsk Oblast	11907	1.25%
Moscow Oblast	63095	6.63%	Ust-Orda Buryat AD	970	0.10%
Nizhni Novgorod Oblast	21330	2.24%	Chelyabinsk Oblast	26190	2.75%
Novgorod Oblast	7474	0.79%	Chechen Republic	...	...
Novosibirsk Oblast	25104	2.64%	Chuvash Republic	9793	1.03%
Omsk Oblast	13200	1.39%	Yaroslavl Oblast	9015	0.95%

TABLE 13

**Migration to other than Northern regions vis-à-vis migration of
all population of Northern regions in proportion to the existing
migration flows (thous. people)**

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	0.63	0.91	0.12	1.71	0.24	0.02	1.90	0.15	0.61	0.03	1.36	0.13	0.65	0.48
Altai krai	18.06	26.21	3.57	49.33	6.88	0.52	54.56	4.18	17.65	0.83	39.03	3.68	18.58	13.75
Astrakhan Oblast	7.89	11.45	1.56	21.55	3.00	0.23	23.84	1.83	7.71	0.36	17.05	1.61	8.12	6.01
Belgorod Oblast	16.57	24.05	3.28	45.26	6.31	0.48	50.06	3.84	16.19	0.76	35.81	3.38	17.05	12.62
Bryansk Oblast	9.97	14.48	1.97	27.25	3.80	0.29	30.13	2.31	9.75	0.46	21.55	2.03	10.26	7.59
Vladimir Oblast	14.30	20.75	2.83	39.05	5.44	0.41	43.19	3.31	13.97	0.65	30.90	2.91	14.71	10.89
Volgograd Oblast	21.55	31.28	4.26	58.87	8.20	0.62	65.10	4.99	21.06	0.99	46.57	4.39	22.17	16.41
Vologda Oblast	9.21	13.37	1.82	25.16	3.51	0.27	27.83	2.13	9.00	0.42	19.91	1.88	9.48	7.01
Voronezh Oblast	19.41	28.17	3.84	53.01	7.39	0.56	58.63	4.50	18.96	0.89	41.94	3.95	19.97	14.78
City of Moscow	92.60	134.3	18.32	252.9	35.25	2.67	279.7	21.45	90.48	4.23	200.1	18.87	95.27	70.51
City of St. Petersburg	49.44	71.75	9.78	135.0	18.82	1.43	149.3	11.45	48.31	2.26	106.8	10.07	50.86	37.64
Ivanovo Oblast	10.37	15.05	2.05	28.32	3.95	0.30	31.32	2.40	10.13	0.47	22.41	2.11	10.67	7.90
Ingush Republic	1.58	2.30	0.31	4.33	0.60	0.05	4.79	0.37	1.55	0.07	3.42	0.32	1.63	1.21
Kabardino-Balkar Republic	3.78	5.49	0.75	10.34	1.44	0.11	11.43	0.88	3.70	0.17	8.18	0.77	3.89	2.88
Kaliningrad Oblast	11.15	16.19	2.21	30.47	4.25	0.32	33.69	2.58	10.90	0.51	24.10	2.27	11.48	8.49
Kaluga Oblast	11.59	16.82	2.29	31.65	4.41	0.33	35.01	2.68	11.32	0.53	25.04	2.36	11.92	8.82
Karachaevo-Cherkes Republic	3.58	5.19	0.71	9.77	1.36	0.10	10.80	0.83	3.49	0.16	7.73	0.73	3.68	2.72
Kemerovo Oblast	20.60	29.90	4.08	56.27	7.84	0.59	62.23	4.77	20.13	0.94	44.52	4.20	21.20	15.69
Kirov Oblast	10.04	14.58	1.99	27.44	3.82	0.29	30.34	2.33	9.82	0.46	21.71	2.05	10.33	7.65
Komi-Perm AD	0.73	1.06	0.14	2.00	0.28	0.02	2.21	0.17	0.72	0.03	1.58	0.15	0.75	0.56
Kostroma Oblast	7.11	10.32	1.41	19.42	2.71	0.20	21.48	1.65	6.95	0.33	15.36	1.45	7.31	5.41
Krasnodar krai	49.09	71.24	9.71	134.0	18.69	1.41	148.2	11.37	47.96	2.24	106.0	10.00	50.50	37.38
Kurgan Oblast	9.18	13.32	1.82	25.07	3.49	0.26	27.72	2.13	8.97	0.42	19.83	1.87	9.44	6.99
Kursk Oblast	8.40	12.19	1.66	22.93	3.20	0.24	25.36	1.94	8.20	0.38	18.14	1.71	8.64	6.39
Leningrad Oblast	31.76	46.09	6.28	86.76	12.09	0.92	95.95	7.36	31.03	1.45	68.64	6.47	32.68	24.18
Lipetsk Oblast	9.10	13.20	1.80	24.85	3.46	0.26	27.48	2.11	8.89	0.42	19.66	1.85	9.36	6.93
Moscow Oblast	66.69	96.78	13.19	182.1	25.39	1.92	201.4	15.44	65.16	3.05	144.1	13.59	68.61	50.78
Nizhni Novgorod Oblast	22.54	32.72	4.46	61.58	8.58	0.65	68.10	5.22	22.03	1.03	48.72	4.59	23.19	17.17
Novgorod Oblast	7.90	11.46	1.56	21.58	3.01	0.23	23.86	1.83	7.72	0.36	17.07	1.61	8.13	6.01
Novosibirsk Oblast	26.53	38.51	5.25	72.48	10.10	0.76	80.15	6.15	25.93	1.21	57.34	5.41	27.30	20.20
Omsk Oblast	13.95	20.25	2.76	38.11	5.31	0.40	42.14	3.23	13.63	0.64	30.15	2.84	14.35	10.62
Orenburg Oblast	12.46	18.08	2.46	34.02	4.74	0.36	37.63	2.88	12.17	0.57	26.92	2.54	12.81	9.48
Orel Oblast	6.43	9.34	1.27	17.57	2.45	0.19	19.43	1.49	6.29	0.29	13.90	1.31	6.62	4.90

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Penza Oblast	10.03	14.56	1.98	27.41	3.82	0.29	30.31	2.32	9.80	0.46	21.68	2.04	10.32	7.64
Perm Oblast	17.34	25.17	3.43	47.37	6.60	0.50	52.39	4.02	16.95	0.79	37.48	3.53	17.84	13.20
Pskov Oblast	7.10	10.31	1.40	19.40	2.70	0.20	21.46	1.64	6.94	0.32	15.35	1.45	7.31	5.41
Republic of Adygeya	5.76	8.36	1.14	15.73	2.19	0.17	17.39	1.33	5.63	0.26	12.44	1.17	5.92	4.38
Republic of Bashkortostan	26.88	39.01	5.32	73.42	10.23	0.77	81.19	6.22	26.26	1.23	58.08	5.48	27.65	20.47
Republic of Dagestan	13.41	19.46	2.65	36.62	5.10	0.39	40.50	3.10	13.10	0.61	28.97	2.73	13.79	10.21
Kalmyk Republic	3.84	5.58	0.76	10.50	1.46	0.11	11.61	0.89	3.76	0.18	8.31	0.78	3.95	2.93
Republic of Mari El	6.09	8.84	1.20	16.63	2.32	0.18	18.39	1.41	5.95	0.28	13.16	1.24	6.26	4.64
Republic of Mordovia	4.33	6.28	0.86	11.83	1.65	0.12	13.08	1.00	4.23	0.20	9.36	0.88	4.45	3.30
Republic of N. Osetia	4.22	6.12	0.83	11.52	1.61	0.12	12.74	0.98	4.12	0.19	9.11	0.86	4.34	3.21
Republic of Tatarstan	26.86	38.98	5.31	73.37	10.23	0.77	81.13	6.22	26.24	1.23	58.04	5.47	27.63	20.45
Republic of Khakasia	9.18	13.32	1.82	25.07	3.49	0.26	27.73	2.13	8.97	0.42	19.84	1.87	9.44	6.99
Rostov Oblast	30.08	43.65	5.95	82.15	11.45	0.87	90.85	6.97	29.39	1.38	64.99	6.13	30.94	22.90
Ryazan Oblast	9.07	13.16	1.79	24.77	3.45	0.26	27.39	2.10	8.86	0.41	19.60	1.85	9.33	6.90
Samara Oblast	28.01	40.65	5.54	76.52	10.66	0.81	84.62	6.49	27.37	1.28	60.54	5.71	28.82	21.33
Saratov Oblast	20.51	29.77	4.06	56.03	7.81	0.59	61.96	4.75	20.04	0.94	44.33	4.18	21.10	15.62
Sverdlovsk Oblast	31.66	45.94	6.26	86.47	12.05	0.91	95.63	7.33	30.93	1.45	68.41	6.45	32.57	24.10
Smolensk Oblast	9.11	13.22	1.80	24.89	3.47	0.26	27.52	2.11	8.90	0.42	19.69	1.86	9.37	6.94
Stavropol krai	32.87	47.70	6.50	89.78	12.51	0.95	99.29	7.61	32.12	1.50	71.03	6.70	33.82	25.03
Tambov Oblast	8.46	12.28	1.67	23.12	3.22	0.24	25.57	1.96	8.27	0.39	18.29	1.72	8.71	6.45
Tver Oblast	14.16	20.56	2.80	38.69	5.39	0.41	42.79	3.28	13.84	0.65	30.61	2.89	14.57	10.79
Tula Oblast	11.85	17.20	2.34	32.37	4.51	0.34	35.80	2.74	11.58	0.54	25.61	2.41	12.19	9.02
Republic of Udmurtia	9.83	14.27	1.95	26.86	3.74	0.28	29.71	2.28	9.61	0.45	21.25	2.00	10.12	7.49
Ulyanovsk Oblast	12.58	18.26	2.49	34.38	4.79	0.36	38.02	2.91	12.30	0.58	27.20	2.56	12.95	9.58
Ust-Orda Buryat AD	1.03	1.49	0.20	2.80	0.39	0.03	3.10	0.24	1.00	0.05	2.22	0.21	1.05	0.78
Chelyabinsk Oblast	27.68	40.17	5.48	75.61	10.54	0.80	83.62	6.41	27.05	1.27	59.82	5.64	28.48	21.08
Chechen Republic														
Chuvash Republic	10.35	15.02	2.05	28.27	3.94	0.30	31.27	2.40	10.11	0.47	22.37	2.11	10.65	7.88
Yaroslavl Oblast	9.53	13.83	1.88	26.03	3.63	0.27	28.78	2.21	9.31	0.44	20.59	1.94	9.80	7.25

TABLE 13 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	0.71	0.61	0.19	0.37	0.03	0.67	2.01	0.95	0.85	0.79	0.04	0.01	0.31
Altai krai	20.38	17.54	5.58	10.74	0.77	19.16	57.83	27.25	24.56	22.60	1.29	0.32	8.89
Astrakhan Oblast	8.90	7.66	2.44	4.69	0.34	8.37	25.26	11.91	10.73	9.88	0.56	0.14	3.88
Belgorod Oblast	18.69	16.09	5.12	9.85	0.71	17.57	53.05	25.00	22.53	20.74	1.19	0.30	8.15
Bryansk Oblast	11.25	9.69	3.08	5.93	0.43	10.58	31.93	15.05	13.56	12.48	0.71	0.18	4.91
Vladimir Oblast	16.13	13.88	4.42	8.50	0.61	15.16	45.78	21.57	19.44	17.89	1.02	0.26	7.03
Volgograd Oblast	24.31	20.93	6.66	12.81	0.92	22.86	69.00	32.52	29.30	26.97	1.54	0.39	10.60
Vologda Oblast	10.39	8.95	2.85	5.48	0.39	9.77	29.49	13.90	12.53	11.53	0.66	0.16	4.53
Voronezh Oblast	21.90	18.85	6.00	11.54	0.83	20.58	62.14	29.29	26.39	24.29	1.39	0.35	9.55
City of Moscow	104.47	89.93	28.63	55.04	3.96	98.21	296.48	139.73	125.92	115.89	6.63	1.66	45.56
City of St. Petersburg	55.77	48.01	15.28	29.39	2.11	52.43	158.28	74.60	67.22	61.87	3.54	0.88	24.32
Ivanovo Oblast	11.70	10.07	3.21	6.16	0.44	11.00	33.20	15.65	14.10	12.98	0.74	0.19	5.10
Ingush Republic	1.79	1.54	0.49	0.94	0.07	1.68	5.07	2.39	2.15	1.98	0.11	0.03	0.78
Kabardino-Balkar Republic	4.27	3.67	1.17	2.25	0.16	4.01	12.11	5.71	5.15	4.74	0.27	0.07	1.86
Kaliningrad Oblast	12.58	10.83	3.45	6.63	0.48	11.83	35.71	16.83	15.17	13.96	0.80	0.20	5.49
Kaluga Oblast	13.07	11.25	3.58	6.89	0.50	12.29	37.10	17.49	15.76	14.50	0.83	0.21	5.70
Karachaevo-Cherkes Republic	4.03	3.47	1.11	2.13	0.15	3.79	11.45	5.40	4.86	4.47	0.26	0.06	1.76
Kemerovo Oblast	23.24	20.01	6.37	12.25	0.88	21.85	65.96	31.09	28.01	25.78	1.47	0.37	10.14
Kirov Oblast	11.33	9.76	3.11	5.97	0.43	10.65	32.16	15.16	13.66	12.57	0.72	0.18	4.94
Komi-Perm AD	0.83	0.71	0.23	0.44	0.03	0.78	2.35	1.11	1.00	0.92	0.05	0.01	0.36
Kostroma Oblast	8.02	6.90	2.20	4.23	0.30	7.54	22.76	10.73	9.67	8.90	0.51	0.13	3.50
Krasnodar krai	55.38	47.67	15.17	29.18	2.10	52.06	157.16	74.07	66.75	61.43	3.51	0.88	24.15
Kurgan Oblast	10.35	8.91	2.84	5.45	0.39	9.73	29.38	13.85	12.48	11.48	0.66	0.16	4.52
Kursk Oblast	9.47	8.15	2.60	4.99	0.36	8.91	26.88	12.67	11.42	10.51	0.60	0.15	4.13
Leningrad Oblast	35.83	30.85	9.82	18.88	1.36	33.69	101.69	47.93	43.19	39.75	2.27	0.57	15.63
Lipetsk Oblast	10.26	8.84	2.81	5.41	0.39	9.65	29.13	13.73	12.37	11.39	0.65	0.16	4.48
Moscow Oblast	75.24	64.76	20.62	39.64	2.85	70.73	213.51	100.62	90.68	83.46	4.77	1.19	32.81
Nizhni Novgorod Oblast	25.43	21.89	6.97	13.40	0.96	23.91	72.18	34.02	30.66	28.21	1.61	0.40	11.09
Novgorod Oblast	8.91	7.67	2.44	4.70	0.34	8.38	25.29	11.92	10.74	9.89	0.57	0.14	3.89
Novosibirsk Oblast	29.93	25.77	8.20	15.77	1.13	28.14	84.95	40.04	36.08	33.21	1.90	0.47	13.06
Omsk Oblast	15.74	13.55	4.31	8.29	0.60	14.80	44.67	21.05	18.97	17.46	1.00	0.25	6.86
Orenburg Oblast	14.05	12.10	3.85	7.40	0.53	13.21	39.88	18.79	16.94	15.59	0.89	0.22	6.13
Orel Oblast	7.26	6.25	1.99	3.82	0.27	6.82	20.59	9.71	8.75	8.05	0.46	0.12	3.17
Penza Oblast	11.32	9.74	3.10	5.96	0.43	10.64	32.12	15.14	13.64	12.56	0.72	0.18	4.94
Perm Oblast	19.57	16.84	5.36	10.31	0.74	18.39	55.52	26.17	23.58	21.70	1.24	0.31	8.53
Pskov Oblast	8.01	6.90	2.20	4.22	0.30	7.53	22.74	10.72	9.66	8.89	0.51	0.13	3.49

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty- Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Adygeya	6.50	5.59	1.78	3.42	0.25	6.11	18.44	8.69	7.83	7.21	0.41	0.10	2.83
Republic of Bashkortostan	30.32	26.10	8.31	15.98	1.15	28.51	86.05	40.56	36.55	33.64	1.92	0.48	13.22
Republic of Dagestan	15.12	13.02	4.14	7.97	0.57	14.22	42.92	20.23	18.23	16.78	0.96	0.24	6.60
Kalmyk Republic	4.34	3.73	1.19	2.28	0.16	4.08	12.31	5.80	5.23	4.81	0.28	0.07	1.89
Republic of Mari El	6.87	5.91	1.88	3.62	0.26	6.46	19.50	9.19	8.28	7.62	0.44	0.11	3.00
Republic of Mordovia	4.89	4.21	1.34	2.57	0.19	4.59	13.86	6.53	5.89	5.42	0.31	0.08	2.13
Republic of N. Osetia	4.76	4.09	1.30	2.51	0.18	4.47	13.50	6.36	5.73	5.28	0.30	0.08	2.07
Republic of Tatarstan	30.30	26.08	8.30	15.97	1.15	28.49	85.99	40.53	36.52	33.61	1.92	0.48	13.22
Republic of Khakasia	10.36	8.91	2.84	5.46	0.39	9.74	29.39	13.85	12.48	11.49	0.66	0.16	4.52
Rostov Oblast	33.93	29.21	9.30	17.88	1.29	31.90	96.29	45.38	40.90	37.64	2.15	0.54	14.80
Ryazan Oblast	10.23	8.81	2.80	5.39	0.39	9.62	29.03	13.68	12.33	11.35	0.65	0.16	4.46
Samara Oblast	31.60	27.20	8.66	16.65	1.20	29.71	89.69	42.27	38.09	35.06	2.00	0.50	13.78
Saratov Oblast	23.14	19.92	6.34	12.19	0.88	21.76	65.67	30.95	27.89	25.67	1.47	0.37	10.09
Sverdlovsk Oblast	35.71	30.74	9.79	18.82	1.35	33.57	101.35	47.77	43.05	39.62	2.27	0.57	15.58
Smolensk Oblast	10.28	8.85	2.82	5.42	0.39	9.66	29.17	13.75	12.39	11.40	0.65	0.16	4.48
Stavropol krai	37.08	31.92	10.16	19.54	1.40	34.86	105.24	49.60	44.70	41.13	2.35	0.59	16.17
Tambov Oblast	9.55	8.22	2.62	5.03	0.36	8.98	27.10	12.77	11.51	10.59	0.61	0.15	4.17
Tver Oblast	15.98	13.76	4.38	8.42	0.61	15.02	45.35	21.37	19.26	17.73	1.01	0.25	6.97
Tula Oblast	13.37	11.51	3.66	7.04	0.51	12.57	37.94	17.88	16.11	14.83	0.85	0.21	5.83
Republic of Udmurtia	11.09	9.55	3.04	5.85	0.42	10.43	31.48	14.84	13.37	12.31	0.70	0.18	4.84
Ulyanovsk Oblast	14.20	12.22	3.89	7.48	0.54	13.35	40.29	18.99	17.11	15.75	0.90	0.23	6.19
Ust-Orda Buryat AD	1.16	1.00	0.32	0.61	0.04	1.09	3.28	1.55	1.39	1.28	0.07	0.02	0.50
Chelyabinsk Oblast	31.23	26.88	8.56	16.45	1.18	29.36	88.63	41.77	37.64	34.64	1.98	0.50	13.62
Chechen Repub- lic													
Chuvash Repub- lic	11.68	10.05	3.20	6.15	0.44	10.98	33.14	15.62	14.07	12.95	0.74	0.19	5.09
Yaroslavl Oblast	10.75	9.25	2.95	5.66	0.41	10.11	30.51	14.38	12.96	11.92	0.68	0.17	4.69

TABLE 14

**Migration effect of all population, in proportion to the existing migration
flows (NPV, USD M)**

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Burya- tia	Republic of Karelia
Aginsk Buryat AD	-0.37	-0.52	-0.05	-0.35	0.55	0.25	1.88	0.63	0.77	0.44	-0.45	-0.09	-0.42	0.20

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Altai krai	-28.14	-37.42	-4.78	-52.43	9.12	6.79	10.68	14.08	6.26	11.95	-51.42	-5.36	-27.74	-6.14
Astrakhan Oblast	-9.86	-12.35	-1.61	-17.08	4.92	3.04	10.89	6.73	5.34	5.34	-17.14	-1.94	-9.96	-0.58
Belgorod Oblast	-17.48	-20.68	-2.75	-27.93	11.58	6.47	31.90	14.88	14.80	11.36	-28.96	-3.49	-17.97	1.33
Bryansk Oblast	-12.35	-15.13	-2.01	-21.78	6.27	3.84	13.66	8.53	7.27	6.76	-21.43	-2.46	-12.66	-0.48
Vladimir Oblast	-21.90	-27.84	-3.71	-42.64	7.36	5.39	6.85	11.24	6.24	9.50	-39.90	-4.35	-22.39	-3.92
Volograd Oblast	-48.53	-65.06	-8.67	-105.	5.23	7.67	-35.52	13.37	-6.51	13.59	-93.46	-9.71	-49.47	-18.02
Vologda Oblast	-21.29	-27.88	-3.85	-48.08	2.16	3.25	-18.01	5.68	-2.23	5.76	-40.34	-4.57	-22.67	-7.67
Voronezh Oblast	-31.61	-40.75	-5.39	-62.88	9.21	7.26	3.42	14.77	6.00	12.81	-58.65	-6.19	-32.05	-7.17
City of Moscow	-1011	-1436	-196	-2654	-281	9.66	-2576	-127.3	-802.0	21.54	-2126	-207.8	-1046	-683.6
City of St. Petersburg	-286.1	-399.8	-54.61	-726.1	-54.09	12.50	-613.8	-9.51	-180.8	23.15	-589.3	-59.03	-297.2	-171.8
Ivanovo Oblast	-4.93	-4.40	-0.52	-0.93	9.48	4.23	37.97	10.66	15.09	7.40	-5.47	-0.87	-4.83	5.42
Ingush Republic	-3.68	-5.01	-0.66	-8.20	0.33	0.56	-3.15	0.95	-0.63	0.99	-7.18	-0.73	-3.76	-1.45
Kabardino-Balkar Republic	-4.70	-5.94	-0.77	-8.49	2.38	1.46	4.90	3.23	2.62	2.56	-8.14	-0.96	-4.89	-0.29
Kaliningrad Oblast	-41.02	-56.43	-7.63	-98.65	-3.36	3.51	-66.93	3.23	-18.49	6.32	-82.80	-8.28	-42.11	-21.27
Kaluga Oblast	-22.57	-29.46	-3.97	-47.80	4.16	4.22	-8.92	8.01	0.48	7.48	-42.57	-4.56	-23.23	-6.78
Karachaevo-Cherkes Republic	-1.76	-1.77	-0.19	-0.66	3.25	1.46	12.68	3.67	5.03	2.54	-1.99	-0.33	-1.80	1.74
Kemerovo Oblast	-44.20	-59.71	-7.89	-93.21	5.96	7.38	-23.91	13.37	-4.00	13.05	-83.82	-8.83	-44.76	-15.85
Kirov Oblast	-12.21	-15.19	-1.98	-21.31	6.39	3.88	14.41	8.63	7.33	6.82	-21.14	-2.42	-12.49	-0.33
Komi-Perm AD	-1.30	-1.69	-0.23	-2.61	0.32	0.27	-0.10	0.54	0.14	0.48	-2.39	-0.26	-1.33	-0.34
Kostroma Oblast	-8.73	-10.70	-1.42	-15.30	4.49	2.74	9.95	6.09	5.22	4.82	-15.16	-1.72	-8.91	-0.30
Krasnodar krai	-134.7	-184.6	-24.51	-311.5	2.56	16.78	-159.9	24.75	-38.75	29.83	-265.9	-27.24	138.92	-60.24
Kurgan Oblast	-11.73	-14.87	-1.92	-20.05	5.59	3.53	12.25	7.73	5.79	6.21	-20.73	-2.22	-11.53	-1.09
Kursk Oblast	-7.90	-9.22	-1.19	-11.44	6.19	3.31	18.95	7.73	8.28	5.80	-12.84	-1.51	-7.96	1.32
Leningrad Oblast	-56.91	-73.50	-9.90	-119.0	13.31	11.72	-11.62	23.11	6.73	20.72	-105.8	-11.64	-59.23	-14.30
Lipetsk Oblast	-20.21	-26.68	-3.61	-44.35	2.34	3.24	-14.46	5.73	-2.15	5.75	-38.69	-4.11	-20.86	-7.30
Moscow Oblast	-220.4	-300.9	-40.77	-522.5	-10.51	21.69	-324.9	25.13	-85.72	38.89	-440.6	-44.70	-226.9	-107.9
Nizhni Novgorod Oblast	-78.23	-107.7	-14.50	-186.6	-4.99	7.23	-121.0	7.62	-33.12	12.98	-157.1	-15.81	-80.38	-39.38
Novgorod Oblast	-19.30	-25.65	-3.49	-43.75	1.38	2.76	-18.35	4.58	-3.22	4.91	-37.27	-3.99	-20.15	-7.41
Novosibirsk Oblast	-77.49	-107.3	-14.19	-175.8	-0.32	8.93	-93.42	12.35	-25.95	15.89	-153.4	-15.30	-78.12	-36.46
Omsk Oblast	-14.15	-18.10	-2.17	-19.63	9.87	5.47	30.33	12.60	12.00	9.59	-23.70	-2.54	-13.36	0.90

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Orenburg Oblast	-23.56	-30.97	-4.13	-48.26	4.77	4.56	-6.18	8.79	0.78	8.06	-44.09	-4.71	-23.88	-7.08
Orel Oblast	-10.40	-13.26	-1.78	-20.73	3.12	2.41	1.47	4.94	2.35	4.25	-19.02	-2.10	-10.72	-2.14
Penza Oblast	-8.72	-10.33	-1.28	-11.21	7.66	3.98	25.22	9.40	10.31	6.97	-13.85	-1.62	-8.55	2.06
Perm Oblast	-44.26	-59.56	-8.04	-98.62	2.33	6.01	-43.06	9.62	-9.87	10.69	-85.80	-8.98	-45.27	-18.46
Pskov Oblast	-10.51	-13.25	-1.77	-20.57	3.81	2.69	4.06	5.68	3.64	4.74	-18.94	-2.14	-10.94	-1.53
Republic of Adygeya	-2.99	-2.96	-0.34	-0.94	5.18	2.34	20.60	5.87	7.93	4.09	-3.52	-0.53	-2.87	2.74
Republic of Bashkortostan	-88.35	-120.9	-16.36	-206.8	-3.91	8.74	-126.4	10.34	-34.61	15.67	-175.6	-17.94	-90.48	-43.66
Republic of Dagestan	-20.71	-27.15	-3.50	-41.06	6.80	5.05	4.88	10.47	5.05	8.89	-37.99	-4.13	-21.29	-4.25
Kalmyk Republic	-4.36	-5.41	-0.69	-7.10	2.56	1.49	6.60	3.37	2.99	2.62	-7.46	-0.84	-4.36	0.03
Republic of Mari El	-2.04	-1.50	-0.13	1.79	5.89	2.51	24.87	6.46	9.59	4.38	-1.37	-0.34	-1.96	3.83
Republic of Mordovia	-2.86	-3.08	-0.38	-2.61	3.66	1.74	13.45	4.27	5.48	3.05	-3.96	-0.54	-2.88	1.67
Republic of N. Osetia	-5.48	-7.05	-0.90	-10.09	2.53	1.62	4.65	3.53	2.59	2.84	-9.73	-1.08	-5.62	-0.56
Republic of Tatarstan	-75.95	-102.7	-13.93	-174.5	0.87	9.09	-90.33	13.24	-22.24	16.19	-148.4	-15.62	-78.54	-33.70
Republic of Khakasia	-8.74	-12.36	-1.34	-12.85	6.80	3.61	19.61	8.48	7.96	6.27	-13.82	-1.85	-9.06	0.40
Rostov Oblast	-71.25	-96.94	-12.76	-159.8	5.81	10.61	-63.97	17.74	-12.95	18.80	-138.8	-14.29	-73.22	-28.43
Ryazan Oblast	-17.25	-22.58	-3.01	-36.19	3.38	3.32	-5.85	6.34	0.61	5.88	-32.66	-3.42	-17.59	-5.08
Samara Oblast	-103.6	-143.2	-19.32	-248.4	-8.60	8.79	-168.6	8.01	-47.89	15.80	-208.8	-20.99	-106.3	-54.20
Saratov Oblast	-34.34	-45.04	-5.88	-68.03	9.39	7.65	1.71	15.40	4.98	13.49	-63.93	-6.68	-34.50	-8.34
Sverdlovsk Oblast	-61.07	-80.55	-10.73	-125.8	11.63	11.55	-19.42	22.04	0.66	20.44	-114.8	-12.16	-61.76	-19.00
Smolensk Oblast	-39.41	-54.68	-7.40	-96.71	-5.00	2.70	-72.53	1.27	-20.89	4.89	-80.44	-7.96	-40.46	-21.88
Stavropol krai	-30.79	-37.63	-4.63	-46.05	24.27	12.96	72.29	30.29	31.83	22.70	-50.07	-6.02	-31.56	4.76
Tambov Oblast	-12.58	-15.97	-2.12	-24.16	4.49	3.20	5.18	6.73	3.86	5.64	-22.88	-2.47	-12.80	-2.17
Tver Oblast	-27.22	-35.59	-4.77	-57.32	5.19	5.18	-9.88	9.85	0.79	9.16	-51.46	-5.44	-27.86	-8.09
Tula Oblast	-23.15	-30.34	-4.06	-49.00	4.20	4.32	-9.44	8.15	0.28	7.65	-43.90	-4.62	-23.69	-7.07
Republic of Udmurtia	-16.44	-21.26	-2.84	-32.24	4.60	3.66	1.69	7.45	2.80	6.46	-30.04	-3.31	-16.70	-3.91
Ulyanovsk Oblast	-16.71	-21.39	-2.74	-29.77	7.40	4.82	14.16	10.44	7.22	8.48	-29.94	-3.18	-16.58	-1.85
Ust-Orda Buryat AD	-2.55	-3.67	-0.46	-5.72	0.16	0.36	-2.57	0.58	-0.66	0.63	-4.96	-0.52	-2.62	-1.16
Chelyabinsk Oblast	-49.31	-64.59	-8.57	-98.78	11.70	10.22	-4.69	20.20	4.46	18.07	-91.76	-9.75	-49.68	-13.56
Chechen Republic														
Chuvash Republic	-10.14	-12.19	-1.55	-15.21	7.48	4.07	22.16	9.44	9.82	7.15	-16.67	-1.95	-10.24	1.46
Yaroslavl Oblast	-28.16	-38.17	-5.16	-65.54	-0.23	3.20	-36.36	4.36	-9.00	5.71	-55.77	-5.70	-28.98	-12.89

TABLE 14 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	0.93	4.73	-0.14	0.66	0.61	0.20	-1.65	0.62	21.05	-0.87	0.42	0.19	6.98
Altai krai	9.80	119.82	-8.10	8.56	16.89	-9.65	-92.85	-8.94	586.51	-44.12	10.81	5.33	193.84
Astrakhan Oblast	7.21	54.64	-2.95	5.20	7.47	-2.01	-34.06	-0.19	259.00	-16.64	4.90	2.36	85.80
Belgorod Oblast	18.88	117.76	-5.34	12.86	15.81	-1.03	-62.07	4.48	547.88	-31.34	10.51	5.01	181.61
Bryansk Oblast	9.48	69.17	-3.74	6.64	9.44	-2.58	-43.16	-0.08	327.33	-21.12	6.20	2.99	108.43
Vladimir Oblast	8.83	95.20	-6.58	7.00	13.35	-8.20	-75.20	-6.51	463.56	-35.45	8.58	4.21	153.40
Volgograd Oblast	-4.69	128.19	-14.78	1.37	19.48	-28.40	-162.2	-33.12	677.93	-72.52	11.83	6.07	223.68
Vologda Oblast	-2.58	53.33	-7.24	0.45	8.27	-12.91	-73.48	-14.59	287.85	-32.70	5.02	2.56	94.85
Voronezh Oblast	9.40	127.90	-9.20	8.28	18.06	-13.32	-107.7	-11.89	626.99	-50.21	11.52	5.69	207.44
City of Moscow	-921.2	-239.3	-318.8	-469.0	49.13	-970.6	-3279.	-13488	1814.0	-1323.	-6.64	11.47	562.79
City of St. Petersburg	-206.1	120.74	-90.75	-100.1	37.07	-251.2	-940.6	-338.3	1313.0	-389.3	14.61	10.69	425.82
Ivanovo Oblast	18.72	79.93	-1.23	11.54	10.16	5.58	-19.28	11.71	351.24	-11.87	7.01	3.25	116.71
Ingush Republic	-0.51	9.40	-1.09	0.02	1.43	-2.30	-12.40	-2.63	49.66	-5.49	0.86	0.44	16.38
Kabardino-Balkar Republic	3.44	26.21	-1.46	2.52	3.58	-1.07	-16.69	-0.04	124.04	-8.12	2.35	1.13	41.08
Kaliningrad Oblast	-20.10	50.99	-12.56	-8.76	9.39	-31.76	-135.3	-41.17	329.08	-57.63	4.98	2.85	107.89
Kaluga Oblast	1.76	72.27	-6.96	2.85	10.61	-11.68	-76.55	-12.46	369.06	-34.88	6.61	3.32	121.91
Karachaevo-Cherkes Republic	6.25	27.49	-0.48	3.95	3.50	1.78	-7.10	3.96	120.92	-4.26	2.41	1.12	40.17
Kemerovo Oblast	-2.25	123.76	-13.72	2.80	18.73	-23.41	-145.5	-27.96	651.95	-66.10	11.46	5.83	214.85
Kirov Oblast	9.79	69.93	-3.66	6.81	9.52	-2.38	-42.71	0.23	329.99	-20.96	6.26	3.01	109.33
Komi-Perm AD	0.26	4.66	-0.41	0.26	0.68	-0.57	-4.38	-0.58	23.52	-2.03	0.43	0.21	7.77
Kostroma Oblast	6.84	49.44	-2.61	4.77	6.73	-1.78	-30.47	0.03	233.47	-14.92	4.42	2.13	77.35
Krasnodar krai	-38.88	269.32	-41.16	-11.44	43.27	-92.64	-452.2	-112.3	1509.2	-197.2	25.21	13.37	496.89
Kurgan Oblast	8.20	63.53	-3.31	5.84	8.69	-2.55	-39.75	-0.75	301.18	-19.33	5.68	2.75	99.79
Kursk Oblast	10.59	60.88	-2.23	7.03	8.06	0.39	-28.16	3.60	279.06	-14.53	5.40	2.56	92.57
Leningrad Oblast	10.44	202.81	-17.82	10.78	29.28	-27.49	-196.3	-26.63	1017.2	-90.18	18.48	9.18	336.55
Lipetsk Oblast	-1.57	54.21	-6.31	0.78	8.23	-11.76	-68.15	-13.48	286.31	-30.56	5.01	2.56	94.46
Moscow Oblast	-92.05	327.78	-68.13	-37.43	57.21	-163.2	-730.7	-208.3	2000.5	-314.1	31.57	17.48	656.93
Nizhni Novgorod Oblast	-35.32	107.47	-24.02	-14.89	19.19	-59.19	-258.6	-76.10	671.43	-110.7	10.41	5.85	220.33
Novgorod Oblast	-3.17	45.22	-6.17	-0.33	7.06	-12.21	-65.48	-14.29	245.88	-28.99	4.23	2.19	81.11
Novosibirsk Oblast	-26.34	140.61	-23.26	-8.86	23.27	-52.42	-252.4	-67.56	812.32	-110.2	13.29	7.17	266.90
Omsk Oblast	16.05	100.37	-3.70	11.03	13.38	0.19	-47.79	4.36	463.31	-24.35	8.89	4.26	153.58

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty- Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Orenburg Oblast	2.65	78.18	-7.26	3.52	11.46	-11.31	-78.90	-12.26	398.10	-36.14	7.16	3.59	131.53
Orel Oblast	3.38	42.16	-3.22	2.85	5.98	-4.22	-35.71	-3.70	207.74	-16.71	3.82	1.88	68.71
Penza Oblast	13.40	73.52	-2.36	8.81	9.67	1.35	-30.84	5.36	334.69	-16.20	6.50	3.08	111.06
Perm Oblast	-9.17	97.31	-13.90	-1.84	15.45	-27.75	-146.8	-34.18	538.47	-64.87	9.14	4.78	177.38
Pskov Oblast	4.82	47.55	-3.27	3.71	6.64	-3.82	-36.78	-2.64	230.52	-17.37	4.29	2.09	76.36
Republic of Adygeya	9.98	44.08	-0.78	6.27	5.63	2.94	-11.29	6.15	194.78	-6.81	3.87	1.80	64.71
Republic of Bashkortostan	-36.50	131.65	-27.64	-14.59	23.10	-63.97	-290.8	-82.80	807.69	-125.2	12.76	7.05	265.20
Republic of Dagestan	7.51	89.35	-6.16	6.41	12.51	-8.29	-71.86	-6.47	434.15	-33.64	8.04	3.94	143.67
Kalmyk Re- public	3.99	27.12	-1.26	2.78	3.66	-0.54	-15.13	0.54	126.81	-7.52	2.42	1.16	42.03
Republic of Mari El	11.96	47.77	-0.46	7.28	6.00	4.18	-8.59	8.16	207.41	-5.90	4.18	1.93	68.95
Republic of Mordovia	6.92	32.53	-0.80	4.35	4.21	1.50	-10.68	3.70	145.55	-6.00	2.87	1.34	48.32
Republic of N. Osetia	3.52	29.12	-1.61	2.63	3.98	-1.52	-19.28	-0.48	137.95	-9.28	2.60	1.26	45.69
Republic of Tatarstan	-22.97	143.05	-24.27	-7.14	23.58	-51.17	-253.0	-63.90	822.97	-110.6	13.63	7.25	270.72
Republic of Khakasia	9.98	65.96	-2.89	7.73	8.80	0.15	-32.56	4.00	304.24	-16.24	5.89	2.79	100.50
Rostov Oblast	-11.14	176.45	-21.43	-0.37	27.00	-44.93	-240.5	-51.96	940.33	-106.4	16.26	8.40	310.13
Ryazan Oblast	1.79	57.24	-5.14	2.42	8.33	-8.81	-58.36	-9.25	289.53	-26.63	5.20	2.61	95.68
Samara Oblast	-51.81	126.79	-32.02	-22.26	23.58	-79.82	-341.2	-104.1	825.79	-145.2	12.47	7.15	270.67
Saratov Oblast	8.78	134.20	-9.97	8.21	19.06	-14.72	-115.9	-13.94	661.73	-53.82	12.11	6.00	218.90
Sverdlovsk Oblast	5.33	197.80	-18.64	8.17	29.07	-30.12	-204.1	-33.07	1010.2	-93.19	18.10	9.10	333.76
Smolensk Oblast	-23.09	35.95	-12.06	-10.67	7.42	-32.23	-129.4	-42.56	260.82	-54.45	3.65	2.23	85.24
Stavropol krai	40.93	238.60	-8.85	27.57	31.52	0.82	-112.1	14.24	1091.7	-57.39	21.13	10.03	362.11
Tambov Oblast	5.48	56.85	-3.71	4.35	7.93	-4.49	-43.20	-3.32	275.05	-20.45	5.11	2.50	91.04
Tver Oblast	2.52	88.97	-8.22	3.65	13.00	-13.98	-92.17	-14.78	451.78	-42.03	8.11	4.07	149.27
Tula Oblast	1.68	74.07	-6.99	2.82	10.86	-12.11	-78.33	-12.95	377.44	-35.63	6.76	3.40	124.69
Republic of Udmurtia	4.55	63.69	-5.14	4.08	9.13	-6.59	-55.47	-6.37	317.16	-25.90	5.80	2.87	104.87
Ulyanovsk Oblast	10.27	86.74	-4.66	7.60	11.88	-4.47	-57.05	-2.04	412.02	-27.47	7.74	3.76	136.49
Ust-Orda Buryat AD	-0.66	5.86	-0.80	-0.08	0.92	-1.66	-8.66	-1.93	31.85	-3.77	0.55	0.28	10.46
Chelyabinsk Oblast	9.24	177.14	-14.90	9.54	25.60	-22.07	-165.2	-22.82	889.08	-76.26	16.12	8.03	293.92
Chechen Republic													
Chuvash Republic	12.81	74.64	-2.89	8.43	9.92	0.06	-36.02	3.84	343.46	-18.43	6.62	3.15	113.91
Yaroslavl Oblast	-9.39	50.10	-8.68	-3.37	8.32	-19.80	-93.69	-24.74	290.40	-40.70	4.75	2.56	95.51

TOTAL NPV (with moving expenses taken into account): \$ 6,318 M.

Appendix 6

Redistribution of government expenditures between regions in consequence of migration from northern areas

TABLE 15

Redistribution of budget expenditures in consequence of migration (USD per year per each migrant). Negative values reflect average cut in expenses in the northern region as one migrant leaves the region. Positive values reflect increase in budgetary expenses in the recipient region as one migrant arrives in the region.

Khanty-Mansiysk AD	-2253	Ivanovo Oblast	74
Taymyr AD	-2090	Krasnodar krai	77
Yamal-Nenets AD	-2086	Ingush Republic	79
Evenki AD	-1651	Orel Oblast	80
Nenets AD	-1482	Kostroma Oblast	83
Koryak AD	-1368	Vladimir Oblast	83
Chukotka AD	-978	Kirov Oblast	83
Republic of Sakha (Yakutia)	-860	Republic of N. Osetia	83
Magadan Oblast	-561	Altai krai	84
Kamchatka Oblast	-393	Nizhni Novgorod Oblast	84
Sakhalin Oblast	-349	Tula Oblast	86
Republic of Komi	-319	Smolensk Oblast	87
Murmansk Oblast	-308	Volgograd Oblast	90
Krasnoyarsk krai	-292	Tver Oblast	90
Khabarovsk krai	-257	Belgorod Oblast	90
Republic of Karelia	-242	Kalmyk Republic	92
TOMsk Oblast	-232	Novosibirsk Oblast	93
Irkutsk Oblast	-193	Astrakhan Oblast	95
Jewish Autonomous Obl.	-178	Republic of Khakasia	96
Republic of Tyva	-177	Republic of Dagestan	97
Primorye krai	-174	Pskov Oblast	97
Republic of Altai	-167	Komi-Perm AD	102
Arkhangelsk obl.	-162	Kaluga Oblast	104
Republic of Buryatia	-162	Kaliningrad Oblast	106
Amur Oblast	-158	Ust-Orda Buryat AD	106
Tyumen Oblast	-147	Sverdlovsk Oblast	107
Chita Oblast	-123	Kabardino-Balkar Republic	108
Chechen Republic	39	Moscow Oblast	110
Penza Oblast	59	Aginsk Buryat AD	110
Republic of Mari El	59	Leningrad Oblast	111

Kursk Oblast	60	Yaroslavl Oblast	117
Tambov Oblast	60	Chelyabinsk Oblast	117
Voronezh Oblast	64	Novgorod Oblast	118
Omsk Oblast	65	Lipetsk Oblast	120
Stavropol krai	68	Samara Oblast	121
Chuvash Republic	68	Republic of Udmurtia	125
Rostov Oblast	69	Orenburg Oblast	127
Kurgan Oblast	69	Kemerovo Oblast	138
Karachaev-Cherkes Republic	71	Perm Oblast	155
Saratov Oblast	71	City of St. Petersburg	163
Republic of Adygeya	72	Republic of Bashkortostan	168
Ulyanovsk Oblast	73	Vologda Oblast	169
Republic of Mordovia	73	Republic of Tatarstan	181
Bryansk Oblast	74	City of Moscow	300
Ryazan Oblast	74		

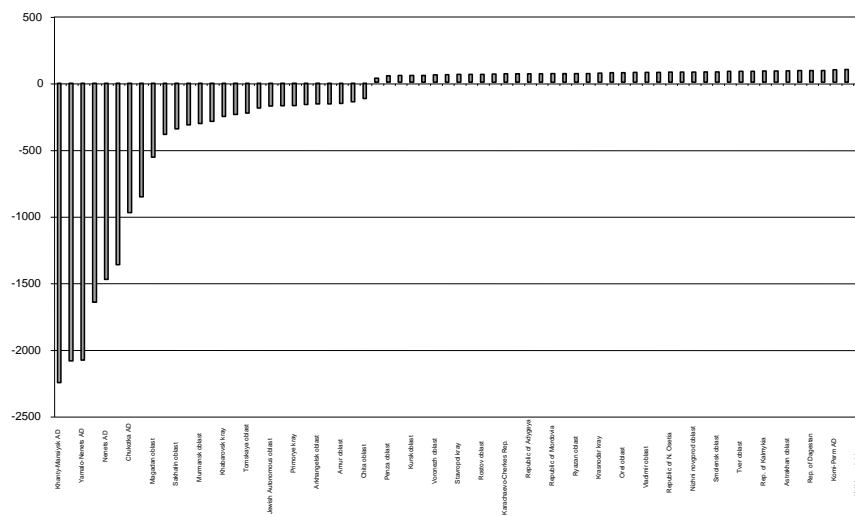


Chart 1. Changes in budgetary expenditures in function of migration from northern areas.

Appendix 7

Changes in welfare of citizens in consequence of migration

TABLE 16

Changes in public welfare among able-bodied population in cosequence of migration, with migrants being, for the most part, unemployed (USD per month per one unemployed migrant)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Altai krai	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Astrakhan Oblast	58	58	58	58	58	58	58	58	58	58	58	58	58	58
Belgorod Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Bryansk Oblast	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Vladimir Oblast	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Volgograd Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Vologda Oblast	80	80	80	80	80	80	80	80	80	80	80	80	80	80
Voronezh Oblast	43	43	43	43	43	43	43	43	43	43	43	43	43	43
City of Moscow	108	108	108	108	108	108	108	108	108	108	108	108	108	108
City of St. Petersburg	79	79	79	79	79	79	79	79	79	79	79	79	79	79
Ivanovo Oblast	35	35	35	35	35	35	35	35	35	35	35	35	35	35
Ingush Republic	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Kabardino-Balkar Republic	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Kaliningrad Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Kaluga Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Karachaevo-Cherkes Republic	31	31	31	31	31	31	31	31	31	31	31	31	31	31
Kemerovo Oblast	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Kirov Oblast	49	49	49	49	49	49	49	49	49	49	49	49	49	49
Komi-Perm AD	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Kostroma Oblast	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Krasnodar krai	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Kurgan Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Kursk Oblast	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Leningrad Oblast	66	66	66	66	66	66	66	66	66	66	66	66	66	66
Lipetsk Oblast	59	59	59	59	59	59	59	59	59	59	59	59	59	59
Moscow Oblast	72	72	72	72	72	72	72	72	72	72	72	72	72	72

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Nizhni Novgorod Oblast	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Novgorod Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53	53
Novosibirsk Oblast	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Omsk Oblast	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Orenburg Oblast	56	56	56	56	56	56	56	56	56	56	56	56	56	56
Orel Oblast	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Penza Oblast	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Perm Oblast	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Pskov Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Republic of Adygeya	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Republic of Bashkortostan	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Republic of Dagestan	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Kalmyk Republic	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Republic of Mari El	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Republic of Mordovia	34	34	34	34	34	34	34	34	34	34	34	34	34	34
Republic of N. Osetia	28	28	28	28	28	28	28	28	28	28	28	28	28	28
Republic of Tatarstan	63	63	63	63	63	63	63	63	63	63	63	63	63	63
Republic of Khakasia	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Rostov Oblast	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Ryazan Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Samara Oblast	69	69	69	69	69	69	69	69	69	69	69	69	69	69
Saratov Oblast	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Sverdlovsk Oblast	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Smolensk Oblast	51	51	51	51	51	51	51	51	51	51	51	51	51	51
Stavropol krai	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Tambov Oblast	38	38	38	38	38	38	38	38	38	38	38	38	38	38
Tver Oblast	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Tula Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52	52
Republic of Udmurtia	55	55	55	55	55	55	55	55	55	55	55	55	55	55
Ulyanovsk Oblast	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Ust-Orda Buryat AD	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Chelyabinsk Oblast	65	65	65	65	65	65	65	65	65	65	65	65	65	65
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Chuvash Republic	37	37	37	37	37	37	37	37	37	37	37	37	37	37
Yaroslavl Oblast	62	62	62	62	62	62	62	62	62	62	62	62	62	62

TABLE 16 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	37	37	37	37	37	37	37	37	37	37	37	37	37
Altai krai	42	42	42	42	42	42	42	42	42	42	42	42	42
Astrakhan Oblast	58	58	58	58	58	58	58	58	58	58	58	58	58
Belgorod Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53
Bryansk Oblast	36	36	36	36	36	36	36	36	36	36	36	36	36
Vladimir Oblast	49	49	49	49	49	49	49	49	49	49	49	49	49
Volgograd Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53
Vologda Oblast	80	80	80	80	80	80	80	80	80	80	80	80	80
Voronezh Oblast	43	43	43	43	43	43	43	43	43	43	43	43	43
City of Moscow	108	108	108	108	108	108	108	108	108	108	108	108	108
City of St. Petersburg	79	79	79	79	79	79	79	79	79	79	79	79	79
Ivanovo Oblast	35	35	35	35	35	35	35	35	35	35	35	35	35
Ingush Republic	21	21	21	21	21	21	21	21	21	21	21	21	21
Kabardino-Balkar Republic	30	30	30	30	30	30	30	30	30	30	30	30	30
Kaliningrad Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52
Kaluga Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52
Karachaev-Cherkes Republic	31	31	31	31	31	31	31	31	31	31	31	31	31
Kemerovo Oblast	74	74	74	74	74	74	74	74	74	74	74	74	74
Kirov Oblast	49	49	49	49	49	49	49	49	49	49	49	49	49
Komi-Perm AD	38	38	38	38	38	38	38	38	38	38	38	38	38
Kostroma Oblast	48	48	48	48	48	48	48	48	48	48	48	48	48
Krasnodar krai	51	51	51	51	51	51	51	51	51	51	51	51	51
Kurgan Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45
Kursk Oblast	46	46	46	46	46	46	46	46	46	46	46	46	46
Leningrad Oblast	66	66	66	66	66	66	66	66	66	66	66	66	66
Lipetsk Oblast	59	59	59	59	59	59	59	59	59	59	59	59	59
Moscow Oblast	72	72	72	72	72	72	72	72	72	72	72	72	72
Nizhni Novgorod Oblast	56	56	56	56	56	56	56	56	56	56	56	56	56
Novgorod Oblast	53	53	53	53	53	53	53	53	53	53	53	53	53
Novosibirsk Oblast	55	55	55	55	55	55	55	55	55	55	55	55	55

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Omsk Oblast	44	44	44	44	44	44	44	44	44	44	44	44	44
Orenburg Oblast	56	56	56	56	56	56	56	56	56	56	56	56	56
Orel Oblast	50	50	50	50	50	50	50	50	50	50	50	50	50
Penza Oblast	40	40	40	40	40	40	40	40	40	40	40	40	40
Perm Oblast	74	74	74	74	74	74	74	74	74	74	74	74	74
Pskov Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45
Republic of Adygeya	37	37	37	37	37	37	37	37	37	37	37	37	37
Republic of Bashkortostan	60	60	60	60	60	60	60	60	60	60	60	60	60
Republic of Dagestan	21	21	21	21	21	21	21	21	21	21	21	21	21
Kalmyk Republic	32	32	32	32	32	32	32	32	32	32	32	32	32
Republic of Mari El	37	37	37	37	37	37	37	37	37	37	37	37	37
Republic of Mordovia	34	34	34	34	34	34	34	34	34	34	34	34	34
Republic of N. Osetia	28	28	28	28	28	28	28	28	28	28	28	28	28
Republic of Tatarstan	63	63	63	63	63	63	63	63	63	63	63	63	63
Republic of Khakasia	65	65	65	65	65	65	65	65	65	65	65	65	65
Rostov Oblast	39	39	39	39	39	39	39	39	39	39	39	39	39
Ryazan Oblast	45	45	45	45	45	45	45	45	45	45	45	45	45
Samara Oblast	69	69	69	69	69	69	69	69	69	69	69	69	69
Saratov Oblast	44	44	44	44	44	44	44	44	44	44	44	44	44
Sverdlovsk Oblast	70	70	70	70	70	70	70	70	70	70	70	70	70
Smolensk Oblast	51	51	51	51	51	51	51	51	51	51	51	51	51
Stavropol krai	41	41	41	41	41	41	41	41	41	41	41	41	41
Tambov Oblast	38	38	38	38	38	38	38	38	38	38	38	38	38
Tver Oblast	50	50	50	50	50	50	50	50	50	50	50	50	50
Tula Oblast	52	52	52	52	52	52	52	52	52	52	52	52	52
Republic of Udmurtia	55	55	55	55	55	55	55	55	55	55	55	55	55
Ulyanovsk Oblast	46	46	46	46	46	46	46	46	46	46	46	46	46
Ust-Orda Buryat AD	32	32	32	32	32	32	32	32	32	32	32	32	32
Chelyabinsk Oblast	65	65	65	65	65	65	65	65	65	65	65	65	65
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	37	37	37	37	37	37	37	37	37	37	37	37	37
Yaroslavl Oblast	62	62	62	62	62	62	62	62	62	62	62	62	62

TABLE 17

Changes in public welfare among able-bodied population in cosequence of mass migration (USD per month per one able-bodied migrant)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	-31	-47	-17	-39	-52	-28	-65	-37	-59	-59	-24	-1	-22	-38
Altai krai	-15	-29	-4	-22	-33	-13	-44	-20	-39	-39	-10	10	-7	-21
Astrakhan Oblast	-2	-16	10	-9	-21	1	-32	-7	-27	-27	4	25	6	-8
Belgorod Oblast	-2	-15	9	-9	-20	0	-30	-7	-25	-26	3	22	5	-8
Bryansk Oblast	-19	-32	-8	-26	-36	-17	-47	-24	-42	-42	-14	6	-12	-25
Vladimir Oblast	-8	-21	4	-15	-25	-6	-36	-13	-31	-31	-2	18	0	-14
Volograd Oblast	-8	-22	4	-15	-27	-5	-38	-13	-33	-33	-2	19	0	-14
Vologda Oblast	17	2	30	10	-3	20	-15	12	-9	-9	23	46	26	11
Voronezh Oblast	-13	-26	-2	-20	-31	-11	-41	-18	-36	-36	-8	12	-5	-19
City of Moscow	28	9	44	18	3	31	-12	21	-5	-6	36	64	39	20
City of St. Petersburg	10	-7	24	1	-12	12	-26	3	-19	-20	16	41	19	2
Ivanovo Oblast	-23	-36	-11	-30	-41	-21	-52	-28	-47	-47	-17	3	-15	-29
Ingush Republic	-50	-67	-36	-59	-72	-47	-86	-56	-80	-80	-43	-18	-40	-58
Kabardino-Balkar Republic	-26	-39	-15	-33	-44	-24	-55	-31	-50	-50	-21	-1	-19	-32
Kaliningrad Oblast	-13	-28	1	-20	-33	-10	-45	-18	-40	-40	-6	17	-4	-20
Kaluga Oblast	-8	-22	4	-15	-27	-6	-39	-14	-33	-33	-2	19	0	-15
Karachaevo-Cherkes Republic	-27	-40	-15	-34	-45	-24	-56	-32	-51	-51	-21	-1	-19	-33
Kemerovo Oblast	13	-2	25	5	-7	15	-19	7	-13	-13	19	40	21	6
Kirov Oblast	-9	-23	3	-16	-27	-7	-38	-14	-33	-33	-4	17	-1	-15
Komi-Perm AD	-21	-34	-9	-28	-39	-18	-50	-26	-45	-45	-15	5	-13	-27
Kostroma Oblast	-6	-19	5	-13	-24	-4	-34	-11	-29	-29	-1	18	1	-12
Krasnodar krai	-5	-18	6	-12	-23	-3	-33	-10	-28	-29	0	20	2	-11
Kurgan Oblast	-14	-28	-2	-21	-32	-12	-44	-19	-38	-39	-8	13	-6	-20
Kursk Oblast	-9	-22	2	-15	-26	-7	-36	-14	-31	-32	-4	16	-1	-15
Leningrad Oblast	2	-13	15	-6	-18	4	-31	-4	-25	-25	8	31	10	-5
Lipetsk Oblast	3	-10	14	-4	-15	5	-25	-2	-20	-21	8	28	11	-3
Moscow Oblast	8	-7	21	0	-12	10	-25	2	-19	-19	14	37	17	1
Nizhni Novgorod Oblast	-4	-18	8	-11	-22	-1	-34	-9	-28	-29	2	23	4	-10
Novgorod Oblast	-7	-21	5	-14	-25	-4	-37	-12	-31	-32	-1	20	1	-13
Novosibirsk Oblast	-8	-22	5	-15	-27	-5	-39	-13	-34	-34	-2	20	1	-14
Omsk Oblast	-14	-28	-2	-21	-33	-12	-44	-20	-39	-39	-9	12	-6	-21
Orenburg Oblast	-5	-19	8	-12	-24	-2	-35	-10	-30	-30	1	23	4	-11
Orel Oblast	-6	-19	5	-12	-23	-4	-34	-11	-29	-29	0	19	2	-12
Penza Oblast	-17	-31	-6	-24	-35	-15	-46	-22	-41	-41	-12	8	-10	-23
Perm Oblast	11	-3	24	4	-8	14	-20	6	-15	-15	17	40	20	5
Pskov Oblast	-14	-28	-2	-21	-32	-12	-43	-19	-38	-38	-8	13	-6	-20
Republic of Adygeya	-23	-38	-11	-31	-42	-21	-54	-29	-48	-49	-18	3	-15	-30

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Republic of Bashkortostan	0	-14	12	-7	-19	2	-30	-5	-25	-25	6	27	8	-6
Republic of Dagestan	-37	-51	-25	-44	-55	-35	-66	-42	-61	-61	-31	-11	-29	-43
Kalmyk Republic	-23	-36	-12	-30	-40	-21	-51	-28	-46	-46	-18	2	-15	-29
Republic of Mari El	-20	-33	-8	-27	-38	-18	-49	-25	-44	-44	-15	6	-12	-26
Republic of Mordovia	-22	-35	-10	-28	-39	-19	-50	-27	-45	-45	-16	3	-14	-28
Republic of N. Osetia	-31	-44	-19	-38	-49	-28	-60	-36	-55	-55	-25	-4	-23	-37
Republic of Tatarstan	9	-4	20	2	-9	11	-19	4	-14	-14	14	33	16	3
Republic of Khakasia	-6	-23	9	-14	-28	-3	-42	-12	-35	-36	1	26	4	-14
Rostov Oblast	-15	-27	-4	-21	-32	-13	-42	-20	-37	-37	-10	10	-7	-20
Ryazan Oblast	-13	-27	-1	-20	-31	-11	-42	-18	-37	-37	-7	13	-5	-19
Samara Oblast	0	-16	14	-8	-21	3	-34	-6	-28	-28	7	31	10	-7
Saratov Oblast	-19	-34	-6	-27	-39	-17	-51	-25	-45	-45	-13	9	-10	-26
Sverdlovsk Oblast	2	-14	16	-6	-20	4	-32	-4	-26	-27	8	32	11	-5
Smolensk Oblast	-10	-24	3	-17	-28	-7	-40	-15	-35	-35	-4	17	-1	-16
Stavropol krai	-16	-30	-5	-23	-34	-14	-45	-22	-40	-40	-11	10	-8	-22
Tambov Oblast	-17	-29	-6	-23	-34	-15	-44	-22	-39	-40	-12	8	-9	-23
Tver Oblast	-10	-24	2	-18	-29	-8	-41	-16	-35	-36	-4	17	-2	-17
Tula Oblast	-10	-24	3	-17	-29	-7	-41	-15	-36	-36	-4	18	-1	-16
Republic of Udmurtia	-7	-21	6	-14	-26	-5	-38	-12	-33	-33	-1	21	1	-14
Ulyanovsk Oblast	-5	-17	5	-11	-21	-3	-31	-10	-27	-27	0	18	2	-11
Ust-Orda Buryat AD	-36	-52	-22	-44	-58	-34	-71	-42	-65	-65	-30	-6	-27	-44
Chelyabinsk Oblast	0	-16	13	-8	-21	2	-34	-6	-28	-28	6	29	8	-8
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-20	-34	-9	-27	-38	-18	-49	-26	-44	-44	-15	5	-13	-26
Yaroslavl Oblast	1	-13	13	-6	-18	3	-30	-5	-24	-25	7	28	9	-6

TABLE 17 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	-73	-62	-3	-33	-92	-49	-139	-38	-166	-21	-27	-48	-152
Altai krai	-51	-42	9	-17	-67	-31	-108	-21	-130	-7	-12	-30	-119
Astrakhan Oblast	-40	-30	23	-4	-56	-18	-98	-8	-121	7	2	-17	-109
Belgorod Oblast	-37	-28	21	-4	-52	-17	-91	-8	-113	6	1	-16	-102
Bryansk Oblast	-54	-45	4	-21	-69	-34	-108	-25	-129	-11	-16	-33	-118
Vladimir Oblast	-43	-34	16	-9	-59	-23	-98	-13	-121	1	-4	-22	-109
Volgograd Oblast	-46	-36	17	-10	-62	-24	-105	-14	-128	1	-4	-23	-116

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	TOmsk Oblast	Tyumen Oblast	Khabarovsk krai	Khamy-Mansysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Vologda Oblast	-23	-12	44	15	-40	0	-84	11	-109	27	21	1	-96
Voronezh Oblast	-48	-39	10	-15	-63	-28	-103	-19	-125	-5	-9	-27	-113
City of Moscow	-22	-9	62	26	-44	7	-101	20	-132	40	33	8	-116
City of St. Petersburg	-34	-23	39	8	-53	-9	-103	3	-130	20	14	-8	-116
Ivanovo Oblast	-59	-50	1	-25	-75	-38	-115	-29	-138	-14	-19	-37	-127
Ingush Republic	-95	-83	-20	-52	-114	-69	-165	-57	-193	-39	-45	-68	-178
Kabardino-Balkar Republic	-62	-52	-3	-28	-77	-41	-117	-32	-139	-18	-23	-40	-128
Kaliningrad Oblast	-54	-43	15	-14	-71	-30	-117	-19	-142	-3	-8	-29	-129
Kaluga Oblast	-46	-36	17	-10	-63	-24	-105	-14	-129	1	-4	-23	-117
Karachaevo-Cherkes Republic	-63	-54	-3	-28	-79	-42	-120	-33	-143	-18	-23	-41	-131
Kemerovo Oblast	-26	-16	38	11	-43	-4	-87	6	-111	22	17	-3	-98
Kirov Oblast	-46	-36	15	-11	-61	-24	-102	-15	-125	0	-5	-24	-113
Komi-Perm AD	-57	-48	4	-22	-73	-36	-114	-26	-137	-12	-17	-35	-125
Kostroma Oblast	-41	-32	16	-8	-56	-21	-94	-12	-116	2	-3	-20	-105
Krasnodar krai	-41	-31	18	-7	-56	-20	-95	-11	-117	3	-2	-19	-106
Kurgan Oblast	-51	-41	11	-16	-67	-30	-109	-20	-132	-5	-10	-29	-120
Kursk Oblast	-43	-34	14	-10	-58	-23	-96	-14	-118	-1	-5	-23	-107
Leningrad Oblast	-39	-28	29	0	-56	-15	-102	-5	-127	11	6	-14	-114
Lipetsk Oblast	-33	-23	27	1	-48	-12	-88	-3	-110	11	7	-11	-99
Moscow Oblast	-33	-22	35	6	-50	-9	-95	1	-121	17	12	-8	-108
Nizhni Novgorod Oblast	-41	-31	21	-5	-57	-19	-99	-10	-122	5	0	-19	-111
Novgorod Oblast	-44	-35	18	-8	-60	-23	-103	-13	-126	2	-3	-22	-114
Novosibirsk Oblast	-47	-37	18	-10	-64	-24	-108	-14	-133	2	-4	-24	-120
Omsk Oblast	-51	-42	10	-16	-67	-30	-108	-20	-131	-5	-10	-29	-120
Orenburg Oblast	-43	-33	21	-6	-59	-21	-102	-11	-126	5	-1	-20	-114
Orel Oblast	-41	-32	17	-7	-56	-20	-95	-11	-116	3	-2	-20	-105
Penza Oblast	-53	-44	6	-19	-68	-32	-109	-23	-131	-9	-14	-32	-120
Perm Oblast	-28	-18	38	10	-45	-5	-89	5	-114	21	15	-4	-102
Pskov Oblast	-51	-41	11	-16	-67	-29	-108	-20	-131	-5	-10	-29	-120
Republic of Adygeya	-61	-51	2	-25	-77	-39	-120	-29	-143	-14	-20	-39	-131
Republic of Bashkortostan	-38	-28	25	-2	-54	-16	-97	-6	-120	9	4	-15	-108
Republic of Dagestan	-74	-64	-13	-39	-90	-52	-131	-43	-154	-28	-33	-52	-142
Kalmyk Republic	-58	-49	0	-24	-73	-38	-112	-28	-133	-15	-19	-37	-122
Republic of Mari El	-56	-47	4	-22	-71	-35	-111	-26	-134	-11	-16	-34	-122
Republic of Mordovia	-57	-48	2	-23	-72	-36	-111	-27	-133	-13	-18	-36	-122
Republic of N. Osetia	-67	-58	-6	-32	-83	-46	-124	-36	-147	-22	-27	-45	-135
Republic of Tatarstan	-26	-17	31	7	-41	-6	-79	3	-101	17	12	-5	-90

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khamy-Mansysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Khakasia	-51	-39	24	-8	-70	-25	-120	-13	-148	5	-1	-24	-134
Rostov Oblast	-49	-40	8	-16	-63	-29	-102	-20	-123	-7	-11	-28	-112
Ryazan Oblast	-50	-40	11	-15	-65	-28	-107	-19	-129	-4	-9	-28	-118
Samara Oblast	-43	-32	29	-2	-61	-18	-110	-7	-137	11	5	-17	-123
Saratov Oblast	-59	-48	7	-21	-76	-36	-120	-25	-145	-10	-15	-35	-132
Sverdlovsk Oblast	-41	-30	30	0	-59	-16	-107	-5	-134	12	6	-15	-120
Smolensk Oblast	-47	-38	16	-11	-64	-26	-106	-16	-130	-1	-6	-25	-118
Stavropol krai	-53	-43	8	-18	-68	-32	-109	-22	-132	-8	-13	-31	-120
Tambov Oblast	-51	-42	6	-18	-66	-31	-104	-22	-125	-9	-13	-30	-114
Tver Oblast	-48	-38	15	-12	-65	-26	-107	-16	-131	-1	-6	-26	-119
Tula Oblast	-49	-39	16	-12	-66	-26	-109	-16	-134	-1	-6	-25	-121
Republic of Udmurtia	-46	-36	19	-9	-62	-23	-106	-13	-130	2	-3	-23	-118
Ulyanovsk Oblast	-38	-29	16	-7	-51	-19	-88	-10	-108	2	-2	-18	-98
Ust-Orda Buryat AD	-79	-68	-8	-38	-98	-54	-146	-43	-173	-26	-32	-53	-159
Chelyabinsk Oblast	-42	-31	27	-2	-60	-18	-106	-7	-132	9	4	-17	-119
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-56	-47	3	-22	-72	-36	-112	-26	-134	-12	-17	-35	-123
Yaroslavl Oblast	-38	-28	26	-1	-54	-15	-97	-5	-121	10	5	-15	-109

TABLE 18

**Changes in public welfare among older than able-bodied population
in cosequence of migration (USD per month per one older
than able-bodied migrant)**

	Amur Oblast	Arkhangel'sk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	-5	-8	-3	-3	6	17	-4	8	-1	6	0	-6	-6	-5
Altai krai	-1	-2	1	1	10	19	1	12	4	9	4	-1	-1	0
Astrakhan Oblast	-2	-3	0	0	9	19	0	11	3	8	3	-2	-3	-1
Belgorod Oblast	0	-1	2	2	11	20	2	12	5	10	4	-1	-1	1
Bryansk Oblast	0	-1	2	2	11	20	2	12	5	10	5	0	0	1
Vladimir Oblast	0	-2	1	2	10	20	1	12	4	10	4	-1	-1	1
Volgograd Oblast	-2	-4	0	0	9	19	-1	11	2	8	3	-3	-3	-1
Vologda Oblast	-3	-5	-1	-1	8	18	-2	10	1	7	2	-4	-4	-3
Voronezh Oblast	0	-1	2	2	10	20	1	12	4	10	4	-1	-1	1
City of Moscow	-11	-14	-8	-8	1	15	-9	4	-7	1	-5	-11	-12	-11
City of St. Petersburg	-6	-9	-4	-4	5	17	-5	7	-2	5	-1	-7	-7	-6
Ivanovo Oblast	-1	-2	1	1	10	19	1	12	4	9	4	-2	-2	0
Ingush Republic	-7	-10	-5	-4	4	17	-5	7	-3	5	-1	-7	-8	-7
Kabardino-Balkar Republic	0	-2	1	2	10	20	1	12	4	10	4	-1	-1	1
Kaliningrad Oblast	-4	-6	-2	-2	7	18	-2	9	0	7	1	-5	-5	-4
Kaluga Oblast	-2	-4	0	0	9	19	-1	11	2	8	3	-3	-3	-1
Karachaevo-Cherkes Republic	-1	-2	1	1	10	19	1	12	4	9	4	-2	-2	0
Kemerovo Oblast	-3	-4	-1	0	8	19	-1	10	2	8	2	-3	-3	-2
Kirov Oblast	-1	-2	1	1	10	19	1	12	4	9	4	-2	-2	0
Komi-Perm AD	-1	-3	1	1	10	19	0	11	3	9	3	-2	-2	0
Kostroma Oblast	0	-1	2	2	11	20	2	13	5	10	5	0	0	1
Krasnodar krai	0	-1	1	2	10	20	1	12	4	10	4	-1	-1	1
Kurgan Oblast	-2	-3	0	1	9	19	0	11	3	9	3	-2	-2	-1
Kursk Oblast	0	-1	2	3	11	20	2	13	5	10	5	0	0	2
Leningrad Oblast	-4	-6	-2	-2	7	18	-2	9	1	7	1	-4	-4	-3
Lipetsk Oblast	-1	-2	1	2	10	20	1	12	4	10	4	-1	-1	1
Moscow Oblast	-4	-6	-2	-2	7	18	-2	9	1	7	1	-4	-4	-3
Nizhni Novgorod Oblast	-2	-3	0	0	9	19	0	11	3	9	3	-2	-2	-1
Novgorod Oblast	-2	-3	0	0	9	19	0	11	3	9	3	-2	-2	-1
Novosibirsk Oblast	-3	-5	-1	-1	8	18	-2	10	1	7	2	-4	-4	-2
Omsk Oblast	-1	-3	0	1	9	19	0	11	3	9	3	-2	-2	0
Orenburg Oblast	-2	-4	0	0	8	19	-1	10	2	8	2	-3	-3	-2
Orel Oblast	0	-1	2	2	11	20	2	12	5	10	4	-1	-1	1

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Penza Oblast	-1	-2	1	2	10	20	1	12	4	9	4	-1	-1	0
Perm Oblast	-3	-5	-1	-1	8	18	-2	10	1	7	2	-4	-4	-2
Pskov Oblast	-2	-3	0	1	9	19	0	11	3	9	3	-2	-2	-1
Republic of Adygeya	-2	-3	0	0	9	19	0	11	3	8	3	-3	-3	-1
Republic of Bashkortostan	-2	-4	0	0	9	19	0	11	2	8	3	-3	-3	-1
Republic of Dagestan	-1	-3	1	1	9	19	0	11	3	9	3	-2	-2	0
Kalmyk Republic	0	-1	2	2	11	20	2	12	5	10	5	0	-1	1
Republic of Mari El	-1	-2	1	2	10	20	1	12	4	9	4	-1	-1	0
Republic of Mordovia	0	-1	2	2	10	20	1	12	4	10	4	-1	-1	1
Republic of N. Osetia	-1	-3	1	1	10	19	0	11	3	9	3	-2	-2	0
Republic of Tatarstan	0	-1	2	2	11	20	2	13	5	10	5	0	0	1
Republic of Khakasia	-7	-10	-5	-4	4	17	-5	7	-3	5	-1	-7	-8	-7
Rostov Oblast	1	0	2	3	11	20	2	13	5	10	5	0	0	2
Ryazan Oblast	-1	-3	1	1	9	19	0	11	3	9	3	-2	-2	0
Samara Oblast	-6	-8	-4	-3	5	17	-4	8	-1	5	0	-6	-6	-5
Saratov Oblast	-3	-5	-1	-1	8	18	-2	10	1	7	2	-4	-4	-3
Sverdlovsk Oblast	-6	-8	-3	-3	6	17	-4	8	-1	6	0	-6	-6	-5
Smolensk Oblast	-2	-4	0	0	9	19	0	11	3	8	3	-3	-3	-1
Stavropol krai	-1	-2	1	1	10	19	1	12	4	9	4	-2	-2	0
Tambov Oblast	0	0	2	3	11	20	2	13	5	10	5	0	0	2
Tver Oblast	-2	-4	0	0	9	19	-1	11	2	8	3	-3	-3	-1
Tula Oblast	-3	-4	-1	-1	8	19	-1	10	2	8	2	-3	-3	-2
Republic of Udmurtia	-3	-4	-1	0	8	19	-1	10	2	8	2	-3	-3	-2
Ulyanovsk Oblast	2	1	3	4	12	21	3	14	6	11	6	1	1	3
Ust-Orda Buryat AD	-6	-8	-3	-3	5	17	-4	8	-1	6	0	-6	-6	-5
Chelyabinsk Oblast	-5	-7	-2	-2	6	18	-3	9	0	6	1	-5	-5	-4
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-1	-2	1	1	10	20	1	12	4	9	4	-1	-1	0
Yaroslavl Oblast	-2	-4	-1	0	8	19	-1	10	2	8	2	-3	-3	-2

TABLE 18 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenk AD	Yamal-Nenets AD
Aginsk Buryat AD	-7	5	-3	6	10	-9	0	-1	3	-4	21	4	6
Altai krai	-2	10	1	9	13	-4	4	3	6	0	23	7	10
Astrakhan Oblast	-3	9	0	9	12	-5	3	2	6	-1	22	7	9

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Belgorod Oblast	-1	11	2	10	14	-3	5	4	7	1	23	8	10
Bryansk Oblast	0	11	2	10	14	-3	5	4	7	1	23	8	10
Vladimir Oblast	-1	10	1	10	13	-4	4	3	7	1	23	8	10
Volgograd Oblast	-3	9	0	8	12	-6	3	2	5	-1	22	6	9
Vologda Oblast	-5	7	-1	7	11	-7	2	1	4	-2	22	6	8
Voronezh Oblast	-1	11	1	10	13	-3	5	4	7	1	23	8	10
City of Moscow	-14	-1	-8	1	6	-16	-5	-7	-2	-9	18	0	2
City of St. Petersburg	-8	4	-4	5	9	-11	-1	-2	2	-5	20	3	5
Ivanovo Oblast	-2	10	1	9	13	-4	4	3	6	0	23	7	10
Ingush Republic	-9	4	-4	5	9	-11	-1	-3	1	-5	20	3	5
Kabardino-Balkar Republic	-1	10	1	10	13	-3	4	3	7	1	23	8	10
Kaliningrad Oblast	-6	6	-2	7	11	-8	1	0	4	-3	21	5	7
Kaluga Oblast	-3	8	0	8	12	-6	3	2	5	-1	22	6	9
Karachaevo-Cherkes Republic	-2	10	1	9	13	-4	4	3	6	0	23	7	9
Kemerovo Oblast	-4	8	-1	8	12	-6	2	1	5	-1	22	6	8
Kirov Oblast	-2	10	1	9	13	-4	4	3	6	0	23	7	10
Komi-Perm AD	-2	10	1	9	13	-4	4	3	6	0	23	7	9
Kostroma Oblast	0	11	2	10	14	-3	5	4	8	1	23	8	11
Krasnodar krai	-1	11	1	10	13	-3	4	4	7	1	23	8	10
Kurgan Oblast	-2	9	0	9	12	-5	3	2	6	0	23	7	9
Kursk Oblast	0	11	2	11	14	-3	5	4	8	1	23	9	11
Leningrad Oblast	-5	7	-2	7	11	-8	1	0	4	-2	21	5	7
Lipetsk Oblast	-1	10	1	10	13	-4	4	3	7	1	23	8	10
Moscow Oblast	-5	7	-2	7	11	-8	1	0	4	-2	21	5	7
<i>Nizhni Novgorod Oblast</i>	-3	9	0	9	12	-5	3	2	6	-1	22	7	9
Novgorod Oblast	-3	9	0	9	12	-5	3	2	6	-1	22	7	9
Novosibirsk Oblast	-4	7	-1	8	11	-7	2	1	4	-2	22	6	8
Omsk Oblast	-2	9	0	9	13	-5	3	3	6	0	23	7	9
Orenburg Oblast	-3	8	-1	8	12	-6	3	2	5	-1	22	6	8
Orel Oblast	-1	11	2	10	14	-3	5	4	7	1	23	8	10
Penza Oblast	-1	10	1	10	13	-4	4	3	7	0	23	8	10
Perm Oblast	-4	7	-1	8	11	-7	2	1	4	-2	22	6	8
Pskov Oblast	-2	9	0	9	13	-5	3	2	6	0	23	7	9
Republic of Adygeya	-3	9	0	9	12	-5	3	2	6	-1	22	7	9
Republic of Bashkortostan	-3	9	0	8	12	-6	3	2	5	-1	22	7	9
Republic of Dagestan	-2	9	0	9	13	-5	4	3	6	0	23	7	9
Kalmyk Republic	0	11	2	10	14	-3	5	4	7	1	23	8	10

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Mari El	-1	10	1	10	13	-4	4	3	7	0	23	8	10
Republic of Mordovia	-1	11	1	10	13	-3	4	4	7	1	23	8	10
Republic of N. Osetia	-2	10	1	9	13	-4	4	3	6	0	23	7	9
Republic of Tatarstan	0	11	2	10	14	-3	5	4	8	1	23	8	11
Republic of Khakasia	-9	4	-4	5	9	-11	-1	-3	1	-5	20	3	5
Rostov Oblast	0	11	2	11	14	-2	5	4	8	2	24	9	11
Ryazan Oblast	-2	9	0	9	13	-4	4	3	6	0	23	7	9
Samara Oblast	-7	5	-3	5	9	-10	0	-2	2	-4	20	4	6
Saratov Oblast	-5	7	-1	7	11	-7	2	1	4	-2	22	6	8
Sverdlovsk Oblast	-7	5	-3	6	10	-10	0	-1	3	-4	21	4	6
Smolensk Oblast	-3	9	0	9	12	-5	3	2	5	-1	22	7	9
Stavropol krai	-2	10	1	9	13	-4	4	3	6	0	23	7	10
Tambov Oblast	0	11	2	11	14	-2	5	4	8	1	23	9	11
Tver Oblast	-3	8	0	8	12	-6	3	2	5	-1	22	6	9
Tula Oblast	-4	8	-1	8	12	-6	2	1	5	-2	22	6	8
Republic of Udmurtia	-4	8	-1	8	12	-6	2	1	5	-1	22	6	8
Ulyanovsk Oblast	2	13	3	12	15	-1	6	6	9	3	24	10	12
Ust-Orda Buryat AD	-7	5	-3	6	10	-10	0	-2	2	-4	20	4	6
Chelyabinsk Oblast	-6	6	-2	7	10	-8	1	-1	3	-3	21	5	7
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-1	10	1	10	13	-4	4	3	7	0	23	8	10
Yaroslavl Oblast	-4	8	-1	8	12	-6	3	2	5	-1	22	6	8

TABLE 19

Changes in public welfare among younger than able-bodied population in cosequence of migration (USD per month per one younger than able-bodied migrant)

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Aginsk Buryat AD	2	-3	1	1	-7	-19	-12	-7	-10	-41	5	-1	5	-7
Altai krai	0	-4	-1	-1	-8	-18	-12	-8	-11	-37	3	-3	2	-8
Astrakhan Oblast	0	-4	-1	0	-8	-18	-12	-7	-10	-37	3	-3	3	-8
Belgorod Oblast	2	-2	1	2	-6	-15	-9	-5	-8	-33	5	-1	4	-5
Bryansk Oblast	2	-2	1	1	-6	-16	-10	-6	-8	-33	4	-1	4	-6
Vladimir Oblast	0	-4	-1	-1	-8	-18	-11	-7	-10	-36	3	-3	2	-7
Volgograd Oblast	1	-4	0	0	-8	-18	-12	-7	-10	-38	3	-3	3	-7
Vologda Oblast	13	9	12	12	4	-7	0	5	2	-27	16	10	15	5
Voronezh Oblast	-3	-7	-4	-4	-11	-20	-14	-10	-13	-38	0	-6	-1	-10
City of Moscow	10	5	9	9	-1	-15	-6	0	-4	-40	14	6	13	0
City of St. Petersburg	7	2	6	6	-3	-15	-7	-2	-5	-37	11	3	10	-2
Ivanovo Oblast	-3	-7	-4	-4	-11	-21	-15	-11	-14	-40	0	-6	-1	-11
Ingush Republic	-9	-14	-10	-10	-19	-31	-23	-18	-22	-54	-6	-13	-6	-18
Kabardino-Balkar Republic	2	-2	1	1	-6	-16	-10	-6	-8	-34	5	-1	4	-6
Kaliningrad Oblast	-2	-6	-3	-2	-11	-22	-15	-10	-13	-43	2	-5	1	-10
Kaluga Oblast	1	-3	0	1	-7	-17	-11	-6	-9	-37	4	-2	4	-7
Karachaevo-Cherkes Republic	-3	-7	-4	-3	-11	-21	-14	-10	-13	-39	0	-6	0	-10
Kemerovo Oblast	6	2	5	5	-3	-13	-7	-2	-5	-33	9	3	8	-2
Kirov Oblast	0	-4	-1	0	-8	-18	-11	-7	-10	-36	3	-3	2	-7
Komi-Perm AD	7	3	6	7	-1	-11	-4	0	-3	-29	10	4	10	0
Kostroma Oblast	1	-3	0	0	-7	-16	-10	-6	-9	-34	3	-2	3	-7
Krasnodar krai	-1	-5	-2	-1	-9	-18	-12	-8	-11	-36	2	-4	1	-8
Kurgan Oblast	-3	-7	-4	-4	-11	-21	-15	-11	-14	-40	0	-6	-1	-11
Kursk Oblast	-2	-6	-3	-2	-10	-19	-13	-9	-12	-36	1	-5	0	-9
Leningrad Oblast	1	-4	0	0	-8	-19	-12	-8	-11	-40	4	-3	3	-8
Lipetsk Oblast	4	0	3	4	-4	-13	-7	-3	-6	-32	7	1	6	-3
Moscow Oblast	1	-4	0	0	-8	-19	-12	-8	-11	-40	4	-3	3	-8
Nizhni Novgorod Oblast	1	-4	0	0	-8	-18	-11	-7	-10	-37	3	-3	3	-7
Novgorod Oblast	6	1	5	5	-3	-13	-6	-2	-5	-32	9	2	8	-2
Novosibirsk Oblast	0	-5	-1	-1	-9	-20	-13	-8	-11	-40	3	-4	2	-8
Omsk Oblast	-5	-9	-6	-5	-13	-23	-16	-12	-15	-42	-2	-8	-2	-12
Orenburg Oblast	3	-1	2	3	-6	-16	-9	-5	-8	-35	6	0	5	-5
Orel Oblast	3	-1	2	3	-5	-14	-8	-4	-7	-32	6	0	5	-4

	Amur Oblast	Arkhangelsk obl.	Jewish Autonomous Obl.	Irkutsk Oblast	Kamchatka Oblast	Koryak AD	Krasnoyarsk krai	Magadan Oblast	Murmansk Oblast	Nenets AD	Primorye krai	Republic of Altai	Republic of Buryatia	Republic of Karelia
Penza Oblast	-3	-7	-4	-4	-11	-21	-15	-11	-13	-39	-1	-6	-1	-11
Perm Oblast	6	1	5	5	-3	-14	-7	-2	-6	-34	9	2	8	-3
Pskov Oblast	1	-3	0	1	-7	-17	-11	-6	-9	-36	4	-2	3	-7
Republic of Adygeya	-2	-7	-3	-3	-11	-21	-15	-10	-13	-40	0	-6	0	-10
Republic of Bashkortostan	6	2	5	6	-2	-13	-6	-2	-5	-32	9	3	9	-2
Republic of Dagestan	-3	-7	-4	-3	-11	-21	-15	-10	-13	-40	0	-6	-1	-11
Kalmyk Republic	-1	-5	-2	-1	-9	-18	-12	-8	-11	-36	2	-4	1	-8
Republic of Mari El	-3	-7	-4	-4	-11	-21	-15	-11	-13	-39	0	-6	-1	-11
Republic of Mordovia	-1	-5	-2	-1	-9	-18	-12	-8	-11	-36	2	-4	1	-8
Republic of N. Osetia	-3	-7	-4	-4	-12	-22	-15	-11	-14	-40	-1	-6	-1	-11
Republic of Tatarstan	10	6	9	10	2	-7	-1	3	0	-24	13	7	12	3
Republic of Khakasia	1	-4	0	0	-9	-21	-13	-8	-12	-44	4	-3	4	-8
Rostov Oblast	-2	-6	-3	-3	-10	-19	-13	-9	-12	-36	1	-5	0	-9
Ryazan Oblast	-2	-6	-3	-3	-10	-20	-14	-10	-13	-39	1	-5	0	-10
Samara Oblast	0	-4	-1	0	-9	-21	-14	-9	-12	-43	4	-3	3	-9
Saratov Oblast	-4	-9	-5	-5	-13	-24	-17	-13	-16	-44	-1	-8	-2	-13
Sverdlovsk Oblast	0	-4	-1	0	-9	-21	-13	-9	-12	-43	4	-3	3	-9
Smolensk Oblast	-1	-5	-2	-2	-9	-20	-13	-9	-12	-39	2	-4	1	-9
Stavropol krai	-3	-7	-4	-4	-11	-21	-15	-11	-13	-40	0	-6	-1	-11
Tambov Oblast	-1	-5	-2	-2	-9	-18	-12	-8	-11	-35	2	-4	1	-8
Tver Oblast	-1	-5	-2	-2	-10	-20	-13	-9	-12	-39	2	-4	1	-9
Tula Oblast	-1	-6	-3	-2	-10	-21	-14	-10	-13	-41	1	-5	1	-10
Republic of Udmurtia	5	0	4	4	-4	-15	-8	-3	-6	-34	8	1	7	-4
Ulyanovsk Oblast	-3	-7	-4	-4	-11	-19	-14	-10	-12	-36	-1	-6	-1	-10
Ust-Orda Buryat AD	0	-5	-1	-1	-10	-22	-14	-9	-13	-43	3	-4	2	-9
Chelyabinsk Oblast	0	-5	-1	-1	-9	-21	-13	-9	-12	-42	3	-4	2	-9
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-2	-6	-3	-3	-10	-20	-14	-10	-12	-38	1	-5	0	-10
Yaroslavl Oblast	1	-3	0	1	-8	-18	-11	-7	-10	-37	4	-2	3	-7

TABLE 19 (CONT.)

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Aginsk Buryat AD	-11	-26	3	0	-52	-4	11	-1	-52	5	-3	-23	-36
Altai krai	-11	-24	0	-2	-46	-5	7	-3	-46	3	-4	-22	-33
Astrakhan Oblast	-11	-24	1	-1	-47	-5	8	-2	-48	3	-4	-22	-33

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Belgorod Oblast	-8	-21	3	1	-42	-3	9	0	-42	5	-2	-18	-29
Bryansk Oblast	-9	-21	2	0	-42	-3	8	-1	-43	4	-2	-19	-29
Vladimir Oblast	-11	-23	1	-2	-45	-5	7	-2	-45	3	-4	-21	-32
Volgograd Oblast	-11	-24	1	-1	-48	-5	8	-2	-48	4	-4	-22	-33
Vologda Oblast	1	-13	13	11	-37	7	21	10	-38	16	9	-10	-23
Voronezh Oblast	-14	-26	-3	-5	-47	-8	4	-6	-48	0	-7	-24	-34
City of Moscow	-5	-23	11	8	-54	3	20	7	-54	14	5	-19	-35
City of St. Petersburg	-6	-22	8	5	-48	1	16	4	-49	11	2	-19	-32
Ivanovo Oblast	-14	-27	-3	-5	-49	-8	4	-6	-49	0	-7	-24	-36
Ingush Republic	-23	-38	-8	-11	-66	-15	0	-12	-66	-5	-14	-35	-49
Kabardino-Balkar Republic	-9	-21	2	0	-43	-3	9	-1	-43	5	-2	-19	-30
Kaliningrad Oblast	-14	-28	-1	-4	-53	-7	6	-5	-54	2	-6	-26	-38
Kaluga Oblast	-10	-23	2	0	-47	-4	9	-1	-47	4	-3	-21	-33
Karachaevo-Cherkes Republic	-14	-26	-2	-4	-49	-8	5	-5	-49	0	-7	-24	-35
Kemerovo Oblast	-6	-20	6	4	-43	0	14	3	-44	9	2	-17	-29
Kirov Oblast	-11	-24	1	-2	-46	-5	7	-2	-46	3	-4	-21	-32
Komi-Perm AD	-4	-17	8	6	-39	2	15	5	-39	10	3	-14	-25
Kostroma Oblast	-10	-22	1	-1	-43	-4	7	-2	-43	3	-3	-20	-30
Krasnodar krai	-11	-24	0	-2	-45	-6	6	-3	-46	2	-4	-21	-32
Kurgan Oblast	-14	-27	-2	-5	-50	-8	4	-6	-50	0	-7	-25	-36
Kursk Oblast	-12	-24	-1	-3	-45	-7	5	-4	-46	1	-6	-22	-32
Leningrad Oblast	-11	-26	1	-1	-50	-5	9	-2	-51	4	-4	-23	-35
Lipetsk Oblast	-7	-19	5	2	-41	-1	11	2	-41	7	0	-17	-28
Moscow Oblast	-12	-26	1	-1	-50	-5	9	-2	-51	4	-4	-23	-35
Nizhni Novgorod Oblast	-11	-24	1	-1	-47	-5	8	-2	-47	4	-4	-21	-33
Novgorod Oblast	-6	-19	6	4	-42	0	13	3	-42	9	2	-16	-28
Novosibirsk Oblast	-12	-26	0	-2	-50	-6	8	-3	-50	3	-4	-23	-35
Omsk Oblast	-16	-29	-4	-6	-51	-10	3	-7	-52	-2	-9	-26	-37
Orenburg Oblast	-8	-22	4	1	-45	-2	11	0	-46	6	-1	-19	-31
Orel Oblast	-7	-20	4	1	-41	-2	10	1	-41	6	-1	-17	-28
Penza Oblast	-14	-27	-3	-5	-49	-8	4	-6	-49	0	-7	-24	-35
Perm Oblast	-6	-20	6	4	-44	0	14	3	-45	9	1	-17	-30
Pskov Oblast	-10	-23	2	-1	-46	-4	9	-1	-46	4	-3	-20	-32
Republic of Adygeya	-14	-27	-2	-4	-50	-8	5	-5	-51	1	-7	-25	-36
Republic of Bashkortostan	-5	-18	7	4	-42	1	14	4	-42	9	2	-16	-27
Republic of Dagestan	-14	-27	-2	-5	-49	-8	4	-5	-50	0	-7	-24	-36
Kalmyk Republic	-11	-24	0	-3	-45	-6	6	-3	-45	2	-5	-21	-32
Republic of Mari El	-14	-27	-3	-5	-48	-8	4	-6	-49	0	-7	-24	-35

	Republic of Komi	Republic of Sakha (Yakutia)	Republic of Tyva	Sakhalin Oblast	Taymyr AD	Tomsk Oblast	Tyumen Oblast	Khabarovsk krai	Khanty-Mansiysk AD	Chita Oblast	Chukotka AD	Evenki AD	Yamal-Nenets AD
Republic of Mordovia	-12	-24	0	-3	-45	-6	6	-3	-46	2	-5	-22	-32
Republic of N. Osetia	-14	-27	-3	-5	-50	-9	4	-6	-50	0	-7	-25	-36
Republic of Tatarstan	0	-12	11	8	-33	5	17	8	-34	13	6	-10	-21
Republic of Khakasia	-13	-28	2	-1	-56	-5	10	-2	-56	5	-4	-25	-39
Rostov Oblast	-12	-24	-2	-4	-45	-7	5	-4	-45	1	-6	-22	-32
Ryazan Oblast	-13	-26	-2	-4	-48	-7	5	-5	-49	1	-6	-24	-35
Samara Oblast	-13	-28	1	-2	-54	-6	9	-3	-55	4	-4	-25	-38
Saratov Oblast	-16	-30	-4	-6	-55	-10	3	-7	-55	-1	-9	-28	-40
Sverdlovsk Oblast	-13	-28	1	-2	-54	-6	9	-3	-54	4	-4	-25	-38
Smolensk Oblast	-12	-26	0	-3	-49	-6	7	-4	-49	2	-5	-23	-35
Stavropol krai	-14	-27	-3	-5	-49	-8	4	-6	-49	0	-7	-24	-35
Tambov Oblast	-11	-23	-1	-3	-44	-6	6	-3	-45	2	-5	-21	-32
Tver Oblast	-13	-26	0	-3	-49	-6	7	-4	-49	2	-5	-23	-35
Tula Oblast	-13	-27	-1	-3	-51	-7	6	-4	-51	2	-6	-24	-36
Republic of Udmurtia	-7	-21	5	3	-44	-1	12	2	-45	8	0	-18	-30
Ulyanovsk Oblast	-13	-24	-3	-5	-44	-8	3	-5	-44	-1	-7	-22	-32
Ust-Orda Buryat AD	-13	-28	0	-2	-55	-6	8	-3	-55	3	-5	-26	-39
Chelyabinsk Oblast	-13	-27	0	-2	-52	-6	8	-3	-53	3	-5	-24	-37
Chechen Republic	...	...	...	...	...	...	...	...	...	...	...	...	...
Chuvash Republic	-13	-26	-2	-4	-48	-7	5	-5	-48	1	-6	-23	-34
Yaroslavl Oblast	-11	-24	2	-1	-47	-4	9	-2	-48	4	-3	-21	-33