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Contribution of various income sources to interregional inequality of the per capita income in the Russian Federation

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Keywords: *personal income; sources; interregional inequality; decomposition*

Abstract

Research background: The reduction lately observed in interregional differences in the per capita income in Russia requires some clarification of the reasons. One possible way to do this could be decomposition of interregional inequality in personal incomes by income sources, i.e.: wages and salaries, property incomes, social transfers, entrepreneurship incomes and revenues from informal activities.

Purpose of the article: The objective of this research is identification of the character, direction and degree of influence of various income sources on interregional inequality and convergence of Russian regions by their per capita income in 2001–2014.

Methods: We brought personal incomes in the regions to a comparable level using the relative cost of fixed consumer basket. Then we applied the population-weighted Gini coefficient, coefficient of variation, and the Theil index to measure the interregional inequality in personal incomes in dynamics. Further usage of various techniques of inequality decomposition allowed us to evaluate contribution of different types of income to the Russian regions' convergence across time.

Findings & Value added: Various types of income demonstrated different paths of interregional inequality, changes in interaction and in the shares of total income, which altogether influenced spatial inequality. Wages and salaries showed the largest and growing impact on inequality. The contribution of informal incomes to the overall inequality was the second largest, but diminishing and negatively interacting with other unevenly distributed types of income; thereby they provided more than half of the total interregional convergence. Entrepreneurship incomes revealed slightly decreasing influence on inequality, which was mainly

neutralized by their reduction in the share of total income. Social transfers demonstrated the largest smoothing effect, however, their contribution to convergence was exhausted. Property incomes evidenced the greatest enhancing impact on inequality especially in the period of recovery. Additionally, informal incomes played the role of substitutes for formal incomes providing self-replicating mechanisms for reducing inequality in Russia.

Introduction

Earlier researchers dedicated their studies to assessment and analysis of interregional inequality in personal incomes in the Russian economy. In general, they found growing regional disparities in average personal incomes in Russia during the transition period of 1990–2000 (Yemtsov, 2005, pp. 348–408). This tendency changed to opposite, i.e. convergence in regional personal incomes per capita, in the first decade of the 21st century (Guriev & Vakulenko, 2012, pp. 1–81). In this period, especially during 2005–2008, favourable market conditions in the oil and gas industry allowed to accumulate and redistribute mining rent, to increase pensions and other social benefits, salaries and wages in the public sector (Zubarevich, 2013, pp. 52–56). However, the growth of wages in public sector was accompanied by approaching their interpersonal disparities to ones in private sector (Malkina, 2016a, pp. 107–109). Internal migration to more successful regions, particularly to Moscow, contributed slightly to reduction in regional disparities (Guriev & Vakulenko, 2015, pp. 633–649). Finally, temporary labour migration to oil and gas regions on a rotational basis was bringing additional incomes to some neighbouring regions.

Majority of researchers studied interregional inequality using traditional methods of its measuring, and testing regional disparities for beta- and sigma-convergence with relevant techniques (Abdullah *et al.*, 2015, pp. S69–94). Some researchers used alternative methods. Thus, (Lehmann & Silvagni, 2013, pp. 1–46) by means of non-parametric Markov transition probability matrices and stochastic kernel plots rejected the existence of beta-convergence in Russian regions' relative incomes in 1995–2010. Moreover, based on decomposition of regional incomes, they did not find evidence of sigma-convergence as well.

Researchers of Russian regional convergence also revealed some particular features attributed to it. Firstly, they discovered its gravity effect, i.e. influence of the geographic proximity of regions on the speed of convergence (Ivanova, 2014, pp. 100–119). Secondly, they revealed the impact of the development similarities on convergence, the most evident in the group of reach regions (Kholodilin *et al.*, 2009, pp. 5–27). In addition, Lehmann and Silvagni (2013) by means of decomposition techniques established

high sensitivity of the inequality results to performance of Moscow city and Tyumen Oblast, as well as predominant contribution made to it by mining industry.

Decomposition of interregional inequality may shed light on formation and change in regional disparities in personal incomes. Researchers usually apply a range of techniques for inequality decomposition: the covariance method by A. Shorrocks, the Gini coefficient additive decomposition by R. Lerman and Sh. Yitzhaki, the L. Shapley value method etc. Now these techniques are employed for one-, two- and multidimensional decomposition of inequality in various spheres (Jedrzejczak, 2010, pp. 109–123; García-Peñalosa & Orgiazzi, 2013, pp. 689–727; Chongvilaivan & Kim, 2016, pp. 79–98).

Unfortunately, these techniques are rarely used for incomes inequality decomposition in the Russian economy. We can only name two pieces of research most relevant to our study. Thus, Guriev & Vakulenko (2012, pp. 1–81), applying the A. Shorrocks technique to the Gini coefficient, have disaggregated personal incomes inequality in 1995–2010 into those originating from wages, transfers and other incomes. They obtained the highest, but reducing contribution of other incomes, significant and growing contribution of wages and the lowest and declining contribution of social transfers to regional inequality in personal incomes. Other researchers (Ovcharova *et al.*, 2016, pp. 170–185), applying the entropy indices and the regression technique by Morduch and Sicular, have decomposed the country personal incomes inequality for intergroup and intragroup ones, and by three income sources. They have found that the educational factor made the largest contribution to the income inequality in Russia.

Our current study is aimed at detailed decomposition of interregional inequality in average personal incomes by sources based on more recent data of Russian regions in 2001–2014. It differs from the previous studies in a way. First of all, we eliminate the influence of changes in the cost of living on regional incomes. In addition, we use alternative techniques of measuring inequality and its decomposition to substantiate our findings better. Then, we compare the obtained shares of various sources in inequality with their shares in the total income to reveal which income sources are relatively enhancing, and which are rather smoothing inequality. Further dynamic analysis is intended to assess contributions of various sources to total convergence/divergence of Russian regions in personal incomes disparities across years in connection with changing economic conditions.

Our research hypothesis affirms that different sources make different relative contributions to regional disparities in total incomes, and that impact of some of them is due to state management actions, while others are

induced by adaptive practices of population within the specific institutional environment. We also suppose that economic conditions have different impact on different sources of inequality.

Research methodology

Our study is based on the official data from 80 Russian regions in 2001–2014 provided by the Federal State Statistics Service of Russian Federation (FSSS) embracing personal incomes per capita, the structure of total incomes of population, number of population and the cost of the fixed consumer basket. The decomposition of personal incomes by sources is based on the grouping by FSSS, including: 1) business activities (entrepreneurship) incomes; 2) wages and salaries of employees reduced by arrears; 3) social transfers (pensions, benefits, scholarships, insurance compensations, etc.); 4) property incomes (interest on deposits, securities, dividends, etc.); 5) other incomes (proceeds from the sale of foreign currency, remittances, informal incomes).

Real regional incomes are determined through dividing nominal incomes by indices of relative cost of living in the regions. These indices are calculated as the ratio of the cost of the fixed consumer basket in regions to the average cost of the same basket nation-wide, with a reservation on some shortcomings of this approach (Malkina, 2015, pp. 99–100).

Subsequent assessment and decomposition of inequality are carried out with use of three alternative techniques. The Lerman-Yitzhaki technique (Lerman & Yitzhaki, 1989, pp. 43–47) is based on decomposition of the Gini coefficient calculated as follows:

$$G = \frac{2}{y} \cdot Cov(y, F(y)) = \frac{2}{y} \cdot \sum_{i=1}^m \rho_i \cdot \left(y_i - \bar{y} \right) \cdot \left(\hat{F}_i - \bar{F} \right), \quad (1)$$

where y_i – average personal income in the i -th region, $i = 1, \overrightarrow{m}$ – serial number of the regions ranked in order of increasing average personal incomes, $\bar{y} = \sum_{i=1}^n \rho_i \cdot y_i$ – average personal income in the country, $F(y)$ – cumulative distribution of population among regions ranked as mentioned

above, $\hat{F}_i$ – a mid-interval of F-function for each i-ranked region, determined as follows:

$$\hat{F}_i = \sum_{i=0}^{i-1} \rho_i + \rho_i / 2. \quad (2)$$

In turn, the weighted country average of these mid-interval values equals: $\bar{F} = \sum_{i=1}^m \left(\hat{F}_i \cdot \rho_i \right) = 0.5$.

Supposing that average income per capita is the sum of incomes coming from K sources, we can write for each region: $y_i = \sum_{k=1}^K y_{ik}$, where y_{ik} – average personal income from the k-th source in the i-th region. Additive decomposition of the Gini coefficient takes the form:

$$G = \sum_{k=1}^K G_k, \quad (3)$$

$$G_k = \frac{2}{y} \cdot \text{Cov}(y_k, F(y)) = \frac{2}{y} \cdot \sum_{i=1}^m \rho_i \cdot \left(y_{ik} - \bar{y}_k \right) \cdot \left(\hat{F}_i - \bar{F} \right). \quad (4)$$

Formula (4) represents the contribution of k-th source to the Gini coefficient for interregional inequality of overall average income, where $\bar{y}_k = \sum_{i=1}^m \rho_i \cdot y_{ik}$ – average personal income in the country coming from k-th source.

Further, we employ the alternative technique of inequality decomposition by sources proposed by A. Shorrocks (1982, pp. 193–212) for the squared weighted coefficient of variation, represented as follows:

$$V^2 = \frac{\sigma^2}{\bar{y}^2} = \sum_{i=1}^m \rho_i \cdot (y_i - \bar{y})^2 / \bar{y}^2. \quad (5)$$

Its decomposition:

$$V^2 = \sum_{k=1}^K V_k^2, \quad (6)$$

$$V_k^2 = \frac{Cov(y_k, y)}{\sigma^2} \cdot V^2 = \sum_{i=1}^m \rho_i \cdot \left(y_{ik} - \bar{y}_k \right) \cdot \left(y_i - \bar{y} \right) / \bar{y}^2. \quad (7)$$

Finally, we apply the method of decomposition of the Theil index, computed as follows:

$$Th = \sum_{i=1}^m \rho_i \cdot \left(y_i / \bar{y} \right) \cdot \ln \left(y_i / \bar{y} \right). \quad (8)$$

Its decomposition by K sources:

$$Th = \sum_{k=1}^K Th_k, \quad (9)$$

$$Th_k = \sum_{i=1}^m \rho_i \cdot \left(y_{ik} / \bar{y} \right) \cdot \ln \left(y_i / \bar{y} \right). \quad (10)$$

Ultimately, it enables us to determine the contribution of each source to the total inequality in statics and dynamics using the proportional method of factor analysis.

The results of assessment of interregional inequality in average personal incomes and their components

Figures 1–3 represent the dynamics of interregional inequality in personal incomes and their components evaluated by means of three alternative techniques using formulas 1–2, 5 and 8. First of all, we can notice similar dynamics of the Gini, variation and Theil coefficients for corresponding types of income.

Generally, the interregional disparities in personal incomes decreased significantly over period under consideration. Evaluated using the Gini coefficient, they dropped by 42.6%, the coefficient of variation demonstrates their decline by 53.0%, and according to the Theil index they de-

creased by 73.9%. The discrepancies in results received by different methods are due to different scales incorporated in them.

Property incomes proved to be the most unevenly distributed component of personal incomes among Russian regions. Thus, the leading position in property incomes per capita belongs to the capital city of Moscow, where they exceeded the country average more than 3.3 times even in 2014. Moscow was followed by Saint-Petersburg and Vologda Oblast, however, the average property incomes in those two regions are noticeably lower compared to Moscow. At the same time in the lagging Chechen Republic property incomes per capita reach only 1.3% of the country level, and a similar gap is typical for all North Caucasian republics. Apparently, property incomes inequality varies vastly over time, however, ultimately it reduces.

Social transfers demonstrate the lowest level of interregional inequality. This is quite reasonable, because they are designed as automatic stabilizers in the economy aimed at smoothing the differences in personal incomes. Nevertheless, the gap between the maximum level of social transfers per capita, marked in the Republic of Karelia, the subject of Northwestern Federal District of Russia, and the minimum level, indicated in the Republic of Dagestan, is still substantial — 2.14 times. Evidently, some types of social transfers, e.g. pensions and children benefits, depend on the age structure of population. Besides, earlier retirement package granted by law to residents of northern territories of Russia and related supplementary pension provisions result in higher level of social transfers per capita in those areas. Finally, social transfers demonstrate the most intensive regional convergence.

Interregional inequality in wages and salaries is observed in the medium zone of our figures. Indeed, the highest levels of wages per capita are identified in Chukotka Autonomous Okrug, Magadan Oblast (both located in the Far East), Tyumen Oblast including Khanty-Mansi and Yamal-Nenets Autonomous Districts (Russia's main oil and gas production territories) and in the city of Moscow. For example, in Chukotka in 2014 the average wage exceeded its national level almost 2.5 times, in Moscow — 1.8 times. The Northern Caucasian republics again demonstrate the lowest level of this type of personal incomes. Thus wages and salaries in the Republic of Dagestan in 2014 amounted only 27.8% of country level, in the Republic of Ingushetia — 33.6%, in the Kabardino-Balkar Republic — 37.2%, in the Karachay-Cherkess Republic — 40.1%.

Regional disparities in wages and salaries outline something like cyclical waves over time embedded in narrow hallway. Meanwhile, the changes in interregional inequality of wages indicated by various measures are really contradictory.

Spatial inequality of business activities incomes is also found average among all types of income. But unlike wages and salaries, this inequality outlines more expressed ascending curve after the crisis of 2009. A detailed analysis allows us to establish that the maximum level of entrepreneurship incomes per capita belongs to the Republic of Dagestan, where they surpassed the nation-wide average by 2.88 times in 2014. This goes against the earlier identified lagging of the republic in wages/salaries and social transfers. However, we cannot unconditionally relate higher business activities incomes to other backward North Caucasian republics, except for the Republic of North Ossetia-Alania, where their level is also substantial.

In general, the higher level of business activities incomes is more attributable to southern regions with prevailing agriculture and food processing in industrial structure (the Republic of Bashkortostan, Krasnodar Krai etc.) as well as to some mining territories (the Sakha Republic, the Republic of Tatarstan, Sverdlovsk and Sakhalin Oblasts). The lowest level of business activities incomes is indicated in Chukotka Autonomous Okrug, which is also a mining territory, but with much worse conditions for personal business activity. On the one hand, all the indices of interregional inequality of entrepreneurship incomes had been growing over 2001–2014. On the other hand, we have observed the spatial relocation of these incomes from more developed central and northern regions to less affluent southern territories, which should have reduced regional disparities in total income per capita.

The so called other incomes, mostly informal by nature, are the second-ranked by inequality after property incomes. Similar to business incomes, the spatial location of informal incomes has changed a lot. In the earlier years, informal incomes were prevailing in affluent regions. The first place in 2001 was taken by Moscow, where the share of other incomes in total incomes was as much as 41.6%. By 2014 this share in Moscow had dropped considerably, and became lower than the country's mean (14.9% against 26.2%). At the same time, in 2014 the highest share of informal incomes was observed in the lagging Republic of Dagestan (51.3%) and the Republic of Adygea (50.2%). In both republics, this share had been rising for 14 years, as well as it had enhanced in absolutely all North Caucasian republics over time.

According to our figures, the informal incomes inequality was permanently decreasing in the period of economic recovery of 2004–2008 and showed an opposite ascending tendency in the following crisis likewise wages/salaries and business activities incomes.

A separate analysis of inequality of income sources only indicates the intensity of their impact on the overall inequality, but does not specify the

direction of this impact, which may be positive or negative by sign. Apparently, some sources of inequality may reinforce the general inequality (when act in the same direction with it), while others may weaken it (when act in the opposite direction). This requires an analysis of the mutual influence of different incomes.

The results of structural decomposition of interregional inequality in personal incomes by sources and their interpretation

Decomposition of spatial inequality by income sources carried out using the formulas 3–4, 6–7, 9–10 is represented in the tables 1–3.

The obtained structures evidence that the largest and growing effect on the interregional inequality in personal incomes across time was provided by wages and salaries. The share of this source in the total inequality has increased by 22.1% over 14 years, according to the Gini coefficient, by 35.7% — according to the coefficient of variation, and 4 times by the Theil coefficient. We can argue that the compensations of employees, providing persistently about 39–41% of total personal yields in various years, gradually transformed from relatively smoothing into mostly enhancing source of the total interregional inequality in personal incomes in Russia.

The next ranked by share in inequality are property incomes and other incomes. It should be noted that the share of property incomes in inequality evaluated by the Theil index is higher compared to that assessed by the Gini coefficient, which conversely indicates the higher contribution of other incomes. Substantial contribution of property incomes to total inequality is mostly due to their high correlation with overall incomes and especially with their main part — wages and salaries, rather than their share in income which varied within 5–9% over time. Indeed, interregional Pearson correlation of property and total incomes per capita was 0.77 in 2001, 0.83 in 2004 (the highest level over time) and 0.639 in 2014. The correlation between property incomes and wages/salaries per capita was enhancing temporally and achieved 0.590 in 2014. However, all the indices of inequality demonstrate that the growth of the share of property incomes in inequality was replaced by its decline after 2005–2006.

The figures show significant reduction in the share of other incomes in the total inequality, whilst their contribution to total personal incomes remains almost unchanged. Again, it may be explained by correlation of these types of incomes and its change. Thus, the interregional Pearson correlation between other incomes and overall incomes per capita has noticeably decreased over time ($R_{2001}=0.821$, $R_{2014}=0.308$). Moreover, the relationship

between informal incomes and wages/salaries even changed the sign from positive into negative ($R_{2001}=0.387$, $R_{2014}=-0.417$), which means that they cease to be supplementary and become substitutes. Additionally, inequality in other incomes has been decreasing till 2008, after that rising and since 2011 falling again.

Social transfers proved to be the most smoothing type of incomes. According to the Gini coefficient decomposition, their share in inequality has decreased more than 11 times, but according to the squared coefficient of variation it has dropped 13 times. Moreover, the Theil decomposition indicates negative contribution of social transfers to inequality. The correlation of social transfers with total income appeared to be positive but much lower, compared to that of wages and salaries, and diminishing over time. At the same time, the correlation between transfers and wages/salaries slightly increased ($R_{2001}=0.129$ and $R_{2014}=0.332$). Nevertheless, the growth of social transfers share in the total income (from 13.1% in 2001 to 18% in 2014) argues for the spread of paternalism in Russia.

Ultimately, the contribution of business activities incomes to the total inequality has decreased over the time concerned. The Theil index established that influence of this type of incomes on total disparities has turned from positive to negative. It may be partially caused by reduction in the share of business activities incomes in total personal incomes from 12.6% in 2001 to 8.4% in 2014, which is rather alerting. Eventually, all the measures indicate substitution of the declining trend in contribution of this type of income to inequality with the opposite (ascending) trend in 2012, which could be explained by growth of its own inequality and positive correlation with total income.

Contribution of income sources to the regional convergence in personal incomes per capita

Figure 4 illustrates the contributions of different sources to Russian regions' convergence in personal incomes. These contributions were computed by means of the proportional method of factor analysis applying data obtained from the Gini decomposition.

According to our calculations, more than 55% of income convergence assessed by the Gini coefficient was due to the smoothing effect of the informal incomes, whose influence was only amplifying in the course of time. This really surprising result cannot be assessed as unconditionally positive, since a large part of this income is associated with tax evasion.

Social transfers and business activities incomes altogether provided additionally 31.4% of the total convergence, contributing to it to an approximately equal degree. Property incomes supported growth in inequality until 2008, and then demonstrated a slight contribution to regional convergence.

The ultimate contribution of wages and salaries to regional convergence turned out to be insignificant. Over time, it was unstable, altering by direction and even provoked divergence in 2007–2008 and in 2014.

Conclusions

In this research we applied a range of techniques for decomposition of spatial inequality, which allowed us to evaluate the contribution of various income sources to interregional disparities in personal incomes in Russia. We compared the results obtained by the Gini coefficient, the coefficient of variation and the Theil index, and the outcomes of their decomposition. It allowed us to explain the earlier established phenomenon of reducing regional disparities in the level of personal incomes in the Russian economy in 2001–2014, and to disclose its qualitative nature.

A separate analysis of various types of personal incomes inequality has revealed the paradox of Russian convergence in overall income appearing on the background of almost nil changes in inequality of its main component — wages and salaries. We have found that this phenomenon was due to the correcting role of business activities and informal incomes components, which began to negatively correlate with wages and salaries in regions and counteract to growth of spatial inequality. Moreover, the impact of informal incomes on smoothing regional disparities in the later years appeared to be prevalent. It should be noted that a similar phenomenon was observed in some Latin American countries (Amarante, 2016, pp. S4–S21).

In general, incomes from business activities positively correlated with informal incomes, although over time this interdependency weakened. The changes in the structure of personal incomes have revealed the gradual replacement of formal business incomes by informal ones; furthermore, shift of both to the south and to less affluent regions facilitated equalizing disparities.

The mitigating role of social transfers in reducing inequality is completely evident. On the one hand, due to the manner of their design, in particular, the relation to salaries (with regard to pensions), social benefits demonstrate a positive, albeit very weak correlation with the total income. On the other hand, during the period under study the interregional dispari-

ties in social transfers dropped markedly, but their contribution to the inter-regional convergence in total incomes did not appear as substantial as contribution of informal incomes.

Economic growth was accompanied by increasing inequality in the spatial distribution of property incomes, while economic recession demonstrated their tendency to converge, which may be interpreted mostly in the context of deterioration of economic situation in more affluent regions. Finally, wages and salaries did not really have any perceptible relation to the regions convergence in terms of personal incomes.

It is worth noting that our main findings are generally consistent with the results earlier obtained by (Guriev & Vakulenko, 2012, pp. 1–81) for three-source income decomposition in 1995–2010. But our new results considerably specify them due to employing more detailed grouping of income sources, embracing the period of new recession, and checking by alternative techniques of decomposition.

So, we can make a conclusion concerning the existence of self-perpetuating forces in the economy which prevent growth in inequality and ensure the catching-up effect. These forces provide adaptation even when we do not observe considerable convergence in payments to employees, and act despite and contrary to it. Except for social transfers specifically constructed as automatic stabilizers aimed at smoothing cyclicity, we can mention legal and illegal business activities' incomes which may partially compensate for differences in income. However, the power of these forces certainly depends on the institutional environment of the economy and general business conditions. Moreover, we refer to the drop in property incomes of affluent regions during recession which evoke something like inverted β -convergence.

Eventually, we should mention some obstacles to comprehensive analysis generated by the national statistics, as it does not disclose the structure of 26% of household incomes called “other incomes”. This problem was also highlighted by Zubarevich (Zubarevich, 2013, p. 49), who pointed out the shortcomings of Russian household statistics, such as an approximate estimates of shadow incomes, inadequate sample survey of households, complexity of measuring natural receipts etc., altogether encumbering the meaningful analysis. The search for ways of addressing these issues would allow to carry out a more accurate analysis of sources of interregional inequality in Russia. It could provide a basis for further analysis and future discussions.

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Annex

Table 1. The results of decomposition of interregional inequality by income sources based on the Gini coefficient and the Lerman-Yitzhaki technique (share, %)

Year	BA	W&S	ST	PI	OI	TI	Year	BA	W&S	ST	PI	OI	TI
2001	9.2	34.3	7.2	12.2	37.1	100	2008	5.2	55.9	2.1	16.6	20.2	100
2002	8.3	35.3	6.1	10.5	39.8	100	2009	4.9	47.3	2.4	17.7	27.7	100
2003	8.4	32.0	4.5	15.4	39.7	100	2010	3.6	49.3	1.1	16.6	29.4	100
2004	7.3	33.4	3.2	17.1	39.0	100	2011	3.3	46.5	0.4	15.5	34.3	100
2005	6.8	35.5	1.7	23.7	32.3	100	2012	4.3	47.9	0.3	14.9	32.6	100
2006	6.2	38.4	1.2	22.6	31.6	100	2013	4.4	50.0	-0.5	14.3	31.8	100
2007	4.2	43.5	0.8	21.0	30.5	100	2014	4.7	56.4	0.7	14.6	23.6	100

Note:

BA - business activities incomes, W&S - wages and salaries, ST - social transfers, PI - Property incomes, OI - other incomes, TI - total incomes.

Source: own calculations based on FSSS of RF (2017).

Table 2. The results of decomposition of interregional inequality by income sources based on the squared coefficient of variation and the Shorrocks technique (share, %)

Year	BA	W&S	ST	PI	OI	TI	Year	BA	W&S	ST	PI	OI	TI
2001	8.5	25.5	9.5	14.5	42.0	100	2008	5.0	58.9	1.9	20.3	13.9	100
2002	8.0	26.2	8.5	11.0	46.3	100	2009	4.2	48.0	2.9	23.2	21.7	100
2003	6.8	25.5	5.5	16.4	45.8	100	2010	2.4	50.9	1.0	22.1	23.6	100
2004	5.7	25.4	3.7	19.7	45.5	100	2011	2.0	46.7	0.5	20.4	30.4	100
2005	5.6	30.4	1.5	30.0	32.5	100	2012	2.8	50.0	0.4	19.0	27.8	100
2006	5.6	34.0	1.0	28.3	31.1	100	2013	2.7	53.2	-0.5	17.9	26.7	100
2007	4.0	39.8	0.3	25.8	30.1	100	2014	3.2	61.1	0.7	17.7	17.3	100

Source: own calculations based on FSSS of RF (2017).

Table 3. The results of decomposition of interregional inequality by income sources based on the Theil coefficient (share, %)

	Business activities incomes		Wages and salaries		Social transfers		Property incomes		Other incomes		Total incomes	
	S_{Thk}	S_{Yk}	S_{Thk}	S_{Yk}	S_{Thk}	S_{Yk}	S_{Thk}	S_{Yk}	S_{Thk}	S_{Yk}	S_{Thk}	S_{Yk}
2001	4.7	13.0	19.3	39.5	3.2	15.6	21.4	5.0	51.4	26.9	100	100
2002	4.0	12.2	18.7	41.8	1.0	15.7	16.1	4.8	60.2	25.4	100	100
2003	2.4	12.4	17.4	40.1	-3.0	14.7	23.9	7.2	59.3	25.6	100	100
2004	0.7	12.2	16.8	41.1	-5.3	13.5	29.0	7.5	58.8	25.7	100	100
2005	0.6	11.8	25.3	39.8	-9.1	13.4	44.9	9.0	38.3	26.0	100	100
2006	0.7	11.5	31.8	39.5	-9.6	12.7	42.6	8.8	34.5	27.6	100	100
2007	-1.6	10.5	40.7	41.1	-10.4	12.2	39.0	7.9	32.3	28.3	100	100
2008	0.1	10.6	71.8	43.5	-9.2	13.6	31.8	5.5	5.5	26.9	100	100
2009	-0.5	9.9	54.9	40.3	-9.1	15.4	36.1	5.8	18.6	28.7	100	100
2010	-3.2	9.2	60.9	39.4	-15.2	18.3	34.3	5.6	23.2	27.7	100	100
2011	-4.0	9.3	53.3	39.2	-17.0	18.8	32.4	4.6	35.3	28.1	100	100
2012	-3.0	9.7	57.6	40.3	-17.5	18.8	30.2	4.6	32.7	26.5	100	100
2013	-2.2	8.9	63.1	40.4	-19.3	19.1	27.9	5.0	30.5	26.5	100	100
2014	-1.2	8.6	77.4	40.4	-16.5	18.4	27.5	5.4	12.8	27.2	100	100

* Note:

s_{Thk} - share of the k-th type of income in total inequality (by the Theil index); s_{Yk} - share of the k-th type of income in total income.

Source: own calculations based on FSSS of RF (2017).

Figure 1. Dynamics of the interregional Gini coefficient for average personal incomes and their components in Russian Federation in 2001–2014

Source: own calculations based on data provided by (Russian Federation Federal State Statistics Service, 2017).

Figure 2. Dynamics of the interregional coefficient of variation for average personal incomes and their components in Russian Federation in 2001–2014

Source: own calculations based on FSSS of RF (2017).

Figure 3. Dynamics of the interregional Theil coefficient for average personal incomes and their components in Russian Federation in 2001–2014

Source: own calculations based on FSSS of RF (2017).

Figure 4. The contribution of various sources to the Russian regions' convergence in personal incomes per capita presented on an accrual basis since 2001 (according to the Gini coefficient)

Source: own calculations based on FSSS of RF (2017).