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Impact of the Quality of the Institutional Structure of the Economy on Income Inequality of Households: Results of a Cross-National Study

M.L. Dorofeev
Financial University, Moscow, Russia

ABSTRACT

Institutional quality and effectiveness of government institutions are important factors for sustainable and dynamic economic growth. These factors can have a significant impact on the dynamics of economic inequality and poverty in a country. The number of publications on this topic began to increase about 20–30 years ago. Scientists have been researching whether the government is able to influence the problem of economic inequality, which is growing since the 1980s, and on what factors it depends. This topic remains **relevant** today, as all the necessary answers have not been received yet. The **purpose** of this research article is to clarify the relationships between the institutional structure quality of an economy and the income inequality of households. The article uses such **methods** as analysis and synthesis, systematization, classification, and categorization of information; classical correlation analysis, as well as the method of analysis of qualitative pairwise correlation. The study highlights that there is high dependence between the analyzed variables in some countries if we look at them in separately. This dependency can take on both negative and positive values. At the same time, analyzing the full sample of countries, as well as in quartile groups classified by the level of income inequality, we did not reveal any pattern or special sign by which the dependence between the studied variables becomes more pronounced and distant from zero. The study shows that the correlation value between the variables is just below zero over the Pearson correlation coefficient. More unambiguous results were obtained when the list of countries was filtered by the indicator of the inequality transparency index. When analyzing this particular portion of our sample of countries, we obtained results with moderately negative dependence between the study variables. We **concluded** that for developed countries with an effective government and relatively low levels of income inequality, the decline in the quality of the institutional structure of the economy on average will be accompanied by an increase in income inequality and vice versa.

Keywords: economic inequality; income inequality; Gini index; government regulation; institutional structure of the economy; WGI; corruption; the effectiveness of government

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INTRODUCTION

The objective fact is that income inequality has been rising in most countries since the 1980s.[1] In this regard, the issue of managing economic inequality has become very relevant among academic research. The authors of various researches have been trying to understand what factors influence the level of economic inequality. Including in the scientific literature there is a direction of research related to the analysis of quality factors of the institutional structure of the economy and the potential of the influence of public authorities on the level and dynamics of economic inequality. In this scientific debate, the authors are exploring whether the State can take effective measures to regulate problem of economic inequality and ensure shared prosperity and sustainable economic growth [1–5].

The problem of assessing the quality of government became relevant about 20–30 years ago and was developed in a number of researches in the field of public administration and public financial management [6–9]. The theories of "New Public Management (NPM)" and "Good Governance (GG)" became logical continuation of this trend and united the best corporate practices in the field of

[1] Chancel L., Piketty T., Saez E., Zucman G. World inequality report 2022. URL: https://wir2022.wid.world (accessed on 29.11.2021).

management and financial management, which were adapted to the goals and objectives of the State.

In 1996, the World Bank developed and published in its databases integral indicators of progress in developing a system of public administration in countries worldwide on a regular basis [10]. This information allow to give a quantitative assessment of the quality of the institutional structure of different countries in six dimensions, among which corruption, accountability and alternation of power, efficiency of the government, effectiveness of legal institutions and others.

Cross-country comparisons of quality governance are conducted on selected indicators and authors often focus on corruption, its impact on economic growth and government effectiveness. In the scientific environment, there are differences in the interpretation and assessment of other indicators that have been proposed in the World Bank methodology in the context of the performance or efficiency of government or a system of public institutions [11–13].

Selected empirical researches show a positive relationship between institutional quality indicators and government effectiveness [14–16]. On average, an effective government can make a greater contribution to accelerating economic growth, encouraging innovative development and providing quality public goods to society. Thus, despite the divergence of approaches in the methodology of measuring the quality of public administration and the institutional structure of the economy, the topic remains relevant and should be further developed.

The quality of institutional structure and the effectiveness of government are important conditions for sustainable and dynamic economic growth. These factors can significantly influence the dynamics of economic inequality and poverty in a country [17]. Extractive adjustment of economic institutions contributes to the rapid enrichment of the upper 1% of households during periods of rapid economic growth. In periods of stagnation, by contrast, this type of institutional arrangement tends to impoverish the lower 90% of households. Thus, weak economic inclusiveness and inefficient public administration are provoke economic inequality, which in turn can increase political inequality, accelerate the degradation of the political system and negatively affect the sustainability of the financial system [1, 17].

Economic relations in extractive economies are built to benefit a limited number of people. Development examples of extractive economies show that they often lack the necessary support or become completely block of most innovative initiatives. Russia can also be cited as an example of extractive economy [17, 18]. Despite a large number of initiatives for transition to innovative development, today the Russian economy remains de facto highly dependent on raw materials[2] and grows relatively slowly (*Fig.*).

The purpose of the research is to test the hypothesis that the improvement of the quality of political and economic institutions in the country has a positive impact on the problem of income inequality.

In the review of the literature the key works in this field of scientific interests are considered, the most important results and conclusions are presented. The main part of this article presents the results of our own research, based on data from 159 countries for the period 1996–2020. The *Appendix* shows the results of calculations with estimates of relationships between the studied variables.

REVIEW OF THE LITERATURE

Empirical studies of the relationship between the institutional structure of the economy and economic inequality were conducted in a large number of scientific papers. Researches [19, 20] show that there is a relationship between these factors in which economic inequality can influence the quality of institutions and on the contrary.

The work of [21] analyzed data for 21 developed countries from the OECD list for the period 1990–2010. Authors examined the relationship between: (1) changes in the balance between public elites ("elitisation") and labor unions ("unionization")[3]; (2) institutional changes in the political and economic structure and (3) dynamics of income inequality. It was concluded that income inequality is more influenced by the factor of institutional changes in the economic and political structure

[2] Trading Economics. Russia Exports by Category. URL: https://tradingeconomics.com/russia/exports-by-category (accessed on 10.11.2021).

[3] In the research, this was measured by estimating the share of factor income, namely the share of labour and non-labour income, primarily rental and capital income.

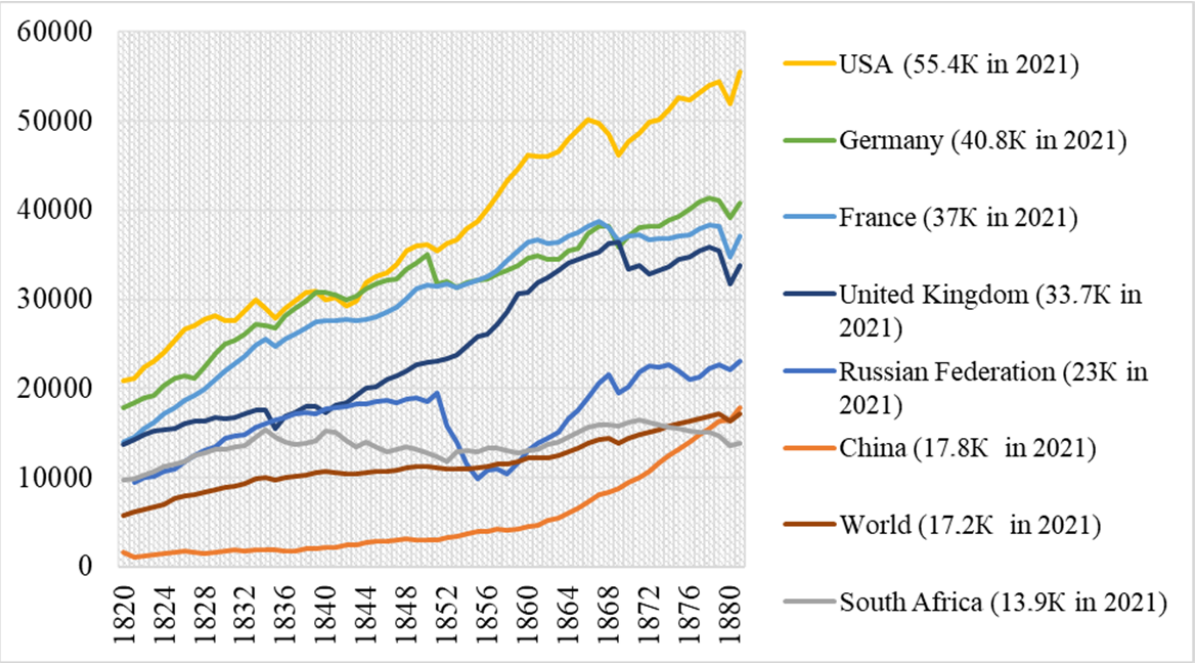

Fig. **National per capita income in Russia and other countries, PPP based, in euros, in 2019 prices**

Source: compiled by the author on the basis of World Inequality Database. 2020. URL: https://wid.world/data/#countriestimeseries/anninc_p0p100_z/US; FR; DE; CN; ZA; GB; WO/1930/2019/eu/k/p/yearly/a (accessed on 07.11.2021).

of the country. This influence is non-linear and differs according to the level of income inequality in the country. The authors make assumptions that the low redistribution of market revenues is more related to the factor of institutional inertia (slowly changing legal and political institutions) than to the influence of the rebalancing between elitisation and unionization of the economy. No empirical work has been obtained with unambiguous description of the investigated relationships, and the results seem rather contradictory and unclear.

The institutional arrangements' quality of the economy in relation to economic inequality can be viewed in terms of two indicators: (1) quality of political institutions and level of democracy in the country and (2) level of corruption in the country [22]. Conceptually, in a more democratic society, the multiple political rights of each member and the ability of citizens to influence accountable government should help to strengthen public policies for income redistribution and lowering levels income inequality in the economy. Moreover, well-developed democratic institutions should have a greater impact on economic inequality in parliamentary republics than in presidential ones — for objective reasons. However, these are not always supported empirically. In the world economy, there are many examples of countries where the development of democratic institutions is at an average level (Eastern European countries), as well as countries where the political rights of citizens are restricted by various factors (several Asian countries, including China and Singapore). Data on income inequality trends in these countries do not support the hypothesis of the inverse relationship between institutional quality and income inequality.

Problems with corruption, from a theoretical point of view, should lead to increased economic inequality, as corruption sets the stage for tax evasion, reducing the State's ability to financially regulate economic inequality. An inefficient government can keep to power long enough because inability of the political system to renew and voters' inability to influence the government. The extractive structure of the economic and political system reduces the progressivity of the tax system in favour of the lowest-income members of society, who tend to hold all power. All these factors together reduce the volume and efficiency of public expenditure and investment in the economy, slowing its technological development [23].

In article [24] conducted a research on the relationship between the quality of democratic institutions, the quality of economic institutions and economic inequality in 96 countries between 1970 and 2010. The authors wrote that economic inequality is a key factor that determines the effect of democratic institutions on the quality of the institutional structure of the economy. High levels of economic inequality are is characteristic for non-democratic regimes, where formally high levels of institutional quality may not work as well as in democratic regimes. Excessively high levels of economic inequality can worsen the institutional structure of economies even in democratic countries.

Most research on the quality of the institutional structure of the economy and economic inequality is based on an analysis of income inequality and corruption in the economy [25–29], while the rest of the indicators from the WGI[4] indicator group are less covered. Most researches explains the negative impact of corruption on economic inequality to factors such as: (1) reduction of public spending on education, health, etc. of public goods; (2) inefficient tax systems and the problem of tax evasion [30].

In article by B. Blancheton and D. Chhorn [31] conducted a study of the relationship between public financial regulation of the economy and economic inequality for the period 1988–2014. In the paper analyzed data for a group of Asian and Pacific countries. Government intervention in regulating the economy measured as a share of government expenditure as a % of GDP. Economic inequality is represented by the share of income of the richest 1% of the population and through the Gini Index. The authors have reached the conclusion that this relationship has a negative dependence, which confirms the theoretical hypothesis about the expediency of using fiscal instruments to combat income inequality. In addition, the article found relationships between public expenditures, indicators of the quality of the institutional device of the economy (WGI group of indicators from the methodology of the World Bank) and the dynamics of economic inequality. The authors wrote that this dependence is non-linear. In the early stages of development of public administration, rising public spending increases income inequality. Over time, rising public spending has led to an increase in the quality of institutional arrangements and the effectiveness of government. Subsequently, higher quality of institutional arrangements and efficient government become capable of reducing income inequality through increased public spending.

L. K. Chu and D. P. Hoang came to the same conclusion about the non-linear impact of institutional quality on income inequality in their research [32]. Thus, we see that there is an inverse relationship between institutional quality and income inequality, and the factor itself is important for effectively combating economic inequality. The authors conclude that the study has a number of limitations. First, the sample of countries for the research is limited to 8 from the Asian and Pacific regions. The authors did not consider the impact of each of the World Bank's six institutional factors on economic inequality. Higher average level of institutional quality of economy is possible while some WGI indicators grow and others fall. Perhaps a more in-depth analysis of the impact of individual components of WGI would lead to a better understanding of the relationships between the institutional qualities of the economy.

N. Adeleye et al. [33] are studied the impact of each of the 6 WGI indicators on income inequality in Africa. Their research shows that only corruption has a statistically significant impact on income inequality. The authors wrote that if corruption is sufficiently controlled, financial deregulation and credit growth will reduce income inequality.

MATERIALS AND METHODS

Theoretical propositions and terms

The concept of building quality public institutions and its fundamental principles are described in detail in the theory "Good governance" [33]. The quality of the institutional structure of the economy creates an environment in which every member of society feels, in reality and not on paper, that its well-being is a priority of public policy (*Table 1*).

By the quality of the institutional structure of the economy we mean a set of qualitative characteristics of the functioning of socio-economic institutions in the country, on which the potential of its economic growth and technological development depends.

[4] World Government Indicators.

Improving the inclusiveness and institutional structure of the economy is essential for effective regulation of economic inequality.

By household income inequality we will understand the level of differentiation of households by their current pretax market income and distribution of transfers from the State.

Performance and indicators, from which are measured studied phenomenon

Analysis of interrelationships between the categories "Income inequality of households" and "Institutional structure of economy" is carried out on the basis of indicators of Integral indicator of quality of institutional structure of economy and Gini Index, calculations based on market income of households.

In this study, to assess the quality and inclusiveness of the work of economic institutions, WGI indicators from the World Bank[5] methodology were used, similar to the studies of F. Emily et al., M. Lockwood et al. [34, 35]. The integral indicator is based on six factors of the quality of the institutional structure of the economy, among which:

1. Control of corruption (further CC) — provides an indication of what extent State power is exploited for private gain, including small and large forms of corruption, as well as "capture" of the State by elites and private interests.

2. Government effectiveness (further GE) — shows perceptions of the quality of public services, the quality of the civil service and its independence from political pressure, the quality of policy formulation and implementation and confidence in the Government's commitment to such policies.

3. Regulation of quality (further RQ) — reflects the Government's ability to design and implement rational policies and regulations that enable and facilitate private sector development.

4. Rule of law and protection of property rights (further RL) — reflects an understanding of the extent to which agents trust and comply with the rules of society, the quality of contract execution, property rights, how the police and courts function, and probability of crime and violence.

5. Political stability and non-violence/terrorism (further PS) — measures perceptions of political instability and/or politically motivated violence, including terrorism.

6. Right to vote and accountability of the Government (further VA) — reflect perceptions of the extent to which citizens can participate in the election of their Government, as well as freedom of expression, freedom of association and free media.

The methodology for calculating the integral assessment of the level of inclusiveness and the quality of the system of institutional arrangement of the economy $\left(I_{EI}\right)$ is presented in the formula (1).

$$I_{EI} = w1*\mathrm{CC} + w2*\mathrm{GE} + w3*\mathrm{RQ} + \\ + w4*\mathrm{RL} + w5*\mathrm{PS} + w6*\mathrm{VA}, \quad (1)$$

where I_{EI} — is measured in percentiles from 0 to 100 and reflects the ranking of the country on the aggregate indicators of the inclusive institutional structure of the economy;

CC — effectiveness of corruption control ;

GE — effectiveness of government ;

RQ — quality of government regulation ;

RL — rule of law and protection of property rights ;

PS — political stability and absence of violence / terrorism;

VA — right to vote and Government accountability

$w1; w2; \ldots; w6$ — weights of different indicators of economic inclusion, which are taken equally in the basic version of the model, for 1/6.

We measured income inequality in this research using the Gini index from the World Inequality Database. The coefficient is based on pre-tax income and transfer payment.

In the research analyzed data for 159 countries over the period 1996–2020. Two research methods were used to analyze the relationships between the quality of the institutional structure of the economy and income inequality.

Methodical tools and characteristics of the main research methods

The first research method — is a classical quantitative analysis of the pair correlation with the Pearson coefficient significance test by the confidence interval boundary values.

[5] World Bank database. URL: https://datacatalog.worldbank.org/dataset/worldwide-governance-indicators (accessed on 05.01.2022).

Table 1

Principles of inclusive economic institutions and public authorities in accordance with the Good Governance concept

Principle	Characteristic
1. Inclusivity	All stakeholders have opportunities to participate in and affect decision-making
2. Fairness	Governing body and decision-making process respects diverse stakeholder views, without bias; considers costs/benefit distribution
3. Performance	Effectiveness and efficiency; processes meet their objectives while making the best use of resources
4. Transparency	Rationale for decision-making is clearly communicated; information is freely available and accessible
5. Legitimacy	Governing body given authority to make decisions by rule of law or by stakeholders; authority used with integrity
6. Accountability	Governing body takes responsibility and is answerable for its decisions; demonstrates fulfillment of responsibilities
7. Direction	Strategic vision; looking constructively towards the future
8. Capability	Resources, skills, leadership, knowledge of governing body

Source: compiled on the basis of F. Emily et al., M. Lockwood et al. [34, 35].

The second research method — qualitative analysis of pairwise changes between studied variables. Its essence is to compare the relative changes between the studied variables by year in order to compare the direction of these changes, i.e. make a qualitative comparison of the evolution of the integral indicator of institutional quality and the Gini index. This is followed by counting observations for the entire study period and collecting annual statistics. Identifies the number of periods in which the variables have changed in one direction and in different directions. This information is grouped and a comparison of the trends of the studied variables is obtained for this statistics, which can also be used to judge their correlation.

The results of the calculations were analyzed in several sections: (1) analysis of relationships in the quartile groups of countries by the Gini index; (2) use of the significance criterion for the Pearson correlation coefficient as a filter and analyzing the part of the sample in which the relationship between the variables studied is statistically significant; (3) use of the inequality transparency index as a filter to select only those countries whose income inequality data are the most reliable.

RESULTS AND DISCUSSION

The *Appendix* presents the results of primary scientific research. Here you can also see supporting indicators such as the average of the Gini index (GIav.) and IEI over the last 10 years (IEIav.). Deviations of 2020 GI and IEI values from the 10-year moving average show a long-term trend of the analyzed indicators.

The relationship between variables in the complete sample of countries is not obvious. In half cases it is direct, in half — inverse. The average correlation coefficient shows the same, as it is near zero (slightly lower). That is, the relationship between the studied

variables is negative on average. This suggests that as the institutional structure of the economy grows and economic institutions become more inclusive, income inequality on average will decrease. However, the average and comparative analysis of the data for individual countries show that the dependency studied is non-linear and difficult understood through the lens of average values of a complete sample of countries.

However, based on the information from the *Appendix* we may be able to draw some conclusions on the first iteration of calculations. For many countries, income inequality is not directly related to the quality of economic, legal, political and other social institutions. From a theoretical point of view this thesis does not seem logical, but according to the available data we see no correlation between the studied indicators. In this case, our conclusions about the lack of correlation between institutional quality and income inequality coincide with the results obtained in the work [6] and can be explained by the topics that in non-democratic countries, even high-quality economic institutions may not work as effectively as in democratic ones. On the other hand, this conclusion may also suggest that even in countries with bad institutions, there is nonzero probability of reducing extreme income inequality through factors, that not dependent on the country itself, for example, through globalization, digitalization, acceleration of the technological progress of humanity as a whole or other external factors. Of course, it is not necessarily the case that in such countries economic inequality and poverty will themselves be reduced. It is most likely that the problem will not be substantially resolved without the political commitment and efforts of the Government and its citizens [17].

In the second iteration of calculations we grouped countries on the basis of the index of income inequality. The first quartile means that the country has the lowest income inequality and the fourth quartile the highest income inequality (*Table 2*). Analysis of data received showed mixed and inconclusive results. Positive correlation was found in half of the years in the study period and negative relationship in the other half. The correlation between income inequality and the quality of the institutional structure of the economy based on the grouping of countries by quartile groups has not given us more insight into the problem under research, but has only confirmed the thesis that the relationship between variables are specific country peculiarities.

In the third iteration of the calculations we used the Pearson correlation coefficient and the results of its significance test as a filter for selection of countries. In this iteration we analyzed the relationships between the studied variables in more homogeneous parts of the sample, provided that there is a confirmed non-zero correlation between them. With the pair correlation coefficient, those countries for which the correlation significance coefficient test showed a statistically insignificant result during the study period were eliminated. The selection of the respective countries reduced the final sample from 159 to 82 countries. This means that in almost half of the countries there was no clear correlation between the studied indicators for the period. Such countries include the USA, Russia, India, China, Japan, Canada, New Zealand, Germany, the UK and many others. It should be noted that during the analyzed period, the quality of the institutional structure of the Russian economy gradually increased, while the income inequality on the Gini index during the same period steadily increased until 2008 and steadily decreased after 2008 to our time. This may explain the lack of statistical correlation between the indicators studied at least during the selected time period. Corresponding calculations of average values by quartile groups are presented in *Table 3*.

According to *Table 3* we again see contradictory results. The high negative correlation in the fourth quartile group by the Pearson coefficient is not supported by the results of the decomposition of the trend by the method of pairwise qualitative correlation of changes in the studied indexes. The relationship between the indicators studied seems to be very individual for each particular country and the overall picture remains rather confusing. On average, we cannot say anything definite, because even in a truncated sample, the number of periods in which the relationships between the studied variables were negative is approximately equal to the number of periods with a positive relationship.

The latest iteration of calculations was the grouping and selection of countries according to the Inequality Transparency Index. In this case, we pursued the goal to adjust the data to the quality of the information base

Table 2

Analysis of the relationships between the quality of the institutional structure of the economy and income inequality in quartile groups

Statistics	Indicators of market income inequality: Gini Index (GI); GI average. – (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average. – (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
										Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
	GI, 2020	GI average	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEI average	D2, %	QG2	num.	% of total	num.	% of total	r	significance of r
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum	0.76	0.74	6.61	4	10.00	65.95	69.52	17.70	–	16	76.19	15	71.43	0.95	–
Average	0.66	0.66	0.23		2.23	30.82	32.27	–6.50		11	50.83	10	49.17	–0.17	
Median	0.64	0.65	0.02		1.00	30.82	35.11	–2.77		11	52.38	10	47.62	–0.23	
Minimum	0.61	0.60	–4.06		0.00	1.40	5.27	–73.45		6	28.57	5	23.81	–0.91	
Maximum	0.61	0.62	5.09	3	16.00	68.04	73.76	75.93	–	17	80.95	14	66.67	0.83	–
Average	0.59	0.60	–0.93		2.20	35.25	35.53	0.15		11	53.33	10	46.67	0.07	
Median	0.59	0.60	–1.36		1.00	36.67	36.18	1.17		11	52.38	10	47.62	0.24	
Minimum	0.56	0.56	–5.45		0.00	1.66	0.94	–49.39		7	33.33	4	19.05	–0.92	
Maximum	0.56	0.57	6.94	2	15.00	79.98	80.76	24.75	–	16	76.19	15	71.43	0.90	–
Average	0.53	0.53	0.18		3.01	37.20	36.02	2.65		10	49.05	11	50.95	0.12	
Median	0.54	0.53	–0.11		1.00	33.80	31.12	3.61		10	47.62	11	52.38	0.11	
Minimum	0.49	0.49	–4.26		0.00	3.10	4.96	–37.44		6	28.57	5	23.81	–0.79	
Maximum	0.48	0.52	4.25	1	17.00	83.86	84.18	11.67	–	15	71.43	16	76.19	0.82	–
Average	0.45	0.45	–0.72		7.97	63.13	63.59	–0.90		10	49.21	11	50.79	–0.07	
Median	0.45	0.45	–0.64		9.00	68.37	68.08	–0.56		11	52.38	10	47.62	–0.13	
Minimum	0.38	0.38	–7.09		1.00	20.82	22.46	–19.07		5	23.81	6	28.57	–0.85	

Source: compiled by the author.

on income inequality. We wanted to find out how the results of the study would change if we only analyzed data from those countries that publish an exhaustive amount of information on income inequality above the average. Countries with an inequality transparency index above 10 were selected, taking into account that 17 is the maximum for the full sample. The results of the calculations are presented in *Table 4*.

Data from *Table 4*, in contrast to previous iterations, gave us a very specific result, which is fairly unequivocal for the two research methods. As a result of such sampling filtering, the vast majority of countries (more than 90 per cent) were countries with high institutional quality in economy and low income inequality. There is a moderately negative correlation between institutional quality and income inequality in these countries.

Our calculations and conclusions confirm the results of previous researches on this topic [31, 32] in which the negative correlation between income inequality and the quality of the institutional structure of the economy is found. If we consider individual countries, we see that this relationship can be both positive and negative and have different correlations across countries. The results of calculations in the second and third iterations of our calculations showed that the relationships between

Table 3

Results of analysis of statistics by quartile groups adjusted by level of correlation coefficient significance

Statistics	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D 1,%) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D 2,%) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
										Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
	GI, 2020	GI average	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEI average	D2, %	QG2	num.	% of total	num.	% of total	r	significance of r
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Maximum	0.76	0.74	6.61	4	10.00	59.51	61.70	17.70	–	16	76.19	15	71.43	0.95	1
Average	0.66	0.66	0.40		1.87	29.25	31.05	–8.52		10	49.07	11	50.93	-0.22	
Median	0.65	0.65	0.04		1.00	31.14	34.15	–2.50		10	47.62	11	52.38	-0.49	
Minimum	0.61	0.60	–4.06		0.00	1.40	5.27	–73.45		6	28.57	5	23.81	-0.91	
Maximum	0.61	0.62	5.09	3	6.00	68.04	73.76	5.09	–	17	80.95	14	66.67	0.83	1
Average	0.59	0.60	–0.93		1.82	34.42	35.12	–0.93		11	52.95	10	47.05	0.10	
Median	0.60	0.61	–1.36		1.00	33.57	33.02	–1.36		11	52.38	10	47.62	0.53	
Minimum	0.56	0.56	–5.45		0.00	3.57	7.05	–5.45		7	33.33	4	19.05	-0.92	
Maximum	0.56	0.56	6.94	2	15.00	70.43	67.08	6.94	–	15	71.43	15	71.43	0.90	1
Average	0.53	0.53	0.09		2.50	37.32	36.39	0.09		10	48.94	11	51.06	0.32	
Median	0.54	0.53	–0.15		0.50	37.06	34.03	–0.15		11	50.00	11	50.00	0.61	
Minimum	0.49	0.49	–4.26		0.00	3.10	4.96	–4.26		6	28.57	6	28.57	-0.79	
Maximum	0.48	0.52	4.25	1	15.00	82.80	83.27	4.25	–	15	71.43	16	76.19	0.82	1
Average	0.44	0.45	–0.75		7.25	59.10	59.82	–0.75		11	51.49	10	48.51	-0.08	
Median	0.45	0.44	–0.69		7.00	62.62	61.89	–0.69		12	54.76	10	45.24	-0.13	
Minimum	0.38	0.39	–7.09		1.00	20.82	22.46	–7.09		5	23.81	6	28.57	-0.85	

Source: compiled by the author.

the studied variables depend on the level of income inequality in the country. An additional contribution to the development of science is that we were able to show the ambiguity of the studied problem in detail on the basis of a detailed quantitative description of the relationships between the studied factors.

One of the conclusions of this study is also that the relatively low level of institutional organization of the Russian economy will not necessarily lead to an increase in income inequality in Russia. This is indicated by the data on the dynamics of the studied indicators for the last 20 years. In this regard, we believe that the regulation of income inequality should focus on the primary factors that contribute to it, namely: increasing the effectiveness of the mechanism of financial redistribution in the economy and developing a flexible system of progressive taxation of incomes.

Table 4

Results of analysis of statistics by quartile groups adjusted for correlation coefficient significance level and inequality transparency index

No.	Country	Indicators of market income inequality: Gini Index (GI); GI average. – (average for 1996–2020); deviation from average (D 1,%) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average. – (average for 1996–2020); deviation from average (D 2,%) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GI average	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEI average	D2, %	QG2	num.	% of total	num.	% of total	r	significance of r
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
31	Colombia	0.640	0.639	0.08	4	10.0	39.4	38.5	2.16	2	11	52.38	10	47.62	-0.53	1
149	USA	0.583	0.583	–0.12	3	16.0	66.5	71.9	–7.56	1	13	61.90	8	38.10	-0.41	–
72	Korea	0.553	0.554	–0.22	2	11.0	66.7	64.1	4.14	1	8	38.10	13	61.90	0.69	1
154	Uruguay	0.505	0.506	–0.25	2	15.0	70.4	67.1	5.00	1	7	33.33	14	66.67	-0.70	1
6	Austria	0.439	0.438	0.24	1	10.0	77.7	79.1	–1.71	1	10	47.62	11	52.38	0.37	–
11	Belgium	0.450	0.440	2.14	1	10.0	72.5	74.0	–2.10	1	9	42.86	12	57.14	-0.15	–
38	Denmark	0.445	0.433	2.71	1	13.0	81.9	81.4	0.60	1	12	57.14	9	42.86	-0.85	1
47	Finland	0.446	0.440	1.38	1	11.0	82.8	83.3	–0.56	1	11	52.38	10	47.62	-0.68	1
48	France	0.426	0.429	–0.76	1	15.0	69.2	71.0	–2.61	1	11	52.38	10	47.62	0.62	1
51	Germany	0.485	0.489	–0.95	1	10.0	76.0	77.0	–1.22	1	13	61.90	8	38.10	-0.16	–
64	Ireland	0.461	0.458	0.78	1	10.0	77.6	77.3	0.35	1	9	42.86	12	57.14	0.13	–
66	Italy	0.444	0.439	1.22	1	13.0	58.3	58.2	0.17	2	6	28.57	15	71.43	-0.52	1
101	Netherlands	0.413	0.411	0.55	1	10.0	79.7	81.0	–1.66	1	11	52.38	10	47.62	-0.75	1
102	New Zealand	0.459	0.454	1.05	1	11.0	83.9	84.2	–0.38	1	14	66.67	7	33.33	0.26	–
108	Norway	0.390	0.406	–3.92	1	17.0	83.7	83.4	0.43	1	11	52.38	10	47.62	-0.14	–
117	Portugal	0.467	0.487	–4.05	1	10.0	70.7	69.8	1.23	1	7	33.33	14	66.67	0.04	–
130	Slovenia	0.408	0.411	–0.91	1	10.0	67.8	67.7	0.15	1	9	42.86	12	57.14	-0.19	–
133	Spain	0.451	0.456	–1.14	1	10.0	63.6	64.5	–1.43	1	8	38.10	13	61.90	-0.03	–
136	Sweden	0.406	0.402	1.19	1	15.0	81.2	82.5	–1.53	1	9	42.86	12	57.14	-0.07	–
137	Switzerland	0.427	0.431	–0.74	1	12.0	82.9	83.2	–0.40	1	8	38.10	13	61.90	-0.38	–
153	Great Britain	0.465	0.473	–1.66	1	16.0	73.9	75.0	–1.53	1	8	38.10	13	61.90	0.12	–
160	Maximum	0.64	0.64	2.71	4	17.0	83.86	84.18	5.00	2	14	66.67	15	71.43	0.69	–
161	Average	0.46	0.47	–0.16	1	12.1	72.68	73.06	–0.40	1	10	46.49	11	53.51	-0.16	
162	Median	0.45	0.44	–0.12	1	11.0	73.86	75.01	–0.40	1	9	42.86	12	57.14	-0.15	
163	Minimum	0.39	0.40	-4.05	1	10.0	39.35	38.52	-7.56	1	6	28.57	7	33.33	-0.85	

Source: compiled by the author.

Note: country numbering is kept the same as shown in *Appendix*.

Income inequality alone does not guarantee a high standard of living [2, 36]. Based on the data obtained, we assume that the quality of the institutional structure of the economy has a greater impact on the rate of economic growth and on the average standard of living in the country, rather than on the problem of the distribution of national income among households, i.e. income inequality. The experience of the USSR has clearly shown that it is possible that income inequality is formally low, and the standard of living in the country may be quite low compared to the world average. This hypothesis deserves further empirical research.

The results of this research have a number of limitations related to the selected research methodology in terms of indicators for assessing the quality of the institutional structure of the economy and assessing the level of income inequality. These limitations are due both to the quality of the data and to the characteristics of the indicators selected for the research.

Further studies of this problem can be developed in several directions: (1) experiment with the weights of factors in the integral indicator of the quality of the institutional structure of the economy and (2) use other measures of income inequality, including disposable and factor income.

Within the framework of the factor analysis of the integral indicator IEI it is possible to analyze the influence of each component on income inequality by changing the weights of each factor in the formula (1). In this direction, the most interesting is the additional research of the factor "VA" (voting rights and accountability of the government), because for such large countries, as China, this factor significantly reduces the IEI resulting index due to the features of the political system. However, China's macroeconomic data show that low VA does not prevent the country from succeeding in creating a rich and voluminous middle class, and to take significant and sustained efforts to reduce poverty in the country, both through high economic growth and through a policy of active redistribution through the budget system. The same can be said of the Russian Federation, which has been striving for the last 20 years to build no less quality social State than exists at present in the European Union.

The conducted research, as well as some earlier empirical work, have significant limitations due to the imperfect institutional qualitative model proposed by the World Bank. In further studies of this problem it is necessary to eliminate influence of the factor of the type of political system of the assessed country on the results of the study, to conduct a re-evaluation of the hypothesis that democratic institutions are more effective than non-democratic, because China has been a greatest contradiction to this claim for the last few decades.

On the first point one can try to completely exclude some of the factors of the integral indicator of assessment of the quality of the institutional structure in economy (IEI), that proposed by the World Bank. In our view, it would be possible to leave only "the effectiveness of control of corruption", "the effectiveness of government" and "the quality of state regulation". In modern conditions, we see how the rule of law, in the context of geopolitical developments in the world economy in 2022, has created a crack unprecedented in recent decades. Indeed, it has been neglected for political purposes, even by countries that have been representative examples until recently in protecting the integrity of private property. Is this a systemic failure of the "highly effective institutions of Western countries"? How will geopolitical developments and related decisions by Western countries in 2022 affect the level of income inequality in the group of unfriendly countries in the next 5–10 years? Finding answers to these questions is a priority for further scientific research.

On the second point, an additional round of researches based on the Gini index on disposable and factor incomes could be conducted to assess the effects of income redistribution and the effectiveness of public financial policies in this area.

CONCLUSION

This research examines the problem of assessing the relationship between changes in the institutional structure of the economy and the dynamics of income inequality. The goal of the research was to test the hypothesis that the improvement of the quality of political and economic institutions in the country has a positive impact on the problem of income inequality.

It was found that in individual countries there is a fairly high dependence between analyzed variables. This dependence can take both negative and positive

values. By analyzing the complete sample of countries, as well as by grouping it by income inequality, we have not identified any pattern or particular feature in which the relationship between the studied variables becomes more pronounced and more distant from zero. On average, for a complete sample of countries, we find that the correlation between the variables is just below zero by the Pearson correlation coefficient. The method of qualitative pairwise correlation shows the same if the results of the transparency index of inequality for a complete sample of countries are weighted. Thus, in the first part of our research we found that the relationships analyzed are non-linear character and country specificity.

We were able to obtain more conclusive results when we used a filter to select countries from the index of transparency of inequality. By eliminating all countries with an inequality transparency index below 10, we obtained relatively reliable data for 21 countries. This list included countries from different quartile groups of income inequality, mainly from the first, with the vast majority of countries also in the first group on the quality of the institutional structure of the economy. In general, it can be said that the sample obtained is more homogeneous in its properties than the full list of countries presented in the *Appendix*. Analyzing this part of the sample, we obtained results with a moderately negative relationship between the variables studied and the conclusions, that, for developed countries with good government and relatively low income inequality, the decline in the quality of the institutional structure of the economy, on average, will be accompanied by rising income inequality and on the contrary.

Our calculations and conclusions confirm the results of previous studies on this topic, in which the negative relationship between income inequality and the quality of the institutional structure of the economy was found. At the same time, we were able to show the ambiguity of the studied problem in detail on the basis of a detailed quantitative description of the relationships between the studied factors.

For many countries, income inequality is not directly related to the quality of economic, legal, political and other social institutions. The conclusion that there is no correlation between institutional quality and income inequality can be explained by the fact that in non-democratic countries even high-quality economic institutions may not work effective as in democratic. On the other hand, this conclusion may also suggest that even in countries with poor institutions, there is no zero probability of reducing extreme income inequality through factors beyond the control of the country itself, for example, through globalization, digitalization, and acceleration of technological progress of humanity as a whole or other external factors. Of course, it is not necessarily the case that in such countries economic inequality and poverty will themselves be reduced. It is most likely that the problem will not be substantially resolved without the political will and efforts of the Government and its citizens.

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ABOUT THE AUTHOR

Mikhail L. Dorofeev — Cand. Sci. (Econ.), Assoc. Prof., Department of Public Finance, Financial University, Moscow, Russia
http://orcid.org/0000-0002-2829-9900
dorofeevml@yandex.ru

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Appendix

Results of the study of the impact of the quality of the institutional structure of the economy on the dynamics of household income inequality in different countries in 1996–2020

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Algeria	0.488	0.488	–0.1	2	1.0	18.4	19.4	–4.8	4	10	47.6	11	52.4	–0.15	-
2	Angola	0.686	0.661	3.8	4	1.0	16.5	14.4	14.6	4	8	38.1	13	61.9	0.10	-
3	Argentina	0.539	0.518	4.2	2	7.0	39.2	38.0	3.1	2	6	28.6	15	71.4	0.05	-
4	Armenia	0.507	0.509	–0.6	2	1.0	42.1	37.9	11.2	2	10	47.6	11	52.4	–0.31	-
5	Australia	0.497	0.489	1.6	2	9.0	77.8	79.5	–2.1	1	9	42.9	12	57.1	0.04	-
6	Austria	0.439	0.438	0.2	1	10.0	77.7	79.1	–1.7	1	10	47.6	11	52.4	0.37	-
7	Azerbaijan	0.482	0.483	–0.2	1	1.0	22.1	22.5	–1.5	3	5	23.8	16	76.2	–0.66	1
8	Bahrain	0.673	0.671	0.4	4	1.0	42.5	42.3	0.5	2	8	38.1	13	61.9	–0.86	1
9	Bangladesh	0.532	0.537	–1.0	2	3.0	18.2	18.7	–2.8	4	7	33.3	14	66.7	–0.37	-
10	Belarus	0.431	0.442	–2.4	1	1.0	20.8	23.8	–12.5	4	10	47.6	11	52.4	–0.47	1
11	Belgium	0.450	0.440	2.1	1	10.0	72.5	74.0	–2.1	1	9	42.9	12	57.1	–0.15	-
12	Belize	0.604	0.613	–1.4	3	0.0	36.7	37.6	–2.5	3	9	42.9	12	57.1	0.83	1
13	Benin	0.640	0.635	0.8	4	1.0	33.1	34.1	–2.8	3	8	38.1	13	61.9	–0.78	1
14	Butane	0.551	0.564	–2.4	2	1.0	58.5	53.1	10.1	2	10	47.6	11	52.4	–0.68	1
15	Bolivia	0.604	0.613	–1.4	3	3.0	21.7	25.1	–13.4	4	8	38.1	13	61.9	0.62	1
16	Bosnia and Herzegovina	0.480	0.480	–0.1	1	1.0	27.8	34.4	–19.1	3	12	57.1	9	42.9	0.71	1
17	Botswana	0.700	0.714	–1.8	4	0.5	59.5	61.7	–3.5	2	10	47.6	11	52.4	0.52	1
18	Brazil	0.679	0.677	0.2	4	6.0	37.7	42.0	–10.2	3	10	47.6	11	52.4	–0.41	-
19	Brunei Darussalam	0.481	0.477	0.8	1	1.0	64.0	60.7	5.3	1	13	61.9	8	38.1	–0.55	1
20	Bulgaria	0.541	0.507	6.9	2	6.0	47.9	50.3	–4.8	2	12	57.1	9	42.9	0.15	-
21	Burkina Faso	0.571	0.577	–1.0	3	0.5	28.7	31.4	–8.8	3	15	71.4	6	28.6	0.46	1
22	Burundi	0.587	0.585	0.4	3	1.0	7.3	9.8	–25.1	4	12	57.1	9	42.9	–0.47	1
23	Cape Verde	0.607	0.615	–1.4	3	0.5	59.1	57.7	2.5	2	11	52.4	10	47.6	–0.10	-

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
24	Cambodia	0.584	0.595	–1.8	3	1.0	21.5	21.0	2.4	4	15	71.4	6	28.6	–0.83	1
25	Cameroon	0.638	0.635	0.4	4	0.5	12.6	14.6	–14.0	4	7	33.3	14	66.7	–0.81	1
26	Canada	0.535	0.529	1.2	2	9.0	80.0	80.8	–1.0	1	7	33.3	14	66.7	–0.10	-
27	Central African Republic	0.733	0.733	0.0	4	1.0	6.0	6.7	–9.9	4	14	66.7	7	33.3	–0.36	-
28	Fumes	0.609	0.609	0.0	4	0.5	7.6	7.5	2.2	4	10	47.6	11	52.4	–0.47	1
29	Chile	0.678	0.690	–1.6	4	8.0	66.0	69.5	–5.1	1	13	61.9	8	38.1	0.34	-
30	China	0.555	0.558	–0.4	2	7.0	38.8	33.4	16.0	3	11	52.4	10	47.6	0.11	-
31	Colombia	0.640	0.639	0.1	4	10.0	39.4	38.5	2.2	2	11	52.4	10	47.6	–0.53	1
32	Comoros	0.621	0.632	–1.7	4	0.5	14.6	17.8	–18.1	4	8	38.1	13	61.9	–0.20	-
33	Costa Rica	0.631	0.630	0.2	4	5.0	62.7	61.1	2.6	1	12	57.1	9	42.9	–0.36	-
34	Croatia	0.480	0.479	0.4	1	8.0	55.5	56.5	–1.7	2	11	52.4	10	47.6	0.33	-
35	Cuba	0.519	0.518	0.2	2	0.0	31.6	31.1	1.9	3	13	61.9	8	38.1	–0.79	1
36	Cyprus	0.480	0.487	–1.5	1	7.0	61.0	66.8	–8.8	1	6	28.6	15	71.4	–0.22	-
37	Czech Republic	0.378	0.383	–1.4	1	5.0	68.4	68.1	0.4	1	13	61.9	8	38.1	–0.08	-
38	Denmark	0.445	0.433	2.7	1	13.0	81.9	81.4	0.6	1	12	57.1	9	42.9	–0.85	1
39	Dominican Republic	0.604	0.613	–1.4	3	3.0	38.9	36.1	7.5	3	12	57.1	9	42.9	–0.70	1
40	Ecuador	0.514	0.531	–3.3	2	5.0	28.6	25.9	10.5	3	12	57.1	9	42.9	–0.42	-
41	Egypt	0.590	0.589	0.2	3	3.0	20.0	21.2	–5.7	4	10	47.6	11	52.4	–0.20	-
42	Salvador	0.577	0.611	–5.5	3	5.0	33.6	37.9	–11.5	3	8	38.1	13	61.9	0.52	1
43	Equatorial Guinea	0.629	0.626	0.6	4	0.0	9.3	9.4	–1.2	4	9	42.9	12	57.1	–0.05	-
44	Eritrea	0.554	0.552	0.5	2	0.0	4.7	6.9	–31.6	4	6	28.6	15	71.4	–0.58	1
45	Estonia	0.479	0.496	–3.5	1	9.0	74.6	72.0	3.6	1	12	57.1	9	42.9	–0.66	1
46	Ethiopia	0.554	0.552	0.5	2	0.5	21.7	19.9	9.1	4	12	57.1	9	42.9	0.70	1
47	Finland	0.446	0.440	1.4	1	11.0	82.8	83.3	–0.6	1	11	52.4	10	47.6	–0.68	1
48	France	0.426	0.429	–0.8	1	15.0	69.2	71.0	–2.6	1	11	52.4	10	47.6	0.62	1

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
49	Gabon	0.559	0.571	–2.0	3	0.5	21.1	24.7	–14.4	4	11	52.4	10	47.6	0.79	1
50	Georgia	0.593	0.590	0.5	3	5.0	53.3	51.8	2.8	2	10	47.6	11	52.4	0.27	-
51	Germany	0.485	0.489	–0.9	1	10.0	76.0	77.0	–1.2	1	13	61.9	8	38.1	–0.16	-
52	Ghana	0.608	0.606	0.3	4	1.0	45.8	46.3	–1.0	2	9	42.9	12	57.1	0.43	1
53	Greece	0.446	0.461	–3.5	1	9.0	56.2	52.8	6.5	2	14	66.7	7	33.3	0.75	1
54	Guatemala	0.604	0.613	–1.4	3	0.0	23.6	25.1	–6.1	3	11	52.4	10	47.6	0.76	1
55	Guinea	0.538	0.540	–0.4	2	0.5	15.7	13.6	15.3	4	12	57.1	9	42.9	–0.02	-
56	Guinea-Bissau	0.685	0.685	0.0	4	0.5	13.2	11.2	17.7	4	10	47.6	11	52.4	–0.49	1
57	Hong Kong	0.593	0.599	–1.0	3	4.0	68.0	73.8	–7.8	1	14	66.7	7	33.3	0.70	1
58	Hungary	0.438	0.427	2.5	1	6.0	57.5	59.1	–2.7	2	12	57.1	9	42.9	–0.61	1
59	Iceland	0.387	0.389	–0.6	1	7.0	80.8	79.2	2.0	1	15	71.4	6	28.6	0.82	1
60	India	0.634	0.629	0.8	4	4.0	40.9	38.3	6.6	2	12	57.1	9	42.9	–0.08	-
61	Indonesia	0.603	0.574	5.1	3	6.0	40.4	36.2	11.4	2	10	47.6	11	52.4	0.70	1
62	Iran	0.615	0.602	2.1	4	3.0	10.4	15.2	–31.8	4	12	57.1	9	42.9	0.49	1
63	Iraq	0.621	0.622	–0.2	4	0.5	7.7	7.9	–2.5	4	7	33.3	14	66.7	–0.91	1
64	Ireland	0.461	0.458	0.8	1	10.0	77.6	77.3	0.3	1	9	42.9	12	57.1	0.13	-
65	Israel	0.601	0.611	–1.7	3	3.0	58.7	59.8	–1.9	2	10	47.6	11	52.4	–0.80	1
66	Italy	0.444	0.439	1.2	1	13.0	58.3	58.2	0.2	2	6	28.6	15	71.4	–0.52	1
67	Jamaica	0.604	0.613	–1.4	3	0.0	49.9	48.4	3.1	2	8	38.1	13	61.9	–0.70	1
68	Japan	0.539	0.539	0.0	2	6.0	75.9	74.9	1.3	1	11	52.4	10	47.6	0.13	-
69	Jordan	0.592	0.597	–0.9	3	3.0	42.9	42.2	1.5	2	9	42.9	12	57.1	0.05	-
70	Kazakhstan	0.537	0.525	2.4	2	3.0	36.0	31.2	15.4	3	10	47.6	11	52.4	–0.32	-
71	Kenya	0.599	0.606	–1.2	3	0.5	25.4	26.1	–2.5	3	13	61.9	8	38.1	–0.66	1
72	Korea	0.553	0.554	–0.2	2	11.0	66.7	64.1	4.1	1	8	38.1	13	61.9	0.69	1
73	Kosovo	0.471	0.471	0.1	1	1.0	33.5	32.5	3.2	3	13	61.9	8	38.1	–0.11	-
74	Kuwait	0.647	0.648	–0.1	4	0.5	44.4	42.8	3.7	2	12	57.1	9	42.9	0.95	1

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
75	Kyrgyzstan	0.541	0.506	6.9	2	3.0	23.7	20.9	13.2	3	10	47.6	11	52.4	–0.18	-
76	Lao People's Democratic Republic	0.606	0.596	1.7	3	1.0	21.8	21.0	3.8	4	11	52.4	10	47.6	0.60	1
77	Latvia	0.482	0.490	–1.8	1	6.0	64.7	62.8	3.1	1	10	47.6	11	52.4	–0.27	-
78	Lebanon	0.659	0.660	–0.1	4	5.0	16.2	22.7	–28.7	4	10	47.6	11	52.4	–0.79	1
79	Lesotho	0.619	0.645	–4.1	4	1.0	31.1	37.5	–16.9	3	11	52.4	10	47.6	0.69	1
80	Liberia	0.549	0.544	1.0	2	1.0	19.2	20.2	–5.0	4	11	52.4	10	47.6	–0.66	1
81	Libya	0.544	0.542	0.3	2	0.0	3.1	5.0	–37.4	4	10	47.6	11	52.4	0.47	1
82	Lithuania	0.491	0.495	–0.7	2	3.0	69.1	66.0	4.6	1	9	42.9	12	57.1	0.63	1
83	Luxembourg	0.457	0.455	0.4	1	8.0	82.7	82.5	0.2	1	9	42.9	12	57.1	0.05	-
84	Macau	0.555	0.558	–0.4	2	0.0	66.5	65.5	1.6	1	12	57.1	9	42.9	0.43	1
85	Madagascar	0.614	0.615	–0.2	4	1.0	20.2	20.7	–2.7	4	11	52.4	10	47.6	0.06	-
86	Malawi	0.652	0.652	0.0	4	1.0	30.5	31.0	–1.5	3	13	61.9	8	38.1	0.44	1
87	Malaysia	0.518	0.529	–2.0	2	4.0	54.8	53.2	3.0	2	10	47.6	11	52.4	–0.38	-
88	Maldives	0.507	0.529	–4.0	2	0.5	38.1	33.5	13.7	3	14	66.7	7	33.3	0.84	1
89	Mali	0.529	0.529	0.0	2	0.5	16.9	22.0	–23.2	4	12	57.1	9	42.9	0.74	1
90	Malta	0.447	0.449	–0.4	1	7.0	68.4	71.7	–4.6	1	13	61.9	8	38.1	–0.57	1
91	Mauritania	0.521	0.524	–0.6	2	0.5	20.0	19.1	5.0	4	9	42.9	12	57.1	0.88	1
92	Mauritius	0.575	0.582	–1.2	3	1.0	65.4	64.8	0.9	1	12	57.1	9	42.9	0.59	1
93	Mexico	0.683	0.693	–1.4	4	9.0	30.4	36.1	–15.6	3	11	52.4	10	47.6	–0.42	-
94	Moldova	0.480	0.486	–1.3	1	2.0	33.6	33.8	–0.7	3	12	57.1	9	42.9	–0.22	-
95	Mongolia	0.560	0.569	–1.6	3	1.0	43.1	41.7	3.3	2	11	52.4	10	47.6	–0.25	-
96	Montenegro	0.505	0.504	0.2	2	1.0	46.6	48.1	–3.1	2	13	61.9	8	38.1	0.90	1
97	Morocco	0.596	0.597	–0.2	3	2.0	37.4	36.8	1.6	3	10	47.6	11	52.4	–0.02	-
98	Mozambique	0.725	0.714	1.6	4	0.5	19.3	25.2	–23.5	4	9	42.9	12	57.1	–0.84	1
99	Namibia	0.737	0.743	–0.9	4	0.5	51.9	53.3	–2.7	2	12	57.1	9	42.9	–0.19	-

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average. – (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average. – (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
100	Nepal	0.531	0.535	–0.8	2	1.0	26.9	21.6	24.7	3	16	76.2	5	23.8	0.16	-
101	Netherlands	0.413	0.411	0.5	1	10.0	79.7	81.0	–1.7	1	11	52.4	10	47.6	–0.75	1
102	New Zealand	0.459	0.454	1.0	1	11.0	83.9	84.2	–0.4	1	14	66.7	7	33.3	0.26	-
103	Nicaragua	0.604	0.613	–1.4	3	0.0	16.2	23.0	–29.5	4	14	66.7	7	33.3	0.73	1
104	Niger	0.545	0.543	0.4	2	1.0	21.8	23.6	–7.8	4	11	52.4	10	47.6	0.40	-
105	Nigeria	0.545	0.569	–4.3	2	0.5	14.2	14.3	–0.6	4	7	33.3	14	66.7	–0.32	-
106	North Korea	0.551	0.555	–0.6	2	0.0	6.7	6.1	9.5	4	13	61.9	8	38.1	0.10	-
107	North Macedonia	0.426	0.448	–5.0	1	2.0	45.4	43.3	4.9	2	10	47.6	11	52.4	–0.13	-
108	Norway	0.390	0.406	–3.9	1	17.0	83.7	83.4	0.4	1	11	52.4	10	47.6	–0.14	-
109	Oman	0.678	0.678	0.0	4	0.5	47.7	49.4	–3.4	2	11	52.4	10	47.6	0.33	-
110	Pakistan	0.532	0.535	–0.6	2	1.0	18.9	18.0	5.2	4	13	61.9	8	38.1	0.39	-
111	Panama	0.604	0.613	–1.4	3	3.0	45.6	47.6	–4.3	2	9	42.9	12	57.1	0.22	-
112	Papua New Guinea	0.593	0.593	0.0	3	1.0	24.1	24.4	–1.4	3	15	71.4	6	28.6	0.39	-
113	Paraguay	0.604	0.613	–1.4	3	3.0	33.5	28.7	16.9	3	13	61.9	8	38.1	–0.92	1
114	Peru	0.625	0.651	–4.0	4	5.0	40.2	39.4	2.2	2	9	42.9	12	57.1	–0.27	-
115	Philippines	0.575	0.592	–2.9	3	3.0	33.7	34.9	–3.4	3	9	42.9	12	57.1	0.26	-
116	Poland	0.485	0.478	1.3	1	9.0	59.4	63.9	–7.1	2	8	38.1	13	61.9	–0.25	-
117	Portugal	0.467	0.487	–4.1	1	10.0	70.7	69.8	1.2	1	7	33.3	14	66.7	0.04	-
118	Qatar	0.679	0.679	0.0	4	1.0	56.9	57.7	–1.5	2	16	76.2	5	23.8	0.50	1
119	Romania	0.544	0.532	2.4	2	7.0	50.8	49.7	2.3	2	6	28.6	15	71.4	0.59	1
120	**Russian Federation**	**0.549**	**0.551**	**–0.3**	**2**	**1.0**	**24.8**	**23.8**	**4.4**	**3**	**10**	**47.6**	**11**	**52.4**	**–0.06**	**-**
121	Rwanda	0.636	0.648	–1.9	4	1.0	45.1	42.8	5.4	2	7	33.3	14	66.7	–0.77	1
122	São Tomé and Príncipe	0.509	0.509	0.0	2	н/д	36.1	34.6	4.3	3	15	71.4	6	28.6	0.84	1
123	Saudi Arabia	0.650	0.655	–0.7	4	0.0	38.8	38.4	1.1	3	11	52.4	10	47.6	–0.63	1
124	Senegal	0.589	0.589	0.0	3	0.5	43.0	40.5	6.2	2	10	47.6	11	52.4	0.25	-

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
125	Serbia	0.484	0.521	–7.1	1	6.0	40.2	43.0	–6.4	2	8	38.1	13	61.9	0.52	1
126	Seychelles	0.625	0.625	0.0	4	н/д	56.5	52.6	7.4	2	14	66.7	7	33.3	0.00	-
127	Sierra Leone	0.571	0.558	2.3	3	1.0	25.5	23.0	11.0	3	7	33.3	14	66.7	–0.84	1
128	Singapore	0.545	0.541	0.9	2	4.0	76.2	76.0	0.3	1	8	38.1	13	61.9	0.42	-
129	Slovakia	0.376	0.395	–4.8	1	6.0	61.3	63.0	–2.8	1	8	38.1	13	61.9	0.54	1
130	Slovenia	0.408	0.411	–0.9	1	10.0	67.8	67.7	0.1	1	9	42.9	12	57.1	–0.19	-
131	Somalia	0.558	0.558	0.0	3	0.5	1.7	0.9	75.9	4	13	61.9	8	38.1	0.02	-
132	South Africa	0.758	0.743	2.1	4	9.0	48.9	50.5	–3.0	2	12	57.1	9	42.9	–0.88	1
133	Spain	0.451	0.456	–1.1	1	10.0	63.6	64.5	–1.4	1	8	38.1	13	61.9	–0.03	-
134	Sri Lanka	0.593	0.593	0.1	3	3.0	40.6	38.6	5.2	2	15	71.4	6	28.6	0.36	-
135	Surinam	0.604	0.613	–1.4	3	0.0	37.3	40.2	–7.2	3	17	81.0	4	19.0	0.82	1
136	Sweden	0.406	0.402	1.2	1	15.0	81.2	82.5	–1.5	1	9	42.9	12	57.1	–0.07	-
137	Switzerland	0.427	0.431	–0.7	1	12.0	82.9	83.2	–0.4	1	8	38.1	13	61.9	–0.38	-
138	Syrian Arab Republic	0.660	0.660	0.0	4	0.5	1.4	5.3	–73.5	4	12	57.1	9	42.9	–0.47	1
139	Taiwan	0.453	0.461	–1.6	1	5.0	73.0	69.9	4.4	1	11	52.4	10	47.6	0.38	-
140	Tajikistan	0.550	0.540	1.7	2	0.5	12.4	10.9	13.1	4	7	33.3	14	66.7	0.57	1
141	Tanzania	0.613	0.595	2.9	4	1.0	25.8	29.4	–12.1	3	14	66.7	7	33.3	–0.27	-
142	Thailand	0.592	0.616	–3.9	3	4.0	38.5	37.5	2.7	3	9	42.9	12	57.1	0.53	1
143	Timor-Leste	0.533	0.534	–0.2	2	2.0	29.8	24.8	19.9	3	12	57.1	9	42.9	–0.23	-
144	Togo	0.604	0.613	–1.5	3	0.5	22.0	19.6	12.1	3	12	57.1	9	42.9	–0.33	-
145	Trinidad and Tobago	0.604	0.613	–1.4	3	0.0	47.2	48.3	–2.3	2	8	38.1	13	61.9	0.63	1
146	Tunisia	0.528	0.533	–0.9	2	1.0	39.3	38.5	2.3	2	11	52.4	10	47.6	0.89	1
147	Turkey	0.637	0.613	3.9	4	3.0	32.1	38.5	–16.6	3	6	28.6	15	71.4	–0.76	1
148	Turkmenistan	0.617	0.613	0.7	4	0.5	9.3	10.3	–9.8	4	13	61.9	8	38.1	0.02	-
149	USA	0.583	0.583	–0.1	3	16.0	66.5	71.9	–7.6	1	13	61.9	8	38.1	–0.41	-

Appendix (continued)

№	Country	Indicators of market income inequality: Gini Index (GI); GI average.– (average for 1996–2020); deviation from average (D1, %) and quartile group of income inequality level (QG1, where 1 = low, 4 = high)				Inequality Transparency Index	IEI Index of economic institute's quality; IEI average.– (average for 1996–2020); deviation from average (D2, %) and quartile group of income inequality level (QG2, where 1 = high, 4 = low)				Qualitative correlation (trend)				Pearson correlation coefficient r [–1; 1] and evaluation of its significance (1 = yes, 0 = no)	
											Total number of observations with direct dependence of variables		Total number of observations with inverse dependence of variables			
		GI, 2020	GIcp.	D1, %	QG1	0 = min, 17 = max	IEI, 2020	IEIcp.	D2, %	QG2	num.	% of total	num.	% of total	*r*	significance of *r*
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
150	Uganda	0.624	0.620	0.7	4	1.0	24.8	26.6	–6.7	3	9	42.9	12	57.1	0.05	-
151	Ukraine	0.431	0.413	4.3	1	1.0	27.9	25.0	11.7	3	12	57.1	9	42.9	0.34	-
152	United Arab Emirates	0.602	0.624	–3.5	3	3.0	59.5	58.6	1.5	2	12	57.1	9	42.9	–0.74	1
153	Great Britain	0.465	0.473	–1.7	1	16.0	73.9	75.0	–1.5	1	8	38.1	13	61.9	0.12	-
154	Uruguay	0.505	0.506	–0.2	2	15.0	70.4	67.1	5.0	1	7	33.3	14	66.7	–0.70	1
155	Uzbekistan	0.573	0.572	0.2	3	0.5	16.6	13.1	27.0	4	13	61.9	8	38.1	–0.11	-
156	Venezuela	0.604	0.613	–1.4	3	0.0	3.6	7.1	–49.4	4	11	52.4	10	47.6	0.72	1
157	Vietnam	0.566	0.573	–1.2	3	5.0	36.6	33.0	11.0	3	8	38.1	13	61.9	–0.79	1
158	Zambia	0.722	0.723	–0.1	4	1.0	26.5	34.1	–22.5	3	11	52.4	10	47.6	0.43	1
159	Zimbabwe	0.685	0.643	6.6	4	1.0	9.6	8.4	14.6	4	15	71.4	6	28.6%	0.49	1
160	Maximum	0.76	0.74	–	–	17.00	83.86	84.18	–	–	17	81.0	16	76.2%	0.95	-
161	Average	0.56	0.56			3.86	41.61	41.86			11	50.6	10	49.4%	–0.01	
162	Median	0.56	0.57			2.00	39.03	38.38			11	52.4	10	47.6%	–0.02	
163	Minimum	0.38	0.38			0.00	1.40	0.94			5	23.8	4	19.0%	–0.92	
164	Mean dependency across a sample of countries											50,6	-	49,4	-	
165	Weighted average (by inequality transparency index) dependence across a sample of countries											48,2		51,8		

Source: compiled by the author on the basis of the study materials.