

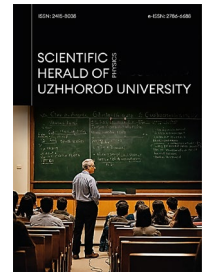
Scientific Herald of Uzhhorod University

Series "Physics"

Journal homepage: <https://physics.uz.ua/en>

Issue 56, 2361–2371

Received: 18.01.2024. Revised: 24.04.2024. Accepted: 29.05.2024



DOI: 10.54919/physics/56.2024.236qk1

The impact of economic growth on income distribution in the Republic of Kazakhstan

Aitolkyn Sagynbayeva

Al-Farabi Kazakh National University
050040, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan

Saltanat Kondybayeva*

Al-Farabi Kazakh National University
050040, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan

Gulmira Andabayeva

Al-Farabi Kazakh National University
050040, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan

Dauren Turarov

Al-Farabi Kazakh National University
050040, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan

Abstract

Relevance. The study is relevant due to the necessity of understanding the intricate relationship between economic growth and income distribution in the Republic of Kazakhstan.

Purpose. The purpose of this research is to identify the causal relationships between income distribution and economic growth, empirically examine this relationship in Kazakhstan over five years (2016 to 2020), investigate the prevalence and trends of income distribution during this time, and determine the causality between economic growth and income inequality.

Methodology. The study employs mathematical modelling, synthesis, comparative analysis, classification, deduction, and literature review.

Results. The study presents its findings through figures, graphs, and tables, establishing a link between income distribution and GDP growth. It empirically examines the relationship between economic growth and income distribution in Kazakhstan from 2016 to 2020, identifies trends and prevalence of income distribution during this period, and outlines areas for future research on the causal relationship between economic growth and income inequality.

Conclusions. The study concludes that there is a significant link between economic growth and income distribution in Kazakhstan. The analysis reveals that economic growth impacts income inequality, with notable trends and patterns observed over the studied period. Future research should further investigate these causal relationships to inform policy decisions.

Keywords: Gini coefficient; decile ratio; consequences of income distribution; economic model.

Suggested Citation:

Sagynbayeva A, Kondybayeva S, Andabayeva G, Turarov D. The impact of economic growth on income distribution in the Republic of Kazakhstan. *Sci Herald Uzhhorod Univ Ser Phys.* 2024;(56):2361-2371. DOI: 10.54919/physics/56.2024.236qk1

*Corresponding author



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Introduction

Over the past two centuries, economic systems have undergone long-term rapid transformations in their structure, vision, and efficiency. The capitalist system embraced from the outset the call for free market operations and non-intervention by the state in economic activity and its consequences [1]. Economic growth is a vital sign of any economy. Each country strives to ensure that its growth rates remain positive and stable. For this reason, the gross domestic product (GDP) of a country is always calculated quarterly and annually to constantly assess the efficiency of the economy in terms of its productivity [2; 3]. However, it is known that positive economic growth is associated with certain costs, which ultimately undermine the achieved result. One of the undesirable factors undermining economic growth, especially in developing countries, is income distribution [4].

In economics, income is considered as a reward for participation in economic activity. Thus, the distribution of income is determined by the size of the contribution of a person or group of people to the economy. It is assumed that income distribution is a sign of the level of social and economic well-being in any region. The study of the relationship between income growth and the distribution of income and wealth has always been at the centre of discussion among economists, sociologists, and other researchers. The most popular and widespread among researchers of this issue is the opinion that a certain level of inequality in the distribution of income and wealth is necessary for the growth of the economy of states since inequality in income and wealth increases the propensity to save and accumulate capital, which is a prerequisite for further economic growth [5; 6].

Income inequality is one of the most discussed topics at the global level. According to the European Commission, eight out of ten European citizens are of opinion that unemployment, social inequality, and migration are the main problems currently facing the European Union (EU). In this context, the European Commission has begun to pay more attention to social change at the EU level and has integrated the European Pillar of Social Rights into the European Semester to strengthen the social responsibility of member states in the policy-making process [7].

The relationship between economic growth and inequality remains an important issue for the national government and development organisations. Economic

growth is one of the points of the Sustainable Development Goals (SDGs), since the reduction of income inequality within and between countries is one of its important areas, and thus the relationship between economic growth and inequality is an important phenomenon for economic analysis [8; 9].

It has been a long time since politicians and economic planners noticed the relationship between economic growth and income distribution. There has always been concern that a certain level of inequality should be adopted to accelerate economic growth. In addition, to improve income distribution, attention should be paid to the sluggish economy. Different opinions are expressed on this issue. There are several reasons to study the relationship between economic growth and income distribution in the Republic of Kazakhstan. Firstly, in general, the causal relationship between income distribution and economic growth remains unclear, therefore, it is the purpose of the study to empirically examine the relationship between the economic growth of the Republic of Kazakhstan and income distribution for 5 years (from 2016 to 2020). Secondly, to investigate the prevalence and trends of income distribution in the country during the considered period. Thirdly, to determine the area of the causal relationship between economic growth and income inequality.

Materials and Methods

The main method of this research is the mathematical modelling of economic systems. Its application is conditioned by the need to study empirical data, and real processes, and assess their impact on other processes. To assess the level of income inequality of the population of the Republic of Kazakhstan for the period 2016-2020, the Gini coefficient was used in this study, which is determined by the formula:

$$KL = \sum p_i q_{i+1} - \sum p_{i+1} q_i, \quad (1)$$

where KL is the Gini coefficient, p_i is the total share of the population with an increasing total of 1, and q_i is the share of monetary income with an increasing total divided by 100. To calculate the Gini coefficient, it is necessary to calculate the values of p_i and q_i (Table 1) for each year considered:

Table 1. Finding the values of p_i and q_i

2016			
p_i	q_i	$p_i q_{i+1}$	$p_{i+1} q_i$
0.1	0.0415	0.0095	-
0.2	0.095	0.03142	0.0083
0.3	0.1571	0.06828	0.0285
0.4	0.2276	0.1229	0.06284
0.5	0.3073	0.1988	0.1138
0.6	0.3975	0.3002	0.1844
0.7	0.5004	0.4342	0.2783
0.8	0.6203	0.6134	0.4003
0.9	0.7668	0.9	0.5583
1	1	-	0.7668

2017			
pi	qi	piqi+1	pi+1qi
0.1	0.0407	0.0093	-
0.2	0.093	0.0308	0.00814
0.3	0.154	0.06696	0.0279
0.4	0.2232	0.1206	0.0616
0.5	0.3014	0.1952	0.1116
0.6	0.3903	0.2954	0.1808
0.7	0.4924	0.4285	0.2732
0.8	0.6122	0.6081	0.3939
0.9	0.7601	0.9	0.551
1	1	-	0.7601
2018			
pi	qi	piqi+1	pi+1qi
0.1	0.0406	0.00932	-
0.2	0.0932	0.0309	0.00812
0.3	0.1545	0.06702	0.02796
0.4	0.2234	0.1203	0.0618
0.5	0.3008	0.1944	0.1117
0.6	0.3887	0.2938	0.1805
0.7	0.4896	0.426	0.2721
0.8	0.6085	0.6054	0.3917
0.9	0.7568	0.9	0.5477
1	1	-	0.7568
2019			
pi	qi	piqi+1	pi+1qi
0.1	0.0409	0.00936	-
0.2	0.0936	0.03086	0.00818
0.3	0.1543	0.06687	0.02808
0.4	0.2229	0.1201	0.06172
0.5	0.3002	0.194	0.1115
0.6	0.388	0.2933	0.1801
0.7	0.4889	0.4253	0.2716
0.8	0.6075	0.6046	0.3911
0.9	0.7558	0.9	0.5468
1	1	-	0.7558
2020			
pi	qi	piqi+1	pi+1qi
0.1	0.0415	0.00942	-
0.2	0.0942	0.03094	0.0083
0.3	0.1547	0.06684	0.02826
0.4	0.2228	0.1198	0.06188
0.5	0.2995	0.1933	0.1114
0.6	0.3866	0.2923	0.1797
0.7	0.4871	0.4243	0.2706
0.8	0.6061	0.6031	0.3897
0.9	0.7539	0.9	0.5455
1	1	-	0.7539

Source: compiled by the author

In addition, to determine how many times the incomes of the wealthiest group of the population exceeds the income of the least wealthy group, the decile ratio of income distribution is calculated:

$$CD = d_{10}/d_1, \quad (2)$$

where C D is the decile ratio of the income distribution, d 1 is the total income of the least wealthy share of the

population, and d 10 is the total income of the wealthiest share of the population.

The following methods are used to process the data obtained: synthesis, comparative, classification, and deduction. In addition, in this study, an analysis of literary sources was conducted, which showed an acute discrepancy in the opinions of researchers on the impact of economic growth on income distribution. Moreover, researchers' ideas about the causes and consequences of income inequality among the population, the assessment of

this phenomenon and the need to regulate/overcome it also differ.

Results and Discussion

In different countries, the uneven distribution of income and resources among the population is the defining problem of the modern era. In both developed and developing countries, the gap in income distribution (measured by decile ratios and the Gini coefficient) between rich and poor is at a high level and continues to grow [10; 11]. When income inequality becomes extremely high, it fuels social dissatisfaction and increases the threat of social and political unrest. High income

inequality due to an increase in the likelihood of coups, revolutions, mass violence or, more generally, an increase in policy uncertainty and threats to property rights, has a negative impact on investment and, as a result, reduces economic growth (Table 2). On the other hand, moderate income inequality can be considered part of the normal cycle of economic development (Figure 1). It leads not only to an increase in the level of poverty but also to a number of positive effects. These effects include productivity growth, an increase in the level of education of the population, and stimulation of savings and the subsequent development of small and medium-sized businesses.

Table 2. The relationship between income inequality, economic growth, and economic downturn

Income distribution			
Increases economic growth		Reduces economic growth	
Improves productivity	Provides higher income prospects by stimulating higher efforts of the workforce in the activities performed	Restriction of participation in economic activity	Promotes the appearance of demotivating effects that lead to a reduction in investment in one's own education and a decrease in the prospects for risky behaviour
Increases the investment of the population in their own education	Provides higher income forecasts, which encourages investment in one's own education.	Creates social tension	Contributes to an increase in the number of protests and political instability, which leads to increased economic uncertainty
Increases the risk	Provides higher income prospects by stimulating risk-taking	Implies the need for redistribution	The measures necessary for redistribution lead to a drop in well-being and a decrease in economic growth
Increases savings	The population receiving high incomes saves money, which in the long run can increase economic growth	Increases the demand deficit	If households with high incomes and a high propensity to save have a high share in national income, this creates prerequisites for a shortage of demand

Source: compiled by the author

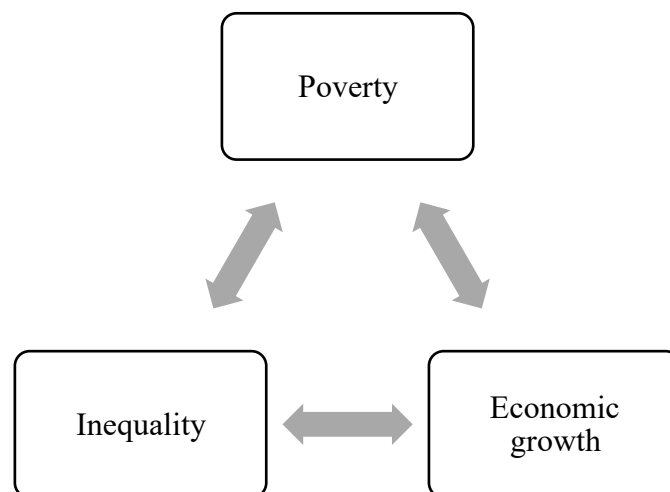


Figure 1. The cycle of economic development

Policies aimed at improving the standard of living of the poor should be implemented in two areas. Firstly, by ensuring sustainable economic growth and, secondly, by improving the relative position of the poor through reducing inequality. Poverty reduction cannot be achieved without sustained economic growth in the long term,

which requires several prerequisites, such as maintaining macroeconomic stability, improving the business environment, and creating a favourable investment climate that will increase both the flow of domestic investment and foreign direct investment. However, the beneficial impact of economic growth on poverty reduction will be enhanced

if it is accompanied by policies aimed at more equitable income distribution. Given the fact that poor people are mostly long-term unemployed or have little labour market attachment, this policy should consider active labour market measures that will improve their employability. In addition, more equitable distribution can be achieved through reforms in the tax system and better coordination of social policy, which should be aimed at the most vulnerable segments. This is possible only by increasing the transparency of social programmes and facilitating

access of the poor to information about various social programmes.

Factors such as political economy, imperfect credit markets, social conflict, and fertility patterns are important for understanding the indirect effects of income distribution [12].

To conduct the study, data on the income of ten equal parts of the population of Kazakhstan from 2016 to 2020 were used (Table 3), divided according to the amount of money received.

Table 3. Data on income distribution in decile population groups of the Republic of Kazakhstan from 2016-2020

10% population groups	Year				
	2016	2017	2018	2019	2020
1 decile	4.15	4.07	4.06	4.09	4.15
2 decile	5.35	5.23	5.26	5.27	5.27
3 decile	6.21	6.1	6.13	6.07	6.05
4 decile	7.05	6.92	6.89	6.86	6.81
5 decile	7.97	7.82	7.74	7.73	7.67
6 decile	9.02	8.89	8.79	8.78	8.71
7 decile	10.29	10.21	10.09	10.09	10.05
8 decile	11.99	11.98	11.89	11.86	11.9
9 decile	14.65	14.79	14.83	14.83	14.78
10 decile	23.32	23.99	24.32	24.42	24.61

Source: [3].

Thus, using equation (1), the Gini coefficient is calculated and using equation (2) – the decile ratio for the period under consideration (Table 4).

Table 4. Gini coefficient and decile ratio for 10% of population groups of the Republic of Kazakhstan from 2016-2020

Year	Gini coefficient for 10% of the population	Decile ratio
2016	0.278	5.619
2017	0.286	5.894
2018	0.289	5.99
2019	0.29	5.97
2020	0.291	5.93

Source: compiled by the author

To assess economic growth, the Gross Domestic Product indicator is used (Table 5), with which the presence or absence of a relationship between economic growth and income distribution is established.

Table 5. Dynamics of the GDP of the Republic of Kazakhstan from 2016-2020

Year	GDP, billion USD	GDP growth rates, %
2016	137.28	-25.5
2017	159.4	+16.1
2018	170.54	+7.0
2019	181.67	+6.5
2020	163.23	-11.2

Source: Kazakhstan Data Bank, 2021.

Based on the data presented in Table 3 and Table 4, a graph is drawn up and the impact of GDP growth on the growth of income inequality is assessed (Figure 2).

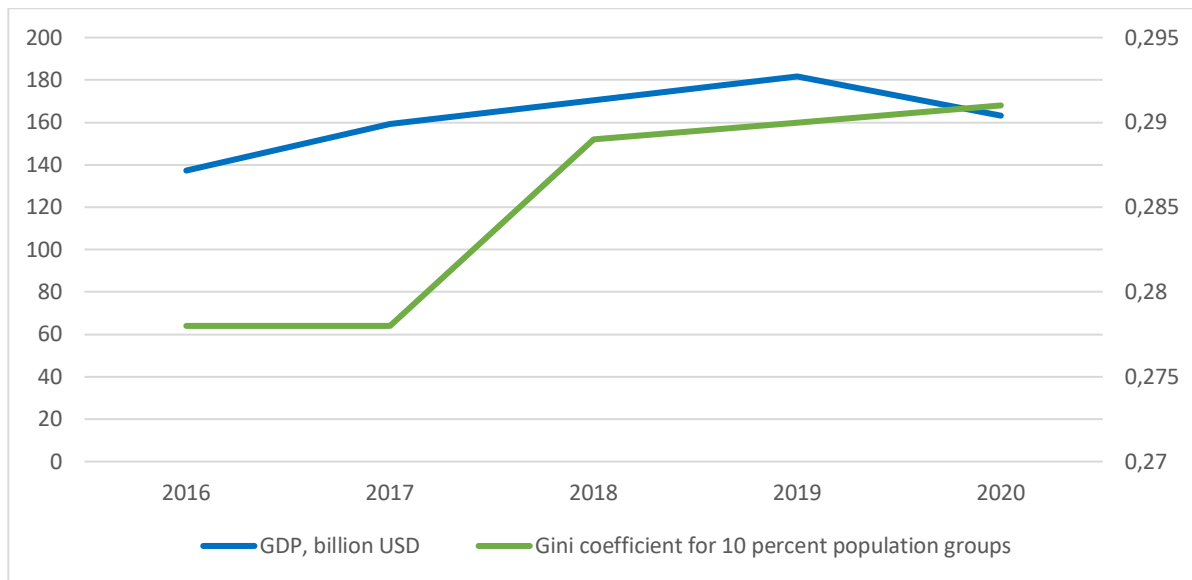


Figure 2. Graphical representation of the Gini coefficient and GDP for each year considered

Based on the results obtained, it can be argued that up to and including 2018, there was a correlation between GDP growth and an increase in income inequality. However, when GDP fell by 11.2% in 2019, the Gini coefficient continued to grow. Several economic models show that technological advances, which have been considered the main source of economic development, can lead to an increase in income inequality whenever it affects labour productivity in any way. For example, it can be observed that income inequality will grow if new technologies appear to increase the demand for skilled labour. However, it should also be considered that the impact of technological advances on education could be ambiguous if the "expansion of the pool of skilled labour" was the result of higher growth, which correlates with the progress of technology. Empirically, even though there are many studies in which inequality is considered an endogenous variable, other studies have shown that economic growth does not affect the distribution of incomes among the population [13].

In the literature, little attention is paid to the study of the relationship between income inequality and economic growth in resource-dependent economies. In the study under consideration, a model of a small economy open to two sectors was developed, which includes two groups of households: those with the highest income and those with the lowest. Considering this, the researchers applied the panel data approach to a sample database of 25 countries for the period 1990-2015 to test their hypotheses. The results obtained emphasise the fact of an increase in income inequality, provided the relative capital intensity of the non-profit sector and, accordingly, a decrease in income inequality if the non-profit sector is relatively labour-intensive. Finally, changes in income inequality are relatively more intense in a democratic country than in a non-democratic one [14-16].

The results of the error correction performed showed a unidirectional causality from inequality and globalisation to economic growth in the long term, while a unidirectional causality was observed from inequality to economic growth in the short term. The ADL assessment shows that

globalisation and economic growth are important determinants of inequality in developing countries. In addition, researchers noted that trade and financial globalisation have different effects on income inequality. In light of these findings, recommendations were made on aiming foreign direct investment towards empowering the poor and regarding equitably distributing economic growth dividends to narrow the income inequality gap [17].

The study, which examined time series data from 41 countries in the sample and involved the linear ADL approach, supported the hypothesis that in the early stages of economic growth, income inequality worsens, decreasing exclusively after the growth threshold is reached, in four countries only. As in the other study, when considering the time series data of each of the 41 countries in the sample and involving the linear ADL approach, the researchers found support for the hypothesis in four countries only. However, when researchers switched to a non-linear ADL approach that separates economic growth from recession, they were able to find support for this hypothesis in 15 countries. In many countries, it has been observed that economic activity has an asymmetric effect on income inequality, which was not considered in previous studies [18-20].

One of the main arguments is that increasing inequality can reduce the professional opportunities available to the poorest groups of society and, consequently, lower social mobility, limiting the growth potential of the economy. In particular, a higher level of inequality may lead to less investment in human capital by low-income individuals if, for example, there is no suitable public education system or grants. For this reason, countries with a higher degree of inequality tend to have a lower level of social mobility between generations. In general, it can be concluded that there is no single universal mechanism underlying the relationship between inequality and growth; in fact, these relationships may not always be the same. Nevertheless, depending on the degree of development of the country, a relatively similar situation can be observed. When the economy is at an early stage of its development, the return on physical capital is usually higher than on human capital,

and therefore greater inequality can cause higher economic growth. However, as the economy reaches a more advanced stage of development, the return on physical capital tends to decrease, while the return on human capital increases, so inequality growth can negatively affect economic growth [21; 22].

The current situation in the EU in the field of income distribution is delicate. On one hand, the EU promotes income growth in areas with relatively low labour productivity. Precisely the effects, such as low wages, and from a theoretical standpoint, productivity models, paradoxically measure this. On the other hand, it contributes to the impact of risk on the efficiency of economic agents. The study shows that income inequality affects economic growth in different ways depending on the level of development of the country. In this context, the positive impact of income inequality on growth in the developed EU member states is observed. On the other hand, the relationship between income inequality and economic growth is negative in the case of developing EU member states. This can be explained by the fact that income inequality is mainly caused by risky behaviour and the large participation of some people in economic activities in developed EU countries. This participation is also favourable for growth. In contrast, developing EU countries are associated with poor-quality economic institutions that extract wealth from the population and provide benefits to the elite or groups with limited interests [23-25].

In addition, the tax systems of developed EU countries are more progressive, which narrows the income gap between individuals, limiting economic growth, as higher tax rates slow economic growth. This argument confirms the positive impact of income inequality on economic growth. On the other hand, some developing EU countries still use a fixed tax rate and are more open to changing taxes on labour or consumption. As a consequence, the progressiveness of tax systems may not neutralise the effect of some fiscal measures that usually affect socially vulnerable groups, which increases income inequality and reduces the pace of economic growth. This is an important proof of the need to maintain an optimal level of income inequality, which should correspond to social support. The main recommendations are related to improving the quality of government institutions and establishing a minimum income from integration, which can contribute to achieving the goals of social integration and increase the level of sustainable development [26-28].

Over the past 25 years, Macedonia has gone through a transitional period that has affected all spheres of political, economic, and social life. The initial recession of the transition period, among other things, disclosed noticeable consequences for labour market indicators. In general, the transitional reforms initially had a negative impact on labour markets, which manifested itself in a decrease in the level of economic activity and a persistently high unemployment rate. Prolonged periods of unemployment lead to degradation and dehumanisation of people in society, causing poverty and social isolation, increasing the difficulties for the government to provide the necessary social protection system. Considering the increase in poverty during the transition period, poverty reduction has become one of the main priorities in the development

policy of the Macedonian government. In this context, poverty reduction can be achieved through faster growth and/or greater social and financial equity. In this regard, determining the optimal combination of these two means is primarily a pragmatic question. Small changes in income distribution can have a big impact on poverty. Even though the growth of average income in Macedonia over the previous 15 years had generally positive indicators, the poor part of the population does not experience a considerable improvement in living standards. In part, this is due to the current policy, which does not provide opportunities for the poor. Considering that the index in favour of the poor in the case of Macedonia is less than 1, it can be argued that the adoption of pro-poor policies that reduce inequality will have considerable positive effects [29; 30].

Income inequality in the United States dampens the growth of aggregate demand (spending by households, businesses, and governments) by shifting an increasing share of income to wealthy households that save rather than spend. This increase in inequality, in the vast majority of cases, was caused by the inability to pay ordinary American workers and the inability to keep pace with growth in productivity throughout the economy. It is estimated that growing inequality in recent years has slowed the growth of aggregate demand by 2-4 percentage points of GDP annually. For decades, the slowdown in demand growth caused by growing inequality has been offset by other economic and political developments, in particular, a prolonged decline in interest rates. However, in the future, these compensating mechanisms are likely to fail, which means that the demand resistance caused by inequality will lead directly to a slowdown in economic growth in general [31].

Another study examined various factors (sources) contributing to China's rapid economic growth. Although China's reforms have been powerful drivers of economic and income growth since the late 1970s, they have also caused several socio-economic problems. At the initial stage of the reform, the "let some people get rich first" policy, adopted to overcome egalitarianism in income distribution, to increase efficiency with strong incentives and, ultimately, to achieve overall prosperity, rapidly increased the income gap between different groups of people [32-34].

Additional empirical data were also presented to enable the Governments of middle-income countries to formulate and implement their economic and social policies. Economic growth is usually associated with income inequality; thus, income inequality, in turn, will lead to a decrease in national production, which will cause a slowdown in economic growth. Thus, a policy is required that focuses on the redistribution of economic achievements among people, especially those at the bottom of the income distribution. Economic achievements will allow them to invest in human or physical capital, which ensures high profitability. In addition, it is necessary to pursue a policy not necessarily to eliminate, but at least to mitigate the imperfections of the capital market through the development of financial intermediaries. It is also necessary to increase the efficiency of capital allocation. In particular, the policy of raising the minimum wage or supporting the accumulation of assets for working families

can also reduce the income gap. Among other things, policymakers are encouraged to consider the rules regarding favourable working conditions so that low-paid workers can get more development opportunities [35-37].

Over the past 50 years, the impact of income inequality on economic growth has been thoroughly investigated. However, the results are ambiguous. It is argued that previous studies used suboptimal econometric methods and imperfect data on income inequality. Thus, the considered study was conducted to provide additional empirical conclusions about the relationship between inequality and growth using a sample that includes only middle-income countries, which have been largely ignored in the literature. Considering both cross-sectional and temporal dimensions, empirical results confirm the negative impact of income inequality on economic growth, implying that an increase in income inequality leads to a slowdown in economic growth. These results are valid both for the panel model with fixed effects and for the parameters of the dynamic panel model, as well as for two samples: a full sample and a sample that includes only middle-income countries. In addition, the results of the study confirm the positive contribution of labour force participation in the agricultural and service sectors to economic growth, which is implied in economic growth theories.

The analysis disclosed discrepancies in the priorities of economic growth and income distribution. Some groups of researchers assert that there is an incompatibility and conflict between economic growth and fair income distribution, while income inequality in the early stages of economic growth of any country is considered necessary because income distribution takes precedence over economic growth. Others, on the contrary, assert that growing inequality is an obstacle to economic growth, and economic growth precedes income inequality. There are also other opinions that economic growth and income distribution do not have priority over each other.

Conclusions

During this study, several economic data were studied, using which the level of income inequality of the population was determined; according to the Gini coefficient, it is 0.291 (in 2020), which can be estimated as a fairly low indicator of inequality. The results of comparing the Gini coefficient with GDP growth rates indicate the relationship between economic growth and an

increase in the level of income inequality in the period of 2016-2018. One of the following reasons could cause further divergence in growth/decline:

1. The impact of the COVID-19 pandemic since 2019 has led to a sharp drop in GDP (by more than 11%), which caused economic regression and an increase in income inequality as a response to economic instability and uncertainty in the world, unemployment growth, a decline in production, etc., but ultimately, the graphs will synchronise again;

2. The observed pattern of income inequality growth is a normal consequence of the economic downturn;

3. Theories about the relationship between economic growth and income distribution are fundamentally wrong, and the observed correlation is a coincidence.

During the study, the decile ratio was calculated and analysed. The result of the research also indicates that the inequality of incomes of the population continues to grow.

Since the main purpose of the study was to empirically examine the causal relationship between income distribution and economic growth over the past 5 years (from 2016 to 2020) in the Republic of Kazakhstan, it can be asserted that the correlation of indicators has been disclosed over a certain time. However, to make a confident conclusion about the impact of economic growth on income distribution, it is necessary to continue monitoring the graphs. Further research should also use the Gini coefficient as an indicator of income distribution and GDP dynamics as a marker of economic growth. In this way, it will be possible to determine whether any of the above assumptions are correct.

The relationship between economic growth and income distribution is a highly promising area for further study. Identifying the relationship between these phenomena entails considerable economic benefits for states. A clear understanding of the negative processes that seemed arbitrary before, along with the ability to prepare the population and the economy for them, and eventually to control them, leads to a steadily developing economy and a high level of well-being for the population.

Acknowledgements

None.

Conflict of Interest

None.

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Вплив економічного зростання на розподіл доходів у Республіці Казахстан

Айтолкін Сагынбаєва

Казахський національний університет ім. Аль-Фарабі
050040, проспект аль-Фарабі, 71, Алмати, Республіка Казахстан

Салтанат Кондибаєва

Казахський національний університет ім. Аль-Фарабі
050040, проспект аль-Фарабі, 71, м. Алмати, Республіка Казахстан

Гульміра Андабаєва

Казахський національний університет ім. Аль-Фарабі
050040, пр. аль-Фарабі, 71, м. Алмати, Республіка Казахстан

Даурен Тураров

Казахський національний університет ім. Аль-Фарабі
050040, пр. аль-Фарабі, 71, м. Алмати, Республіка Казахстан

Анотація

Актуальність. Актуальність дослідження зумовлена необхідністю розуміння складного взаємозв'язку між економічним зростанням і розподілом доходів у Республіці Казахстан.

Мета. Метою цього дослідження є виявлення причинно-наслідкових зв'язків між розподілом доходів та економічним зростанням, емпіричне вивчення цього зв'язку в Казахстані протягом п'яти років (2016-2020 рр.), дослідження поширеності та тенденцій розподілу доходів протягом цього часу, а також визначення причинно-наслідкового зв'язку між економічним зростанням та нерівністю в доходах.

Методологія. У дослідженні використано математичне моделювання, синтез, порівняльний аналіз, класифікацію, дедукцію та огляд літератури.

Результати. Результати дослідження представлені у вигляді рисунків, графіків і таблиць, які встановлюють зв'язок між розподілом доходів і зростанням ВВП. Емпірично досліджено зв'язок між економічним зростанням і розподілом доходів у Казахстані з 2016 по 2020 рік, визначено тенденції та поширеність розподілу доходів протягом цього періоду, а також окреслено напрями майбутніх досліджень причинно-наслідкового зв'язку між економічним зростанням і нерівністю доходів.

Висновки. Дослідження дійшло висновку, що існує значний зв'язок між економічним зростанням і розподілом доходів у Казахстані. Аналіз показує, що економічне зростання впливає на нерівність доходів, причому помітні тенденції та закономірності спостерігаються протягом досліджуваного періоду. Майбутні дослідження повинні продовжити вивчення цих причинно-наслідкових зв'язків для прийняття політичних рішень.

Ключові слова: коефіцієнт Джині; децильне співвідношення; наслідки розподілу доходів; економічна модель.