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THE NEXUS BETWEEN INSTITUTIONAL QUALITY AND INCOME INEQUALITY: EVIDENCE FROM THE POST-SOVIET COUNTRIES

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ABSTRACT

There is vast literature analyzing the association between institutional quality and income inequality with controversial findings. However, research for the case of post-Soviet countries is limited. From this perspective, this study aims to investigate the nexus between institutional quality and income inequality for a sample of 15 former USSR member countries. To achieve this goal, the study benefits the data obtained from the World Bank database including World Governance Indicators covering the period between 1991 and 2022. The study uses the Institutional Quality variable which is calculated as the arithmetic mean of its six components as a proxy for institutional quality. For describing income inequality, GINI coefficient which ranges between 0 and 1 is employed. For investigating the link between the above-mentioned variables given its particular benefit, particularly in cases with small sample sizes, the Autoregressive Distributive Lag Model (ARDL) is applied. Before the application of the model Im-Pesaran-Shin test is engaged for testing the stationarity of the variables. For testing the existence of long-run relationship Pedroni cointegration test is launched. According to the findings, there is a negative and statistically significant relationship between institutional quality and income inequality in the case of post-Soviet countries.

INTRODUCTION

Income inequality has been a subject of analysis by economists for over a century. Although numerous factors, such as migration, globalization, and low-skilled biased technological change, have been identified as reasons for income inequality (Josifidis et al., 2016), the crucial role of institutional quality has attracted the attention of researchers in recent few decades (Koeniger et al., 2007; Beramendi and Cusack, 2009; Baryshnikova et al., 2016; Asamoah, 2021).

Strengthening institutions, including property rights, social insurance, and conflict management, has been suggested as a means to mitigate rising economic inequality (Zehra et al., 2021). Sonin

(2003) and Hoff et al. (2004) argue that institutions play a crucial role in shaping inequality, given the reciprocal relationship between income inequality and institutional quality. As stated by Acemoglu et al. (2005), effective institutions provide equally good opportunities to the individuals in a society that leads to higher economic prosperity. Conversely, an insignificant link between institutional quality and income inequality is defined by some researchers (Sylwester, 2004).

In the case of post-Soviet countries, income inequality can be deemed a foreseeable economic problem since transition from the centrally planned to market-based economies brought significant structural changes, affecting income distribution. The Gini coefficient, which ranges from "0" (indicating perfect equality) to "100" (meaning perfect inequality), was relatively higher in the former Soviet republics. According to the latest report of the Credit Suisse Institute (2022) this index was almost more than 70 in all post-Soviet states except for Moldova and Belarus (Russia, 88.0; Ukraine, 83.4; Georgia, 81.7; Latvia, 80.5; Kazakhstan, 77.6; Kyrgyzstan, 75.2; Estonia, 73.1; Armenia, 73.1; Tajikistan, 72.8; Azerbaijan, 72.6; Lithuania, 72.0; Turkmenistan, 70.5; Moldova 69.1; Belarus, 67.2) in 2021. During the transition period, increasing inequality was an expected consequence of the collapse of the Soviet Union. In this period, the wage inequality was higher in the private sector rather than egalitarian public sector, and the expansion of the private sector increased this gap considerably. Additionally, income from property and self-employment was distributed unevenly throughout the transition period (Milanovic,1998). During the Soviet era, income inequality was as low as in OECD countries; however, the average Gini coefficient increased substantially in sample states within five years after the Soviet Union collapse. (Fidrmuc and Gundacker, 2017).

Last but not least, another crucial determinant contributing to income inequality in the post-Soviet countries is closely associated with institutional quality. According to Worldwide Governance Indicators (World Bank, 2022), the post-Soviet countries except Latvia, Lithuania, Estonia, and Georgia demonstrated negative scores in all six dimensions including government effectiveness, control of corruption, political stability and absence of violence/terrorism, voice and accountability, rule of law, and regulatory quality.

2. LITERATURE REVIEW

In recent decades, there has been a growing interest among researchers in the role of institutional quality as a crucial determinant of income inequality. Generally, an overwhelming consensus exists among researchers regarding the negative association between institutional quality and income inequality (Rodrik, 2000; Sachs, 2003; Levy and Temin, 2007; Milanovic, 2016; Robinson and Acemoglu, 2012; Gasimov et al., 2023b). Poor political institutions and high corruption create an attractive environment for elites to benefit from the financial development of a country more than others (Náplava, 2020; Mishchuk et al., 2018). Under poor institutional quality, the lack of judicial protection deepens social inequalities even more (Chong and Gradstein, 2007; Aliyev, 2023). Many studies (Acemoglu and Robinson, 2000; Kotschy and Sunde, 2017) have shown that high institutional quality can weaken income inequality in democratic countries as well.

Chong and Calderon (2000) identified a quadratic relationship between institutional quality and income inequality by examining 70 countries, noting that income inequality tends to increase when property rights are not well secured, or when corruption is high and rule enforcement is weak. According to the empirical analysis, there is a positive relationship between institutional

quality and income inequality in less developed countries; nevertheless, in high-income states the nexus is negative. In the same vein, Chong and Gradstein (2017) determined the significant role of political institutions in income inequality by using the "government matters" indicator. Moreover, by evaluating sixty-five developed and developing countries, Law and Soon (2020) postulated that higher institutional quality could mitigate the adverse impact of inflation on income inequality since governments with better institutions are more likely to implement effective economic measures.

According to Gupta et al. (2002), there is a positive association between corruption and income inequality. It was determined by the authors that an increase in the corruption index by one standard deviation could raise the Gini coefficient by eleven points. Similarly, Dwiputri et al. (2018) demonstrated a positive link between corruption and income inequality for the sample of Asian countries using the Ordinary Least Square, Tobit, and Two Stage Least Square methods. In contrast, Huynh (2021) identified a mixed influence of institutional quality on income inequality by analyzing 36 Asian countries from 2000 to 2018. The author believes that initially, institutional quality raises income inequality; nevertheless, when institutional quality reaches a particular threshold level, income inequality falls.

Furthermore, democracy and corruption are also two factors that link institutional quality with income inequality (Zhuang et al., 2010; Adnan and Amri, 2021). It is a widespread belief that income equality is prevalent in democratic countries rather than in undemocratic societies (Gradstein and Milanovic 2000; Lee, 2005). However, in some countries, such as South Korea and Singapore, the score of democracy is low whereas income distribution is relatively equal (Blancheton and Chhorn, 2021). Corruption is more likely to raise income inequality due to lower investment, less effective public expenditure and administration (Pedauga et al., 2017). On the one hand, corruption can reduce inequality when the benefits to society exceed the social cost (Blancheton and Chhorn, 2021). Andres and Ramlogan-Dobson (2011) argue that in less developed countries, corruption leads to lower income inequality due to the prevalence of the shadow economy. Analyzing the dataset of 21 African economies from 1993 to 1999, Gyimah-Brempong (2002) also identified the negative impact of high corruption on income inequality. Using a two-step difference generalized method of moments, Kunawotor et al. (2020) argue that corruption, voice and accountability, political stability, and government effectiveness have a negligible impact on the income inequality in Africa.

As stated by Ahmed et al. (2021), not only the level of corruption but also political stability and democratic accountability can significantly contribute to income inequality. Political systems are critical since in a parliamentary system, it is more likely to observe a reduction in income inequality compared to a presidential system (Zhuang et al., 2010). Employing the Maximum Likelihood method for a sample of forty-eight African states, Nkoa and Song (2021) point out the duration of the political regimes, as well as the ruling political party will likely exacerbate income inequalities. From the electoral perspective, Nyblade and Reed (2008) argue that politicians could buy votes by allocating public funds specifically to the poorer segment of the population, which likely reduces inequality. In his turn Solt (2008) argues that increasing economic inequality results in political inequality.

Overall, higher income inequality can be observed in the nations with the lowest degree of civil liberties (Bourguignon and Verdier, 2000). Taking into account all dimensions of institutional quality, including voice and accountability, government effectiveness, political stability and lack

of violence, regulatory quality, rule of law, and control of corruption, for former post-Soviet states, Gasimov et al. (2023a) postulated a U-shaped link between institutional quality and economic growth. In another study of post-Soviet countries from 2002 to 2017, Náplava (2020) revealed a nonmonotonic and negative relationship between institutional quality and income inequality, assessing institutional quality based on all six indicators. On the other hand, Sehrawat and Singh (2021) found a long-term co-integrating relationship between income inequality, economic growth, corruption, and energy efficiency in the case of BRICS (Brazil, Russia, India, China, and South Africa) countries from 1996 to 2015. Josifidis et al. (2018) investigated the possible impacts of institutional changes on income inequality in the CEE countries (Bulgaria, Czech Republic, Lithuania, Latvia, Estonia, Hungary, Poland, Slovenia, Slovakia, and Romania). According to the panel analysis, during the initial phase of transition, which resulted from endogenous institutional change, a deterioration of income inequality was observed. In the subsequent stage, exogenous institutional changes led to a stabilization in income inequality. Even income inequality and increasing corruption have a negative impact on sustainable development in the post-Soviet countries (Badur et al., 2023).

While there is a vast amount of literature on the link between institutional quality and income inequality, the number of studies investigating this association in the case of post-Soviet countries is limited. Therefore, this article aims to empirically analyze the impact of institutional quality on income inequality comprehensively in a sample of post-Soviet states.

3. DATA AND METHODOLOGY

For analyzing the nexus between institutional quality and income inequality for the sample of post-Soviet countries the unbalanced panel data covering the period between 1991 and 2022 is used. Following Lin & Fu (2016), Kouadio & Gakpa (2022), and Koh et. al (2022) GINI coefficient which is derived from the World Bank database (2022) is taken as a proxy for income inequality. In line with Josifidis et al. (2017), Asamoah (2021), Mun et al. (2022), and Naplava (2020) this study uses the institutional quality (INSQUAL) variable as the main regressor. Data on this variable is obtained from World Governance Indicators (Kaufmann and Kray, 2023) by calculating the arithmetic mean of the six dimensions - voice and accountability, political instability and violence, government effectiveness, regulatory quality, rule of law, and control of corruption Institutional quality ranges between (-2.5) – the lowest and (2.5) – the highest result.

Asamoah (2021), and Koh et al., (2022) defined trade openness as one of the factors alleviating income inequality. From this perspective, trade openness is also included in the regression. It is measured by the share of trade in GDP and obtained from the World Bank database (World Bank, 2022). Since there is a general view in the existing literature that countries with higher income levels will have better institutions, GDP per capita (constant 2015 USD) is also added into the regression following Chong and Calderon (2000), Asamoah (2021), Zehra et al., (2021), Koh et al., (2022). The data on this variable was also extracted from the World Bank database. Consistently with Acemoglu and Robinson (2000) and Naplava (2020), it is also comprised of government expenditure on education (EDUC) into the list of control variables.

Table 1 presents the descriptive summary of the variables.

Table 1. Descriptive statistics of the variables

	GINI	EDUC	GPC	INSQUAL	OPENNESS
Mean	38.16869	4.398932	7401.826	-0.257697	101.3493
Median	35.30000	4.394330	6165.958	-0.420000	96.40920
Maximum	88.43854	9.509760	20118.11	1.140000	170.7599
Minimum	24.40000	1.906100	1347.093	-1.060000	45.96691
Std. Dev.	15.69923	1.491661	4736.562	0.593639	33.40680
Skewness	2.442721	0.517542	0.712266	0.863086	0.060323
Kurtosis	7.888105	2.943551	2.555240	2.604049	1.874706
Jarque-Bera	328.3576	7.387782	15.31133	21.56309	8.805787
Probability	0.000000	0.024875	0.000473	0.000021	0.012242
Sum	6297.834	725.8238	1221301.	-42.52000	16722.63
Sum Sq. Dev.	40420.39	364.9088	3.68E+09	57.79472	183026.3

Source: Compiled by authors based on E-views estimations

For analyzing the association between institutional quality and income inequality in the case of post-Soviet countries Autoregressive Distributive Lag Model (ARDL) developed by Pesaran and Shin (1999), and Pesaran et al. (2001) is employed. This approach is especially advantageous in regressions with small sample sizes. Another superiority of the ARDL is that it allows estimating short and long-run coefficients simultaneously in a single model (Sulaiman et al., (2010); Gasimov et al., (2023). In addition, it can be applied regardless the variables are stationary at I(0), I(1), or both of them. From this point of view, before applying the ARDL model both dependent and independent variables should be checked for stationarity by launching Im-Pesaran-Shin test. If this condition is satisfied Pedroni cointegration test should be run for testing the long-run relationship. Evidence on the existence of cointegration relationship long-run coefficients can be estimated in the final stage (Hasanov et al., 2016).

After taking the above-mentioned facts into account the equation for the regression can be specified as follows:

$$GINI=B_0+B_1INSQUAL_{it}+B_2EDUC_{it}+B_3GPC_{it}+B_4OPEN_{it}+e_t$$

Here GINI is used as a proxy for income inequality and INSQUAL for institutional quality. EDUC, GPC, and OPEN denote the control variables respectively such as government expenditure on education, GDP per capita, and trade openness. i subscript for countries and t for time period. e_t is the error term.

4. EMPIRICAL RESULTS

As indicated before, the first step in the estimation of ARDL model is to apply of the unit-root test. For this purpose, Im-Pesaran-Shin test is engaged. Null hypothesis indicates the existence of a unit-root problem. Table 2 presents the test results.

Table 2. Im-Pesaran-Shin test results

Variable	I(0)	I(1)
GINI	0.10586	-7.11422***
INSQUAL	0.39347	-4.97803***
EDUC	-1.65115**	-7.57903***
GPC	-4.69974	-6.75427***
OPEN	-4.0607***	-10.0417***

Note : ***, ** and * denote significance levels 0.01, 0.05 and 0.1 respectively

According to Table 2, the null hypothesis for all variables should be rejected at 1%. In other words, there is no unit root problem, and a cointegration test in the next step can be engaged.

For testing the existence of a long-run relationship among variables Pedroni cointegration test with the null hypothesis of no long-run relationship is applied. Test results are given in Table 3.

Table 3. Pedroni cointegration test results for testing long-run relationship

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.401045	0.6558	-1.031286	0.8488
Panel rho-Statistic	-5.814535	0.0000	-4.599655	0.0000
Panel PP-Statistic	-10.45220	0.0000	-9.830427	0.0000
Panel ADF-Statistic	-4.899461	0.0000	-5.022961	0.0000

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	-2.636484	0.0042
Group PP-Statistic	-14.48576	0.0000
Group ADF-Statistic	-5.106798	0.0000

Source: Compiled by authors based on Eviews estimations

According to Pedroni cointegration test results, the null hypothesis can be rejected, revealing a long-run relationship among variables. Hence, ARDL model results can be analyzed.

As it mentioned before, the final stage of the ARDL approach is an estimation of the long-run coefficients. Table 4 reports detailed information about the results of the ARDL model.

Table 4. ARDL model results for long-run coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
INSQUAL	-16.51885	5.693240	-2.901485	0.0044
EDUC	0.925721	0.401671	2.304672	0.0230
GPC	0.000639	0.000232	2.756718	0.0068
OPENNESS	0.136772	0.033053	4.137938	0.0001

Source: Compiled by authors based on Eviews estimations

5. DISCUSSION OF THE RESULTS

ARDL model results reveal that there is a negative association between institutional quality and income inequality in the case of post-Soviet countries. It should be noted that the obtained coefficient is statistically significant at 1%. According to the results, improvement in institutional quality can reduce income inequality in the sample countries. In other words, there is significant evidence that institutional quality can be an important determinant of income inequality.

Statistically significant results are obtained also for the case of control variables. The sign for the coefficient of EDUC is positive and statistically significant at 5%. For the case of GPC and OPENNESS positive and strongly statistically significant coefficients are obtained. Differently, from OPENNESS, the coefficient of GPC is low and almost close to zero.

The study results are consistent with the number of previous studies. Acemoglu and Robinson (2002), Sachs, (2003), Levy and Temin, (2007), Naplava (2020), and Gasimov et al., (2023b) reveal that improvement in institutional quality and its dimensions can alleviate the negative impact of income inequality.

As aforementioned, the number of studies investigating the nexus between institutional quality and income inequality in the case of post-Soviet countries is limited. This association is limited to studies for post-Soviet countries as a whole and the sample of individual former USSR members. From this perspective, future research can focus also on the sample of 15 states more deeply. Furthermore, some authors such as Chong and Calderon (2000), Asamoah (2021) differently from others, found a non-linear relationship between institutional quality and income inequality. It can be also tested for the case of post-Soviet countries by applying different empirical approaches in the future.

6. CONCLUSION

The purpose of the study is to investigate the possible nexus between institutional quality and income inequality in the case of post-Soviet countries. For achieving this purpose Autoregressive Distributive Lag Model is employed. The existence of stationarity and long-run relationships are tested by using Im-Pesaran-Shin and Pedroni cointegration tests respectively.

Results reveal a negative and statistically significant impact of institutional quality which is measured based on World Bank Indicators on income inequality proxied with GINI coefficient in post-Soviet countries. In other words, any progress in institutional quality will reduce the income inequality in the sample countries. From this perspective, for reducing the negative effects of income inequality policymakers should improve the quality of the institutions, as well as focus on raising the main dimensions of institutional quality. For this purpose, central governments have to implement reforms in the institutional sphere and combat negative cases such as higher corruption rates, and low levels of democracy as main components of institutional quality.

This research fills a gap in the literature on institutional quality income inequality literature for the case of post-Soviet countries. Estimating the main determinants of income inequality in post-Soviet countries can be accepted as a significant contribution. It will also encourage future researchers to investigate the above-mentioned association from different perspectives by employing different approaches. However, the study contains several limitations. First of all, due to data availability, it was not possible to employ balanced panel data for our estimations. Additionally, some socio-economic, as well as political and geographical differences such as resource abundance, political regimes, and EU membership, etc. are not taken into consideration in the study which can be the subject of future research.

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