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Reassessing the complexities of corruption and inequality: a comparative study of Balkan countries

Abstract

This article analyses the relationship between corruption and income inequality in western Balkan countries in the period from 2012 to 2023. The International Labour Organization, Transparency International and World Development Indicators are the three sources of data used, while the Arellano and Bond (1991) generalized method of moments (GMM) technique is utilised to estimate the correlation between the Gini Index and the Corruption Perceptions Index. The dependent variable is income inequality measured by the Gini Index, while the vector of independent variables is composed of annual GDP per capita growth, the Consumer Price Index, the unemployment rate, openness to trade and the Corruption Perceptions Index. The regression results are univocal for the whole sample. However, corruption is contributing to the increased levels of income inequality in a couple of Balkan countries. The public might have a complex relationship with corruption, but countries could address the issue by institutional strengthening, denouncing corrupt officials, enhancing public transparency and encouraging media independence.

Keywords*: corruption, income inequality, Gini coefficient, Balkans, economic growth, trade openness, unemployment rate*

Introduction

In recent years, experts have shown keen interest in studying the impact of corruption on several economic indices. It is generally accepted that corruption involves the abuse of power for personal benefit, although there are differing interpretations. Researchers have been examining corruption for years as a result of widespread agreement that corruption affects the economy. Markets are influenced by corruption and the capacity of government to monitor the market and protect citizens' rights is compromised.

There are arguments in favour of corruption, particularly regarding its capacity to help overcome bureaucratic rigidities and maintain allocative efficiency when bribers compete, but it has been determined that the misuse of public office for private gain in a way that contradicts the rules of the game – that is, corruption – has resulted in losses in GDP growth (Mo 2001; De Vaal and Ebben 2011; Gründler and Potrafke 2019); in the ratio of investment to GDP, and in the ratio of spending on public health and education to GDP (Qerimi and Sergi 2012; Kalaj and Kalaj 2023); in the

level of inflation (Ben Ali and Sassi 2016; Elkamel 2019); and in the amount of foreign direct investment (Budak and Rajh 2014; Kalaj and Golemi 2024).

This article focuses on a study of the relationship between corruption and inequality, organised as follows. The first section presents a literature review while the second frames the data and the methodology. The link between corruption and inequality is presented in the third section, while the last section summarises the discussion and provides a conclusion.

Literature review

There is an extensive range of research on the connection between corruption and multiple economic variables, most notably economic growth (Vial and Hanoteau 2010; Meon and Weill 2010; Mendoza et al. 2015; Kalaj 2015; Sotiropoulos 2017). Studies that aim to comprehend the relationship between various economic aspects and inequality also fall under this category. But things are different when it comes to research that examines the relationship between corruption and inequality. As a result, this study provides a synopsis of the prevailing debate along with important discoveries about the connections between these aspects.

Hysa (2011) investigated the connection between human development and corruption in Serbia, Bosnia and Herzegovina, Croatia, Montenegro, Albania and North Macedonia. According to her research findings, there is a statistically significant inverse association between human development and corruption indices. The study's empirical evidence, which compares all western Balkan countries (with the exception of Kosovo due to a lack of data), indicates that countries with higher levels of corruption typically have lower levels of human development. In comparison to Croatia, where there is a minor correlation, North Macedonia, Serbia, Montenegro and Albania are found to have significantly stronger relationships between corruption and human development. There is, however, little connection between the two in Bosnia and Herzegovina.

Policardo and Carrera (2018), examining a panel of 50 countries for the period between 1995 and 2015, demonstrate that the causal relationship between corruption and income inequality varies depending on the country's characteristics and may even be bidirectional. Using a dynamic GMM model, the authors clearly demonstrate that corruption has a positive impact on income inequality, even though corruption does not appear to have an important role in determining income inequality. This finding goes contrary to the previous empirical literature on the subject.

Teichmann et al. (2020) examine the impact of corruption on western Balkan countries and show how, in spite of considerable efforts, corrupt practices remain obstacles to longstanding aspirations to join the European Union. The authors argue that another approach is needed since corruption has a detrimental effect on both economic growth and the image of a country abroad. In an exploratory study strategy, ten expert interviews were carried out to investigate the concept of anti-bribery compliance incentives in which the interview partners were invited to discuss how international companies may use anti-bribery incentives to defeat corruption.

The relationship between corruption and economic development in western Balkan countries over the last two decades is the main topic of the study by Xhindi

and Gjika (2022). This examines the impact of urbanisation and corruption on human development in the western Balkans (Albania, North Macedonia, Serbia, Bosnia and Herzegovina, and Montenegro) between 2003 and 2019 using an autoregressive distributed lag model (ARDL, 2, 2). The unique contribution of this work to the body of knowledge is the use of an ARDL model for analysis and its application to a more extensive data series for the region. According to this study, urbanisation has a positive effect on the level of human development.

The purpose of Badur et al. (2023) is to examine how inequality of income and corruption affect post-Soviet countries' three-dimensional sustainable development. The fixed effects technique, combined with a dynamic panel regression, constitutes the basis of the methodology. According to the authors' conclusions, increasing levels of income inequality and corruption are detrimental to sustainable development. In particular, rising levels of income inequality and corruption have a negative impact. Furthermore, trade liberalisation and unemployment have a detrimental effect whereas foreign direct investment (FDIs) has a favourable impact.

The study at hand examines the impact of income inequality on corruption and explores their causal connection. The current body of empirical research in economics and political sciences mostly concentrates on examining the factors that influence corruption. However, there are only a limited number of studies that explicitly investigate the issue of income inequality in the western Balkans region.

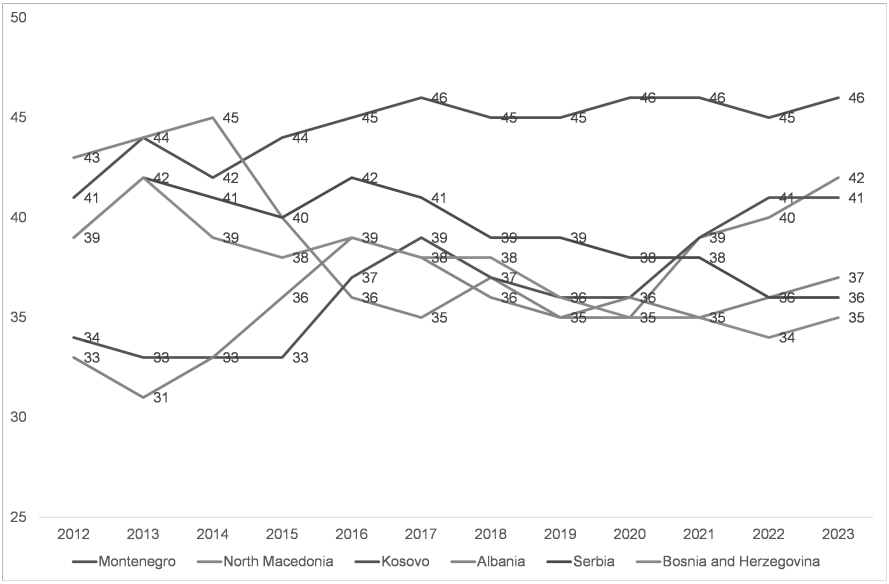
Background and motivation

The process of establishing stable governments in western Balkan countries after the turbulent events of the 1990s has been significantly shaped by ethno-nationalism, post-war reconstruction efforts and external interventions. In most western Balkan countries, the elites and groups which were involved in the conflicts and exerted great control over the war economy continued to exert considerable power in the institutions that emerged after the war.

Overall, the countries in the region have remained stagnant in their efforts to address corruption, either showing no improvement or else a deterioration. The majority of countries in south-east Europe, with the exception of Montenegro and Turkey, hold the belief that corruption cannot be significantly decreased (Transparency International n.d.). Overall, there is a widespread lack of public trust in public institutions, while the problem of state capture is a major concern in the region (Transparency International 2024). Figure 1 shows the levels of the Corruption Perceptions Index by country for each year in the period 2012 to 2023.

Extensive study has unequivocally shown that corruption and bribery are deeply ingrained throughout the Balkans. This phenomenon can be attributed to the misuse of authority by public officials as well as the acceptance of 'facilitation' money or gifts as traditional in certain countries.

Figure 1 – Corruption Perceptions Index, 2012-23



Note: Countries ordered by 2023 Index value (0= very clean; 100= highly corrupt). Source: Transparency International (2024).

Corruption levels in Albania are high. Albania's 2024 score on the Corruption Perceptions Index is 37 out of 100, reflecting a greater (and increasing) level of perceived corruption. Albania is ranked 98th out of 180 countries globally, making it one of the lowest-ranking countries in Europe. According to the Worldwide Governance Indicators, which uses a scale from -2.5 to 2.5, Albania has a Control of Corruption Index of -0.52 (Kaufmann and Kraay 2023).

Corruption poses a significant problem in Bosnia and Herzegovina. The country's Corruption Perceptions Index is 35 out of 100, which places it at number 108. These data exhibit a persistent similarity to those observed earlier in the decade. Bosnia and Herzegovina has a score of -0.57 on the Control of Corruption Index.

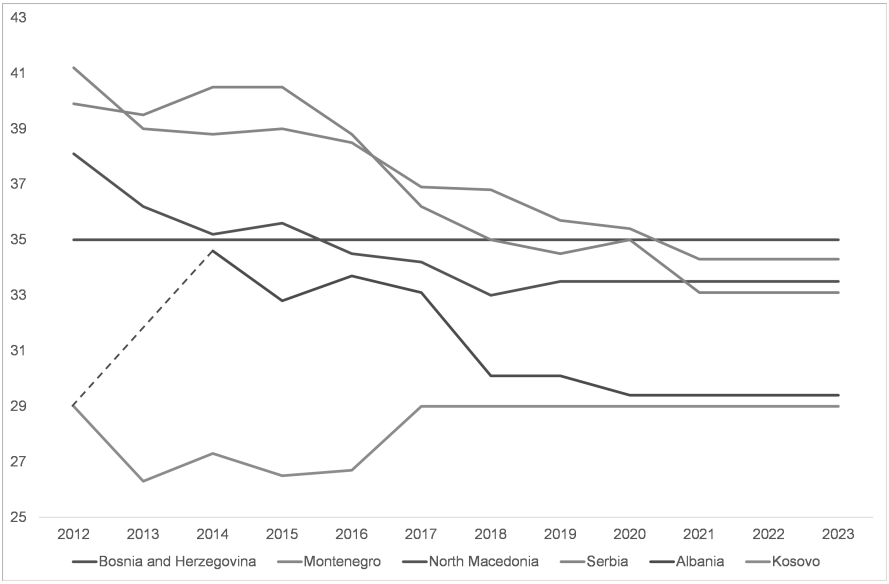
Kosovo has a Corruption Perceptions Index of 41, which places it in 83rd position. Kosovo's score on the Control of Corruption Index is -0.42.

The level of corruption in Montenegro is comparable to that of the other countries included in this evaluation. Montenegro is placed 63rd on the Corruption Perceptions Index, with a score of 46. Montenegro's score on the Control of Corruption Index is 0.02. Both scores are only slightly superior to the scores of other western Balkan states, considering the margin of error.

North Macedonia continues to face significant challenges in tackling corruption. The country's Corruption Perceptions Index is 42, resulting in a global rank of 76. North Macedonia's Control of Corruption Index is -0.36.

Serbia is positioned in 104th place on the Corruption Perceptions Index, with a score of 36, while Serbia's Control of Corruption Index is -0.37. According to a recent survey conducted by Transparency International (n.d.), 57 per cent of the population of Serbia believe that corruption is prevalent in society.

Figure 2 – Gini Index, 2012-23, by country



Note: 2021 is the latest year for which any of these countries has data; and, for some, the most recently recorded data is earlier than this. Source: World Bank (2024).

We are using the Gini Index as a proxy for income inequality (World Bank 2024). Data (where available) for the period from 2012 to 2023 are shown in Figure 2. The Gini index measures the degree of inequality in the distribution of income (or, in certain instances, consumption expenditure) among individuals or households within an economy by measuring the deviation from a completely equal distribution. A Lorenz curve represents the relationship between the cumulative percentage of the total income received and the cumulative number of recipients, beginning with the least wealthy individual or household. The Gini Index quantifies the extent of inequality by calculating the difference in area between the Lorenz curve and a hypothetical line representing perfect equality. This difference is then reported as a percentage of the maximum area under the line (World Bank 2024). Therefore, a Gini Index of 0 indicates complete equality (all the nation's wealth is shared equally), whereas an index of 100 indicates complete inequality (all the nation's wealth is held by one person).

Data and methodology

The countries of Albania, Bosnia and Herzegovina, Kosovo, North Macedonia, Montenegro and Serbia jointly make up the panel utilised in this article, which is based on the years from 2012 through to 2023. The data that we use comes from three different sources: World Development Indicators, the International Labour Organization and Transparency International. Table 1 provides a brief description of the variables, in addition to the sources from which they are obtained.

Table 1 – Description of variables

Dependent variable	**Source**	**Description**
Gini Index	World Bank	The Gini Index measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a perfectly equal distribution. A Gini Index of 0 represents perfect equality, while an index of 100 implies perfect inequality.
Explanatory variables		
GDP per capita	World Bank	Annual percentage growth rate of GDP per capita based on constant local currency. GDP per capita is gross domestic product divided by the mid-year population.
Consumer Price Index		The Consumer Price Index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used. Data are period averages.
Unemployment rate	ILO	Unemployment refers to the share of the labour force that is without work but available for and seeking employment.
Openness		Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.
Corruption Perceptions Index	Transparency International	The Corruption Perceptions Index scores 180 countries according to the perceived corruption of the public sector, Transparency International then ranking those countries by their score.

Source: Authors' own compilation.

This study examines a dynamic panel data model, which includes at least one lagged dependent variable. The Arellano and Bond (1991) generalized method of moments (GMM) technique is utilised to estimate the correlation between Gini and the Corruption Perceptions Index. A two-step technique is employed due to the tendency of the one-way fixed effects model of dynamic panel data to produce a correlation between the regressors and the error term. In practice, we define the

functional form of the equations for Gini and the Corruption Perceptions Index in the following way:

$$〖GINI〗_{(i,t)}=\beta_0+\beta_1 〖GINI〗_{(i,t-1)}+\beta_2 〖CPI〗_{(i,t)}+\gamma X_{(i,t)}+\mu_{(i,t)} \quad (1)$$

where:

GINI i,t is the Gini Index used to measure income inequality,

CPI i,t is the Corruption Perceptions Index used to measure the level of corruption, and

Xi is the vector of variables including growth in GDP per capita, the Consumer Price Index, the rate of unemployment, openness to trade, etc.

In order to address the research inquiry regarding the correlation between inequality of income and corruption, a Dynamic Panel Data (DPD) model was adopted. Such models incorporate one or more lagged dependent variables, enabling the representation of a partial adjustment mechanism (Blundell et al. 2001; Bun and Windmeijer 2010).

Arellano and Bond (1991) proposed a generalized method of moments estimator that regards the model as a set of equations, with each equation corresponding to a particular period of time. The equations differ primarily in their sets of instrument/moment conditions. The exogenous and preset variables in initial differences are instrumented using appropriate lags of their own levels. The instrument matrix can include strictly exogenous regressors and other instruments in the manner of standard instrumental variables in which each instrument is represented by one column and is expressed as first differences.

Empirical results

An overview of the empirical results may be found in Tables 2 and 3, Table 2 providing the whole sample estimates and Table 3 presenting the data by country.

Table 2 demonstrates a positive correlation between the level of income inequality and the previous level of inequality. The Sargan (1975) test does not provide evidence to reject the null hypothesis that the over-identifying limitations are valid. This means that the instruments employed in the analysis are valid and not connected with the error term, and the excluded instruments are appropriately eliminated from the estimated equations.

Fluctuations in the annual growth of per capita GDP exhibit significant effects on the distribution of income inequality. The presence of a negative sign contradicts the anticipated trends of the Kuznets curve.

Furthermore, income inequality does not appear to be influenced by the levels of the Consumer Price Index and the Corruption Perceptions Index across the entire sample. Nevertheless, the presence of a negative coefficient for corruption is crucial since it indicates that an increase in the Corruption Perceptions Index contributes to a decrease in income inequality.

Unemployment contributes to income inequality in terms of its significant impact on the socioeconomically disadvantaged population who have limited opportunities

Table 2 – System dynamic panel data estimation, whole sample

Gini Index	**Coef.**	**St. Err.**	**t-value**	**p-value**	**95% confidence interval**		**Sig.**
L. Gini index	.605	.068	8.84	0	.471	.739	***
GDP per capita	-.042	.024	-1.72	.085	-.089	.006	*
Consumer Price Index	-.009	.013	-0.69	.489	-.036	.017	
Unemployment rate	.173	.036	4.75	0	.102	.245	***
Openness	.031	.013	2.39	.017	.005	.056	**
CPI	-.033	.049	-0.67	.501	-.128	.063	
Constant	10.257	2.874	3.57	0	4.624	15.89	***
Mean dependent var.			35.837	SD dependent var.			3.665
Number of obs.			66.000	Chi-square			342.460

Note: *** p<.01, ** p<.05, * p<.1.

to increase their income. This may be caused by their higher vulnerability to job loss during economic downturns, with the less educated and specialised individuals being especially at risk. We obtain similar results in the case of openness to trade, albeit with a lower magnitude.

Based on the country-specific regression results, some interesting findings can be noticed. The findings regarding the yearly growth in per capita GDP remain appropriate to both Kosovo and Serbia. In the cases of Bosnia and Herzegovina and Kosovo, a decrease in inflation (i.e. the Consumer Price Index) is indicative of an improvement in income inequality, as indicated by the theory and by earlier empirical findings. This is not statistically significant in the remaining countries included in this investigation.

The public's perception of corruption is not wholly consistent. In Albania and in Bosnia Herzegovina, corruption contributes to inequality, according to the regression results set out in Table 3. However, this does not appear to be the case in Montenegro and Serbia.

Conclusion

This research examines the hypothesis that corruption is a contributing factor to income inequality, providing evidence to support the hypothesis for certain selected western Balkan countries. Through a two-step Arellano-Bond dynamic panel data estimation, we show that the rise in perceived corruption within a panel of six Balkan countries from 2012 to 2023 is the cause of an increase in inequality of income.

The findings indicate that GDP per capita growth, unemployment and trade openness across the entire sample contribute to an increase in inequality in income. The poorer segments of the population are affected by the phenomenon of unemployment, which is related to this conclusion. Furthermore, trade openness is being

Table 3 – System dynamic panel data estimation, by country

Income inequality	**ALB**	**BiH**	**KOS**	**NMK**	**MNE**	**SRB**
L. Gini index	-.2 (.314)	.021** (.01)	.186 (.343)	.561** (.281)	.802*** (.244)	.742*** (.264)
GDP per capita	-.005 (.149)	.003* (.002)	-.16** (.066)	-.005 (.065)	-.025 (.046)	-.238** (.101)
Consumer Price Index	-.159 (.108)	-.002*** (.001)	-.128** (.061)	.028 (.032)	.011 (.056)	-.021 (.026)
Unemployment rate	.556** (.255)	-.004** (.002)	-.021 (.092)	.057 (.106)	-.175 (.295)	.275** (.13)
Openness	.087 (.081)	-.003*** (.001)	.107** (.052)	-.015 (.023)	-.019 (.062)	-.016 (.042)
CPI	.577** (.285)	.01* (.005)	.033 (.136)	.006 (.071)	-.411* (.224)	-.642* (.35)
_cons	21.238 (17.256)	34.603*** (.492)	40.106* (21.937)	12.003 (7.958)	28.907* (15.339)	36.104** (14.334)
Observations	11	11	11	11	11	11
Pseudo R^2	.32	.26	.31	.28	.41	.39
Wald chi^2	33.76	83.16	19.36	34.31	67.79	94.91

Note: Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1.

carried out in a manner that does not contribute to the growth of the entire population in an equal manner.

In the instances of both Albania and Bosnia and Herzegovina, it appears that corruption is a contributing factor to the income inequality that emerges. At the same time, the results do not provide a definitive answer for the other western Balkan countries.

Furthermore, although the majority of citizens express disapproval towards corruption, they are hesitant about the methods they might employ to distance themselves from it. Frequently, individuals and organisations feel obliged to engage in corrupt practices as their only recourse to obtaining the services and assistance they are legally owed.

Several recommendations can be raised to the attention of policymakers, national executive bodies, civil society and other stakeholders based on the findings and conclusions presented above. In order for the countries of the western Balkans to be able to pursue the path of European integration, the issue of corruption needs to be addressed. This may be accomplished by implementing measures such as strengthening their most important institutions and ensuring their independence,

denouncing corrupt officials, enhancing public transparency and encouraging media independence.

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