DOES COVID-19 REDUCES INCOME AND WEALTH INEQUALITY: EVIDENCE FROM OIC COUNTRIES

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Abstract: This study investigated the effect of the COVID-19 pandemic on income and wealth inequality in the 56 Organization of Islamic Cooperation (OIC) member countries from 2010-2021. We employ a panel fixed effect model to estimate the relationship between a dummy COVID-19 outbreak and a comprehensive inequality proxy consisting of income and wealth inequality of the top 10%, bottom 50%, and top 1%, respectively. Findings suggest that while COVID-19 has contributed to a reduction in wealth inequality, it has not had a significant effect on income inequality. The restriction policies imposed during the pandemic have decreased the proportion of high-wealth individuals, but not the proportion of high-income earners. To further promote income equality, governments should focus on increasing foreign investment by improving the ease of doing business and enhancing political stability in the region.

Keywords*: Income Inequality, Wealth Inequality, COVID-19, and OIC Countries.*

Introduction

Income inequality is a crucial economic indicator as it measures the uneven distribution of income across different segments of the population. High levels of income inequality can hinder long-term social and economic development, impede poverty reduction efforts, and erode people's sense of fulfillment and self-worth, potentially leading to social unrest and criminal activity. Recognizing the severity of this issue, reducing income inequality is one of the Sustainable Development Goals' top priorities, listed as goal number 10.

Several studies have found a positive relationship between income inequality and the COVID-19 pandemic. Elgar et al. (2020) found this relationship in 84 countries, while Demenech et al. (2020) found higher levels of economic inequality in Brazil were associated with a more significant increase in both COVID-19 cases and deaths. Tan et al. (2021) observed a direct relationship between income inequality and COVID-19 cases and deaths at the county level, and Clark et al. (2021) found a hump-shaped change in relative inequality in equivalent household disposable income in France, Germany, Italy, and Spain. Carta and de Philippis

(2021) showed a significant rise in labor income inequality among low-income households, while Asaria et al. (2021) revealed a notable surge in aversion towards income and health inequality. Zhang et al. (2022) found that the COVID-19 pandemic disproportionately impacted China's labor market, particularly female laborers residing in urban areas with lower education levels. Finally, Blundell et al. (2022) showed that the pandemic has increased inequality across various dimensions in the United Kingdom, including education, the labor market, household living standards, mental health, and wealth disparities.

There is a lack of research that investigates the effect of the pandemic on income inequality by using multi-country evidence (OIC countries) as a lesson learned. By examining this specific region, my study provides valuable insights that can inform policies to mitigate the adverse impact of the pandemic on income and wealth inequality. To ensure the robustness of my analysis, I control for various factors that influence income and wealth inequality, including GDP per capita, net inflow of foreign direct investments, and political stability and lack of violence. This approach enables me to isolate the effect of COVID-19 and provide a more accurate picture of its effect on income and wealth inequality.

The rest of the paper is organized as follows. Section 2 discusses the literature review. Section 3 focuses on the research method I used. I analyze the results in Section 4, and I concluded in Section 5.

Literature Review

Numerous studies have investigated the link between the COVID-19 pandemic and income inequality. Elgar et al. (2020) conducted a study across 84 countries and found a positive relationship between COVID-19 mortality rates and income inequality. Similarly, Demenech et al. (2020) examined the impact of income inequality of the Federative Units in Brazil on the risk of COVID-19 infection and death. The results revealed that COVID-19 cases and deaths increased in all regions of Brazil, but the increase was more pronounced in areas with higher levels of economic inequality. These studies highlight the significant impact of income inequality on the spread and severity of the COVID-19 pandemic.

Tan et al. (2021) investigate the time-varying relationship between income inequality and COVID-19 cases and deaths at the county level. They find a direct association during the study period, with the strongest link occurring in the summer months of 2020. Clark et al. (2021) monitor income inequality in France, Germany, Italy, and Spain during the pandemic and find a hump-shaped change in relative inequality in equivalent household disposable income, with an initial rise from January to May 2020, followed by a reversal by September 2020. There was also a reduction in absolute inequality, with government compensation schemes supporting the poorest households. The pandemic had a varying impact on households, with some being more affected than others.

Carta and de Philippis (2021) found that the COVID-19 crisis had a more severe impact on low-income households, resulting in a significant rise in labor income inequality. Asaria et al. (2021) found a notable surge in aversion to income and health inequality in three European

nations. The aversion towards income inequality was higher than health inequality, and it tended to increase with age and education but decrease with income and risk appetite.

Zhang et al. (2022) reveal the unequal impact of COVID-19 on China's labor market and income inequality. Female urban laborers with lower education levels are expected to suffer the most significant job and earnings losses. Moreover, the pandemic would result in an 8.75% decrease in household per capita income for rural residents and a 6.13% decrease for urban inhabitants. Meanwhile, Blundell et al. (2022) find that the pandemic has widened inequalities in education, the labor market, household living standards, mental health, and wealth in the UK. The closure of schools has worsened academic performance for children from low-income families. Additionally, younger adults and women experienced a further decline in mental well-being. Lockdowns and social distancing measures have disproportionately affected individuals with lower earnings and education.

While several studies have examined the relationship between COVID-19 outcomes, including mortality, cases, and income inequality. There is a lack of research that investigates the impact of the pandemic on income inequality by using multi-country evidence (OIC countries) as a lesson learned. My research is a current study that discusses this topic within the context of the Islamic world.

Method

This research aims to assess the effect of COVID-19 on income and wealth inequality using unbalanced panel data consisting of 56 OIC (Organization of Islamic Cooperation) member countries from 2010-2021. This study uses income dan wealth inequality data from World Inequality Database or WID (https://wid.world). I use GDP per capita and foreign direct investment obtained from Worldbank World Development Indicators provided by Worldbank and Political Stability and Lack of Violence from Worldbank Worldwide Governance Indicators.

$$inequality_{it} = a_0 + b_1 COVID19_{it} + b_2 x_{it} + v_{it} \qquad (1)$$

The vector of *inequality* consists of income and wealth inequality of the top 10%, bottom 50%, and top 1%. The *COVID19* is a dummy COVID-19 variable. Country-specific characteristics consist of GDP per capita and the foreign inflow of direct investment obtained from Worldbank World Development Indicators (WDI) provided by Worldbank, and Political Stability and Lack of Violence obtained from Worldbank Worldwide Governance Indicators (WGI).

v_{it} the composite error consists of u_{it} and a_i. a_i is unobserved heterogeneity that varies between individuals (countries) but does not vary over time (time-invariant). In this study, it is the characteristics of each country that are unobserved. While u_{it} is idiosyncratic errors or shocks whose values vary between individuals (countries) and over time. The reason for using the fixed effect model is because a_i is correlated with the independent variable (explanatory variable) over time, therefore the within estimator is used to eliminate a_i so that the regression

can produce a consistent estimate (Wooldridge, 2020). The form of within estimator is as follows:

$$inequality_{it} - \overline{inequality_i} = b_0 + b_1(COVID19_{it} - \overline{COVID19}_i) + \beta_2(x_{it} - \bar{x}_i) + (a_i - \bar{a}_i) + (u_{it} - \bar{u}_i) \qquad (2)$$

$\overline{inequality_i}$ is the vector of inequality variables which is averaged over time (t) for each country (i). The above equation is also known as the time-demeaned equation because it uses the time average as a subtraction for each variable to eliminate a_i in the equation.

Result and Discussion

Table 1 presents descriptive statistics for all variables used in this study, with income and wealth inequality of the top 10%, bottom 50%, and top 1% serving as proxies for the dependent variable of inequality. On average, the top 10% of individuals in OIC countries earn approximately 48% of total income, while the bottom 50% and top 1% earn around 14% and 16% of total income, respectively. Wealth inequality follows a similar pattern to income inequality. On average, the top 10% of individuals in OIC countries possess approximately 64% of total wealth, while the bottom 50% and top 1% possess around 4% and 31% of total wealth, respectively. The COVID-19 pandemic is dummy coded to measure its outbreak, and its impact on inequality is controlled by using GDP per capita, net inflow of foreign direct investment, and political stability as covariates. GDP per capita is expressed in US dollars, while the net inflow of foreign direct investment is expressed as a percentage of GDP. Political stability is measured by the absence of violence or terrorism, ranging from weak (-2.5) to strong (2.5).

Table 2 presents the regression results for Equation 1, estimated using the fixed effect model, with insightful findings. Interestingly, the dummy variable for COVID-19 has an insignificant coefficient, indicating that the pandemic did not affect the income inequality of the top 10%, bottom 50%, and top 1%. On the other hand, the net inflow of foreign direct investment negatively correlates with income inequality of the top 10% and top 1%. This finding suggests that an increase in net capital inflow could help reduce the concentration of income in the top 10% and top 1%. Furthermore, the study reveals that political stability has a significant negative impact on income inequality of the top 10%. Specifically, higher political stability leads to a reduced share of income for the top 10%. Overall, these results shed light on the importance of political stability and foreign direct investment in promoting income equality in OIC countries, despite the limited impact of the COVID-19 outbreak on income inequality.

Table 3 presents findings on the impact of the COVID-19 pandemic on wealth inequality in OIC countries. The results indicate that the coefficient of the dummy variable COVID-19 is negative for both the top 10% and top 1%, suggesting that the pandemic has led to a reduction in the share of wealth held by these groups. Specifically, the concentration of wealth among the top 10% and top 1% decreased due to the COVID-19 outbreak. Moreover, the analysis shows that political stability has a positive effect on the share of wealth held by

the bottom 50%. Higher political stability is associated with an increase in the wealth of the bottom 50%, which suggests that political stability can play a crucial role in reducing wealth inequality in OIC countries.

Table 1. Descriptive Statistics

Variable	Definition	Source	Unit	Obs	Mean	Std. Dev.	Min	Max
Income of Top 10%	Measuring income inequality of top 10%	WID	percent	684	47.50249	6.14984	31.82000	64.63000
Income of Bottom 50%	Measuring income inequality of bottom 50%	WID	percent	684	13.97041	2.94298	8.30000	21.10000
Income of Top 1%	Measuring income inequality of top 1%	WID	percent	684	16.28118	4.00289	7.95000	31.11000
Wealth of Top 10%	Measuring wealth inequality of top 10%	WID	percent	684	63.76763	6.22034	55.89000	80.45000
Wealth of Bottom 50%	Measuring wealth inequality of bottom 50%	WID	percent	684	3.65541	1.51745	-1.11000	5.13000
Wealth of Top 1%	Measuring wealth inequality of top 1%	WID	percent	684	30.63237	6.75468	22.19000	49.15000
COVID-19	Measuring the COVID-19 Outbreak, starting in 2020 the dummy variable has a value of 1	Author's calculation	-	684	0.16667	0.37295	0.00000	1.00000
GDP per Capita	GDP per capita (constant 2015).	WDI	US$	656	6795.35500	10892.53000	330.41880	65129.38000
Net Inflow of Foreign Direct Investments	Foreign direct investment, net inflows (% of GDP)	WDI	percent	601	3.73224	5.03661	-11.19898	39.45622
Political Stability	Measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance)	WGI	-	672	-0.77612	0.95405	-3.13097	1.27755

Table 2. Income Inequality Estimation

Dependent Variables	Income Top 10%	Income Bottom 50%	Income Top 1%
COVID-19	-0.04445	0.03847	-0.01162
	[0.16049]	[0.07736]	[0.13547]
Log (GDP per Capita)	-0.10088	0.12069	0.47450
	[0.47698]	[0.22991]	[0.40261]
Net Inflow of Foreign Direct Investments	-0.02988**	0.01243*	-0.02992**
	[0.01450]	[0.00699]	[0.01224]
Political Stability and Lack of Violence	-0.32138*	0.12921	-0.17908
	[0.17313]	[0.08345]	[0.14614]
Constant	48.01900***	13.15013***	12.38339***
	[3.82933]	[1.84578]	[3.23224]
Observations	598	598	598
F-Statistics	2.05077	1.59628	2.28954
R-Squared	0.01502	0.01173	0.01674
R-Squared Within	0.01502	0.01173	0.01674
R-Squared Between	0.00166	0.01626	0.05293
R-Squared Overal	0.00216	0.01830	0.05120

Standard errors in brackets

* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 3. Wealth Inequality Estimation

	Wealth Top 10%	Wealth Bottom 50%	Wealth Top 1%
COVID-19	-0.33626**	0.05955	-0.45951**
	[0.16946]	[0.04142]	[0.19092]
Log (GDP per Capita)	-0.48961	0.07296	-0.55516
	[0.50363]	[0.12310]	[0.56740]
Net Inflow of Foreign Direct Investments	-0.01783	0.00330	-0.01647
	[0.01531]	[0.00374]	[0.01725]
Political Stability and Lack of Violence	-0.23462	0.10310**	-0.16529
	[0.18280]	[0.04468]	[0.20595]
Constant	67.59702***	3.12602***	35.05913***
	[4.04330]	[0.98830]	[4.55530]
Observations	598	598	598
F-Statistics	2.03649	2.20924	2.12564
R-Squared	0.01492	0.01616	0.01556
R-Squared Within	0.01492	0.01616	0.01556
R-Squared Between	0.06998	0.05934	0.08686
R-Squared Overal	0.06479	0.05256	0.07938

Standard errors in brackets

* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Conclusion

This study provides a comprehensive analysis of the impact of the COVID-19 pandemic on income and wealth inequality in OIC (Organization of Islamic Cooperation) countries. The study employs a panel data analysis approach using unbalanced data consisting of 56 OIC countries over the period 2010 to 2021. To measure the effect of the pandemic on inequality, the study employs multiple proxies, including income and wealth inequality for the top 10%, bottom 50%, and top 1%. Specifically, the COVID-19 dummy variable is utilized as a proxy for the pandemic outbreak, and the fixed effect model is employed to estimate its impact on inequality.

Our study revealed that the COVID-19 pandemic had a significant impact on wealth inequality, but not on income inequality. The implementation of pandemic restrictions policies has led to a reduction in business activities, resulting in a decrease in the proportion of high-wealth individuals, but it did not affect the high-income class. It is imperative for governments to prioritize policies that promote foreign investment by enhancing the ease of doing business as this can lead to a reduction in income inequality. Furthermore, increasing political stability has been shown to be an effective way to reduce both income and wealth inequality, and therefore, policymakers should focus on implementing measures that ensure political stability.

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