ISSN Online : 2709-4030
ISSN Print : 2709-4022
Vol 6 No.2 2022

ECONOMIC OPENNESS, DEMOCRACY AND INCOME INEQUALITY NEXUS IN OIC COUNTRIES

[1]Muhammad Ramzan Sheikh, [2]Adeela Ashraf, [3]Khawar Naheed, [4]Asifa Tufail

ABSTRACT

This study examines the nexus among economic openness, democracy and income inequality in OIC countries. The panel data has been used over the period 1990 to 2019 and the ARDL technique has been applied for empirical analysis. Two models have been specified to investigate the association among economic openness, democracy and income inequality at disaggregated and aggregated levels. In the first model of disaggregated analysis, the results show that the square of GDP, Democracy, trade, and foreign direct investment are negatively and significantly related to income inequality of OIC countries while other variables GDPG and poverty have a positive association. GDPG turns out statistically significant, but PHCR is insignificant. In the second model of aggregate analysis, GDPG, democracy, and economic openness have a negative association with income inequality but poverty headcount ratio and GDPG square have a positive association with inequality. The study has also suggested some policies to reduce inequality.

Keywords: *Economic Openness, Democracy, Income Inequality, ARDL, OIC countries*.

1. Introduction

Income inequality is a contemporary issue that has gained currency in many countries as it creates many socio-economic challenges. Economic openness is the most essential factor in a country's development. The influence of economic openness on income distribution depends on the identity of the winners and defeaters. Foreign direct investment decreases income inequality but international trade encourages income disparity (Fischer, 2001; Li, 2003). Openness raises people's purchasing power, and living standards and decreases inequality by expanding market size and manufacturing innovative items at a low cost (Ades and Glaeser, 1999; Milanovic, 2005). It is thought that economic diversity creates a competitive environment, resulting in high-quality products and thus decreasing inequality (Munir, 2013).

Democracy has moderated influence on the contraction of the income gap in many nations. A higher degree of democracy would lead to lower-income inequality (Balcazar, 2016). Some economists have inferred that democracy has failed to reduce income inequality but it has a significant effect (Acemoglu et al., 2013). The institutionalization of democracy is essential for the best implementation of equity-arranged redistribution policies (Lee, 2005). Democracy itself does not open the doors for the equal allocation of resources; rather it depends upon the duration, a country has stuck around democracy (Huber and Stephens, 2012). Thus, it is imperative to explore the nexus among economic openness, democracy and income inequality.

The organization of Islamic Corporation (OIC) is the second biggest among administrative associations with enrollment in 57 states. The organization is the collective voice of the Muslim world to protect the interests and ensure the prosperity of Muslims with the spirit of promoting peace and harmony among nations. The economies of OIC economies are often ranked as progressive countries. The main focus of our study is to probe the effect of economic openness and democracy on income inequality and to explore the influence of foreign direct investment and international trade on income inequality.

The rest of the paper is structured as: section 2 contains the review of relevant studies on economic openness, democracy, and income inequality. Section 3 spells out the data, model, and methodology. Empirical results are presented and discussed in section 4. Finally, section 5 concludes the paper along with policy recommendations.

[1]Associate Professor, School of Economics, Bahauddin Zakariya University Multan, Pakistan
[2]MPhil Student, NCBAE Multan
[3]Assistant Professor, Department of Commerce, Bahauddin Zakariya University Multan, Pakistan
[4]Visiting Lecturer, Department of Economics, Bahauddin Zakariya University Sub-campus Vehari, Pakistan

2. Literature Review

This section discussed the literature about economic openness, democracy and income inequality.

Table 1: Summary of Review of Studies

Reference(s)	Country	Time	Main Results
Summary of Studies on Economic Openness and Income Inequality			
Arabiyat et al. 2020	Developing economies	1990-2015	Trade openness has a significant impact on income inequality.
Beji (2019)	21 African countries	1985-2014	The significant impact of openness on income disparity in countries with less institutional quality while the insignificant effect in countries with high-level institutional quality.
Abdulkarim and Ali (2019)	47 OIC countries	2006-2016	Financial inclusion has a positive and significant effect on income inequality.
Khan and Nawaz (2019)	Commonwealth of Independent States (CIS)	1990-2016	A positive and significant relationship between openness and income inequality.
Mitra and Hossain (2018)	United States	1979-2014	A significant and negative short-run relation between trade openness and income inequality but the long-run relation, however, is significantly positive and consistent.
Brei et al.(2018)	97 economies	1989-2012	Finance will lead to shortening income inequality.
Bayar and sezgin (2017)	Latin countries	1996-2009	A negative relationship between trade openness and income inequality.
Mahesh (2016)	BRIC countries	1991-2013	Trade openness and income inequality were positively and significantly related.
Lim and Mcnelis (2014)	42 low to middle-income countries	1992-2007	Trade openness is more effective than either foreign aid for changing inequality.
Dong (2014)	8 emerging countries	1950-2012	There was a unidirectional relationship between economic openness and income inequality in emerging market economies.
Summary of Studies on Democracy and Income Inequality			
Hassan et.al (2020)	Pakistan	1984-2019	Democratic accountability leads to decrease income

			inequality.
Aslan (2017)	137 countries	1960-2010	Inequality has a negative and significant impact on the economic growth of the countries.
Muhutga et.al (2017)	17 countries	1980-2007	Democracy and income inequality are positively related.
Balcazar (2016)	Latin America	1995-2011	The impact of democracy on income inequality was significant and negative.
Krieger and Meierrieks (2016)	100 countries	1971-2010	Low-income inequality and democracy lead to higher economic freedom.
Bollen and jackman (2015)	65 countries	1970-2000	No direct effect of democracy on income inequality.
Desai et al. (2015)	100 countries	1960-1999	Democracy had increased income inequality.
Madsen et al. (2015)	141 countries	1820-2000	Democracy was the noteworthy determinant of income.
Islam (2015)	83 countries	1968-2011	A negative relationship between democracy and income inequality was found.
Acemoglue et al. (2013)	184 countries	1960-2010	Democracy had no impact on inequality.

The review of the studies related to democracy, income inequality, and economic openness show mixed results most of the studies have pointed out the positive association between economic openness and income inequality, a few studies found an ambiguous relationship. Even some other studies explored that economic openness harms income distribution. Most of the reviewed studies were in the context of developed and less developed countries and only one study was found on OIC countries using limited variables. Moreover, the studies on democracy and income inequality have been reviewed. We have found assorted results mostly studies have pointed out that democracy leads to increase income inequality. Some other studies have pointed out no direct association between income inequality and democracy.

3. Model, Data and Methodology

3.1Model Specification

The linkage between economic openness, democracy, and income inequality is established with the help of the following two models.

Model 1: Economic Openness Democracy and Income Inequality (Disaggregated)

$$GINI = f(GDPG, GDPG^2, PHCR, DEMOC, FDI, TO, \text{TRADE*DEMOC, FDI*DEMOC}) \quad (1)$$

$$GINI_{it} = \beta_0 + \beta_1 GDPG_{it} + \beta_2 GDPG_{it}^{\ 2} + \beta_3 PHCR_{it} + \beta_4 DEMOC_{it} + \beta_5 FDI_{it} + \beta_6 TO_{it} + \beta_7 \text{TRADE*DEMOC}_{it} + \beta_8 \text{FDI*DEMOC}_{it} + \mu_{it} \quad (2)$$

Model 2: Economic Openness, Democracy and Income Inequality (Aggregated)

$$GINI = f(GDPG, GDPG^2, PHCR, DEMOC, EO, \text{EO*DEMOC}) \quad (3)$$

$$GINI_{it} = \beta_0 + \beta_1 GDPG_{it} + \beta_2 GDPG_{it}^{\ 2} + \beta_3 PHCR_{it} + \beta_4 DEMOC_{it} + \beta_5 EO_{it} + \beta_6 \text{EO*DEMOC}_{it} + \mu_{it} \quad (4)$$

Where:

GINI= Gini index
GDPG= GDP growth rate (% Annual)
$GDPG^2$= Square of GDPG (% Annual)
PHCR= Poverty headcount ratio (%Annual)
DEMOC= Democracy (% of GDP)
TO= Trade openness (% of GDP)
FDI= FDI (% of GDP)
EO= Economic openness (% of GDP)

3.2 Data and Methodology

The study has used panel data from 30 organizations of Islamic cooperation countries for the period 1990 to 2019. The data on democracy are taken from Polity-II while the data on other variables are taken from WDI and IFS. We have applied an autoregressive distributed lag model.

4. Results and Discussions

4.1 Descriptive Statistics and Correlation Analysis

Table 3 exhibits the descriptive statistics of key variables used in the analysis.

Table 3: Descriptive Statistics of Key Variables (1990-2019)

	GINI	GDPG	$GDPG^2$	PHCR	DEMOC	TRADE	FDI	EO
Mean	37.54	4.36	66.28	64.04	0.49	70.21	3.44	18.41
Median	37.29	4.62	24.47	71.17	0.47	59.37	1.88	15.50
Maximum	86.11	57.82	4102.03	142.83	1.00	220.41	55.07	56.11
Minimum	0.17	-64.05	0.00	1.18	0.00	0.03	-4.85	0.00
Std. Dev.	9.33	6.88	239.58	29.99	0.29	35.92	5.64	9.52
Skewness	0.03	-0.53	11.36	-0.38	0.06	1.29	4.36	1.19
Kurtosis	5.38	26.36	160.15	1.93	1.67	4.89	29.62	4.36
Jarque-Bera	203.36	19600.52	903437.20	61.78	64.01	368.33	28121.32	270.49
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	900	900	900	900	900	900	900	900

Table 4 portrays the correlation matrix of key variables. According to the table, the Gini coefficient has a positive and weaker correlation with all variables except $GDPG^2$ and FDI because the correlation of GINI with these variables is negative but weak. The correlation between GDPG and $GDPG^2$, DEMOC, FDI, and EO is positive but weak while GDPG has negatively correlated with PHCR but weak and TRADE has no correlation with GDPG.

Table 4: Correlation Matrix of Key Variables (1990-2019)

Correlation	GINI	GDPG	$GDPG^2$	PHCR	DEMOC	TRADE	FDI	EO
GINI	1							
GDPG	0.02	1						
$GDPG^2$	-0.14	0.14	1					
PHCR	0.27	-0.01	-0.07	1				
DEMOC	0.03	0.06	-0.15	0.08	1			
TRADE	0.01	0.00	0.02	-0.46	-0.02	1		
FDI	-0.02	0.12	0.07	-0.09	-0.07	0.31	1	
EO	0.01	0.01	0.03	-0.45	-0.03	0.99	0.44	1

There is a positive and weak correlation between $GDPG^2$, TRADE, FDI, and ECO while a weaker and negative correlation between $GDPG^2$, PHCR, and DEMOC. The poverty headcount ratio is positively correlated with DEMOC but the correlation is weak. Although PHCR is negatively correlated with TRADE, FDI, and EO but correlation with FDI is weak while with TRADE and EO it's moderate. Democracy is negatively correlated with TRADE, FDI, and EO but the correlation is weak. Trade is positively correlated with FDI and the correlation is

moderate. TRADE is positively and strongly correlated with EO. The correlation between FDI and EO is positive but moderate.

4.3 Unit Root Analysis

Table 5 depicts the results of different unit root tests on the level for OIC countries. Results reveal the combined trend of I (0) and I (1) at the level. Gini is the only variable that is non-stationary at level I(1) while the GDPG, $GDPG^{2,}$ PHCR, DEMOC, TRADE, FDI, and EO are stationary.

Table 5: Panel Unit Root Tests Results

	Intercept				Intercept and Trend				None		
Variable	**LLC test**	**IPS Test**	**ADF - Fisher**	**PP-Fisher**	**LLC test**	**IPS Test**	**ADF - Fisher**	**PP-Fisher**	**LLC test**	**ADF - Fisher**	**PP-Fisher**
GINI	-1.261 (0.644)	-1.162 (0.445)	19.170 (0.582)	8.003 (0.351)	-1.698 (0.425)	-1.287 (0.151)	2.430 (0.294)	6.486 (0.258)	-0.424 (0.335)	9.330 (0.982)	2.668 (0.955)
GDPG	-6.693 (0.000)	-9.345 (0.000)	210.15 (0.000)	366.38 (0.000)	-4.344 (0.000)	-7.126 (0.000)	169.91 (0.000)	465.666 (0.000)	-6.204 (0.000)	148.914 (0.000)	232.974 (0.000)
$GDPG^2$	-10.706 (0.000)	-10.568 (0.000)	230.87 (0.000)	376.57 (0.000)	-9.342 (0.000)	-9.096 (0.000)	341.44 (0.000)	613.715 (0.000)	-10.717 (0.000)	210.202 (0.000)	274.108 (0.000)
PHCR	-1.061 (0.144)	-1.664 (0.048)	84.287 (0.021)	101.09 (0.000)	-0.135 (0.446)	-1.393 (0.081)	80.558 (0.039)	105.728 (0.000)	-2.216 (0.013)	59.749 (0.048)	66.358 (0.267)
DEMOC	-1.856 (0.031)	-2.040 (0.020)	95.379 (0.002)	102.41 (0.000)	-1.050 (0.146)	-0.881 (0.188)	79.844 (0.044)	190.275 (0.000)	-2.879 (0.002)	71.292 (0.150)	66.593 (0.260)
TRADE	-1.545 (0.061)	-1.712 (0.043)	81.535 (0.033)	78.536 (0.054)	-1.064 (0.143)	-0.991 (0.160)	71.508 (0.146)	84.332 (0.020)	-1.615 (0.053)	55.575 (0.638)	55.268 (0.649)

4.4 Long Run Analysis

This section presents the ARDL long-run estimates of the impact of economic openness and democracy on income inequality in the organization of Islamic cooperation countries. We have divided it into two sections first one is a long-run disaggregated analysis and the second is aggregated analysis.

4.4.1 Long Run Disaggregated Analysis

Table 6 shows disaggregated analysis of the economic openness, democracy, and income inequality model. The dependent variable is the Gini coefficient while the independent variables are economic openness as measured by trade openness and financial openness, democracy, GDPG, square of gross domestic product, and poverty headcount ratio.

Table 6: Disaggregated Analysis of Economic Openness, Democracy and Income Inequality Model

Dependent Variable: D(GINI) Selected Model: ARDL(1,1,1,1,1,1,1,1)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
C	0.0348	0.0603	0.5770	0.5648
GDPG	0.1788	0.0547	3.2714	0.0011

$GDPG^2$	-0.0198	0.0035	-5.6944	0.0000
PHCR	0.1360	0.0702	1.9374	0.0530
DEMOC	-0.1997	0.0084	-23.7103	0.0000
TRADE	-0.2953	0.0389	-7.5893	0.0000
FDI	-1.2331	0.2148	-5.7416	0.0000
TRADE*DEMOC	-0.7670	0.0906	-8.4676	0.0000
FDI*DEMOC	-2.5738	0.3741	-6.8798	0.0000

In the organization of Islamic cooperation countries, the impacts of GDPG and GDPG2 on income inequality are statistically significant. GDPG has a positive impact on income inequality, but $GDPG^2$ has a negative impact. The presence of a Kuznets curve for the OIC countries is supported by these findings. This finding confirms that income inequality increases during the early stages of GDPG expansion and subsequently lessen as the economy reaches its maximum level of growth, resulting in a reduction in inequality. This confirms that there exists the inverted u-shaped Kuznets Curve for OIC countries. Our results are compatible with Reuveny and Li (2003), Nath and Almamun (2014), and Aghion et al (1999).

The poverty headcount ratio has a positive impact on inequality, but it is statistically insignificant. Poverty and income inequality are theoretically intricately linked, with the presence of one typically indicating the presence of the other. According to cultural poverty theory, people are to blame for their current status. They are trapped in this situation because of being lazy, uneducated, having a teenage child, being a single female head of household, and others, which make them unable to compete for economic challenges resulting in increased income inequality. The structural and economic theory of poverty asserts that poverty is caused by the economy's structure. As a result, a person is poorer not because he is not hardworking, but because he does not have work opportunities. The support of this study correlates to Lin (2003), Ravallion (1997), Lee (2008), Burtless and Smeeding (2002), Bourguignon (2004), and Ogbeide and Agu (2015).

Democracy has appeared with the negative sign it is statistically significant. Democratic administrations are more likely to use redistributive policies like welfare expenditures, progressive taxation, and minimum wage regulations measures to benefit the poor and middle class. Authoritarian leaders, on the other hand, are accountable to a powerful and wealthy minority. They are more likely to support public policies that benefit the minority, such as measures that maintain or expand income disparity. Through a dynamic of conflicting forces, democracy impacts the distribution of income: the government is subjected to pressure from interest groups. labor unions are raised by democracy because they represent the lower and middle class, as well as governmental policies that redistribute income to their people, by encouraging a more equitable distribution of political power. The studies such as Scheve and Stasavage (2012), Gradstein and Milanovic (2004), Mulligan et al.(2004), Lenski (1966), Balcazar (2016), and Friedman (1962) have also confirmed these findings.

Trade openness has a negative and statistically significant effect on income inequality in OIC countries, indicating that trade openness reduces income inequality. The Heckscher-Ohlin model of international trade suggests how economic openness increases the real and nominal return on the abundant factor while decreasing the real and nominal return on the country's scarce factor. As a result, in economies with a high supply of low-wage unskilled labor (often, less advanced countries), openness will increase the real and nominal earnings of those workers, reducing income inequality. In brief, openness reduces economic inequality in developing countries while increasing it in developed countries. Second, trade liberalization frequently has resulted in the rise of industries in several sectors within a country while reducing output in other areas. This can have an impact on employment and earnings in a variety of areas, affecting income distribution. Third, according to the HO model, openness has a direct impact on the poor real incomes, allowing them to take out loans and increase their investments, reducing inequality in the long run. Our results are consistent with Chong (2001), Reuveny and Quan Li (2003), Jaumotte, et al. (2008), Majeed (2011), Bayar and Sezgin(2017), Faustino and Vali (2011), Georgantopoulos and Tsamis (2011)Shahbaz, Aamir and Butt (2007).

FDI has long been seen as a source of modernization for a country's economy. FDI has a negative and significant impact on inequality. Multinational corporations pay a salary premium for skilled workers; the income gap between skilled and unskilled workers would grow, while the income gap between skilled workers and capital holders will narrow. FDI, on the other hand, would reduce income inequality by raising the wages of workers who are most likely at the bottom of the income distribution if MNCs have hired unskilled people and paid them a wage premium.

The studies by Caves (1974), Sinani & Meyer (2004), Svejnar & Terrell (2014), Jensen and Rosas (2014), Franco and Gerussi (2013) and Lee et al. (2020) have also found a negative impact of FDI on income inequality.

In the model, there are two interaction terms. A negative and significant relation between the TRADE*DEMOC and GINI was founded. The same relation is described by Blanchard (2000), Held et al. (1999), and Birdsall (1998). FDI*DEMOC is negative which suggests that being on the percentage value of FDI, as democracy increases GINI also decreases. Blomstrom and Lipsey (1992), Santos (2007), and Vernon (1971) also support the negative relation of FDI*DEMOC with GINI.

4.4.2 Long Run Aggregated Analysis

Table 7 shows aggregated analysis of economic openness, democracy, and income inequality. The dependent variable is the Gini coefficient while independent variables are economic openness and democracy, GDP, square of gross domestic product, and poverty headcount ratio.

Table 7: Aggregated Analysis of Economic Openness, Democracy and Income Inequality Model

Dependent Variable: D(GINI) Selected Model: ARDL(1,1,1,1,1,1)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
C	-0.0005	0.0004	-1.0659	0.2882
GDPG	-0.1504	0.0549	-2.7412	0.0062
$GDPG^2$	0.0119	0.0042	2.8243	0.0049
PHCR	0.0457	0.0151	3.0248	0.0026
DEMOC	-6.5333	3.5412	-1.8449	0.0655
EO	-0.1203	0.0431	-2.7913	0.0054
EO*DEMOC	-0.3908	0.0093	-41.9590	0.0000

GDP growth rate and $GDPG^2$ are the first two independent variables. The effect of both variables on income inequality is statistically significant. The signs of their coefficients are negative and positive respectively. The negative sign of GDPG explains its adverse impact on Gini Coefficient. The Kuznets curve postulates that inequality rises at the initial stage of growth and improves after a certain point. The studies by Jalil (2012), Lim and Mcnelis (2014), Meschi and Vivarelli (2009), and Choi (2006) is matched by the findings of our study.

Aggregated analysis of democracy shows that the effect of democracy on inequality is negative and significant. The results reveal a nonlinear inverted U-shaped relationship between freedom and inequality. U-curve hypothesis is another theory that is applied to the linkage between democracy and income inequality. It states that the distribution of income is unequal in the early stages of reforms since it can be costly to some groups in the society but move upwards to greater equality as reforms continue. This empirical evidence is in line with the findings of Mugeni (2015), Simpon (1990), Shen and Yao (2008), and Savoia et al. (2010).

The effect of PHCR is statistically significant and negative in aggregated analysis. Inequitable distribution of resources in society makes it difficult for the person or group of people affected to meet their basic needs. As a result, they are classified as poor, and this poverty contributes to higher income inequality.

Growth, employment, and other elements play an indirect role in the relationship between inequality and poverty. The link between inequality and growth is based on the well-known Kuznets' notion of the 'inverted U-shaped' relationship between the two. Economic Openness and GINI have a negative and considerable association. Increased openness has an impact on income disparities through changing factor price ratios and asset disparities. HO model describes that larger degree of openness enhances the demand for untrained relative to trained labor, which precedes their wage and share of national income concerning trained labor. Considering that incompetent labor is a more equally allocated resource than their ability, this lessens by and large pay imbalances. According to the HO model, increased openness increases prices for unskilled labor relative to skilled workers, resulting in higher wages and a higher percentage of national revenue for unskilled work. Because low-skilled, workers are a more evenly distributed asset than skill, overall income inequality is decreased. The studies by Wood (1997), Lunati (1999), white (2001), Machin (2000), and Anderson (2005) have also confirmed these findings. The results show a negative and significant relation between the interaction term EO*DEMOC and GINI.

4.5 Error Correction Analysis

Table 8 explains the short-run disaggregated analysis. The value of the coefficient is -0.2046 which means it fulfils the necessary condition. The error correction term shows the speed of adjustment.

ISSN Online : 2709-4030
ISSN Print : 2709-4022
Vol 6 No.2 2022

Table 8 shows the short-run aggregated analysis of EO, DEMOC, and GINI.

Table 8: Disaggregated Analysis of Economic Openness, Democracy and Income Inequality Model

Dependent Variable: D(GINI) Selected Model: ARDL(1,1,1,1,1,1,1,1)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
COINTEQ01	**-0.2046**	**0.0389**	**-5.2615**	**0.0000**
D(GDPG)	-0.3531	0.4469	-0.7901	0.4298
D(SGDPG)	0.0467	0.0466	1.0028	0.3164
D(PHCR)	0.0941	0.0800	1.1767	0.2398
D(DEMOC)	-15.0103	19.1866	-0.7823	0.4344
D(TRADE)	-0.0895	0.2653	-0.3373	0.7360
D(FDI)	-1.2468	1.4776	-0.8438	0.3991
D(DEMOC*TRADE)	0.1685	0.3640	0.4629	0.6436
D(DEMOC*FDI)	2.9591	1.9478	1.5192	0.1293
C	4.4821	0.9869	4.5414	0.0000

Table 9 shows that the coefficient of the Cointegration equation is negative and significant. The value of the coefficient is 0.2149 which means the short-run model will take a quarter of a year for adjustment in case of any error.

Table 9: Aggregated Analysis of Economic Openness, democracy, and income Inequality Model

Dependent Variable: D(GINI) Selected Model: ARDL(1,1,1,1,1,1)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
COINTEQ01	-0.2149	0.0361	-5.9582	0.0000
D(GDPG)	-0.3773	0.4954	-0.7617	0.4466
D(SGDPG)	0.0547	0.0542	1.0091	0.3133
D(PHCR)	0.0803	0.0649	1.2382	0.2161
D(DEMOC)	0.2283	10.5499	0.0216	0.9827
D(EO)	0.0225	0.5533	0.0407	0.9676
D(DEMOC*EO)	0.1142	0.7492	0.1525	0.8789
C	8.9220	1.5474	5.7659	0.0000

5. Conclusions and Policy Recommendations

This study gives an empirical analysis of economic openness, democracy, and income inequality in OIC countries by using panel data from the period 1990 to 2019. To the best of our knowledge, this analysis is the first study on the impact of both economic openness and democracy on income inequality in the context of the organization of Islamic cooperation countries (OIC). We have estimated two models; the first model is disaggregated and the second one is aggregated. In both models, in the long run, openness has a negative and significant impact on income inequality. In OIC countries, it is obvious that as democracy and openness increase, it will lead to a decrease in income inequality through various channels. GDP impact on inequality is negative in the aggregated model but it shows a positive impact in a disaggregated model. In the long run, the poverty headcount ratio has a positive impact but it is statistically significant in aggregated analysis but insignificant in the disaggregated model. We have disaggregated economic openness by foreign direct investment and trade; our disaggregated analysis shows that both variables have a negative and significant impact on GINI.

The consequences of the study suggest that economic openness reduces income inequality so the policymakers may focus on international trade to improve the income distribution. FDI has also a positive contribution to decreasing inequality so FDI may warmly be welcomed in OIC countries.

FDI can attract through profitable investment opportunities that are free from economic hazards. Trade can be improved through the improvement in the quality of export products. Democracy can also illuminate the adverse impact of inequality so the authorities may focus on this through different political reforms.

References

Abdulkarim, F. M., & Ali, H. S. (2019). Financial Inclusions, Financial Stability, and Income Inequality in OIC Countries: A GMM and Quantile Regression Application. Journal of Islamic Monetary Economics and Finance, 5(2), 419-438.

Ades, A. F., & Glaeser, E. L. (1999). Evidence on growth, increasing returns, and the extent of the market. The Quarterly Journal of Economics, 114(3), 1025-1045.

Anderson, E. (2005). Openness and inequality in developing countries: A review of theory and recent evidence. *World development*, *33*(7), 1045-1063.

Arabiyat, T. S., Mdanat, M., & Samawi, G. (2020). Trade openness, inclusive growth, and inequality: evidence from Jordan. *The Journal of Developing Areas*, *54*(1).

Aslan, G. (2017). The Effects of Income Inequality and Redistribution in Democracies: A Dynamic Panel Data Approach. *Dynamic Econometric Models*, *17*(1), 19-39.

Balcázar, C. F. (2016). Long-run effects of democracy on income inequality in Latin America. *The Journal of Economic Inequality*, *14*(3), 289-307.

Bayar, Y., & Sezgin, H. F. (2017). Trade openness, inequality and poverty in Latin American countries. Ekonomika, 96(1), 47-57.

Beji, S. (2019). Financial Openness and Income Inequality: Do Institutions Matter for Africa. *Samouel Beji,(2019)"Financial Openness and Income Inequality: Do Institutions matter for Africa*, 104-114

Desai, R. M., Olofsgård, A., & Yousef, T. M. (2003). Democracy, inequality, and inflation. *American Political Science Review*, *97*(3), 391-406.

Dong, F. (2014). The impact of economic openness on standard of living and income inequality in eight countries. Emerging Markets Review, 21, 234-264.

Grabner, R. H., Ansari, D., Reishofer, G., Stern, E., Ebner, F., & Neuper, C. (2007). Individual differences in mathematical competence predict parietal brain activation during mental calculation. Neuroimage, 38(2), 346-356.

Gradstein, M., Milanovic, B., & Ying, Y. (2001). Democracy and Income In-Equality: An Empirical Analysis (No. 411). CESifo Working Paper.

Hassan, M. S., Mahmood, H., Saeed, M. I., Alkhateeb, T. T. Y., Arshed, N., & Mahmoud, D. H. (2021). Investment Portfolio, Democratic Accountability, Poverty and Income Inequality Nexus in Pakistan: A Way to Social Sustainability. *Sustainability*, *13*(11), 6411.

Higgins, M., Williamson, J. G., Deaton, A., Kremer, M., Warner, A., & Weil, D. (1999). Explaining inequality the world round: cohort size. In Kuznets curves, and openness.'—NBER Working Paper 7224.

Islam, M. N. (2016). Does democracy reduce income inequality?. *Empirical Economics*, *51*(4), 1299-1318.

Khan, I., & Nawaz, Z. (2019). Trade, FDI and income inequality: empirical evidence from CIS. *International Journal of Development Issues*.

Krieger, T., & Meierrieks, D. (2016). Political capitalism: The interaction between income inequality, economic freedom and democracy. *European Journal of Political Economy*, *45*, 115-132.

Lee, C. S. (2005). Income inequality, democracy, and public sector size. *American Sociological Review*, *70*(1), 158-181

Madsen, J. B., Raschky, P. A., & Skali, A. (2015). Does democracy drive income in the world, 1500–2000?. *European Economic Review*, *78*, 175-195.

Mahesh, M. (2016). The effects of trade openness on income inequality-evidence from BRIC countries. Economics Bulletin, 36(3), 1751-1761.

Mahutga, M. C., Roberts, A., & Kwon, R. (2017). The globalization of production and income inequality in rich democracies. *Social Forces*, *96*(1), 181-214

Mitra, R., & Hossain, M. S. (2018). Does Trade Openness Increase Income Inequality in the United States?. *The Empirical Economics Letters*, *17*(10), 1185-1194.

Reuveny, R., & Li, Q. (2003). Economic openness, democracy, and income inequality: an empirical analysis. *Comparative Political Studies*, *36*(5), 575-601.

Shen, Y., & Yao, Y. (2008). Does grassroots democracy reduce income inequality in China?. Journal of Public Economics, 92(10-11), 2182-2198.

Todaro, M. P. (2007). 6. Internal Migration in Developing Countries: A Survey (pp. 361-402). University of Chicago Press.

Gorodnichenko, Y., Svejnar, J., & Terrell, K. (2014). When does FDI have positive spillovers? Evidence from 17 transition market economies. *Journal of Comparative Economics*, *42*(4), 954-969

Sinani, E., & Meyer, K. E. (2004). Spillovers of technology transfer from FDI: the case of Estonia. *Journal of comparative economics*, *32*(3), 445-466.

Ogbeide, E. N. O., & Agu, D. O. (2015). Poverty and income inequality in Nigeria: any causality?. *Asian economic and financial review*, *5*(3), 439-452.

Ravallion, M. (1997). Can high-inequality developing countries escape absolute poverty?. *Economics letters*, *56*(1), 51-57.

Milanovic, B. (2005). Can we discern the effect of globalization on income distribution? Evidence from household surveys. *The World Bank Economic Review*, *19*(1), 21-44.