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MACROECONOMICS, HUMAN DEVELOPMENT AND POLITICAL STABILITY: EVIDANCE FROM OIC COUNTRIES

ABSTRACT

The human development index is used by the United Nations as a main standart to assess welfare and classify nations around the world. The purpose of this study is to evaluate and analyze the impact of macroeconomic factors on the Human Development Index (HDI) in OIC countries with political stability as the moderating variable between them. As analysis tools, the GMM (Generalized Method Moment) dynamic panel and MRA (Moderated Regression Analysis) are used. The study's findings demonstrate that whereas unemployment and inflation have no effect on HDI, respectively, trade and foreign direct investment have a considerable positive and negative impact on HDI, respectively. However, political stability can moderate the impact of HDI responses (pseudo-moderation). The findings of this study have implications for the value of collaboration among OIC nations in a number of areas, particularly in terms of expanding trade, attracting investment, and creating jobs to support the expansion of human development and sustainable prosperity in OIC nations.

Keywords: HDI, inflation, unemployment, trade openness, foreign direct investment, political stability
JEL Classification: E6, I0, J5, P0

Introduction

Significant modifications have been made to the economic development paradigm. The country's development strategy is distinguished not just by its rapid economic growth but also by the quality of its society. Development programs explain high incomes and also create environmental conditions, which humans are having the freedom and choices, living longer and healthier and having much more productivities (Sofilda et al., 2015). According to UNDP (1999) and Todaro & Smith (2011), The Human Development Index (HDI) measures a nation's socioeconomic development by combining data on education, health, and real per capita income. The HDI is currently a comprehensive tool that the UN uses to assess the level of social and economic development in various nations around the world. Several dimensions of the human development program consider various factors, including the economy, society, politics, law, and security. The following table below describe the development of the HDI of world countries in recent times.

Tabel 1.1 The World Countries with the Highest HDI Values

NO	COUNTRY	HDI	NO	COUNTRY	HDI	NO	COUNTRY	HDI
1	Norway	0.95	21	Liechtenstein	0.91	41	Saudi	0.85
2	Ireland	0.93	22	Slovenia	0.90	42	Bahrain	0.84
3	Switzerland	0.94	23	Korea	0.91	43	Chile	0.84
4	Hong Kong	0.93	24	Luxembourg	0.90	44	Croatia	0.84
5	Iceland	0.93	25	Spain	0.89	45	Qatar	0.85
6	Germany	0.93	26	France	0.89	46	Argentina	0.83
7	Sweden	0.93	27	Czechia	0.88	47	Brunei	0.84
8	Australia	0.94	28	Malta	0.87	48	Montenegro	0.81

9	Netherlands	0.93	29	Estonia	0.87	49	Romania	0.81
10	Denmark	0.93	30	Italy	0.88	50	Palau	0.80
11	Finland	0.92	31	UEA	0.87			
12	Singapore	0.92	32	Greece	0.87			
13	United Kingdom	0.92	33	Cyprus	0.87			
14	Belgium	0.91	34	Lithuania	0.86			
15	New Zealand	0.92	35	Poland	0.86			
16	Canada	0.92	36	Andorra	0.85			
17	United States	0.92	37	Latvia	0.84			
18	Austria	0.91	38	Portugal	0.85			
19	Israel	0.91	39	Slovakia	0.85			
20	Japan	0.91	40	Hungary	0.84			

Source: UNDP 2021

Table 1.1 explains that the highest levels of human development growth are dominated by Europe and American countries. Meanwhile, the majority of OIC countries are stuck in the developing and underdeveloped countries group. There are only five OIC countries include the 50 countries with the highest HDI scores. United Arab Emirates was the highest beetwen five with an average value 0.87 (UNDP, 2021). Saudi Arabia and Qatar came afterward with an average score of 0.85, followed by Brunei Darussalam and Qatar with an average score of 0.84. However, this number looks small in comparison to the 57 OIC member countries as a whole, which have dynamic populations and have abundant natural resources and human resources (Muharromy & Auwalin, 2021; Supriani & Fianto, 2020).

In the Islamic economic system, human development and economic growth are basically in line with the objectives of Islamic law (*maqāsid sharia*) that have been formulated. Where human welfare does not only focus on the economy or welfare (*al-māl*), but also in terms of the freedom of each individual in thinking, obtaining education and making choices (*al-aql*), health and offspring (*al-nafs and al-nasab*) and of course determination religion (*hifdzuddīn*) (Arshad et al., 2015; Mahri et al., n.d.). Therefore, Analysis of the contradiction between concepts and reality about the elements influencing human growth and economic welfare in OIC nations is important.

The external factors that affect development in a country are its macroeconomic conditions (Runtunuwu, 2020; Supriani & Fianto, 2020; Yolanda Y, 2017). The two fundamental issues that every civilization faced are erratic inflation and high unemployment rates. They both have detrimental effects on society, politics, and the economy. Inability of society to fulfill the basic needs are the major disaster in development programs in all terms of the economy, health and education (Sen, 1999). Roncaglia de Carvalho et al (2018) states that developing countries bear higher average inflation than developed countries. Inflation makes people harder to invest and consume (Islam, 2022; Okwu et al., 2020; Yolanda Y, 2017).

The fact that inflation has a negative impact is a fundamental argument between inflation and human development. Price volatility has been shown in research to impact decision making by all

stakeholders. According to research by Roncaglia de Carvalho et al (2018) that examined growth and inflation in 65 different nations, there was no statistically significant correlation between human capital and inflation. In line with Shah (2016) who examined the factors influencing HDI in 188 nations and found that inflation rate had a negative impact on HDI.

In line with inflation, It is generally agreed upon that unemployment has a detrimental and negligible impact on HDI according the research analyzing the topic. ILO data indicates that by 2020, there would be 49.3 million unemployed people in OIC countries, an increase of over 4 million. Thus, the unemployment rate increased to 7.1% in the year, up from 6.4% in 2019 by 0.7 percentage points (OIC Outlook, 2021). (Hassan, M. U. Khalid, M. W. and Kayani, 2016) (Hassan, M. U., Khalid, M. W., and Kayani, 2016) uses the Human Development Index (HDI) as the inverse or proxy for multidimensional poverty with the ARDL approach to determine short-term and long-term relationships with research objects from global countries in 1975–2013 to explain that poverty, unemployment, and inflation have both short-term and long-term effects on HDI. This study also demonstrates how unemployment and inflation both increase poverty and obstruct the process of development.

In the last few decades both developed and developing countries have formed a way of cooperation in economic activities as the result of global economic globalization. The vast majority agree that trade openness and foreign direct investment are the primary forces behind economic progress and human development (Chih et al., 2022; Okwu et al., 2020; Tahir & Khan, 2014). The Sustainable Development Goals (SDGs) of the United Nations aim to accelerate human development and eradicate poverty in underdeveloped nations. Most OIC nations are not progressing in the correct direction toward achieving this objective. As a result, significant capital expenditure is required to make things better. Investments can take the shape of facilities and infrastructure that promote community welfare, sources of funding for economic activities and infrastructure development, and other forms of investment (Intisar et al., 2020).

Foreign direct investment works as an accelerator for economic growth in emerging nations. Where the capital contribution can help host countries—especially developing ones where the unemployment rate is high and local savings insufficient—increase their production (Aditya Febriananta Putra, Suyanto, 2019; Hamdi & Hakimi, 2022; Supriani & Fianto, 2020). This objective can be furthered by foreign investment by fostering job growth, local skill development, and technical advancement (Mbang, 2022).

The research analyzing trade openness and FDI on human development is quite limited because indirect relationship between these components. There are only few studies have used both as determinants of human development, including: Hamdi & Hakimi (2022) examined into the elements influencing human development in MENA nations, including trade openness and foreign direct investment. His research demonstrates that the long-term statistical significance of the coefficients of trade openness, investment, FDI, inflation, and GDP variables. Meanwhile FDI, investment, and GDP are significant in the short term. Research by Novignon et al (2018) examines whether the health sector benefits from trade oppeness. From 1995 to 2013, they used a sample of 42 Sub-Saharan African (SSA) nations. Trade has a favorable and significant impact on life expectancy. However, it has a detrimental and considerable effect on the rates of infant and under-five mortality.

Other research explains how trade openness affects overall economic growth. From 1985 to 2017, Intisar et al (2020) examined the effects of global commerce and human capital on economic growth in 19 Asian nations. Economic growth is significantly and positively influenced by trade and human

capital. These findings are consistent with research from (Huchet-Bourdon et al., 2018; Keho, 2017) that demonstrates the benefits of trade openness for both short- and long-term economic growth. (Keho, 2017) conducted research on the impact of international trade on the economic development of the Ivory Coast over the years 1965–2014 using a multivariate framework with capital and labor stocks. The research results confirm the long-term relationships between economic growth, capital stock, labor, and trade openness.

In addition, Good governance is essential for developing the economy and human development (Davis, 2017; Samarasinghe, 2018). Political instability is one of the most significant risks to governance in OIC nations. This is due to the fact that Muslim nations are embroiled in wars, invasions by foreign powers, coups, ethnic conflicts, and sectarian violence (Uddin et al., 2017). The Middle East regions become the most unstable region in the world, especially after the political upheaval in 2011 left challenges to unity and development. The following is the average value of the political stability of the OIC countries in recent times:

Figure 1.1

Development of Political Stability of OIC Countries 2011-2021

Source: World Government Index, 2021

From the graph describes that the value of the political stability of the majority of OIC countries is on the negative line. The maximum average value of 1.14 is owned by Brunei Darussalam, this value is still classified as moderate in the range of political stability values -2.50 - 2.50. While the minimum value is -2.68 in Syria. Even though OIC countries were thought to have extraordinary economic and developing prospects, Muslim countries have lost many of their growth trajectories due to the emergence of various political upheavals in the form of wars, foreign invasions, coups, ethnic rivalries, and sectarian violence.

Based on the dynamics outlined above, this study aims to close the knowledge gap by concentrating on macroeconomic factors and human development in Muslim nations that are OIC members, using political stability as a moderating variable. This study examines four macroeconomic variables—inflation, unemployment, trade openness, and foreign direct investment—on the Human Development Index (IPM) to determine how much of an impact they have on the economic and social development of OIC nations between 2011 and 2020. Additionally, the study makes use of dynamic panel data using the generalized method of moments (GMM) model, both with and without interaction. The model of estimations will show clearly how much political stability and

macroeconomic factors have affected human growth in OIC countries. This study is quiet important for the OIC countries, particularly toward economic, health, and post-pandemic political crises.

Research method

Type and data resource

The descriptive-quantitative method is applied in this study. The research population consist of all OIC member countries which had been registered until 2022. However, due to limited data from the entire population, the purposive sampling method samples are used, the sample selection based on certain criteria's that the samples are taken from the availability of data based on the object under study, The countries actively participate in using macroeconomic indicators (inflation, unemployment, trade openness and FDI) as well as political stability in advancing their human development, the countries data are available at UNDP, WGI and the World Bank within the last 10 years.

The research use a documentation approach, which requires searching directly to the website or related page in collecting the data needed for the study. Data from affiliated websites and organizations is used. HDI statistics sourced from UNDP reports. Meanwhile, inflation, trade openness and foreign direct investment are obtained from world bank data. Likewise with political stability data. All samples are ranged from the year 2011-2020.

Research variabel

In this study, the Human Development Index serves as the dependent variable, and four macroeconomic indicators—inflation, unemployment, trade openness, and foreign direct investment—serve as the independent variables. Political stability as moderating variable between the dependent and independent variables. Table 2 below provides an explanation of each variable:

Table 1.2 Variables Used In Research

Variabel	Explanation	Unit	Source
y	Human Development Index	Index	UNDP
X1	Inflation Rate	Percent	World Bank
X2	Unemployment	Percent	World Bank
X3	Trade Openness	Pencent	World Bank
X4	Foreign Direct Investment	US dollars	World Bank
Z	Political Stability	Index	WGI

Data Analysis Techniques

This research will start with a descriptive statistical test to see the characteristics of each variable before moving on to the primary analysis test. Also utilized to measure the parameters was the Generalized Method of Moments (GMM) Model. Regressions using dynamic panel data necessitate adding extra lag to the dependent variable, which serves as an independent variable. The lagged endogeneity of the dependent variable was taken into account when adjusting for variable bias, unobserved panel heterogeneity, and measurement error in the dynamic panel model.

A GMM, which is used for estimating the data parameters provided by the model, was initially defined by Hansen (1982). Establishing a unique distribution for the residuals is one way the GMM estimation approach avoids unnecessary or unwanted assumptions (Bond, 1991). Arellano-Bond is the more popular name for the GMM forecasting technique. The difference in the GMM model that produces

objective, consistent, and effective estimates is the first model in the Arellano-Bond GMM estimation technique. The estimation results of the GMM Arellano-Bond one step estimator are as follows:

$$\frac{\boldsymbol{\delta}}{\boldsymbol{\beta}} = \left[\left(N^{-1}\sum_{i=1}^{N}(\Delta\, y_{it} - 1\,\Delta x_1)'Z_i\right) w \left(N^{-1}\sum_{i=1}^{N}(\Delta\, y_{it} - 1\,\Delta x_1)\right)\right]^{-1}$$

$$\left[\left(N^{-1}\sum_{i=1}^{N}(\Delta y_{it} - 1\,\Delta x1)'Zi\right) w \left(N^{-1}\sum_{i=1}^{N}(Z_i\,'1\,\Delta\, y_i)\right)\right]^{-1}$$

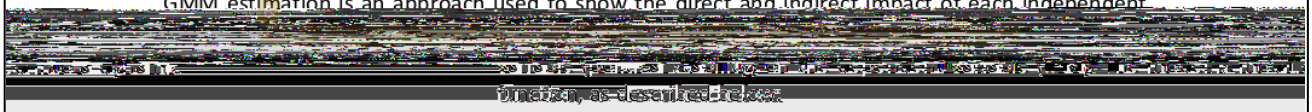
Where:
Zi: A valid instrument matrix
w: The y estimate for w (LxL), where L is the total number of instrument variables, is unbiased and consistent. To obtain the two-step estimator's results, substitute the weight w by:

$$\Delta^{-1} = N^{-1}\sum_{t-1}^{N} Z_i'\,\Delta\, V_i\,\Delta\, V_i\, Z_i$$

However, this first model (difference GMM) has several drawbacks, including endogeneity correction by changing all regressors through differencing, eliminating the fixed effect (Bond, 1991). The first difference transformation has a weakness, namely by reducing previous observations from contemporary observations so that it enlarges the gap in the unbalanced panel. So that it is refined by using the GMM system.

The GMM system (model 2) is considered more flexible because firstly, In order to significantly increase efficiency and change the instruments such that they are not linked (exogenous) with the fixed effect, endogeneity is rectified by adding new instruments. Second, combine the original equation with the modified equation to form a system of two equations. Third, the GMM approach lowers the average of all potential future observations of the variable by using orthogonal deviance rather than dividing by recent observations. The GMM system can be calculated for all observations, thereby minimizing data loss (Manuel & Bover Olympia, 1995).

GMM estimation is an approach used to show the direct and indirect impact of each independent



tination, as described by

+ ε_{it}

IPMit = λIPMit−1+ β_1INF$_{it}$+ β_2UNEMPLY$_{it}$ + β_3TO$_{it}$+ β_4FDI$_{it}$ + β_5SP$_{it}$

i and t represent
resented by INF,
I, political stability

Where HDI is constant Human Development Index (HDI) for year t. The subscripts
the number of countries and periods covered in the study. Inflation is rep
unemployment by UNEMPLY, trade openness by TO, foreign direct investment by FD
by SP, and ε is a random variable.

one component of
tion between the
g the moderating
nened, weakened,
the predictor and
GMM analysis with

Moreover the Moderated Regression Analysis (MRA) Model is used to analize the
multiple linear regression analysis is moderated regression analysis. The interac
independent variable (X) and the dependent variable (Y) can be modified usin
regression model equation. The relationship between two parties may be strengt
or unaffected by these results. The moderating variable is identified as M, and
criterion variables are identified as X and Y, respectively. The equation model for G
interaction is as follows:

$NF_{it} + \varepsilon$

$IPM_{it} = \beta_1 + \lambda IPM_{-1it} + \beta_2 INF_{it} + \beta_3 UNEMPLY_{it} + \beta_3 TO_{it} + \beta_4 FDI_{it} + \beta_5 SP_{it} + \beta_6 SP*II$

$$IPM_{it} = \beta_1 + \lambda IPM_{-1it} + \beta_2 INF_{it} + \beta_3 UNEMPLY_{it} + \beta_3 TO_{it} + \beta_4 FDI_{it} + \beta_5 SP_{it} + \beta_6 SP*UNEMPLY_{it} + \varepsilon$$
$$IPM_{it} = \beta_1 + \lambda IPM_{-1it} + \beta_2 INF_{it} + \beta_3 UNEMPLY_{it} + \beta_3 TO_{it} + \beta_4 FDI_{it} + \beta_5 SP_{it} + \beta_6 SP*TO_{it} + \varepsilon$$
$$IPM_{it} = \beta_1 + \lambda IPM_{-1it} + \beta_2 INF_{it} + \beta_3 UNEMPLY_{it} + \beta_3 TO_{it} + \beta_4 FDI_{it} + \beta_5 SP_{it} + \beta_6 SP*FDI_{it} + \varepsilon$$

Where the notation means: HDI: Human Development Index, UNEMPL: Unemployment, TO: Trade Openness, FDI: Foreign Direct Investment, SP: Political Stability, ε: Errors, I: Country, and t: Year

HYPOTHESIS ANALYSIS AND TESTING
Model Specification Test

In order to evaluate the validity of utilizing instrument variables that's number exceeds the number of suspected parameters (overidentifying restriction constraints), the model specification test, also known as the Sargan test, is utilized. Instrumental variables are required to solve the GMM Equation's endogeneity and estimator consistency issues. The differential GMM technique (Arellano & Bond, 1991) and the GMM system method are the two approaches to the GMM method. (Manuel & Bover Olympia, 1995).

According to Sargan's test criteria, an instrument variable is considered valid if it is not associated with errors. The mathematical operations of the Sargan test can be described as follows:

$$S = \tilde{v}'Z\left(\sum_{i=1}^{N} Z'\tilde{v}i\,\tilde{v}i'Zi\right)^{n-1} Z'\tilde{v} \sim X^2_{L-(k+1)} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

Where:
Z: Instrument variable matrix
ṽ: The error component of the model estimate

The provisions of the Sargan test results are when the p-value is > α 5%. In this study the sargan test was attached to the results of the GMM test as indicated by the J-Statistics Prob (Nabilah & Setiawan, 2016).

Arellano-Bond test

The consistency of the estimations derived from the GMM method is examined using the Arelano-Bond test. The arellano-bond test's criterion states that an instrument variable is valid if it does not exhibit autocorrelation at the i-th order initial difference. The Arelano-Bond test's mathematical operation is represented by the following formula:

$$m(2) = \frac{\Delta\tilde{V}i, t-2\ \Delta\tilde{V}*}{(\Delta\tilde{V})\frac{1}{2}} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

Where:

ΔṼi,t-2 : Error vector in the 2nd lag with order q = ∑_(i=1)^n〖T1-4〗
Δ Ṽ* : Error vector cut to fit ΔṼi,t-2 with size q x 1

As for the decision making from the test above, if the AR value is greater than α 5% (> 0.05), a statistical value that is not significant at m2 describes the consistency value of the GMM results.

T-test

The t-test tries to estimate the influence of independent variables (inflation, unemployment, trade openness, and foreign direct investment) and moderating variable (political stability) on dependent variable (IPM). The t test hypothesis is as follow:

H0: If the significance level approaches 0.05 (or 5%) or more,
H1: If the significance level is less than 0.05 (5%)

Result and Discussion

Descriptive Analysis

The lowest, maximum, average, and standard deviation values of each research variable are displayed or described using descriptive statistics. The broad description given in the descriptive statistical analysis includes all features of the two components because cross-sectional and time series data are both present in the panel data. The output of processing descriptive statistics with the eviews 10.0 application is as follows:

Table 1.3 Descriptive Statistics

	IPM	INF	UNEMPL	TO	FDI	SP
Mean	0.651222	4.565844	7.449566	38.46584	3.998031	-0.528969
Median	0.690500	3.680000	5.982000	36.37500	2.300000	-0.520000
Maximum	0.912000	84.59000	21.97200	859.8200	39.46000	1.260000
Minimum	0.360000	-25.13000	0.100000	-1241.030	-11.20000	-2.810000
Std. Dev.	0.142840	8.925618	4.655698	107.1379	5.530253	0.813759
Skewness	-0.215229	2.628742	0.998001	-3.565731	3.002004	-0.077569
Kurtosis	1.754780	24.18866	3.646903	78.87831	15.37488	2.979106
Jarque-Bera	23.14488	6354.670	58.70007	77445.01	2522.476	0.326722
Probability	0.000009	0.000000	0.000000	0.000000	0.000000	0.849284
Sum	208.3910	1461.070	2383.861	12309.07	1279.370	-169.2700
Sum Sq. Dev.	6.508663	25413.66	6914.494	3661654.	9756.200	211.2432
Observations	320	320	320	320	320	320

Source: processed data

The mean HDI is 0.65, the median is 0.69, the maximum value is -0.912, and the minimum value is 0.36, as shown in table 1.2. With a standard deviation of 0.14 and a probability of 0.00, it means that most of the character differences in the HDI data have a significant or dissimilar effect. Furthermore, for the first independent variable is inflation. Inflation obtained a mean value of 4.56, a median of 3.68, a maximum value of 84.59, and a minimum value of -25.13. With a standard deviation of 8.93 and a probability of 0.00, it means that most of the character differences in the inflation data have a significant or dissimilar effect. The unemployment variable, with a mean value of 7.45, median value of 5.99, highest value of 21.97, and minimum value of 0.10, is the second. The probability value is 0.00 and the standard deviation is 4.66, indicating that the majority of character changes in the unemployment data have a substantial or dissimilar impact.

Thirdly, Trade Openness (TO) has a probability of 0.00, a mean value of 38.47, a median value of 36.38, a range of 859.82 to -1241.03, a standard deviation of 107.13, and a range of -1241.03 to 859.82. which indicates that most of the differences in the character of TO data values have a significant or not the same effect. The Foreign Direct Investment (FDI) data has a mean value of 3.1, a median value

of 2.3, a maximum value of 39.46, a minimum value of -11.20, a standard deviation of 5.53, and a probability of 0.00, indicating that the majority of character value differences in the FDI data have a significant or unequal effect.

The moderating variable known as political stability (PS) has a mean value of -0.53, a median value of -0.52, a maximum value of 1.26, a minimum value of -2.81, and a standard deviation of 0.81. The probability value obtained is 0.85, which means that almost the large difference in characters in the political stability data has no significant effect or is almost the same. In addition, the country's political stability is quite low in terms of maximum and minimum values.

Analysis of Dynamic Panel Data Regression Estimation (GMM Model)

The GMM regression estimation results include two stages of testing. The first is a direct comparison of the human development index's variables for inflation, unemployment, trade openness, foreign direct investment, and political stability. The second is how the variables of inflation, unemployment, trade openness, and foreign direct investment interact with political stability in OIC countries' human development indices.

Table 1.4

Test Results of Dynamic Panel Regression

Variable	Difference GMM	System GMM
IPM(-1)	0.0000 (0.592122)	0.0000 (0.598030)
INFLASION	0.0000 (-0.000319)	0.0796 (-0.000290)
UNEMPLOYMENT	0.3837 (0.000725)	0.6786 (0.000578)
TO	0.0000 (0.000158)	0.0000** (0.000123)
FDI	0.0000 (-0.003485)	0.0000** (-0.003370)
PS	0.0000 (0.008217)	0.0006** (0.013164)
SARGAN TEST	0.350245	0.445425
ARELANO BOND TEST	0.0038	-
OBSERVATION	320	320
INSTRUMENT	32	32

Source: processed data **significant at α 5%

Political stability and the independent variables' impact on the dependent variable are shown in Table 1.4. This study employs dynamic panel regression of two-step GMM differences (method 1) and a two-step system (method 2) from the given estimated models. Model two is the most accurate estimation

model among the two, with J-Statistic probability of 0.445425, which is higher than the J-Statistics probability value of 0.350245 and both more than α 5%. This shows that there is no evidence of excessive and valid identification restrictions (Widarjono & Anto, 2020s).

In the GMM test without interaction, with significance values of 0.0000, 0.0000, and 0.0006 (less than 5%), trade openness, foreign direct investment, and political stability are significantly affect HDI, whereas inflation significantly affects alpha 10% with a significance value of 0.0796. Foreign direct investment has a substantial negative influence, measured by a coefficient value of 0.003370, whereas political stability has a large positive effect, measured by a coefficient value of 0.0013164. Trade openness has a considerable positive effect, measured by a coefficient value of 0.000123. There is a negligible effect of unemployment on HDI.

Table 1.5
Test Results with the Interaction of Political Stability

VARIABEL	SYSTEM GMM			
MODEL	1	2	3	4
INFLASI	0.0004 (-0.000352)	0.0003 (-0.000655)	0.0219 (-0.000242)	0.1242 (-0.000259)
UNEMPLOY	0.4915 (0.000684)	0.0932* (-0.003181)	0.0690 (0.001907)	0.7544 (0.000650)
TO	0.0006 (0.000112)	0.0000 (0.000148)	0.0000 (0.000110)	0.0092 (0.000125)
FDI	0.0000 (-0.003279)	0.0000 (-0.002727)	0.0000 (-0.003060)	0.0000 (-0.003717)
SP	0.0650 (0.007807)	0.0000** (0.083403)	0.0005** (0.010150)	0.0000** (0.016880)
SP_INFLASI	0.9633 (-4.90E-06)			
SP_ UNEMPLOY		0.0000** (-0.009481)		
SP_TO			0.1774 (-5.41E-05)	
SP_FDI				0.3070 (-0.001071)
UJI SARGAN	0.450214	0.693765	0.324146	0.390518
UJI ARELANO BOND	-	-	-	-

Source: processed data **significant at α 5%

Table 1.5 describes the results of GMM testing with interactions in the four models, the influence of political stability on the inflation relationship, trade openness and foreign direct investment on HDI. Based on the results of the Sargan and Arellano bond test, the GMM system was chosen as the model. Based on the MRA test described in the previous chapter, political stability moderate the effect of unemployment on HDI.

Model Feasibility Test

Consistency Test (Arellano Bond)

Tabel 1.6 Uji Arellano Bond

Test order	m-Statistic	rho	SE(rho)	Prob.
AR (1)	-2.896027	-0.082402	0.028453	0.0038
AR (2)	-2.499561	-0.025558	0.010225	0.0124

Table 1.6 shows that the probability values (AR1) and (AR2) are 0.0038 and 0.0124, respectively. both of which are less than α 0.05. This shows the existence of autocorrelation in errors. Thus the researcher uses the alternative described by (Manuel & Bover Olympia, 1995) that the model that can be used to estimate the influence between variables is the GMM system which combines the first different regression and the regression at the level.

Model Specifications Test (Sargan Test)

Table 1.7 Sargan Test Results

Cross-section fixed (orthogonal deviations)			
J-statistic	16.97387	Jumlah instrumen	32
Prob(J-statistic)	0.764802		

Source: processed data

Considering the outcome of estimation method of moments (GMM) dual system (model 2), the orthogonal model or GMM system in table 1.7 has a sargan value (probability J-statistic) obtained of 0.764802 with a p-value greater than α 5% (> 0.05). Consequently, the instruments used to estimate the model are reliable or valid.

T-test

The t test illustrates the impact of each independent variable on the dependent variable. as an illustration of the impact of the moderating variable (political stability) and independent factors (inflation, unemployment rate, trade openness, and foreign direct investment) on the dependent variable (human development index).

With the conditions given earlier, table 1.4 above displays the t test results (without interaction). If the probability value is less than 5% (0.05), independent and moderating variables may have an impact on the dependent variable. According to the t test, inflation and unemployment have an insignificant effect on HDI, with probability values of 0.6786 and 0.0796, respectively, and coefficient values of -0.000290 and -0.000578. Trade openness and foreign direct investment have probability values of 0.0000 and 0.0000, respectively, which is less than 5% (0.05), while this is happening. While FDI has a coefficient value of -0.003370, which indicates a major negative impact on HDI, trade openness has a coefficient value of 0.000123, indicating that it significantly improves HDI.

Regarding the second step of testing in table 1.5, the interaction between the moderating variables on the independent and dependent variables reveals that only the political stability variable exhibits

a significant interaction with the correlation between the unemployment variable and HDI. There is no discernible interaction between the political stability variable and the relationships between inflation, trade openness, and foreign direct investment on the HDI.

Moderated Regression Analysis (MRA) Model

This section will specifically describe the results of model testing based on the MRA model equations and restrictions mentioned in the preceding chapter, in particular the effect of political stability on the connection between the independent variables (inflation, unemployment rate, trade openness, and foreign direct investment) and the dependent variable. Below are the findings from a test of the MRA model, respectively displayed in table 1.5:

Moderation Function of Political Stability Variable on Inflation Variable (X) and Human Development Index (Y)

Based on the probability values of political stability variables and variations of the "political stability*inflation" model with values of 0.0650 and 0.9633 respectively, In the "Homologizer Moderator" (Potential Moderation) method of moderation, neither the first estimate nor the second estimate's interaction with inflation take considered the impact of political stability on HDI. In the version of the model equation, political stability is unable to mitigate the impact of inflation on the HDI, hence there is no significant association between this variable and the dependent variable or interaction with the moderating predictor variable.

Moderation Function of Political Stability Variable on Unemployment Variable (X) and Human Development Index (Y)

According to the estimation findings in table 1.5, the political stability variable's probability values and the interaction of the "political stability*unemployment" model are each 0.0000, and the coefficient values are each 0.083403 and -0.009481, indicating that the type of moderation in this model variation is "Quasi Moderator" or pseudo moderation. Where the HDI is impacted by both the political stability factors and the model of the interaction between political stability and unemployment. In a variation of this model equation, political stability can be a moderator of the effect of unemployment on the HDI.

Moderation Function of Political Stability Variable on Trade Openness Variable (X) and Human Development Index (Y)

Based on the probability values of political stability variables and variations of the "political stability*trade openness" model, which are 0.0005 and 0.1774, respectively, the type of moderation in this model variation can be categorized as a "Moderator Predictor" in which in this variation of the model equation, political stability is predicted have a predictive effect.

Moderation Function of Political Stability Variable on Foreign Direct Investment Variable (X) and Human Development Index (Y)

Considering the probability values of 0.0000 for the political stability variable and 0.3070 for the model's variant "political stability * foreign direct investment," respectively, the type of moderation in this model variation can be categorized as a "Moderator Predictor", where in the variation of this model equation, political stability is predicted have a predictive effect.

Discussion

This section explains the data testing results and how they relate to theory and earlier research. If the results are inconsistent with the hypotheses that have been generated, reasons will be included to explain these discrepancies.

Inflation's Impact on the Human Development Index

It is recognized that the inflation variable has no effect on HDI based on the statistical test findings in table 1.4, with a probability value of 0.0796 (>0.05) and a coefficient value of -0.000290. This indicates that the HDI value is unaffected by the high and low levels of inflation in OIC nations. The idea and premise that inflation has a large negative impact on HDI cannot be supported by these findings. where price fluctuations that are unpredictable lead to uncertainty, lower living conditions, and worsen people's welfare (Runtunuwu, 2020).

These findings contradict studies by (Hassan, M. U. Khalid, M. W. and Kayani, 2016) which claims that unemployment, inflation, and poverty are all related over the long run. Additionally, studies by (Okwu et al., 2020; Pangesti & Susanto, 2018; Runtunuwu, 2020; Shah, 2016) indicated that inflation had a detrimental impact on human development. According to this study's sources (Arisman, 2018; Roncaglia de Carvalho et al., 2018; WIBOWO, 2019) economic growth and HDI are unaffected by inflation rates.

The rate of inflation in OIC countries is certainly influenced by the state of the world economy, particularly with the economic crisis during and after the COVID-19 pandemic. Thus, the absence of a more pronounced influence within the timeframe determined by our data sample is the reason why inflation has had no impact on the HDI level of OIC nations in the past ten years.

Unemployment Rate's Impact on Human Development Index

The statistical information in table 1.4 above indicates that the unemployment variable has a probability value of 0.6786, which is greater than 5% (0.05), and a coefficient value of -0.00578. These results suggest that the unemployment rate in OIC nations has no impact on HDI. This information disproves the original ideas and hypotheses that the unemployment rate has a negative impact on HDI, particularly those that relate to the impact of unemployment on poverty cycles and unnecessary inequality of income that limit wellbeing and life satisfaction. (Germain, 2021; Ningrum et al., 2020; Sayifullah & Gandasari, 2016). According to study (Arisman, 2018; Hasbi & Wibowo, 2022)), unemployment has a small impact on HDI, and the test findings support this claim. This means that HDI cannot be influenced by unemployment levels in OIC countries.

Contrary to findings made by Hassan, M. U. Khalid, M. W. and Kayani (2016) there is no long-term or short-term correlation between unemployment, inflation, and poverty. According to Intisar et al (2020) West Asia experiences a favorable influence from labor force participation while South Asia experiences a negative impact. Research by Okwu et al (2020) which examines the effects of FDI and several macroeconomic variables on economic growth in the L30 global economy, also identifies the beneficial effects of unemployment. The fall in people's welfare and income, which is the main factor driving up the value of the HDI, is caused by the high unemployment rate.

Trade Openness' Impact on the Human Development Index

The trade openness variable has a statistical value of 0.0000, which is less than 5% (0.05), and a coefficient value of 0.000123. These findings suggest that trade openness significantly improves HDI.

This is in line with the study's theory and original hypothesis, according to which trade openness has a positive and considerable impact on the HDI of OIC member nations.

The test's findings are consistent with study by Hamdi & Hakimi's research (2022) which claims that trade openness is a key component in both the short- and long-term growth of people in the Middle East and North Africa (MENA) region. According to research by Novignon et al (2018), trade has a large positive impact on life expectancy and a considerable negative impact on baby and under-five mortality rates. Trade openness has a considerable positive impact on economic growth and human development, according to research by Huchet-Bourdon et al (2018), Intisar et al (2020), Keho (2017), Muharromy & Auwalin (2021) and Okwu et al (2020).

Cooperation within the trade, investment and financial sectors can support sustainable development programs and improve the socio-economic welfare of people in OIC member countries. The OIC-2025 program of action states that if the level of trade cooperation can reach the desired level, significant benefits will be created. Good cooperation will create quality production, consumption and distribution which will improve people's lives in general (Action, 2016).

Foreign direct investment's impact on the human development index

The foreign direct investment variable has a strong negative impact on HDI, according to the statistical value above, with a probability value of 0.0000, less than 5% (0.05), and a coefficient value of -0.003370. According to this finding, the HDI value of OIC nations decreases when their foreign direct investment increases. This contradicts the theory and original hypothesis, which hold that foreign direct investment significantly improves HDI. Where investment is strong, the economy is strong. The creation of employment possibilities, an increase in capital inflows, and the improvement of managerial and management capabilities are all ways that foreign direct investment can aid in economic development.

This research is in accordance with the research of Mbang (2022) which asserts that there is a negative link in the short term and a different long-term relationship with a positive effect. In contrast with the study of Intisar et al. (2020), which found that FDI has a negative impact in West Asia and a positive impact in Central Asia. This negative effect of foreign direct investment may occur because of the sharp fluctuations in FDI inflows that occur in each OIC country and the ability of OIC countries to attract investment is still limited (OIC Outlook, 2021).

The findings of this study differ from those of Okwu et al (2020) which state that FDI has a positive and significant effect on economic growth. research, which found that FDI significantly and positively affects economic growth. According to Chih et al (2022) research, FDI had no impact prior to 2000 but had a considerable beneficial impact afterward.

Political Stability's Impact on the Human Development Index

With a probability value of 0.0006, a coefficient value of 0.013164, and a value less than 5% (0.05) of the statistical value, the political stability variable has a strong positive effect on HDI. This finding indicates that OIC nations' HDI values increase in accordance to their political stability. These results verify the initial statement and concept that HDI is significantly impacted positively by political stability. The HDI value increases as well as the value of political stability. According to Alshammari et al (2015), governance factors with significant effects on human development include political stability, regulatory quality, corruption control, and government effectiveness. Uddin et al (2017) instability in politics is more prevalent among OIC nations and become an obstacle to economic growth in them.

A country's political stability can support the achievement of development and growth programs in various fields by creating a safe and comfortable environment away from various political tensions and divisions. However, The reality of OIC countries contradicts the notion that most of its members

respect political stability highly; in fact, political instability in low- and middle-income OIC nations appears to get worse economic growth because of weak governance. (Uddin et al., 2017).

Human Development Index and Political Stability: The Impact of Unemployment with Political Stability as a Moderating Variable

The probability value of the political stability variable and the variation of the model "political stability * unemployment" are both 0.0000 based on the GMM system test (orthogonal) in column 2 (table 1.5). Since political stability could moderate the effect of unemployment on the HDI in OIC nations, it is known as a "Quasi Moderator" in this form of the model.

A nation's high level of political stability fosters economic stability, which makes it possible for labor to be absorbed at its best and reduce unemployment. These findings are consistent with study by Abé Ndjié et al (2019), which found that political stability and corruption control were the most important governance metrics used in 46 African nations. According to Germain (2021) research, political unrest in Côte d'Ivoire and youth unemployment rates are positively correlated.

Conclusion

This study contributes to the body of knowledge and readers' understanding of the relationship between macroeconomic factors and HDI in OIC countries, as well as the existence of political stability variables as a moderator between the two. Researchers may be able to obtain additional information from new discoveries using various models and methodologies when the objects and findings differ from previous investigations. In addition, some of the study's results are in line with various macroeconomic theories. In the field of practice and policy (practical implications), this research can be a reference for investors, governments and stakeholders concentrate on the macroeconomic performance of OIC nations further in order to encourage effective collaboration across sectors, to accelerate growth, and to promote sustainable development in politics, economics, society, culture, and science. Especially trade openness has positif effect and significantly improves the HDI in OIC countries.

The OIC countries' governments should be able to get a broad picture of the extent to which inflation, unemployment, trade openness, and foreign direct investment are contributing to the growth of their nation. Whereas the political stability variable has the potential to function both as a predictor and a moderator. As a moderating variable, political stability can strengthen the relationship between unemployment and HDI. Then, the governments of OIC countries should further strengthen and improve the quality of their governance, especially the level of political stability. There are many limitations and deficiencies of study which it is hoped that further research can improve this problem. Some of the limitations in the research due to the availability of partial data (10 years), only 32 countries out of 57 OIC members could be analyzed between 2011 and 2020, the paucity of human development variables that could still be used in this study. There are many other macroeconomic variables that can be used as control variables, and the statistical statistical approaches and tools used in this work can be constructed using a variety of different analytical tools.

In order to develop the research experience, researcher provides ideas in the form of suggestions for further research: Future research can add and categorize the time period used to collect data so that it is possible to add research samples. Secondly, there are many other human development indicators, such as currency values (exchange rates), remittances and etc. Future reasearch can also analyze the determinants of HDI with various methods and other statistical tools in various country and time series, and lastly there is are several groups of OIC countries according to the HDI level. Therefore, the

further research can identify which variables and policies are most appropriate based on the group of underdeveloped, developing and developed countries.

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