

# THE IMPACT OF FDI, UNEMPLOYMENT, CARBON EMISSIONS, AND INFLATION ON ECONOMIC GROWTH IN OIC COUNTRIES: TOWARD LONG-TERM ECONOMIC RESILIENCE

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## ABSTRACT

*This study investigates the impact of Foreign Direct Investment (FDI), unemployment, carbon emissions, and inflation on economic growth in 18 selected OIC (Organization of Islamic Cooperation) member countries from 2014 to 2023. Employing static panel regression (Fixed Effect Model), dynamic panel regression (GMM), and Moderated Regression Analysis (MRA), the study examines both direct effects and the moderating role of inflation. The results reveal that FDI has a positive effect in static models but a negative effect in dynamic models, suggesting potential crowding-out effects. Unemployment consistently has a negative impact on economic growth, while carbon emissions show a positive association, indicating trade-offs between environmental sustainability and growth. Inflation positively influences growth and acts as a quasi-moderator. By integrating Neoclassical Growth Theory and the Resilience Economy framework, this study offers a comprehensive perspective for policymakers in OIC countries to formulate balanced strategies for sustainable development.*

**Keywords:** FDI, Unemployment, Carbon Emissions, Inflation, Economic Growth, OIC Countries.

## INTRODUCTION

Sustainable economic growth has become a major focus for OIC countries, particularly in addressing the intertwined challenges of environmental degradation and social inequality. This study emphasizes these two issues by analyzing the roles of carbon emissions (as an environmental indicator) and unemployment (as a proxy for social inequality) in influencing economic growth. According to Salim in the book *Sustainable Economic Development: Theory and Basis for Sustainable Multi-Sector Economic Development in Indonesia*, there are three reasons why the economy must have sustainable economic development, including improving people's welfare, meeting human needs and aspirations, and environmental sustainability (Hutajulu et al., 2024). Therefore, the main focus of sustainable economic growth in this study is measured by the indicator of economic resilience. Economic resilience measures the extent to which a country can overcome various external shocks, such as the global economic crisis, climate change, or social crises, without losing direction in achieving long-term development goals. Economy, society, and environment cannot be separated because conventional economic development will result in environmental degradation (Nugraha et al., 2023). So it requires a win-win-win concept to optimize sustainable conceptualization, namely increasing production that provides a good direction for society and is good for the economy while maintaining the balance of environmental dimensions. This is in accordance with the Triple Bottom Line concept brought by John Elkington (Agustia et al., 2022; Makaba et al., 2024).

In recent decades, economic growth has often been measured only in terms of increasing Gross Domestic Product (GDP), where in terms of GDP economic growth has continued to increase over the past five years, as shown in the graph below:

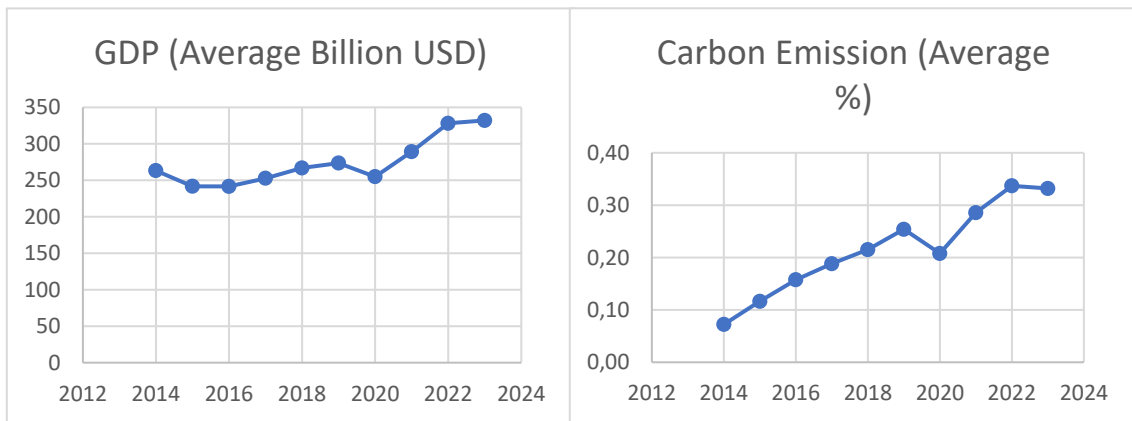
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**Graphic 1. Comparison Average of Economic Growth and Carbon Emissions**

Based on graphic1 above (left side), it shows the average GDP of 18 OIC countries from 2014 to 2023. The GDP started at around USD 262 billion in 2014, dropped slightly to USD 243 billion in 2015–2016, and then steadily increased, reaching a peak of approximately USD 332 billion in 2023. This trend reflects a gradual but consistent economic recovery and growth among OIC countries following global economic disruptions.

Meanwhile, the chart on the right shows the trend of average carbon emissions, which rose from 0.07% in 2014 to 0.34% in 2022, before slightly declining to 0.33% in 2023. The dip in 2020 (to 0.21%) likely correlates with reduced industrial activities during the COVID-19 pandemic. This overall upward trend highlights the environmental trade-offs accompanying economic development in these countries. These trends support the core thesis of this study: while economic growth continues to advance, it is often paralleled by increasing environmental pressure. Therefore, integrating sustainable practices into growth strategies is crucial to ensuring long-term resilience across the OIC region.

Economic growth continues to grow and is significant but without considering the long-term impact on the environment and social welfare. This approach is no longer adequate, because growth that only focuses on increasing output without considering environmental sustainability can bring great risks to the preservation of natural resources and the quality of life of future generations.

Economic growth as measured by GDP in this study is also assumed to be influenced by economic aspects through the Foreign Direct Investment (FDI) variable. FDI plays an important role in providing the capital needed to increase production capacity and accelerate infrastructure development, which in turn can increase the country's economic capacity (Chandra et al., 2023; Zhou, 2020). Several experiences and empirical evidence also show a significant relationship between FDI and GDP. The empirical evidence states that a number of countries have succeeded in raising their economic level through foreign direct investment and have also been able to pay their foreign debts (Triatmanto et al., 2023). However, there are also quite a few countries in the opposite condition, namely experiencing a decline so that they need assistance from donor countries to pay their debts (Mohsin et al., 2021; Wei et al., 2022).

Direct investment, often referred to as foreign direct investment, refers to a type of investment that involves the formation, purchase, or acquisition of a company. Compared to portfolio investment, foreign direct investment offers a variety of additional benefits, such as being more permanent, supporting the transfer of technology and managerial skills, and creating new jobs (Triatmanto et al., 2023). The jobs created are

very important for the country, given the government's limitations in providing jobs. In contrast, funds received through portfolio investment are used by companies that issue securities, but do not always result in the creation of new jobs. Although there are companies that use the funds for expansion or starting new businesses, this does not always result in job creation. Many funds received by companies are actually used to strengthen the capital structure or pay off bank debts (Zhou, 2020). Not only that, FDI can increase a country's monetary (Zaman et al., 2021).

Social aspects also greatly affect sustainable economic growth. Where this can be seen from the unemployment rate. High unemployment can hinder economic growth, due to reduced purchasing power and labor productivity. Traditionally, unemployment is considered an indicator of the potential for increased production and overall development. Specifically, unemployment describes the difficulties experienced by individuals who are ready to work, actively seeking employment opportunities, and able to obtain jobs in return for wages. It is also important to note that unemployment refers to those who are actively seeking jobs that provide wages (Razia et al., 2023). Therefore, reducing unemployment rates through skill development and job creation is essential to ensure inclusive economic growth (Niken et al., 2023).

To see the influence of economic and social aspects on GDP growth, this study uses Inflation which acts as a moderating variable. High inflation can reduce people's purchasing power, increase economic instability, and reduce the effectiveness of investment and savings. Inflation can have a significant impact on various aspects of the economy, including growth because its impact can be positive or negative on almost every sector in a country. Therefore, inflation is often closely related to the unemployment rate, which often reflects economic stagnation.

Overall, Foreign Direct Investment (FDI) has the potential to create new jobs, which can directly reduce unemployment rates. This foreign investment often brings increased production capacity and expansion of industrial sectors, which contributes to job creation. However, the impact of FDI is not always entirely positive. In some cases, industrial sectors that expand due to FDI may focus on emission-intensive industries, such as heavy manufacturing, fossil fuels, or transportation. This can lead to increased carbon emissions, which have negative impacts on the environment and people's quality of life.

The complexity of the relationship between FDI, unemployment, and carbon emissions suggests that economic growth achieved through foreign investment does not always go hand in hand with environmental sustainability. Therefore, it is important to consider inflation as a moderating variable in this analysis. High inflation can exacerbate economic instability, which in turn affects people's purchasing power and the ability of economic sectors to adapt to technological changes or environmental regulations. Conversely, controlled inflation can create a stable economic climate, allowing FDI to be more effective in creating jobs without increasing the burden of carbon emissions. Thus, inflation plays an important role in moderating the impact of FDI on unemployment and carbon emissions, and optimizing its contribution to sustainable economic growth.

Rather than covering all global challenges equally, this research specifically focuses on the environmental and social dimensions of sustainability. Climate change is addressed through the analysis of carbon emissions, while social inequality is represented by unemployment rates. These limitations allow for a more in-depth analysis of economic resilience and long-term sustainability within selected OIC countries.

Based on the background, this study aims to provide a significant contribution to the development of literature related to sustainable economic growth with a focus on the

influence of Foreign Direct Investment (FDI), unemployment rate, and carbon emissions on Gross Domestic Product (GDP), as well as the role of inflation as a moderating variable. By examining in depth the relationship between economic, social, and environmental aspects, this study offers a holistic perspective to understand the dynamics of sustainable development in 18 selected member countries of the Organization of Islamic Cooperation (OIC) because Of the 57 OIC member countries, only 18 were selected due to data availability and consistency across all variables (FDI, unemployment, carbon emissions, inflation, and GDP) for the 2014–2023 period. These countries represent diverse economic structures and geographical regions within the OIC, enabling a balanced analysis while ensuring methodological robustness

## **LITERATUR REVIEW**

### **Theoretical Framework**

The measurement of economic sustainability in this study is based on two main concepts that complement each other, namely the resilience economy adopted from the Tripe Bottom Line and the long-term sustainability economy. In measuring the long-term sustainability economy, researchers use Neoclassical Growth Theory. This is because it can provide a basic framework that links investment and savings to long-term economic growth (Zhang, 2018). This theory posits that a country's economic growth depends on the accumulation of capital and labor, which can increase production capacity and accelerate economic development (Meade, 2013).

The Neoclassical Growth Theory framework states that the relationship between Foreign Direct Investment (FDI), unemployment, carbon emissions and GDP describes the interdependent dynamics in the economy. This theory emphasizes the importance of capital, technology, and labor in determining the long-term economic growth rate. FDI plays a role as one of the main drivers of economic growth. Through foreign investment, the country receives the necessary capital to build infrastructure, introduce new technologies and increase production capacity (Fazaalloh, 2024). This technological improvement contributes to increased productivity and efficiency in sectors that receive investment, which in turn increases GDP. In addition, FDI often brings labor-intensive industrial sectors to be able to create jobs and reduce the unemployment rate (Defung et al., 2021). Thus, foreign investment directly supports job creation and increased economic output. Low unemployment is a key indicator in neoclassical economic growth theory. A productive workforce is indispensable to maximize a country's production capacity. When more people work, the total output in the economy will increase, which contributes to GDP growth (Prasetyani et al., 2021). Reduced unemployment improves the efficiency of resource allocation as more individuals can engage in productive economic activities. Therefore, reducing unemployment is an important factor in increasing economic growth in the long term. However, the relationship between carbon emissions and economic growth is more complex. In the early stages of economic growth, countries often rely on energy-intensive industries and fossil fuels to increase production and economic capacity, which in turn leads to increased carbon emissions. This is a trade-off that often occurs between GDP growth and environmental damage.

Overall, the Neoclassical Growth Theory developed by Meade states that the relationship between FDI, unemployment, carbon emissions, and GDP can be understood through the process of capital accumulation, technology application, and labor use more efficient. FDI plays an important role in increasing production capacity and reducing unemployment, but at the same time it can increase carbon emissions in the early stages of economic growth. However, along with technological advances and innovation,

countries can reduce environmental impacts and achieve more sustainable growth, according to Meade's theory of long-term growth (Meade, 2013).

Furthermore, the researchers used the Resilience Economy theory to look at the relationship between FDI, unemployment, and carbon emissions to GDP. Where this is not seen as a separate phenomenon but as a system that interacts with each other and influences each other in creating long-term economic resilience (Bristow & Healy, 2020). FDI can be a key driver of economic growth, but without wise management of unemployment and carbon emissions, the resulting growth can be temporary and unsustainable. On the other hand, high unemployment and uncontrolled carbon emissions can undermine a country's economic resilience in the face of a crisis (Williams & Vorley, 2017).

According to Nick Williams and Tim Vorley in their book entitled *Creating Resilient Economies: Entrepreneurship, Growth and Development in Uncertain Times* states that the relationship between FDI, unemployment, and carbon emissions to GDP is a dynamic system that affects each other (Williams & Vorley, 2017). He also pointed out that the Resilience Economy Theory can balance economic growth with social and environmental sustainability and will be better able to deal with external shocks and build long-term economic resilience.

Although previous studies have examined the relationship between FDI, unemployment, carbon emissions, and GDP, the approach is still partial and has not integrated the dynamics between these variables. Most studies focus only on the individual impacts of each variable without exploring their complex interactions in influencing overall economic growth. In addition, existing theories such as Neoclassical Growth Theory often ignore environmental and social sustainability aspects in relation to economic variables. As a result, understanding of these dynamic relationships is still limited, so this research is important to provide a comprehensive and relevant perspective for policies that support inclusive and sustainable economic growth.

## **Empirical Literature**

The relationship between Foreign Direct Investment, Unemployment, inflation rates, and GDP in various situations and locations has been the subject of much research. Here is a summary of some of these studies:

### **Foreign Direct Investment**

Foreign Direct Investment (FDI) refers to investments made by a company or individual in one country against productive assets in another country, with the aim of gaining significant control or influence over the operations of that business. FDI can be in the form of buying majority shares, building new production facilities, or investing in strategic sectors such as infrastructure, technology, and manufacturing. This investment is different from portfolio investments, which are more short-term and do not involve direct control of the invested entity. FDI typically includes technology transfer, managerial knowledge, and access to international markets, which in turn can accelerate the recipient country's economic development. Several previous studies have shown that FDI can affect economic growth, including studies conducted by Bildirici & Kayıkçı (2024); Luo et al. (2022); Udemba et al. (2020); Zhang (2018) concluding that FDI increases economic growth in China even though the level of contribution is based on economic conditions.

### **Unemployment**

Unemployment is a condition in which individuals who belong to the active labor force are unable to find work even though they have been looking for work for a certain period of time. Unemployment reflects the underutilization of the workforce that stifles growth. Based on Okun's Law (1962), unemployment has a negative relationship with GDP, making it relevant to measure its impact on economic growth. People's purchasing power and worker efficiency can also be seen through the unemployment rate (Sinyor et al., 2024). However, if social inequality increases, it can reduce people's purchasing power and worsen poverty conditions.

The view of the economic side states that the high level of social conflict can hinder regional economic growth. Meanwhile, from a social perspective, this shows an increasingly heavy burden on society and the environment. People tend to be more interested in the poor, which exacerbates social disparities. The function of labor in a country's economy is crucial, as population can reflect a level of well-being and fiscal stability. Especially in the context of human resources, labor plays an important role in economic output. In addition to numbers, the quality of the workforce is also very decisive, because the quality of good human resources will affect business performance and economic progress of a country. This is supported by research conducted by Aminda et al. (2024); Goni et al. (2022); Razia et al. (2023) that unemployment has a significant influence on a country's economic growth.

### **Carbon Emissions**

Carbon emissions refer to the release of carbon dioxide (CO<sub>2</sub>) gas into the atmosphere, which is largely produced by human activities, such as the burning of fossil fuels, deforestation, as well as industrial and transportation activities (Slathia et al., 2024). Carbon dioxide is one of the most dominant greenhouse gases, which plays a role in increasing greenhouse effects and global warming. Global warming caused by increased carbon emissions can disrupt the balance of the earth's ecosystems, affect weather patterns, and increase the risk of natural disasters such as floods, droughts, and increasingly intense tropical storms (Gershon et al., 2024). The relationship between carbon emissions and economic growth is supported by research conducted Bytyqi et al. (2024); Dwi et al. (2019); Mukhid et al. (2023); Rahmandani & Dewi (2023) which states that carbon emissions have been considered the main source of the greenhouse effect where increased carbon emissions are a major threat to climate change which is currently a concern for developing and developed countries.

### **Inflation**

Inflation is an economic condition that occurs when the prices of goods and services in general in a country increase in a certain period of time (Salim & Fadilla, 2021). In simple terms, inflation describes the process of rising prices of goods and services in the market. This often has a direct impact on people's purchasing power. Inflation is measured using the consumer price index (CPI) which tracks price changes against the basket of goods and services generally consumed by households. Inflation can be influenced by a variety of factors, both internal and external, and can have a significant impact on a country's economy (Desmintari et al., 2023).

Moderate or controlled inflation has a relatively positive impact on the economy, as it can indicate that there is sufficient demand for goods and services in the economy (Maitah et al., 2024). However, if inflation is too high or out of control, the impact can be very detrimental. High inflation reduces people's purchasing power, especially for those on fixed incomes, as the prices of goods and services increase faster than the income they

receive (Qabaja & Tenekeci, 2024). In addition, high inflation can also create economic uncertainty, which in turn can reduce investment interest and slow economic growth. Conversely, very low inflation or even deflation although it seems favorable at first glance can be a sign of economic stagnation or a lack of demand in the economy (Torres-Favela & Luna, 2024).

## **RESEARCH METHODS**

This study uses a quantitative approach. The quantitative approach aims to identify the relationship between variables by testing the hypotheses that have been formulated in the study. The data used must be measurable so that it is possible to draw generally applicable conclusions. The selection of this approach is based on its purpose to develop and apply mathematical models, theories, and hypotheses related to natural phenomena.

This study employs a quantitative approach to examine the causal relationship between economic indicators and sustainable growth. The method is aligned with previous research such as Luo et al. (2022) and Prasetyani et al. (2021), who also utilized panel data techniques to analyze FDI, carbon emissions, and macroeconomic variables.

To control for individual heterogeneity across countries, the Fixed Effect Model (FEM) was chosen, which is commonly used when unobserved country-specific characteristics may correlate with the explanatory variables. This model selection follows empirical precedents such as (Bildirici & Kayıkçı, 2024), who emphasized FEM for evaluating cross-country economic behavior.

Meanwhile, to capture dynamic effects and potential endogeneity, this study employs the Generalized Method of Moments (GMM), particularly suitable for panel data with a relatively short time span and larger cross-sections. This method has been validated in similar macroeconomic contexts by Meade (2013) and Mohsin et al. (2021). Furthermore, Moderated Regression Analysis (MRA) is applied to test the moderating effect of inflation. This approach is supported by previous studies such as (Zaman et al., 2021), which highlighted the moderating role of macroeconomic variables in development outcomes. MRA helps in understanding how inflation influences the relationships between FDI, unemployment, and GDP, providing deeper insights into economic resilience mechanisms.

The research data was obtained from the World Development Indicator published by the World Bank. The sampling technique was carried out with saturated sampling, namely a sampling technique in which all units that meet the research criteria are selected as samples, without any further reduction or selection. In the context of research involving member countries of the OIC (Organization of Islamic Cooperation). The use of saturated sampling means taking all relevant countries according to the established criteria, without limiting the number of selected countries, namely 18 countries from the OIC. The cross section in this study includes Azerbaijan, Albania, Pakistan, Indonesia, Bangladesh, Kazakhstan, Malaysia, Tajikistan, Kuwait, Bahrain, Mozambique, Jordan, Uzbekistan, Morocco, Nigeria, Brunei Darussalam, Saudi Arabia and Turkey while the time series starts from 2014-2023. The inclusion criteria for the sample countries were: (1) availability of complete data for all variables (FDI, unemployment, carbon emissions, inflation, and GDP) from 2014 to 2023, (2) status as full members of the Organization of Islamic Cooperation (OIC), and (3) comparability in macroeconomic indicators to ensure analytical consistency. Countries that lacked continuous or reliable data within the study period were excluded

The variables in this study include economic growth as the dependent variable, while the independent variables include FDI, Unemployment and carbon emissions, and inflation as a moderating variable. A more detailed explanation of the operational definition and measurement of each variable is presented below.

**Table 1. Research Variables**

Variables	Operational Definition	Unit
<b>Dependent Variable</b>		
Gross Domestic Product	GDP at purchaser's prices is gross value added by producers, plus taxes, minus subsidies, and is calculated in current US dollars.	US Dollar
<b>Independent Variable</b>		
Foreign Direct Investment	Portfolio investments include transactions in equity and debt securities. Data is in current US dollars.	US Dollar
Unemployment	Unemployment is the number of workers who are not working, available, and looking for work,	%
Carbon Emissions	Carbon dioxide (CO <sub>2</sub> ) emissions from fossil fuels and industry. Land use change is not included.	Billion
<b>Moderation Variables</b>		
Inflation	Inflation is measured by the implicit GDP deflator, which shows the overall price change in the economy.	%

Based on table 1, the variables above are the reasons for choosing the GDP variable because it is the main indicator of economic growth that is widely used in various studies. According to Solow's theory of economic growth, GDP reflects the aggregate output produced by a combination of production factors such as capital, labor, and technology. Previous studies have also shown that changes in GDP can reflect the overall economic performance of a country (Smith & Lewis, 2011). In the context of this study, GDP was chosen because it is able to measure the impact of independent variables such as foreign direct investment, unemployment rates, and carbon emissions on economic growth.

The type of data used by researchers is panel data. So for data analysis, researchers use static panel data regression analysis through the Ordinary Least Square method, here is the panel data regression equation:

$$GDP_{it} = \alpha + \beta_1 FDI_{it} + \beta_2 UNP_{it} + \beta_3 CED_{it} + \beta_4 INF_{it} + \mu_i + e_{it}$$

Information :

$GDP_{it}$  = Gross Domestic Product in country i and year t

$\alpha$  = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$  = Coefficients

$FDI_{it}$  = Foreign Direct Investment in country i and year t

$UNP_{it}$  = Unemployment in country i and year t

$CED_{it}$  = Carbon Emission Disclosure in country i and year t

$INF_{it}$  = Inflation in country i and year t

$\mu_i$  = Influence of individual i (intercept)

$e_{it}$  = Residual of observation at time period t



Static panel regression must determine what model will be used before continuing to use the classical assumption test. There are three models in panel data regression, namely the Fixed Effect Model, Random Effect Model and Common Effect Model. In determining the use of one of the three models above, the researcher must conduct a chow test, a hausmant test and an LM test.

Meanwhile, to determine the long-term relationship in this study using dynamic panel data regression analysis through the Generalized Method of Moment (GMM) method. The dynamic panel regression model is a model where one of the independent variables is the lag of the independent variable  $y_{it-1}$ . The dynamic panel regression model is as follows:

$$Y_{it} = \alpha + \delta Y_{it-1} + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \mu_i + e_{it}$$

## RESULTS AND DISCUSSION

### Results

The researcher started the model selection by using the Chow test, Hausman test and LM test, the following are the results:

**Table 2. Model Feasibility Test**

Chow Test	Hausman test
0.0000 < 0.05	0.000 < 0.05
FEM	FEM

Based on table 2 above, because in 2 consecutive tests it shows that the selected model is FEM, then the best model used is the Fixed Effect Model. After the FEM model is selected, the following static and dynamic panel regression analysis is carried out:

**Table 3. Analysis Results**

Variable	Model 1 : Static Panel			Model 2 : Dynamic Panel		
	Coefficient	Prob	Moderator Status	Coefficient	Prob	Moderator Status
Constant	-2.77	0.02697**		0.47075	0.0000***	
FDI	0.993	0.0591*		-0.16265	0.0001***	
UNP	-142188.9	0.0751*		-136387	0.0000***	
CED	1767.922	0.0000***		1349.833	0.0000***	
INF	6578397	0.0599*		21695429	0.0000***	
Moderation						
INF1	11432	0.0165**	Independent	30148945	0.0000***	Pure
FDIINF	-0.03	0.3145	Variable	-0.03854	0.0000***	Moderation
INF2	13532770	0.0071***	Independent	-3.1E+07	0.0000***	Quasi
UNPINF	957486.5	0.5200	Variable	-3606300	0.0000***	Moderator
AR (2)				0.463151	0.6433	<b>Valid</b>
Sargan					0.060527	<b>Reliable</b>

### Static Panel Analysis

Based on table 3 above, the static panel regression equation is as follows:

$$GDP_{it} = -2.77 + 0.993FDI_{it} + (142188UNP_{it}) + 1767CED_{it} + 6578397INF_{it} + e$$

From this equation it states that Intercept (C) has a coefficient of  $-2.77E+08$ . This shows that when all independent variables are zero, the value of the dependent variable is estimated at  $-2.77E+08$ . Variable X1 has a coefficient of 0.9936. This means that every 1% increase in Foreign Direct Investment will increase economic growth by 99.3%. Variable X2 shows a coefficient of  $-142188.9$ . This indicates that every 1% increase in Unemployment will decrease economic growth by 14.22%. Variable X3 has a coefficient of 1767.922. These results indicate that every 1% increase in Carbon Emissions will increase economic growth by 17.7%. Variable M has a coefficient of 6578397. This indicates that every 1% increase in Inflation will increase economic growth by 65.8%.

As for moderation, the criteria for the Moderation Variable are based on research results that show that the influence of M on Y in the first estimate has a significant effect on Y while the interaction of  $X1*M$  in the second estimate has no effect on Y, so the moderation variable only acts as an independent variable in the relationship model formed. While the influence of M on Y in the second estimate also has a significant effect on Y and the interaction of  $X2*M$  in the second estimate has no effect on Y, so the moderation variable also only acts as an independent variable in the relationship model formed.

### Dynamic Panel Analysis

Based on table 3 above, it states that the Intercept (C) has a coefficient of 0.470750. This shows that when all independent variables are zero, the value of the dependent variable is estimated at 0.470750. Variable X1 has a coefficient of  $-0.162647$ . This means that every 1% increase in Foreign Direct Investment will reduce economic growth by 16.2%. Variable X2 shows a coefficient of  $-136386$ . This indicates that every 1% increase in Unemployment will reduce economic growth by 13.6%. Variable X3 has a coefficient of 1349.833. This result shows that every 1% increase in Carbon Emissions will increase economic growth by 13.49%. Variable M has a coefficient of 21695429. This shows that every 1% increase in Inflation will increase economic growth by 21.7%. All independent variables have a probability of 0.000, which shows that  $<0.05$  means that in the Generalized Method of Moments panel all independent variables have a significant effect on variable Y.

Meanwhile, for the criteria of Moderation Variable based on the research results showing that the influence of M on Y in the first estimate and the interaction of  $X1*M$  in the second estimate both have a significant effect on Y, then the moderation variable is a quasi moderator where the pseudo moderation variable interacts with the independent variable and becomes the independent variable. Likewise, the influence of M on Y in the second estimate and the interaction of  $X2*M$  on Y in the second estimate also have a significant effect on. This means that the moderation variable is also a quasi moderator where the pseudo moderation variable interacts with the independent variable and becomes the independent variable.

### Discussion

The results of the study indicate that there is a significant relationship between Foreign Direct Investment (FDI), unemployment rate, carbon emissions, and inflation on economic growth in 18 OIC countries. Static and dynamic panel regression models

provide an in-depth understanding of the short-term and long-term relationships on economic growth. The following is a description of the analysis:

The results of static panel regression show that FDI has a significant positive effect on economic growth with a coefficient of 0.993, which means that a 1% increase in FDI will increase economic growth by 99.3%. However, in dynamic panel regression, the effect of FDI is negative with a coefficient of -0.1626, indicating that a 1% increase in FDI will reduce economic growth by 16.2%.

Based on the Neoclassical Growth Theory proposed by James Meade, investment such as FDI can encourage capital accumulation and increase productivity through the diffusion of technology and resources. However, negative results in the long term in the dynamic panel may reflect the presence of a crowding-out effect where FDI replaces domestic investment, or the presence of structural barriers in OIC countries that hinder the optimal use of FDI (Meade, 2013).

The unemployment variable consistently has a significant negative effect on economic growth in both static and dynamic regressions. The coefficients of -142188 (static) and -136386 (dynamic) confirm that a 1% increase in unemployment will significantly reduce economic growth. This is in accordance with neoclassical economic theory, where high unemployment reflects an imbalance in the labor market that hinders the allocation of productive resources and slows economic output. In the context of the Resilience Economy, as explained by Nick Williams and Tim Vorley, countries need to build economic resilience by improving workforce skills and creating quality jobs to strengthen the economy's capacity to respond to external shocks (Bristow & Healy, 2020).

Carbon emissions show a significant positive effect on economic growth, with coefficients of 1767 (static) and 1349 (dynamic). This indicates that a 1% increase in carbon emissions will increase economic growth by 17.7% and 13.49%, respectively in the short and long term. This finding reflects the trade-off between economic growth and environmental degradation. In the Neoclassical Growth Theory framework, increased production and consumption that drive economic growth are often accompanied by increased carbon emissions due to the use of environmentally unfriendly energy. However, from the perspective of Resilience Economy, dependence on a carbon-based economy can lead to long-term economic vulnerability. Therefore, OIC countries need to shift towards a sustainable low-carbon economy to maintain long-term economic resilience (Meade, 2013).

Inflation has a significant positive effect on economic growth with a coefficient of 6578397 (static) and 21695429 (dynamic). These results indicate that a 1% increase in inflation will increase economic growth by 65.8 % (static) and 21.7% (dynamic). Theoretically, moderate inflation can drive economic growth by increasing consumption and investment. However, inflation that is too high can cause economic uncertainty. In the Resilience Economy, wise inflation management is needed to maintain economic stability while encouraging economic resilience in the face of macroeconomic fluctuations (Zaman et al., 2021).

### **Moderation Model Analysis (MRA)**

The results of the Moderated Regression Analysis (MRA) test show that the moderating variable has a significant role in the relationship between the independent

variables (FDI and unemployment) and economic growth. However, the interaction between the independent variables and moderation shows varying results.

The results of the analysis show that the moderating variable only acts as an independent variable, not as a significant moderator. This shows that the moderating factor has a direct influence on economic growth, but does not effectively strengthen or weaken the relationship between the independent variables (FDI, unemployment) and economic growth. In the Resilience Economy theory, it is important for OIC countries to strengthen the economic structure through economic diversification, increasing innovation, and mitigating macroeconomic risks. The ineffectiveness of the moderating variable indicates limitations in the economic capacity of OIC countries to optimize economic growth factors dynamically.

The results of the Arellano-Bond and Sargan Tests indicate that the dynamic panel regression model used in this study is consistent and valid. This finding strengthens the reliability of the research results, where all independent variables have a significant effect on economic growth in the long run. The 18 OIC countries need to create a conducive investment climate to maximize the benefits of FDI, such as through policy reform and infrastructure development. The results of the study emphasize the need for a transition to a low-carbon economy to ensure sustainable economic growth and resilience to environmental crises. The government must focus on improving workforce skills and creating productive jobs to reduce unemployment as an obstacle to economic growth. Moderate inflation management will support long-term economic stability in accordance with the principles of the Resilience Economy

## CONCLUSION

The results of this study show that FDI, unemployment rates, carbon emissions, and inflation have a significant influence on economic growth in 18 OIC countries, both in the short and long term. FDI showed a positive influence in static regression but a negative in dynamic regression, reflecting potential crowding-out effects and structural constraints. Unemployment has consistently negatively impacted, underscoring the importance of upskilling the workforce and job creation. Carbon emissions have a significant positive impact on economic growth, reflecting the trade-off between economic growth and environmental sustainability. Inflation shows a positive influence, but requires moderate management to maintain stability. The findings emphasize the importance of diversifying the economy, transitioning to a low-carbon economy, and policies that support economic resilience to ensure sustainable growth. A valid dynamic panel regression model reinforces the reliability of the results of this study.

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