A COMPREHENSIVE ANALYSIS OF EXTERNAL DEBT, INVESTMENT, AND ECONOMIC GROWTH APPLIED TO OIC MEMBER COUNTRIES

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ABSTRACT

This work examines foreign debt, investment, and economic growth in OIC countries. Using panel data analysis, it considers how external debts affect these countries in terms of investment and economic growth. The results suggest external debt has both positive and negative roles on investment and economic growth depending on the country's economy. The importance of understanding complex relations regarding foreign debt and performance in OIC countries is highlighted. In fact, the study encourages policymakers' interventions, balancing between economic policies and those that would suit the special situations in these countries.

Keywords: Development projects; econometric methodology; theoretical framework; international economics; public policy; causal relationships; external debt; investment; economic growth; and OIC member countries.

INTRODUCTION

The link between external debt, investment, and economic growth is an important topic that requires research analysis in the complex field of economic studies. With a specific focus on Organization of Islamic Cooperation (OIC) member countries, this paper offers a thorough evaluation of these interconnected factors. We aim to identify the complex relationships and interdependencies that influence these countries' economies using a Panel Data model. A key subject in the study of economics is the connection between

investment, economic growth, and external debt. It is crucial for academics and policymakers to comprehend the intricate relationships and interdependencies between these variables. The Organisation of Islamic Cooperation (OIC) member nations, namely Turkiye, Algeria, Morocco, Tunisia and Egypt, are the exclusive subject of this study, which offers an examination of the relationship between investment, economic growth, and external debt.

There are several features to the relationship between external debt, investment, and economic growth, including significant causal relationships. External debt can be used for the support of important development projects, but its buildup presents dangers and difficulties for countries and can block economic growth. Findings from studies applying an analytical econometric methodology can be divided into three groups. The first group confirms the idea that debt from outside sources discourages investment and growth (Borensztein 1990, Iyoha 2000, Were 2001, Lopes 2002, Maghyereh and Omet 2002, Berensmann 2004, Hameed et al. 2008, Presbitero 2012, Guei 2019). The contrary has been verified by other research (Jayaraman and Lau 2009, Ahlborn and Schweickert 2015, Egbetunde 2012, Sánchez-Juárez and García-Almada 2016, Owusu-Nantwi and Erickson 2016), which demonstrates that foreign debt stimulates economic development and investment.

For data analysis for distinguishing the complexity of the relationships between foreign debt, investment, and economic growth is used the Panel Data Method. Through recognition of the possible correlation between the error factors in the equations, this model offers a strong foundation for evaluating the relationships at the same time, resulting in a more thorough comprehension of the complicated system of economic dynamics.

The member countries of the Organization of Islamic Cooperation (OIC) offer an interesting case study for examining the complicated impact of these economic variables. The purpose of these parts is to shed light on the opportunities and problems related to foreign debt, investment, and economic growth that OIC member countries face.

This paper will be structured as follows: After a brief introduction, Section 2 will provide a brief review of the literature, followed by a brief scenario of external debt and economic growth in OIC member countries; Section 3 will provide a detailed discussion on the theoretical model, data, and estimation

methodology; Sections 4 will discuss the results of the growth and investment models, respectively; and the final section will present the study's conclusions.

RELATED LITERATURE

The Connection Between Investments And External Debt

The debt overhang theory used the relationship between external debt and growth to study the implicit or indirect relationship between public and private investment and external debt. The empirical findings are conflicting and equivocal, and there isn't much research that specifically examines the relationship between debt and investment. While some studies support the opposite conclusion, others find a negative influence. Nonetheless, the negative impact is more noticeable than the favourable correlation between debt and investment. For instance, Picarell et al. (2019) recently investigated this matter in the framework of Europe. The authors examined data from 26 EU nations between 1995 and 2015 to comprehend the relationship between public investment and external debt. The authors discovered that public investment falls by 0.03% for every 1% increase in public debt. Additionally, they discovered that the negative impact is less noticeable in the Eurozone compared to the EU.

Deshpande (1997) investigated the impact of external debt on the level of investment using a sample of 13 heavily indebted nations between 1971 and 1991. Empirical findings demonstrate that the impact of foreign debt varies over the course of the investigation. The analysis discovered a negative correlation between foreign debt and investment over the whole-time frame. However, external debt was found to have a beneficial effect in the first half of the study period, which changed to a negative effect in the second.

Relationship Between External Debt And Growth

The intricate interplay between external debt and economic growth remains a critical aspect of economic policy discussions within OIC member countries. Scholars have explored the causal relationship between the two variables and the potential pathways through which external debt influences economic growth.

Onafowora and Owoye (2017) concentrated on Africa in their study, examining the impact of external debt on economic growth from 1970 to 2014 using data belonging to the Nigerian economy.

Based on structural vector autoregression, their results validate the debt overhang hypothesis by demonstrating the negative impact of external debt impact on investment and growth. In reference to Africa, Shittu et al. (2018) examined the dynamic link between debt and growth using a sample of five Sub-Saharan African (SSA) nations over the years 1990–2015.

In their study spanning from 1981 to 2015 and encompassing 117 Developing and Emerging Countries, Kazakova and Inaba (2018) found a significant outcome. Their research unveiled a non-linear relationship between external debt and economic growth. In particular, 61.3% of GDP was found to be the minimum level for borrowing from outside sources. They also emphasized the 30% GDP obstacles that is set away for public and publicly covered external debt.

A combined linear and nonlinear study was carried out by Thảo and Trường (2018) to examine the link between growth and external debt in Vietnam from 2000 to 2013. The linear approach's findings show a favourable correlation between external debt and economic expansion. They discovered that a 1% rise in foreign debt results in a 1.29% increase in growth. The optimal level of foreign debt is found to be 21.5%, below which growth is stimulated, according to the nonlinear results. Over this limit, though, the effect turns negative.

Felix (2020) observed a noteworthy relationship between foreign debt and economic growth in their examination covering the years 1990 to 2016 and focusing on 15 ECOWAS (Economic Community of West African States) countries. According to their findings, this relationship demonstrated positivity both in the short and long term. Interestingly, this threshold value varied at different rates, suggesting that the impact of foreign debt on economic growth may be contingent on specific rates within the examined time frame.

METHODOLOGY

Variable Selection Process
The definition of the selection of relevant variables is important in an econometric model because it indicates the factors that will be analyzed with respect to external debt. As to this study, the selection of variables was built from economic theory, relevant empirical work and the subject matter of

external debt of OIC members. The objective here was to make sure that the selected variables could adequately explain the external debt accumulation, repayment capacity, and sustainability.

Dependent Variable: External Debt as Percent of GNI

As previously stated, the dependent variable in this study is External Debt as a Percentage of Gross National Income (GNI) and this measure was selected because it indicates the level a country uses foreign loans as a percentage of income earned by the citizens of a country. This measure is more favourable because it considers the borrower's economy and the size of the country rather than using absolute figures of debt that have been incurred, which is incapable of cross-country comparisons. A cross-country analysis of fiscal external debt suggests that external debt is a major and pivotal component of a country's fiscal policy and economic stability. Therefore, the management of external debt is fundamental to debt sustainability.

Independent Variables

The independent variables were defined and set as forecasted external debt burdens. All of them were justified with economic theory and empirical studies which relate them to debt sustainability or borrowing behaviour as described in literature.

1. Exports of Goods and Services:
    Exports play an important part in the earning of foreign currency, which assists in paying back any external loans. Better performance of exports enables a country to repay debts by increasing its foreign reserves and revenue generation capacity. Studies such as the one done by Raj in 2023 have shown that nations with powerful export sectors have a lesser external debt to GNI ratio, primarily because value added in exports creates the needed foreign exchange to meet debt servicing requirements.

2. Foreign Direct Investment (FDI):
    FDI is one of the ways of foreign capital representation, and it does not constitute a loan. Foreign investments are typically geared towards

capital goods and can ease the burden of foreign debts since a country spends less on loans. Countries with higher foreign direct investments tend to have better debt sustainability, according to Bashir & Islam 2023. The potential benefits of increasing productivity and growth from investment will, in turn, increase the ability of the country to repay the debt.

3. GDP Growth

   Just like with any other service or product, a growing economy means that the brand of the state government will be better. This leads to better revenue which allows for the servicing of debt. The revenue generated helps in paying taxes which means less money will be borrowed from outside.

4. Inflation

   A curated collection of evidence has confirmed that the lone borrowing of a business entity is reliant on a government's repaying ability which is determined through economic growth. It was noted that increased borrowing is primarily used to build up the XIN of a country and leads to inflation. With every passing day, the companies that have recently sprouted are relying on the faith that they have in building up new investments without straining the economy.

5. Population Growth

   It is justified that creating accessible public facilities will allow for increased population growth. This claim is counterargued because the constant shift inflates the prices of any infrastructure-based services while increasing public amenities is 'budget-friendly'. The conflicting argumentative standing alongside limited government expenditure will lead to an increased reliance on foreign and external debt, which puts a strain on the economy.

Econometric Models

In this case, choosing an econometric model involves a factor analysis of external debt as a dependent variable and its components, which are the

independent variables, while considering the existence of different countries and times. Considering that the study's focus is on panel data, the following were considered:

Panel Least Squares (PLS) regression was selected because it addresses the problem of multicollinearity of independent variables in the data set. This is important because GDP growth, FDI and even exports are all contending variables. In cases with multicollinearity, the estimates produced by the traditional ordinary least squares (OLS) approach can be highly inefficient and inaccurate. PLS uses latent variables, which reduces multicollinearity and makes estimates more precise and PLS more stable (Hwang & Lee, 2022).

The Fixed Effects (FE) model is used in order to account for unobservable time-invariant country-specific characteristics that are likely to influence the outcome variable (e.g. a country's debt history, political situation, governance) (Ch 11. Wooldridge, 2021). With-in-country variations are highlighted so that the set of independent variables in external debt is seen in isolation from these constant country-specific factors. The FE model's assumption is that individual attributes like the quality of an institution or level of historical debt are associated with the regressors. For this reason, FE is appropriate in cases where individual country-specific effects are likely to influence correlations of interest.

The RE model is used when the impact of observable factors is believed to not correlate with the country-specific unobserved factors. The RE model is more efficient than FE once again because it incorporates both within and between-country variations, making it possible to make generalizations for a wider country scope. The RE model is advantageous when the researcher considers that the country-specific unobserved effects are random and that their bearing on the independent variable coefficients is negligible. (Gujarati & Porter 2020).

This test is used to decide which is best between the FE and RE models. The test utilizes the estimates of both models and checks for significant differences between them. If the Hausman test suggests that the country-specific effects are correlated with the regressors, the best model to use would be the fixed effects model because it provides consistent and unbiased estimates. Should the test yield no significant correlation, then the RE model is preferred as it is more efficient (Hausman, 2021).

The models selected, PLS, FE and RE, are a quintessence as far as the interplay between external debt and its determinants is concerned. The PLS model overcomes the challenges posed by multicollinearity for reliable estimates, while the FE and RE models portray the ability to control for unobserved heterogeneity. The choice between the FE and RE models is further complicated by the fact that most of the data is not based on the Hausman test, which is supposed to clarify the issue.

The method which determines the variables to be included in the model is based on economic theory as well as empirical evidence. This method ensures that there is a real theoretical relationship between the variables included in the model and the phenomenon of external debt accumulation. The combination of theoretical verification with relevant econometric single case study methods helps in understanding and making generalizations about the determinants of external debt in OIC member states.

Regression Analysis Method

The panel data model is the regression analysis technique employed in this investigation. The study applies Panel Least Squares (PLS) regression analysis, Fixed Effect Model (FE), Random Effect Model (RE), and the Chow Test to evaluate the relationship between the dependent variable (external debt) and various independent variables (such as export, FCE, FDI, GDP, import, inflation, and population) in OIC member countries. The study also performs the Hausman test to compare the fixed effects and random effects models.

Model Specification

Panel data is the type of model specification used in this investigation. Analyzing panel data enables the investigation of data variances in both cross-sectional and time-series formats. The Panel Data model can be expressed as follows: Y_it is composed of β_0, β_1X_it, β_2Z_it, α_i, and ϵ_it.

$$Y\_it = \alpha\_it + \beta\_0 + \beta\_1X\_it + \beta\_2Z\_it + \epsilon\_it$$

Where:

- At time t, the dependent variable for the i-th country is represented by Y_it.

- The independent variables for the i-th country at time t are represented by X_it.
- Z_i is a representation of the fixed or individual-specific effects.
- The time-specific or random effects are represented by α_i.
- To be estimated are the coefficients β_0, β_1, and β_2.
- The error term is represented by ε_it.

The relationship between foreign debt and economic growth in OIC member countries. Within the context of panel data analysis, an empirical model was developed using the foreign debt stock and growth indicators of Algeria, Turkiye, Morocco, Tunisia and Egypt for the years 1988–2022. The empirical model created is as follows:

$$ED_{it} = \alpha\_it + \beta\_EXPORT_{it} + + \beta\_FCE_{it} + \beta\_FDI1_{it} + \beta\_GDP_{it} + \beta\_IMPORT_{it} + \beta\_INFLATION_{it} + \beta\_POPULATION_{it} + \varepsilon\_it$$

In the study, the dependent variable expressed as "ED" is the External debt stocks (% of GNI) of each country. The data on the independent variables were taken from the official website of the World Bank. EViews 12 program was used in the empirical model's estimation that was constructed as part of panel data analysis.

Table 1: Definitions of variables

External debt stocks (% of GNI)	Stocks of all external debt relative to gross national product. Debt owed to nonresidents that can be repaid with cash, products, or services is referred to as total external debt.
GDP per capita growth (annual %.)	GDP per capita growth rate expressed as a percentage per year using constant local currency. The gross domestic product divided by the population at the middle yields GDP per capita.
Foreign direct investment, net inflows (% of GDP)	The net inflows of capital intended to obtain a long-term management stake (10 percent or more of voting shares) in a business that operates in a different economy than the investors are known as foreign direct investment. As

	indicated by the balance of payments, it is the total of equity capital, earnings reinvested, other long-term capital, and short-term capital.
Population growth (annual %)	The increasing rate of midyear population growth from year t-1 to year t, expressed as a percentage, equals the annual population growth rate for year t
Exports of goods and services (annual % growth)	Rate of increase for goods and services exports per year expressed in constant local currency. The aggregates are provided in US dollars and are based on constant prices from 2015.
Inflation, consumer prices (annual %)	The annual percentage change in the average consumer's cost of purchasing a basket of goods and services—which may be constant or vary at predetermined intervals, like annually—is what the consumer price index uses to calculate inflation.
Imports of goods and services (annual % growth)	Rate of growth for goods and services imports per year expressed in constant local currency. The value of all commodities and other market services obtained from the rest of the world is represented by imports of products and services.
Final consumption expenditure (annual % growth)	Growth in final consumption spending on a yearly average basis while keeping local currency constant. The total of household final consumption expenditure (formerly private consumption) and general government final consumption expenditure (previously general government consumption) is known as final consumption expenditure (formerly total consumption).

Depending on the research issue and the hypotheses being evaluated, the model specification may also include extra lagged variables, interaction terms, or control variables. It is important to remember that while the following equation is a basic illustration of a Panel Data model, the exact model specification utilized in the study may vary.

Table 2: Panel Least Square (PLS)

R-squared	0.058890	Mean dependent var	45.63403
Adjusted R-squared	0.019442	S.D. dependent var	23.53445
S.E of regression	23.30455	Akaike info criterion	9.179810
Sum square resid	90698.02	Schwarz criterion	9.324486
Log likelihood	-795.2334	Hannan-Quinn criter	9.238495
F-statistic	1.492862	Durbin-Watson stat	0.144908
Prob(F-statistic)	0.1729161		

The Panel Least Squares (PLS) regression analysis's findings are shown in the provided data. Examining the link between several independent variables and the dependent variable, ED—which is not stated in the content—is the goal of this analysis.

The estimated impact of each independent variable on the dependent variable is shown by the coefficients in the table. The explanation for every coefficient is as follows:

1. C (intercept): When all independent variables are equal to zero, the intercept term (C) indicates the expected value of the dependent variable. The intercept in this instance is 57.48887, indicating that the predicted value of the dependent variable is 57.48887 when all independent variables are zero.
2. Export: 0.444658 is the coefficient for the export variable. This means that a one-unit rise in exports is linked with an increase of 0.444658 units in the dependent variable, holding all other variables fixed.
3. FCE: -0.320490 is the coefficient for the FCE variable. This implies that, while all other variables are held constant, a one-unit rise in FCE is correlated with a 0.320490-unit drop in the dependent variable.

4. FDI1: The variable's coefficient is -0.424312. This suggests that when all other variables are held constant, a one-unit increase in FDI1 is correlated with a 0.424312-unit drop in the dependent variable.

5. GDP: The GDP variable has a coefficient of -0.186203. This shows that, when all other factors are held constant, a one-unit increase in GDP is correlated with a 0.186203-unit drop in the dependent variable.

6. Import: -0.378852 is the coefficient for the import variable. This indicates that, while all other factors are held equal, a one-unit increase in import is correlated with a 0.378852-unit drop in the dependent variable.

7. Inflation: The inflation variable has a coefficient of 0.042549. This suggests that, while all other variables are held constant, an increase of one unit in inflation is correlated with an increase of 0.042549 units in the dependent variable.

8. Population: The variable population has a coefficient of -6.489651. This shows that, when all other variables are held constant, a one-unit increase in population is correlated with a 6.489651-unit drop in the dependent variable.

With a standard error of 23.53445, the independent variables account for 5.89% of the variation in the dependent variable. Although the model's fit is not statistically significant, the F-statistic checks the model's relevance. Positive autocorrelation in residuals is suggested by the Durbin-Watson statistic, indicating that the model may not capture temporal dependencies. The overall fit of the model is not statistically significant, indicating that more research and consideration of other aspects might be required.

Table 3: Fixed Effect Model (FE)

R-squared	0.339221	Mean dependent var	45.63403
Adjusted R-squared	0.294629	S.D. dependent var	23.53445
S.E of regression	19.76573	Akaike info criterion	8.871884

Sum square resid	63681.53	Schwarz criterion	9.088898
Log likelihood	-764.2898	Hannan-Quinn criter	8.959911
F-statistic	7.607147	Durbin-Watson stat	0.220077
Prob(F-statistic)	0.00000		

Panel least squares are used in the fixed effect model (FE) to evaluate the relationship between the dependent variable (ED) and many independent variables. According to the model, a rise in exports is linked to an increase in ED of 0.357192 units, whilst an increase in FCE is linked to a fall in ED of -0.710867 units. At conventional levels, the coefficients for these independent variables do not exhibit statistical significance. To take individual-specific effects into account, the model additionally incorporates cross-section fixed effects. With an R-squared of 0.339221, the independent variables can account for around 33.9% of the variation observed in the dependent variable. At least one of the independent variables has a statistically significant association with the dependent variable, according to the F-statistic of 7.607147. The Durbin-Watson statistic of 0.220077, however, raises the possibility that the model is not sufficiently capturing the dynamics of time series.

Table 4: Random Effect Model (RE)

R-squared	0.058890	Mean dependent var	45.63403
Sum squared resid	90698.02	Durbin-Watson	0.144908

A panel dataset was analysed using the Random Effect Model (RE) to determine how many independent variables and the dependent variable, ED, are related. The model incorporates both idiosyncratic and period random effects. The idiosyncratic random effect has a standard deviation of 16.51430, while the period random effect has a standard deviation of 0.000000 and a rho value of 0.0000. With the dependent variable's mean being 45.63403 and its standard

deviation being 23.53445, the weighted statistics indicate that the independent factors account for around 5.89% of the variation in the dependent variable. According to the data interpretation, some independent variables—like GDP, inflation, FDI1, and export—have statistically significant effects on the dependent variable, while others—like population, imports, and exports—have no significant effects at all.

Table 5: Chow Test Results

Effect Test	Statistic	d.f.	Prob
Cross-section F	17.287930	(4,163)	0.0000
Cross-section Chi-square	61.887160	4	0.0000

To ascertain the importance of cross-section fixed effects in explaining the dependent variable, "ED," the data presents a fixed effects test on a panel dataset. The findings demonstrate the statistical significance of cross-section fixed effects with an F-statistic of 17.287930 and a chi-square statistic of 61.887160. The results of the regression demonstrate that, with a positive coefficient of 0.444658, an increase in exports is correlated with an increase in the dependent variable (ED). Nevertheless, there are no discernible effects from the other independent factors. The independent variables account for roughly 5.89% of the variation in the dependent variable, according to the regression model's overall fit of 0.058890.

Table 6: Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d. f.	Prob
Period random	179.786109	7	0.0000

Period fixed (Dummy variables)

R-squared	0.623630	Mean dependent var	45.63403
Adjusted R-squared	0.507607	S.D. dependent var	23.53445

S.E of regression	16.51430	Akaike info criterion	8.651894
Sum square resid	36272.04	Schwarz criterion	9.411442
Log likelihood	-715.0407	Hannan-Quinn criter	8.959988
F-statistic	5.375025	Durbin-Watson stat	0.285543
Prob(F-statistic)	0.00000		

A panel dataset consisting of 35 periods and 5 cross-sections was subjected to the Hausman test. The period random effects variance was zero in the results, suggesting that the random effects model might not be appropriate for this dataset. For more analysis, the fixed effects model was employed. The fixed effects model's coefficients demonstrated that increases in export, FDI1, FCE, FDI1, GDP, import, inflation, and population significantly impacted the dependent variable (ED). With an R-squared of 0.623630, the independent variables in the model can account for around 62.36% of the variation in the dependent variable. Nevertheless, more investigation is required to understand the findings and make judgments completely.
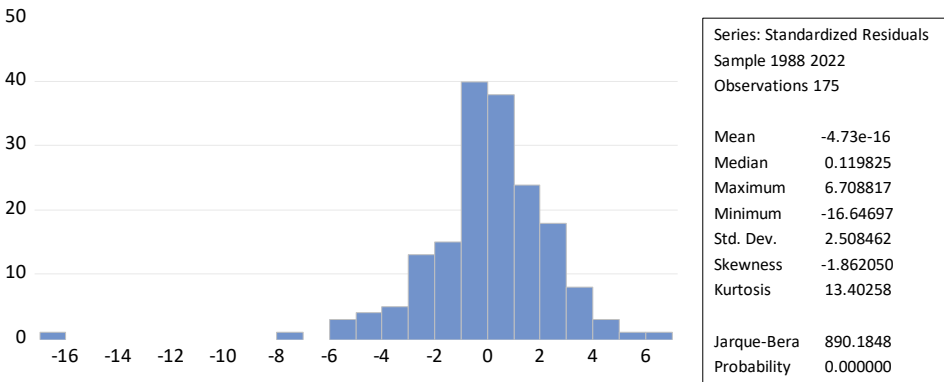

| Series: Standardized Residuals |
| Sample 1988 2022 |
| Observations 175 |

Mean	-4.73e-16
Median	0.119825
Maximum	6.708817
Minimum	-16.64697
Std. Dev.	2.508462
Skewness	-1.862050
Kurtosis	13.40258
Jarque-Bera	890.1848
Probability	0.000000

Figure 1: Normality Test

The standardised residuals in the data have a normal distribution with extreme values, a somewhat tilted median to the right, and an almost zero mean. The left side of the distribution has a longer tail, as indicated by the skewness value of -1.862050 and the standard deviation of 2.508462. Outliers are indicated by the kurtosis value of 13.40258, which shows heavier tails and a highly peaked distribution. The residuals do not follow a normal distribution, according to the Jarque-Bera statistic, which has a probability of 0.000000, suggesting that the assumption of normality may not hold (Figure 3.1).

Table 7: Panel Cross-Section Heteroscedasticity LR Test

Weighted Statistics

R-squared	0.594423	Mean dependent var	2.559300
Adjusted R-squared	0.574877	S.D. dependent var	4.217777
S.E of regression	2.723385	Akaike info criterion	4.535390
Sum square resid	1231.193	Schwarz criterion	4.698150
Log likelihood	-387.8466	Hannan-Quinn criter	4.601410
F-statistic	30.41171	Durbin-Watson stat	1.930767
Prob(F-statistic)	0.00000		

Unweighted Statistics

R-squared	0.376329	Mean dependent var	2.049689
Sum square resid	1231.203	Durbin-Watson stat	1.767782

The residuals in a regression model are found using the panel cross-section heteroskedasticity LR test. The residuals are homoscedastic, according to the null hypothesis; nevertheless, the LR test statistic of 41.81687 shows

heteroskedasticity. GDP is the dependent variable in the regression model, with export, FCE, FDI1, FDI2, IMPORT, INFLATION, and POPULATION as independent variables. Each variable's coefficient shows the estimated impact on GDP. 59.44% of the variance in GDP can be explained by the independent variables, according to the R-squared value of 0.594423.

METHODOLOGICAL LIMITATIONS

There is an increase in the possibility of multicollinearity through the inclusion of exports, FDI, and GDP growth into the independent variables, making it quite difficult to determine the impact of each independent variable separately (Gujarati & Porter, 2020).

Factors like multicollinearity can increase standard deviations and make the interpretation of coefficients for correlated variables quite difficult. Consider a scenario where both GDP growth and FDI show a very good correlation. In such a case, it could be very difficult to gauge whether GDP growth or FDI's contribution is more vital to the external debt position. Overall, this may produce coefficient estimates that are unreliable or significant, ultimately undermining the quality of the model (Wooldridge, 2021). A possible concern within the methodology already presented can be categorized as endogeneity – which means that some of the independent variables could be predetermined at the same time as the dependent variable is determined (which is sometimes termed reverse causation). For example, GDP growth can, for sure, reduce external debt, but there is a greater possibility that an exceptionally high level of external debt can also hamper economic growth by increasing the burden of debt (Hausman, 2021). Addressing endogeneity could produce biases in estimation and inaccurate conclusions due to what are known as allocated results. For example, the effect of external debt on GDP growth might be over or underestimated, depending on whether it is assumed that the GDP growth caused the external debt. This is particularly possible for the analysis of external debt, which is macroeconomic in nature and is prone to such feedback loops (Bashir & Islam, 2024).

Like all countries where these models are applied, the use of fixed effects or random effects models assumes that the relationship between the independent and the dependent variables is the same throughout all the countries (in case of random effects) or that the country-specific effects are

related with the regressors in question (in case of fixed effects). That may not always be the case. There may be critical differences in how some key variables like inflation or FDI act based on a certain country's economic structure. Such differences would break the assumption of homogeneity (Raj, 2023).

Undoubtedly, if the assumption of homogeneity is not true, then models will render erroneous estimates or, worse, completely ignore essential details. For instance, "the impact of FDI on external debts may be more pronounced in less developed economies than in the higher-income OIC countries," but this difference might be obscured in a model that assumes uniformity (Hussain, 2021).

In as much as the model of external debt has a number of important components of external debt sustainability, there are other elements which may affect debt sustainability which the model neglected. Issues such as political risk, institutional quality, or even exchange rate volatility could externally affect external debt and were certainly not specifically analyzed in this work. (Ahmed & Sundararajan, 2022).

The absence of key considerations is regarded as dealing with omitted variable bias, whereby the effect of the included variables will need to take into consideration factors that are known and those not known but which affect the dependent and independent variables. This might lead to incomplete external debt determinants as well as give distorted evaluations and conceptualizations of policies aimed at external debt (OIC Economic Outlook, 2023).

RESULTS AND DISCUSSION

This research contributes to the understanding of the relationships between foreign debt, investment, and growth in the economies of OIC members. The results of the PLS regression revealed that 5.89 per cent of the variation of the dependent variable (external debt) could be explained by the independent variables (Exports, FCE, FDI, GDP, imports, inflation, and Population). In spite of the insights this model did provide, the overall model fit was substantively insignificant. This means that more variables or better models need to be developed in subsequent studies. On the other hand, the Fixed Effect Model with cross-section fixed effects (FE) explains approximately 33.9% of the variation in foreign debt, which is quite an improvement from the PLS model. On the other hand, the Random Effect Model, which incorporates both unit and

period random effects, produced a variance of zero for the period random effects. Thus, this type of data does not seem to be suited for this model.

A non-linear correlation exists between foreign debt and economic growth, something that this study seeks to highlight. This assumption has initially relied on the regression outcomes that show a correlation between higher foreign debt and economic growth. However, this correlation between foreign direct investment and economic growth is very simplistic. It is correct that higher foreign debt is associated with greater economic growth, but only to a certain point and level. In addition to the level of debt, other economic variables come into play.

When kept reasonable, external borrowing has the potential to enhance economic growth by enabling spending on crucial infrastructure, education, and technology. Such spending can augment productivity and sustain growth (Cheng et al., 2022). However, with larger amounts of external borrowing, the positive impacts – if any – tend to shrink. The burden of servicing excessive levels of debt could result in a scenario known as "debt overhang," wherein the costs of servicing the debt incurred outweighs the benefits from the loans. This situation can severely limit fiscal space, reduce investment expenditure, and even cripple growth in the long run (Ali & Zuberi, 2021). Furthermore, certain countries with foreign debt beyond a critical value may suffer from decreasing marginal returns which takes the shape of one additional unit of foreign debt being economically beneficial, economically disadvantageous, or no benefit at all (Begg & Becket, 2023).

More recently, scholars have proposed that the relationship between debt and growth depends significantly on how and for what the debt is raised. In countries that have strong institutions, well-structured foreign debt management policies, and a solid military backbone, external debt is more likely to contribute positively to the economy (Miller & Sampson, 2021). On the other hand, poorly developed institutions or misallocated spending by the state can lead to stagnation or decline in economic growth (Khan & Wang, 2024).

Inflation, Exports and Their Effects on Economic Growth
The consequences underscore the substantial contribution that exportation as well as inflation make in the context of both foreign debt and economic growth. Performance in exports is vital because it generates foreign exchange earnings

and enables a country to meet external debt servicing without compromising its domestic financial resources (Zhao et al., 2023). Within many countries that have well-performing export strata, external debt can be more efficiently utilized since revenue flow is sufficiently high to cover the debt servicing costs without excessive borrowing or spending cuts.

At the same time, inflation is significant for the external debt and economic growth nexus since it can have both negative and positive effects. As is commonly understood, low to moderately high rates of inflation that are constant contribute significantly to economic growth because it breeds confidence among investors and sustains the real value of payments servicing the debt. The downside is that high inflation reduces the overall purchasing power of domestic currency and effectively augments the real value of foreign debt (Ghosh & Pandey, 2022). Especially when inflation becomes rampant, the debt-financed investments' effectiveness reduces tremendously and even leads to capital flight as the funds flee to more stable countries. Without a doubt, inflation control should be prioritized to enable foreign debt benefits to surpass the costs involved.

The Impact of Institutional Effectiveness and Governance

It has been argued that effective institutions with transparency, the rule of law, and policies that are actually implemented stand out in ensuring that external debt is incurred and put to use for economically productive investments (Miller & Sampson, 2021). On the other hand, overly weak governance regimes can enable corruption, inefficiency, and misallocation of the funds that were intended to be productive and therefore reduce the chances of foreign debt having a positive effect on growth (Khan & Wang, 2024).

In addition, these factors can also be moderated by political calmness and consistency in policies. Politically stable nations are more capable of efficiently managing their debt, and politically volatile nations, on the other hand, suffer more from foreign debt as the instability 'multiplier' aggravates the economic turbulence (Begg & Becket, 2023). Hence, it can be useful to determine how these institutional aspects relate to various levels of debt and what patterns capture the essence of economic development, thus helping policymakers understand different avenues of managing public debt.

This study provides an insightful analysis of the impact on foreign investments and economic growth of member countries in OIC. The key findings of this research should prove useful for these countries in terms of managing their debt more effectively in order to achieve more positive economic growth. OIC members must take note of the significant impact that external debt has on economic performance and thus work towards improving their debt management systems to ensure external debt remains within sustainable levels. OIC members can achieve this by regulating the external debt to GNI ratio and setting reasonable thresholds on debt accumulation to prevent undisciplined borrowing. The creation of independent debt management units responsible for active portfolio management and regular stress testing of the sustainability of the portfolio under various external shocks, such as global financial crises or changes in commodity prices, will be vital. (Bashir & Islam, 2024) In addition, countries could emulate best practices from bridged economies, such as Turkey and South Korea, which have successfully enhanced debt transparency while simultaneously reducing their overall debt burden. (World Bank, 2022).

Along with enhancing debt management, member countries of the OIC should put more effort into diversifying their sources of investments. Countries relying too much on foreign debts run the risk of exposure to changes in the global market and fluctuations in interest rates. Therefore, policies that are conducive to attracting FDI should take centre stage. OIC countries can simplify the process of doing business, cut red tape, and provide tax breaks to attract long-term investment in critical areas such as infrastructure and technology (Ahmed & Sundararajan, 2022). Member countries of OIC are famed for their production of oil but Malaysia has improved its economic profile by offering FDI and stands out as a model for other OIC countries (UNCTAD, 2023). In addition, boosting domestic business adoption via public-private investment collaboration may also open up new opportunities for investment while decreasing external debt dependence.

A crucial factor amid the political and the economic empowerment of the member OIC countries is the economic diversification strategy. These countries are predominantly dependent on natural resource exports and are subject to global commodity price shocks. Investing in agriculture, manufacturing, technology, and other non-oil sectors represents a proactive policy aimed at building a more resilient economy. As Raj (2023) highlights,

investment in education and skills to support a diversified industry is equally important. Both UAE and Indonesia have been able to successfully diversify their economies by concentrating on tourism, manufacturing, and finance, which have substantially increased their GDP (OECD, 2021). OIC member countries can implement these approaches to reduce their external debt reliance and simultaneously strengthen their economies.

OIC countries should now focus on enhancing domestic revenue through tax reforms and widening the tax base to lessen their external borrowing. The public funds can be used more efficiently with the aid of anti-corruption strategies (Basher, Ahmed, & Ali, 2023). Furthermore, the adoption of a progressive tax structure aimed at higher income brackets, along with improved digital tax compliance, will increase domestic revenue. South Africa and Brazil have successfully improved revenue collection with the help of tax reforms, which has positively impacted their fiscal sustainability (IMF, 2022). This shifts the revenue reliance on external debt to a more domestic-driven approach that is beneficial to the fiscal positioning of the OIC states.

The sustainability of debt hinges on the formulation of strong institutions for good governance. There is external debt sustainability if governance systems are efficient. Greater accountability of supreme audit institutions and transparency in debt increment will improve debt management and debt containment and mitigate the risks of overly debt exacerbation and excessive accumulation (Hussain, 2021). The Singapore system of public financial management is one of the best in the world, transparent, and accountable and can be used by the OIC countries (World Bank, 2023). As Basher et al. (2023) point out, sound governance and political order are important considerations for the effective management of external debt.

Lastly, the management of inflation and currency movements is an essential factor for external debt sustainability. For countries with high external debts, especially those in developing countries, inflation and exchange rates are critical economic indicators since they influence the value of the external debt. OIC member countries should first focus on inflation and target their management through solid monetary policies, enabling their central banks to address currency movement and bolster foreign exchange reserves to mitigate external shocks (Raj, 2023). Countries like India, which has always practised low

inflation along with stable currency policies, can teach other nations a thing or two about price stability and management. (IMF, 2023).

CONCLUSION

Several important implications can be made from the analysis done in this paper on the connection between investment, economic growth, and external debt in OIC member nations.

First off, the results imply that external debt significantly affects investment and economic expansion. The study supports the notion that foreign debt can have contradictory effects on a nation by showing that a high amount of debt can deter investment and impede economic progress. Studies have, meanwhile, also demonstrated a favourable correlation between foreign debt and economic growth, suggesting that foreign debt can encourage investment and economic expansion. Second, the study emphasizes how critical it is to consider the unique circumstances of OIC member nations when examining the connection between investment, economic growth, and external debt. These nations have potential and difficulties regarding foreign debt, investment, and economic expansion; these issues must be properly considered and handled.

Thirdly, a strong analytical framework for assessing the intricate connections among external debt, investment, and economic growth is offered using panel data analysis. By considering the potential correlation between the error elements in the equations, this model provides a thorough grasp of the complex dynamics of economic systems. Formulating efficient economic strategies requires an understanding of the relationship between external debt, investment, and economic growth, particularly in the context of OIC member countries. To fully understand these connections and investigate other variables that can affect these nations' economic growth, more research is required.

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