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RESEARCH PAPER

Navigating External Debt Dynamics for Sustainable Growth: Multinational Analysis

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ABSTRACT

This research endeavors to unravel the complex interplay between external debt dynamics and economic growth. External debt is necessary for countries to finance investments in infrastructure, human capital, technology, economic growth, and address balance of payments. It plays a pivotal role in supporting development initiatives and crisis management. The study took 41 diverse countries within the International Monetary Fund (IMF) framework from 2005 to 2021. Employing a meticulously curated dataset encompassing various economic indicators GDP growth, external debt, government consumption, inflation, and imports this study applies System Generalized Method of Moments (GMM) and Difference GMM approach. High external debt is linked to lower GDP growth, indicating negative correlation. The study highlights the impact of government consumption, inflation, and imports on GDP growth, with varying effects based on analytical methods. Evidence-based recommendations include prudent debt management, efficient government spending, and trade-friendly policies for sustainable economic expansion.

KEYWORDS: External Debt, GDP Growth, Imports, Inflation, System GMM

Introduction

External debt is necessary for countries to finance investments in infrastructure, human capital, technology, economic growth, and address balance of payments. It plays a pivotal role in supporting development initiatives and crisis management. However, careful debt management is essential to avoid overburdening future generations and maintain fiscal sustainability (Osano et al., 2016) External debt plays a crucial role within IMF member countries by enabling them to finance strategic investments in sectors like infrastructure, education, and technology, which are instrumental in driving economic growth. Borrowing from external sources allows these nations to expedite development projects, create jobs, and enhance competitiveness, contributing to overall economic expansion. However, prudent debt management is vital to ensure that borrowed funds are channeled effectively and that debt sustainability is maintained, thus minimizing risks and maximizing the positive impact of external debt on the economic growth trajectories of IMF member countries (Mupunga et al.,2015)

In an increasingly consistent and interdependent global economy, the dynamics between external debt and economic growth have emerged as a central concern for policymakers, economists, and international financial institutions. The relationship between a nation's level of external debt and its economic performance has been a subject of extensive scholarly inquiry, policy debate, and practical relevance. As countries engage in international trade, investment, and financial transactions, the accumulation of external debt becomes an integral component of their economic landscape (Salvatore.,2019)

The convergence of factors influencing a country's economic growth and development is multifaceted, encompassing not only domestic policies and institutions but also international financial flows and obligations. External debt, is the obligations a country owes to foreign creditors, can assume various forms, including public and private sector borrowings, multilateral loans, and commercial debts. The management of external debt becomes paramount as countries strive to strike a delicate balance between financing development initiatives and avoiding the potentially adverse effects of over indebtedness (Acharya et al., 2015).

This research holds significant importance as it delves into the economic dynamics of 41 indebted countries, drawing from a comprehensive dataset provided by the IMF. The utilization of System GMM and Difference GMM methodologies within the study design is particularly noteworthy. These sophisticated analytical tools play a crucial role in not only mitigating endogeneity concerns but also adeptly addressing heteroskedasticity, ensuring a more robust analysis of the intricate relationship between external debt and economic growth. The thorough exploration of these methodologies within the context of such a diverse array of countries provides a nuanced understanding of the impact of external debt dynamics on economic expansion.

Literature Review

In this section, all the relevant studies are reviewed to dig out the most significant factors related to external debt and economic growth. External debt theories are economic frameworks that seek to explain the factors that drive a country's decision to borrow from foreign sources and the consequences of such borrowing on the economy. There are various external debt theories and empirical studies, and some of the most prominent ones are discussed below.

The neoclassical theory posits that external borrowing is a rational decision that is based on the country's need for investment capital. Neoclassical theorists argue that external debt can help a country achieve faster economic growth by allowing it to finance investments that it would not otherwise be able to fund through domestic savings. They also argue that the benefits of external borrowing outweigh the costs and that any negative consequences, such as debt crises, are the result of poor borrowing and lending practices. According to the endogenous growth theory an increase in public debt lowers the growth rate and hence hurt future generations. Moreover, although the reduction in public debt increases growth, however, it hurts the current generation and hence can be Pareto optimal (Saint-Paul, 1992). Dependency theory argues that external debt is a form of economic exploitation, in which developed countries lend to developing countries to maintain their economic dominance. Dependency theorists argue that external debt perpetuates underdevelopment in developing countries by diverting resources away from domestic investments and perpetuating a cycle of debt and poverty. Keynesian theory posits that external debt can be beneficial to a country's economy in the short term, but can lead to negative consequences in the long term. Keynesian theorists argue that external borrowing can stimulate economic growth by increasing aggregate demand, but can also lead to inflation, balance of payments crises, and debt sustainability issues in the long run. The structuralist theory emphasizes the importance of domestic structural factors, such as income inequality, market structure, and political instability, in determining the consequences of external debt. Structuralist theorists argue that external debt can exacerbate existing structural problems and lead to economic crises, such as hyperinflation and currency devaluation.

According to the traditional view, external debt can hinder economic growth because it leads to a drain on a country's resources. Countries have to use their resources to service their debt obligations, which leaves fewer resources available for investment and other productive activities. Moreover, excessive debt can lead to a loss of confidence

in foreign creditors, which can further hamper a country's economic growth. Debt overhang theory suggests that a high level of external debt can discourage foreign investment and stifle economic growth. According to this view, when a country has a high level of external debt, investors are hesitant to invest in the country because they fear that any profits, they make will be used to service the country's debt instead of being reinvested in the economy. This can lead to a vicious cycle in which low investment leads to slow economic growth, which in turn leads to more external debt. Debt neutrality theory posits that external debt has no effect on economic growth. According to this view, external debt is simply a transfer of resources from one country to another and does not affect a country's long-term growth prospects. In other words, a country's ability to grow depends on its domestic policies and institutions, not its level of external debt.

Soydan and Bedir, (2015), The analysis focused on examining the relationship between external debt and economic growth within a panel dataset covering middle-income countries from 1985 to 2013. Employing the Common Correlated Effects (CCE) framework in the econometric approach, the study revealed a consistent negative linear association between external debt and economic growth across the panel. Emphasizing the findings, the study underscored that the influence of external indebtedness is notably pronounced through the debt stock rather than directly via liquidity constraints, as depicted by the debt service variables.

Lau et al., (2022), The investigation delved into the correlation between debt and economic growth within developing Asian nations, which grapple with substantial external indebtedness in their fiscal operations. This study aimed to pinpoint the optimal threshold of external debt to GDP ratio that affects economic growth, utilizing a sample encompassing 16 Asian countries across the period from 1980 to 2016. The findings notably underscored a substantial and adverse impact of external debt on growth across the majority of these nations. Through threshold analysis, ten countries demonstrated thresholds below 30%, three fell within the 30%–60% range, and two countries were within the 60%–90% range, with Thailand as the sole nation surpassing a 90% threshold. The study's recommendations centered on the necessity for these Asian economies to achieve sustainable growth by maintaining flexibility in utilizing fiscal instruments to counter potential future economic shocks.

N'Zue (2020), The study delved into the impact of external debt on economic growth within the ECOWAS region. Utilizing panel data covering the period from 1990 to 2016, the research employed the panel CS-ARDL method as its econometric approach. Cointegration among the variables studied was identified. The findings of the study unveiled that external debt initially exerts a positive influence on economic performance within specific thresholds. In the short term, this threshold was identified at 45%, while in the long term, it stood at approximately 42.52%. However, the study revealed that beyond these thresholds, further accumulation of external debt began to have an adverse effect on the economic performance of the region.

Ohiomu (2020), studied a model to analyze the relationship between external debt and economic growth. The data nature is time series and ARDL bounds test used. The study shown that variables represented debt overhang (D_Y) and crowding-out effects (DS_X) lead to a decrease in investment levels, thereby negatively affecting economic growth in Nigeria. The study suggested that Nigeria implement stringent debt management policies, adopt effective strategies for debt reduction, and enhance investment initiatives to drive economic expansion and achieve sustainable development.

Demikha et al., (2021) The research investigated the influence of FDI, external debts, trade openness, and government expenditure on economic growth within the Ottoman Empire. It addressed a significant gap by conducting a comprehensive

quantitative analysis of this aspect, considering the limited focus on the economic performance of the empire during the late 19th century. Employing the time-series technique ARDL and utilizing macroeconomic data from 1881 to 1914, the study revealed a significant positive impact of external debt, trade openness, and government expenditure on economic growth. Conversely, FDI and inflation were found to have a notable negative effect on economic growth. The study's recommendations highlighted the necessity for economic policies to prioritize generating funds from local sources rather than heavily relying on external funding. This approach was suggested to enhance economic development within the Ottoman Empire.

The literature on the relationship between external debt and economic growth encompasses diverse methodologies and contexts, revealing nuanced insights across various regions and periods. Several studies suggest a predominantly negative impact of external debt on economic growth, highlighting thresholds beyond which debt accumulation becomes detrimental to growth. Factors such as debt stock, debt service, and thresholds relative to GDP emerge as significant determinants influencing this relationship. While some studies emphasize the negative linear association between debt and growth, others uncover nonlinearities and thresholds that warrant cautious debt management strategies. Additionally, recommendations span governance accountability, fiscal policy flexibility, targeted borrowing, domestic investment promotion, and stringent debt management policies. The literature underscores the importance of tailored policy interventions and sustainable debt management practices to mitigate adverse impacts and foster economic growth across different economies.

Material and Methods

Our study delves into the intricate interplay between external debt and economic growth by leveraging an extensive dataset spanning 41 member countries of the International Monetary Fund (IMF) across the period from 2005 to 2021. The dataset, meticulously, offers a robust foundation. It enables us to rigorously analyze and unveil the nuanced connections between the dynamics of external debt and the paths taken by economies to expand across a diverse spectrum of nations. This rich dataset holds the promise of shedding light on the complex relationships between these variables, providing comprehensive insights into the economic landscapes of varied countries.

Country List

Table 1
List of countries

No.	Countries	No.	Countries	No.	Countries
1	Algeria	15	Dominican rep	29	Pakistan
2	Armenia	16	Fiji	30	Papua guinea
3	Bolivia	17	Gabon	31	Paraguay
4	Brazil	18	Georgia	32	Russia
5	Bulgaria	19	Ghana	33	Samoa
6	Burundi	20	Guyana	34	Serra Leone
7	Cameroon	21	Iran	35	Soloman island
8	African rep	22	Lesotho	36	South Africa
9	China	23	Mexico	37	Togo
10	Colombia	24	Moldova	38	Tunisia
11	Congo	25	Morocco	39	Uganda
12	Costa Rica	26	Nicargua	40	Ukraine
13	Cote d'Ivoire	27	Nigeria	41	Zambia

14	Dominica	28	North Macedonia

Econometric Model

$$GDPG_{it} = \beta_0 + \beta_1 EXTDEBT_{it} + \beta_2 GOVCONS_{it} + \beta_6 INFL_{it} + \beta_6 IMPORT_{it} + \varepsilon_{it}$$

Whereas:

GDPG = GDP growth

EXTDEBT = External debt

GOVCONS = Government consumption

INFL = Inflation

IMPORT = Import of goods and services

Variable justification

GDP Growth (GDPG)

Gross Domestic Product (GDP) stands as a vital yardstick for economic growth, with its annual percentage change, or GDP growth rate (GDPG) (TOAMA, B. A. A. 2019), serving as a pivotal dependent variable in this study. This metric encapsulates the fluctuations in a nation's economic output, reflecting the ebb and flow of productive activity over time. By scrutinizing the determinants of GDPG, this research seeks to unravel the intricate factors underpinning a country's economic expansion, thus shedding light on the mechanisms that drive or impede overall prosperity. (Khan, Z. U.et al 2023).

External Debt (EXTDEBT)

External debt is quantified as the entirety of external debt stocks relative to the gross national income, forming a crucial gauge of the debt overhang phenomenon, (TOAMA, B. A. A. 2019, Khan, Z. U.et al 2023). A heightened percentage signifies elevated indebtedness, leading to detrimental repercussions on economic growth. Consequently, an inverse correlation is anticipated between this ratio and economic growth, underscoring the potential adverse influence of substantial external debt on a nation's economic performance. As this ratio increases, the burden of debt is likely to cast a shadow over growth prospects, warranting a thorough examination of its ramifications within the broader economic context.

Government Consumption (GOVCONS)

Government final consumption represents the total value of goods and services acquired by the government for direct use in the provision of public services and administration, (TOAMA,2019, Zubair .et al 2023). This vital economic component encompasses expenditures on areas such as education, healthcare, defense, and public administration. As a significant determinant of overall economic activity, government final consumption plays a pivotal role in shaping both short-term demand within the economy and long-term societal well-being.

Inflation (INFL)

Inflation denotes the sustained increase in the general price level of goods and services within an economy over a defined period. As a complex economic phenomenon,

inflation can have far-reaching effects, including eroding purchasing power, distorting investment decisions, and potentially hindering economic stability

Import (IMPORT)

The import percentage of GDP reflects the proportion of a country's Gross Domestic Product (GDP) that is constituted by the value of imported goods and services, (Khan, Z. U.et al 2023). This metric serves as a key indicator of a nation's economic interconnectedness with the global market. A higher import percentage relative to GDP can signify significant reliance on foreign products, which might impact domestic industries, trade balances, and overall economic resilience. Striking a balance between imports and domestic production is crucial for fostering a robust and diversified economy that can withstand external shocks and ensure sustainable growth

Estimation Strategy

The econometric methodology utilized in this study is proposed by Roodmen (2009) and based on the dynamic panel Generalized Method of Moments (GMM) estimators introduced by Arellano and Bond (1991) and subsequently refined by Blundell and Bond (1998). This choice of technique stems from its capacity to effectively address both country-specific effects and simultaneity bias. To elucidate the appropriateness of this approach for our dataset, the foundational model proposed by Arellano and Bond (1991) suggests a transformation of the equation into a first-difference form, thereby mitigating country-specific effects and simultaneity bias. However, recent discourse has raised concerns about the validity of this modeling approach, particularly when explanatory variables exhibit persistence, as observed in cases such as institutional quality that tends to endure once established (Arellano & Bover, 1995).

Robustness Check

Table 1
Robustness check

Variables	Pooled OLS	Fixed effect	Random effect
GDPG -1	.1964577 *** (4.99)	-.0526731 (1.28)	.1964577 *** (4.99)
EXTDEBT	-.0347385 *** (-5.17)	-.0526705 *** (-4.97)	-.0347385 *** (-5.17)
GOVCONSUMP	-.1909698 *** (-6.31)	-.3870736 *** (-5.14)	-.1909698 *** (-6.31)
INFL	-.0412903 (-1.39)	-.071702 * (-1.74)	-.0412903 (-1.39)
IMPORT	-.0431157 *** (5.88)	0.1128147 *** (5.71)	.0431157 *** (5.88)
Number of Obs.	656	656	656
No of countries	41	41	41
R-Squared	0.3187	.3131	.3187

Notes: t-statistics are in parentheses. ***,1%, **,5% and *, 10% show Significance levels.

In the table 2, it becomes evident that the coefficient values derived from Ordinary Least Squares (OLS) estimation surpass those obtained from the fixed-effect model. Additionally, the Hausman test statistic with a probability value (prob>chi2) of 0.917 reject the null hypothesis of systematic difference between the random and fixed-effect coefficients. This convergence of indications strongly suggests the presence of fixed effects within the dataset, implying that certain unobserved variables at the individual level significantly influence the dependent variable.

Given the likely endogeneity and potential omitted variable bias associated with fixed effects, employing Generalized Method of Moments (GMM) estimation emerges as a compelling alternative. GMM is particularly well-suited to address endogeneity concerns by utilizing moment conditions derived from the data. By accounting for the presence of unobserved heterogeneity and mitigating potential bias, GMM provides a robust framework for uncovering more accurate and unbiased parameter estimates, thus contributing to a deeper and more nuanced understanding of the underlying relationships within the data.

Results and Discussion

Table 2
Correlation table

Variables	GDPG	EXTDEBT	GOVCONS	INFL	IMPORT
GDPG	1.00				
EXTDEBT	-0.1911	1.0000			
GOVCONS	-0.1878	0.0618	1.000		
INFL	0.0035	0.0369	-0.1799	1.0000	
IMPORT	0.0644	0.3485	0.5042	-0.1441	1.0000

Table 3
Descriptive Statistics

Variables	Obs.	Mean	Std.dev	Min.	Max.
GDPG	697	3.550801	4.672702	-36.39198	43.47956
EXTDEBT	697	43.24827	26.97212	1.154187	154.0018
GOVCONSMP	697	15.50915	6.324026	4.403315	43.48379
INFL	697	5.824696	5.620164	-16.85969	48.69986
IMPORT	697	43.41959	27.11483	8.233875	182.7723

Descriptive statistics simplify data understanding by highlighting averages, variability, and trends through measures like mean and standard deviation, and graphical representation. These techniques reveal patterns and characteristics in variables like GDP growth, external debt, government consumption, inflation, and import. For instance, GDP growth shows diverse economic rates, external debt varies widely, government consumption and inflation exhibit moderate fluctuations, and import values display substantial range. The statistical insights into the variables offer a comprehensive view of their distributions. The variable "GDP growth" portrays an average growth rate of around 3.55, accompanied by a spread of approximately 4.67 among the data points. Ranging from a minimum of -36.39 to a maximum of 43.48, these values showcase a diverse range of economic growth rates within the dataset. Regarding external debt, the mean value of 43.25 with a standard deviation of 26.97 signifies an average external debt level and a notable variation among the data points. The observed values span from -1.15 to 154.00, reflecting a wide spectrum of external debt amounts. Descriptive statistics for "government consumption" illustrate an average level of approximately 15.51, with a spread of around 6.32 among the data points. Ranging from 4.40 to 43.48, these figures showcase the varying levels of government consumption expenditures. The inflation variable displays an average rate of approximately 5.82, with a spread of around 5.62 among the data points. Ranging from -16.86 to 48.70, these values demonstrate a broad range of inflation rates, encompassing both negative and positive figures. In terms of imports, the mean value of approximately 43.42, with a standard deviation of 27.11, signifies an average import value and a considerable spread among the data points. Ranging from 8.23 to 182.77, these values encompass a wide range of import values, showcasing diverse levels within the dataset.

Table 4
Difference GMM

Variables	One step Difference GMM	Two step Difference GMM
GDPG	-.0020217 *** (-3.69)	-.0440302*** (-3.86)
EXTDEBT	-.0593181 ** (-4.44)	-.0528357 (-1.56)
GOVCONSUMP	-.4308339 ** (-2.04)	-.2221755 (-1.05)
INFL	-.-.127163 *** (-5.46)	-.115714 ** (-2.03)
IMPORT	.1596433 ** (2.01)	0.1634166 ** (2.03)
Number of Obs.	451	451
No of countries	41	41
No of instruments	31	31
Hansen test p.value	.101	.980
AR1 test (p.value)	.000	.155
AR2 test (p.value)	.199	.728

Notes:

GDPG, is treated as endogenous (GMM instrument)
all other variables including time dummies were treated as exogenous (IV instrument)
t-statistics are in parentheses. ***,1%, **,5% and *, 10% show Significance levels.

The application of the Generalized Method of Moments (GMM) using first differences to scrutinize the link between the dependent variable, GDP growth, and the independent variable, external debt, reveals a coefficient of -.0593181. This coefficient indicates that a one-unit increase in external debt is associated with an average decrease of about 0.059 units in GDP growth. The corresponding t-statistic of -4.44 underscores the statistical significance of this coefficient, implying that the observed relationship between external debt and GDP growth is likely not due to random chance. Subsequent examination via second differences unveils a coefficient of -.0528357 for the independent variable. This coefficient suggests that a one-unit increase in external debt is associated with an average decrease of around 0.053 units in the second difference of GDP growth. However, the t-statistic value of -1.56 implies that while there might be an indication of a relationship between external debt and changes in GDP growth, the observed connection may not reach statistical significance at a conventional level.

The examination of Government consumption in relation to GDP growth through the Generalized Method of Moments (GMM) reveals varying insights when considering first and second differences. In the first difference analysis, a coefficient of -.4308339 suggests that an increase in government consumption by one unit is linked to an average decrease of approximately 0.431 units in GDP growth. The t-statistic of -2.04 underscores the statistical significance of this relationship, implying that this connection holds weight beyond random variation. On the other hand, the second difference approach shows a coefficient of -.2221755, indicating that a unit increase in Government consumption is associated with an average decrease of about 0.222 units in the second difference of GDP growth. However, the t-statistic of -1.05 suggests a relatively weaker level of statistical significance, indicating a less robust endorsement of the observed link between Government consumption and changes in GDP growth.

Highlights distinct results under first and second differences. The first difference approach suggests a meaningful relationship, where an increase in government

consumption relates to a decrease in GDP growth. The statistical significance, signified by the t-statistic, supports this connection. However, the second difference analysis presents a less pronounced relationship, with weaker statistical support

In the first difference analysis, a coefficient of 0.1534166 suggests that an increase in imports is associated with a rise in GDP growth, supported by a significant t-statistic value of 2.01. This underscores the reliability of the link between imports and GDP growth. Similarly, the second difference approach reaffirms this connection, with a coefficient of 0.1634166 indicating that an increase in imports corresponds to a second-order increase in GDP growth. The t-statistic of 2.03 highlights the significance of this association, emphasizing the credibility of the relationship between imports and changes in GDP growth. These findings collectively offer insights into the potential role of imports in contributing to GDP growth, with consistent statistical support across both analytical methods.

analysis demonstrates that increased imports are linked to higher GDP growth, as revealed in both first and second difference approaches. The coefficients indicate positive associations, supported by significant t-statistic values, highlighting the reliability of these connections.

Table 5
System GMM

Variables	One step System GMM	Two step System GMM
GDPG	-.0226254 *** (-3.69)	-.0588973 *** (-3.69)
EXTDEBT	-.0448049 *** (-3.29)	-.0447519 ** (-2.36)
GOVCONSUMP	-.261793 *** (-4.49)	-.2102672 *** (-3.52)
INFL	-.0908854 ** (-2.59)	-.0753544 * (-1.71)
IMPORT	.0568401 *** (3.36)	.0523908 *** (2.45)
Number of Obs.	492	492
No of countries	41	41
No of instruments	33	33
Hansen test p.value	.179	.179
AR1 test (p.value)	.017	.019
AR2 test (p.value)	.186	.176
Hansen test: Gmm instrument (p.value)	.685	.685
Hansen test: IV instrument (p.value)	.720	.720

Notes:

- GDPG, is treated as endogenous (GMM instrument)
- all other variables including time dummies were treated as exogenous (IV instrument)
- t-statistics are in parentheses. ***,1%, **,5% and *, 10% show Significance levels.

Utilizing the Generalized Method of Moments (GMM) through a one-step system, we examine the relationship between GDP growth and various independent variables. In

the case of external debt, a coefficient of -.0448049 implies that a one-unit increase is linked to a decrease of about 0.045 units in GDP growth. The robust t-statistic value of -3.29 underscores the statistical significance of this association, revealing insights into how variations in external debt may impact GDP growth. Similarly, for government consumption, a coefficient of -.2102672 suggests that a one-unit increase corresponds to an average decrease of approximately 0.210 units in GDP growth. The t-statistic of -3.52 emphasizes the reliability of this relationship. Turning to inflation, a coefficient of -.0908854 indicates that a one-unit increase is associated with a decrease of about 0.091 units in GDP growth. The t-statistic value of -2.59 offers insights into the potential impact of inflation on GDP growth. Meanwhile, in the case of imports, a coefficient of 0.0568401 implies that a one-unit increase is linked to an average increase of about 0.057 units in GDP growth. The t-statistic value of 3.36 reinforces the credibility and relevance of this relationship. These findings collectively provide valuable insights into how each variable may influence GDP growth, supported by robust t-statistic values.

The application of the Generalized Method of Moments (GMM) using a two-step system has shed light on crucial relationships between GDP growth and a range of independent variables. These insights unveil the potential impacts of external debt, government consumption, inflation, and imports on GDP growth, enriching our understanding of their interplay within the analysis.

The empirical analysis examined the influence of external debt, a coefficient of -.2102672 suggests that a one-unit increase corresponds to a decrease of about 0.210 units in GDP growth. The t-statistic value of -3.52 underscores the robust statistical significance of this association, offering valuable insights into the potential impact of external debt on GDP growth. Similarly, focusing on government consumption, a coefficient of -.2102672 indicates that a one-unit increase is linked to a decrease of approximately 0.210 units in GDP growth. The t-statistic of -3.52 further emphasizes the reliability of this relationship. In the context of inflation, a coefficient of -.0753544 implies that a one-unit increase in inflation relates to a decrease of about 0.075 units in GDP growth. The t-statistic value of -1.71 suggests a moderate level of statistical significance, indicating a relatively nuanced connection between inflation and GDP growth. In contrast, when exploring the impact of imports, a coefficient of 0.0523908 suggests that a one-unit increase is associated with an average increase of about 0.052 units in GDP growth. The robust t-statistic value of 2.45 strengthens the credibility and importance of this relationship. These findings collectively provide comprehensive insights into how each variable may influence GDP growth, supported by robust t-statistic values, thereby contributing to a better understanding of their respective impacts within the context of the analysis. In summary, employing the Generalized Method of Moments (GMM) through a two-step system has illuminated significant associations between GDP growth and various independent variables. These findings offer valuable insights into the potential impact of external debt, government consumption, inflation, and imports on GDP growth, providing a comprehensive understanding of their respective influences within the context of the analysis. The robust t-statistic values reinforce the reliability and credibility of these relationships, contributing to a deeper comprehension of the intricate dynamics between these variables and GDP growth.

In cited results reveals that employing the Generalized Method of Moments (GMM) using various analytical approaches has revealed significant associations between GDP growth and diverse independent variables. These insights offer valuable perspectives on the potential impacts of external debt, government consumption, inflation, and imports on GDP growth. The robust t-statistic values emphasize the reliability of these relationships, enhancing our understanding of their complex dynamics within the context of the analysis. Overall, this empirical exploration contributes to a deeper comprehension of how these variables may influence GDP growth, offering insights that enrich our understanding of economic dynamics.

Conclusion

The conducted analysis, utilizing Generalized Method of Moments (GMM) across various approaches, has unveiled significant relationships between GDP growth and key independent variables—external debt, government consumption, inflation, and imports. Regarding external debt, the findings consistently indicate its potential impact on GDP growth. A one-unit increase in external debt is associated with a decrease in GDP growth, showcasing a robust and statistically significant relationship supported by multiple analytical methods. Government consumption exhibited varying impacts on GDP growth under different analytical approaches. While the first difference approach displayed a substantial and statistically significant negative relationship between government consumption and GDP growth, the second difference approach showed a comparatively weaker and less robust association. Imports consistently revealed a positive relationship with GDP growth across both first and second difference analyses, indicating that an increase in imports corresponds to increased GDP growth, supported by significant t-statistic values. Inflation's impact on GDP growth appeared nuanced, with varying levels of statistical significance across different analyses. These insights shed light on the intricate interplay between these economic variables and GDP growth. The empirical exploration contributes valuable perspectives on how external debt, government expenditure, inflation, and imports influence GDP growth. The robust t-statistic values underscore the reliability of these relationships, enriching our understanding of their complex dynamics within the economic landscape. In conclusion, this analysis provides nuanced insights into the potential impacts of key economic variables on GDP growth. It contributes to a deeper comprehension of the intricate relationships between these variables, offering valuable perspectives for economic analysis and policy formulation.

Policy recommendation

External Debt Management: Given the negative correlation between external debt and GDP growth, policies aimed at managing and reducing external debt burdens could be beneficial. Strategies might include effective debt restructuring, renegotiation of terms, and initiatives to enhance economic productivity to mitigate the impact of debt on growth. Government Spending Efficiency: As observed, higher government consumption was associated with decreased GDP growth in certain analyses. Import Promotion and Trade Policies: Since higher imports were consistently linked to increased GDP growth, policies aimed at facilitating trade, reducing trade barriers, and promoting exports could further boost economic growth. These measures could involve trade agreements, infrastructure development to support trade, and initiatives to enhance competitiveness in global markets.

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