DETERMINANTS OF ECONOMIC GROWTH – A CROSS-COUNTRY ANALYSIS

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> ***Abstract:*** The current study aims to uncover the important economic factors that affect how quickly countries with various income levels grow. To examine the causal and cointegration relationship, the following variables are taken: Gross Domestic Product (GDP), Gross Domestic Savings (GDS), Foreign Direct Investment (FDI), Government External Debt (ED), Personal Remittances (PR), Government Final Consumption Expenditure (GFCE), Private Final Consumption Expenditure (PFCE), Net Official Development Aid (NODA), and Consumer Price Index (CPI). The results are obtained using the ARDL Bounds Test, Engle-Granger Causality Tests, and Error Correction Models (ECM). The findings provide substantial evidence in favor of the traditional theories of economic growth, which contend that domestic savings account for a large portion of an economy's growth rate. Results from all economic classes show that saving propels the economy except in the least-developed countries, where external debt drives the economies.
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> ***Keywords:*** domestic savings, foreign direct investment, economic growth, external debt

1. INTRODUCTION

Economic growth refers to a gradual increase in national income or output. Politicians and policymakers are shown to be worried about growth rates of the gross domestic product over various periods that are characterized by various policy measures and comparison of these growth rates across the countries with different income levels over some time is essential to understand the

growth dynamics of the group countries (Barro, 1991; Misztal, 2018; Saltz, 1999). Most policymakers and economists had to develop growth models after World War II to address a variety of economic problems. A Keynesian-based economic growth model that emphasized the accumulation of savings, capital, and economic growth was created by R.F. Harrod and Evsey Domar in 1939 and 1946, respectively. Economic growth is one of development economics' main concerns. Development theories, as opposed to so-called theories of economic growth, are designed to address the specific issue facing emerging nations (Solow, 1956)

It is crucial to compare these growth rates internationally among nations with various income levels.

The interaction of domestic savings, foreign savings, and external debt with economic growth in countries with varying income levels is a contentious and contemporaneous issue among researchers, politicians, and government authoritarians. Understanding the direction of causality among these economic variables allows policymakers to redirect their focus to those variables that will improve the economy's growth performance. In theory, economic growth begins with the accumulation of domestic savings. Because developing countries lack domestic savings for the formation and construction of capital stocks, they must import funds from other countries, either through borrowings or by admitting foreign private capital.

The critical role that the domestic savings rate could play in the economic growth process has continued to pique economists' interest, both theoretically and empirically, especially since the formulation of the Harrod-Domar model, which suggests that, for stability and full employment, the ratio of savings rate to capital output must always equal the natural growth rate of the economy, which is given by the growth rate of the economy's labor force (Epstein & Yeldan, 2008).

Rising savings, according to the growth models created by Harrod (1939), Domar (1946), and Solow (1956), lead to more investment, which stimulates economic growth. The more capital a country has, the more goods and services it can generate (Anoruo & Ahmad, 2001).

Since the publication of Nobel laureate W. Arthur Lewis's books, several third-world countries have followed policies aimed at increasing savings rates to increase rates of real GDP development as his research is predicated on the notion that higher savings rates increase the number of loanable funds available, hence increasing investment (Saltz, 1999).

Foreign capital inflows promote economic growth and point to an economy in good shape (Rehman & Ahmad, 2016). In the process of economic growth, when domestic investment is not sufficient, countries will try to receive foreign financial resources in different forms. Foreign capital is available in the form of Foreign Direct Investments (FDI), Government External Debt (ED), Personal Remittances (PR), and Official Development Aid (ODA). These foreign financial resources have their pros and cons. Usually, high and upper-middle-income countries depend on FDI to supplement domestic savings since it is a private investment that does not create any issues for the host country. lower and least-developed countries suffer from structural issues and could not attract sufficient foreign direct investment, hence they go for external debt, and official development aid.

Household expenditure is a defining characteristic of high-income countries; the more money households spend, the faster they develop. In addition to savings, private final consumption expenditures are the main factors. Upper middle-income nations undergoing economic transformation benefit from both private savings and private spending. Less developed and developing nations must promote saving and discourage private expenditure.

2.   THEORETICAL BACKGROUND

Both economists and politicians have been concentrating on developing new economic growth models since the end of World War II. Harrod (1939) - Domar (1946) explain the economic growth rate in terms of the level of savings and capital investment, a Keynesian model of economic growth is employed in development economics. Since the publication of W. Arthur Lewis's writings, several developing nations have adopted policies focused on increasing savings rates to raise their rates of real GDP. Lewis's study is based on the idea that greater savings rates will increase the amount of loanable money available, which will increase investments. His theory that the causality runs from savings to growth emphasizes that higher rates of investment will then improve future economic growth (Saltz, 1999). A key idea for classical economists like Adam Smith, Ricardo, Marx, and Malthus is how to comprehend the process of economic growth and they studied extensively what determines the rate of growth as the center of development economics (Stern, 1991). In reality, countries with greater self-financing ratios expanded noticeably quicker than those with lower self-financing ratios throughout the 1990s (Aizenman *et al.*, 2007). According to the Keynesian macroeconomic model, household spending, investments,

and savings significantly influence overall expenditure, which in turn affects economic development (Alper, 2018). Exports and domestic savings are given a lot of weight in the neo-classical growth theory when attempting to explain how capital accumulates (Otani & Villanueva, 1990). Savings have always been a significant topic in economics since they are crucial for both short- and long-term asset creation, capital production, and income distribution (Paul Masson, Tamim Bayoumi, 1992). On the other side, the new growth theory hypothesis, which emphasizes technological advancements, contends that FDI has a favorable effect on economic growth (Boldeanu & Constantinescu, 2015). Savings that developing nations must make in order to meet their developmental objectives and the relationship between savings and development are becoming more and more popular in developing nations. It is common knowledge that developed countries tend to save less than developing nations, with the latter's economies growing more quickly (Alper, 2018).

3.   EMPIRICAL EVIDENCE

In the past, there has been a great deal of research on the growing significance of economic growth through domestic financial resources, and foreign sources like direct investment, external loans, and foreign private equity flows are allowed when domestic sources are not sufficient. The impact of personal remittances, government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), official development assistance (ODA), Net Inflows of Personal Remittances (PR), and inflation rates on the economic growth of nations with various income levels has not received enough attention.

(Argimón & Roldán, 1994; Ciftcioglu & Begovic, 2010; Comes *et al.*, 2018; Mehic *et al.*, 2013) found that domestic savings, foreign direct investment, personal remittances, and trade openness have a significant impact on the growth of the Central and East European countries and confirmed that institutional quality plays a significant role in receiving foreign direct investment in those countries. (Misztal, 2018) studied the causality between domestic savings and economic growth in developed and developing countries and found that causality is running unidirectionally from domestic savings to economic growth in both the group countries and the impact of domestic savings on economic growth is more in developing countries than in the developed countries. (Ioan *et al.*, 2020) found that the causality of economic growth is running from savings to FDI to the economic growth of Central and East European countries, but not directly from savings to economic growth.

The development of the financial sector is a necessary pre-requisite for the effective allocation of financial resources in the economy (Schumpeter, 1959). Consistent with this view, (Elboiashi *et al.*, 2006) provided strong evidence of financial markets is necessary to grow and receive foreign savings.

(Barro, 1991; Benedict Clements, Rina Bhattacharya, 2003; Mohan, 2006) studied the determinants of economic growth of countries with different income levels and found that a reduction in external debt increases the growth of the economy.

(Anoruo & Ahmad, 2001; Asiedu, 2002; Attanasio *et al.*, 2000; Ghura & Goodwin, 2000) the key determinants of economic growth in Africa and Sub-Saharan countries found that openness to trade attracts FDI inflows, GDP, and the growth rate of GDP did not stimulate private investment in Sub-Saharan Africa but government spending stimulates private investment.

Trade openness and the quality of human resources play a significant role in boosting emerging economies (Goel, 2011) and it is proved in the case of Latin American countries that strong physical and human capital accumulation, institutional quality, and higher trade openness stimulate economic growth (Vedia-Jerez & Chasco, 2016).

Growth determinants the high-income countries are quite different from that of developing or back-ward economies (Boldeanu & Constantinescu, 2015) and total factor productivity, domestic investment growth and growth in FDI boost the growth rate of the United States (Asheghian, 2004). (Simionescu *et al.*, 2017) examines the growth determinants of the Czech Republic, Slovak Republic, Hungary, and Poland and found that Inflows of FDI, Government spending on education, and investment in R&D enhance the growth rates.

Some of the East Asian countries fall under Upper and Lower Middle-income countries and the growth determinants are studied by (Kowalski, 2000) and the results support that FDI and Domestic investment encourage the growth rate and government spending discourage the growth rate. Some interesting results are found about the Organization of East Caribbean States (OECS) from 1980 to 2011 stating that external debt and private consumption drag the economic growth both in the short and long run (Mamingi & Borda, 2020). Large capital inflows could either replace domestic savings or increase them (Baharumshah *et al.*, 2003).

The financial sector steers the channelization of financial resources (Ioan *et al.*, 2020). Inflation harms the accumulation of physical capital and a high degree of variability with GDP growth rate in OECD countries is found

(Bassanini & Scarpetta, 2001). Both FDI and FPI equity flows exhibit a positive and significant impact on the growth of developing countries (Jeannine N. Bailliu, 2000; Marcelo Soto, 2000). The inflows of foreign capital and its impact on economic growth depend on the host country's economic and non-economic conditions (Blomström *et al.*, 1992).

Economists anticipated that further financial integration would increase the capital stock in emerging nations by increasing access to foreign savings (Aizenman *et al.*, 2007). Since foreign capital might exit as readily as it entered, leaving the economy in ruins, as exemplified by the recent Asian crisis and the Mexican crisis, the retreat of foreign capital emphasizes the need for more local funding (Baharumshah *et al.*, 2003). The interest in cross-country savings rate disparities is also significant. Strong savings nations like Japan, Korea, and Singapore have historically had high growth rates, although it is unclear what causes this (Paul Masson, Tamim Bayoumi, 1992).

4.   RESEARCH GAP

Upon reviewing previous studies on the factors influencing economic growth, several research gaps are discovered. The factors that influence economic growth, particularly at the cross-country level, have not received enough attention in recent years. The previous research was limited to a few economic factors and mostly focused on domestic savings and foreign direct investment. However, certain economic factors have been identified that also significantly influence the economic development of various classes of countries. Aside from private international investments, foreign money also takes the form of government external debt, individual remittances, and net official development assistance. Other economic factors, such as the government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), and inflation rate, are also proven to be crucial in influencing the economic growth of a nation (Consumer Price Index). These money-consuming elements have received less attention in the previous study. Over time, and especially in the recent past, countries have been shifting from one income class to another as a result of globalization and financial integration. To determine if the same variables are affecting or new variables are influencing economic growth, it is crucial to understand the dynamic variables that affect a country's growth story.

The fundamental premise of the current study is that greater rates of investment should result in higher rates of economic growth because higher rates of investment will enable a more rapid increase of capital stock.

5. PURPOSE OF THE STUDY

6. RESEARCH DESIGN AND METHODOLOGY

For a more thorough investigation of the causes of economic growth and their causal relationships, four groupings of nations that the United Nations Development Program (UNDP) categorized based on per capita income have been chosen. They are High-Income (HIC), Upper Middle-Income (UMI), Lower Middle-Income (LMI), and Least Developed (LD) nations. Based on a thorough analysis of the literature, nine key economic factors that were once looked at for the economic development of various classes of countries have been identified. The dependent variable is gross domestic product (GDP), and the other variables assumed as independent are net inflows of personal remittances (PR), net official development aid received (NODA), consumer price index (CPI), foreign direct investments (FDI), government external debt (ED), government final consumption expenditure (GFCE), and private final consumption expenditure (PFCE). For the years 1960 through 2021, annual time series data have been gathered from the World Repository data bank. To eliminate unit root and multicollinearity among the independent variables, the original data has been transformed into Natural Log values. To conduct a scientific analysis of the factors influencing economic growth in various classes of countries, econometric approaches are used. standard economic techniques like the Normality Test and the Breuch Godfrey LM The serial correlation test, the Breusch-Pagan LM test, the variance inflation factor (VIF) test, the presence of multicollinearity among the independent variables, and the augmented Dickey-Fuller test have all been used to determine whether unit-root is present in the data set, among other tests. Based on the findings from these tests, additional advanced economic experiments will be conducted.

There will be at least one casual relationship when two series Xt and Yt are officially I(1) cointegrated (Robert F. ENGLE and C. W. J. Granger, 2012).

Hypothesis

$$H_0 = 0$$
$$H_1 \neq 0$$

7. DATA ANALYSIS & DISCUSSION

Understanding the fundamental properties of the data sets is the first step in the study of time series data. The data must be normally distributed, the residuals

must not be serially correlated, the residuals must be homoscedastic, and the independent variables must not be correlated with one another, preventing multicollinearity among the exogenous variables. These are the prerequisites for the application of any causality and cointegration tests. Because the Jarque-Bera probability (Table 1) is not statistically significant, the null hypothesis that the disturbances are normally distributed should be accepted. Breusch-Godfrey the serial correlation LM test (Table 2) is used to determine whether autocorrelation exists in the residuals of the data set. Because the residuals (-1) and (-2) and the probability value of the Chi-Square test are not statistically significant, the null hypothesis that there is no serial correlation in the residuals can be accepted. Breusch Pagan-Godfrey (Table3) to determine if the residuals are homoscedastic or heteroscedastic, the heteroscedasticity test is used. We cannot rule out the null hypothesis that residuals are homoscedastic since the probability value of the Chi-Square test is statistically insignificant at 5%. The Variance Inflation Factor (VIF) multicollinearity test is then used to examine the correlation between the explanatory variables. If the Centered VIF value is greater than 10, multicollinearity is present; if it is less than 10, multicollinearity is not present. The results of the VIF test are shown in Table 4, and the centered VIF values of all the variables are all less than 10, indicating that multicollinearity is not present. The time series data should be stationarity or unit root-free to prevent false regression. The long-run features of the model are ignored, which prevents any inference on the long-term causality directions. This is a major drawback of specifying dynamic models in terms of just differenced variables (Argimón & Roldán, 1994). All of the variables' original data have been transformed into a natural log form, and then the stationarity has been checked using the Augmented Dickey-Fuller Test (Table 6). The remaining variables are stationarity at the first difference I (0), but some of the variables are stationarity at the level itself, or I (0). The Stationarity variables are taken into account for additional analysis. When the chosen variables are integrated into various orders, it means that some of the variables are stationary concerning the original data and the remaining variables are stationary concerning the differenced data. The Autoregressive Distributed Lag (ARDL) Model is the appropriate econometric model in this situation.

An Error Correction Mechanism (ECM) representation that is estimated using OLS is used to study the direction of long-run causality when two variables are cointegrated, which necessarily implies causality in at least one direction (Robert F. ENGLE and C. W. J. Granger, 2012).

Table 1: Summary of Normality Test Results

	High-Income Countries	*Upper-Middle Income Countries*	*Lower – Middle \ Income Countries*	*Least Developed Countries*
Skewness	0.028518	0.809018	0.646975	-0.668868
Kurtosis	3.735520	2.894485	3.794040	3.104307
Jarque-Bera Statistic	0.929748	4.272408	4.417546	1.275297
Probability	0.628214	0.118102	0.109835	0.528534
H_0 = Disturbances are normally distributed H_1 = Disturbances are not normally distributed				

Table 2: Breusch-Godfrey Serial Correlation LM Test Results

H_0 = No Serial Correlation in the residuals H_1 = Residuals are serially correlated				
High-Income Countries (HIC)				
F-Statistics	2.285510	Prob (2,45)		0.1181
Obs*R-squared	5.124599	Prob. Chi-Square (2)		0.0771
Variable	Coefficient	Std. Error	t-statistics	Probability
RESID (-1)	0.161475	0.174656	0.924526	0.3621
RESID (-2)	-0.375203	0.184594	-2.032586	0.0505*
Upper-Middle Income Countries (UMI)				
F-Statistics	1.487758	Prob (2,29)		0.2426
Obs*R-squared	3.629187	Prob. Chi-Square (2)		0.1629
Variable	Coefficient	Std. Error	t-statistics	Probability
RESID (-1)	-0.309598	0.213999	-1.446729	0.1587
RESID (-2)	0.157744	0.223174	0.706823	0.4853
Lower-Middle Income Countries (LMI)				
F-Statistics	1.911743	Prob (2,35)		0.1629
Obs*R-squared	4.530256	Prob. Chi-Square (2)		0.1038
Variable	Coefficient	Std. Error	t-statistics	Probability
RESID (-1)	-0.353220	0.181337	-1.947871	0.0595
RESID (-2)	-0.026731	0.199525	-0.133973	0.8942
Least-Developed Countries (LDC)				
F-Statistics	0.362551	Prob (2,45)		0.7102
Obs*R-squared	1.832946	Prob. Chi-Square (2)		0.3999
Variable	Coefficient	Std. Error	t-statistics	Probability
RESID (-1)	0.495206	0.637322	0.777010	0.4667
RESID (-2)	-0.274260	0.526235	-0.521174	0.6209

Source: Researchers' Calculations using EViews@12 Version

Table 3: Breusch-Pagan-Godfrey Heteroscedasticity Test Results Summary

H_0 = Residuals are Homoscedastic H_1 = Residuals are Heteroscedastic			
High-Income Countries (HIC)			
F-Statistic	2.305051	Prob. (6,34)	0.0565
Obs* R Squared	11.85530	Prob. Chi-Square (6)	0.0653
Upper-Middle Income Countries (UMI)			
F-Statistic	1.273369	Prob. (3,47)	0.2955
Obs* R Squared	8.709558	Prob. Chi-Square (3)	0.2742
Lower-Middle Income Countries (LMI)			
F-Statistic	2.108011	Prob. (3,47)	0.0599
Obs* R Squared	14.40195	Prob. Chi-Square (3)	0.0719
Least-Developed Countries (LDC)			
F-Statistic	1.133647	Prob. (8,8)	0.4318
Obs* R Squared	9.032422	Prob. Chi-Square (3)	0.3396
Source: Researchers' calculationsusingEViews@12			

Table 4: Variance Inflation Factor (VIF)Test for checking Multicollinearity

High-Income Countries (Dependent variable-GDP)			
Independent variable	*Coefficient variance*	*Uncentered VIF*	*Centered VIF*
HIC-DLGDS	0.002048	3.027582	2.167860
HIC-DLNODA	0.00000	1.046800	1.036432
HIC-DLPR	0.001326	2.911978	2.054793
HIC-DLED	0.001414	3.487480	1.385315
HIC-FDI	0.000000	3.230034	1.461565
HIC-CPI	0.000000	4.607209	1.730968
UMI-DLGDS	0.000002	6.652470	4.229822
UMI-DLFDI	0.000002	2.089241	1.710501
UMI-DLCPI	0.000007	1.821224	1.783734
UMI-DLGFCE	0.000007	14.71601	8.317723
UMI-DLNODA	0.00001	1.140962	1.107459
UMI-DLPFCE	0.000114	18.00112	10.91933
UMI-DLPR	0.000009	1.762997	1.762996
LMC=DLGDS	0.000018	1.738084	1.365340
LMC-DLFDI	0.000032	1.180821	1.055824
LMC-DPED	0.000000	1.325617	1.320653
LMC-DLCPI	0.000045	1.296092	1.273928
LMC-DLNODA	0.000019	1.470794	1.278736
LMC-DLGFCE	0.000000	1.914195	1.896923
LMC-DLPFCE	0.000133	4.860828	2.278410

High-Income Countries (Dependent variable-GDP)			
Independent variable	Coefficient variance	Uncentered VIF	Centered VIF
LMC-DLPR	0.000005	2.316994	1.752830
LDC-DLGDS	0.030574	1.694182	1.543089
LDC-DLFDI	0.049753	3.336226	2.928374
LDC-DLCPI	0.020130	2.435929	2.425010
LDC-DLNODA	0.225078	3.376511	2.137861
LDC-DPGFCE	0.00005	8.771908	8.763219
LDC-DPPFCE	0.000232	10.58627	10.56538
LDC-DPED	0.00004	2.934020	2.032897
LDC-DLPR	0.356051	7.090345	2.594418

Econometric Model

$$H_0 = \text{No Cointegration Equation}$$
$$H_1 \neq \text{Cointegration Equation}$$

$\Delta LGDP_t = \alpha_{01} + \beta_{11} LGDP_{t-i} + \beta_{21} LGDS_{t-i} + \beta_{31} LFDIt\text{-}i + \beta_{41} LED_{t-i} + \beta_{51} LCPI_{t-i} + \beta_{61} LPR_{t-i} + \beta_{71} LNODA_{t-i} + \beta_{81} LGFCE_{t-i} + \beta_{91} LPFCE_{t-i} + \Sigma_{i=1}^{p} \alpha_{1i} \Delta LGDP_{t-1} + \Sigma_{i=1}^{q} \alpha_{2i} \Delta LGDS_{t-1} + \Sigma_{i=1}^{q} \alpha_{3i} \Delta LFDI_{t-1} + \Sigma_{i=1}^{q} \alpha_{4i} \Delta LCPI_{t-1} + \Sigma_{i=1}^{q} \alpha_{5i} \Delta LNODA_{t-1} + \Sigma_{i=1}^{q} \alpha_{6i} \Delta LPR_{t-1} + \Sigma_{i=1}^{q} \alpha_{7i} \Delta LGFCE_{t-1} + \Sigma_{i=1}^{q} \alpha_{8i} \Delta LPFCE_{t-1} + \Sigma_{i=1}^{q} \alpha_{9i} \Delta LED_{t-1} \varepsilon_{1t}$

To determine the short- and long-term causal relationships between the variables, the Autoregressive Distributed Lag (ARDL) Bounds Test is performed. The results are displayed in Tables No.8 and 9. Our research focuses on the factors that influence economic growth as measured by the GDP growth rate, with other factors being exogenous. In the short term, one year lagged GDP (-1) is negatively affecting the current year's GDP, whereas the current year's gross domestic savings (LGDS) and private final consumption expenditure (LPFCE), both of which are statistically significant at 5%, are positively affecting the current year's GDP. However, LPFCE has a bigger influence than LGDS, indicating that domestic savings are less important for the economy's growth than consumption expenditures by households. The model is resilient and the variables are in long-run equilibrium, as evidenced by the estimated F-Statistic value (117411.68), which is more than the Upper Bound I(1) value (3.15) at a 5% significance level and tests the long-run link between the variables. With the help of the error correction mechanism, the rate of adjustment or return to equilibrium is measured. The cointegration equation's coefficient value must

Table 5: Results of Ordinary Least Square Method

Dependent Variable: HIC-DLGDP

	High-Income Countries				Upper Middle-Income Countries			
Independent variable	Coefficient	Std.Err	t-stat	Probability	Coefficient	Std.Err	t-stat	Probability
HIC-DLGDS	0.504491	0.045250	11.4899	0.0000*	0.279857	0.005239	53.42125	0.0000*
HIC-DLNODA	0.007405	0.005543	1.005920	0.1904	-0.000586	0.001214	-0.482598	0.6328
HIC-DLPR	0.217982	0.036409	5.986991	0.0000*	0.00000	0.00000	1.560523	0.1288
HIC-DLED	-0.004130	0.037606	-0.109830	0.9132				
HIC-FDI	-0.000000	0.00000	-2.111907	0.0421*	0.001636	0.001570	1.041986	0.3055
HIC-CPI	0.001710	0.001052	1.625493	0.1133	0.000430	0.000886	0.484740	0.6313
HIC-DLGFCE					0.010831	0.008700	1.244980	0.2225
HIC-DLPFCE					0.713243	0.010671	66.84162	0.0000*
CONSTAT	0.012907	0.005921	2.179987	0.0363	-0.00000	0.000364	-0.125220	0.9012
Adj R-Square	0.943792				0.999640			
F-Statistics	95.14958				15055.95			
Prob(F-statistics)	0.000000				0.00000			
Durbin-WatsonStat	1.771908				2.252334			

Dependent Variable: GDP

	Lower-Middle Income Countries				Least Developed Income Countries			
Independent variable	Coefficient	Std.Err	t-stat	Prob	Coefficient	Std.Err	t-stat	Prob
LMC-DLGDS	0.246160	0.004249	57.93845	0.0000*	0.434568	0.174855	2.485306	0.0378*
LMC-DLFDI	0.005005	0.001808	2.767741	0.0088*	-0.070166	0.223054	-0.314569	0.7611
LMC-DPED	0.000035	0.000085	0.410668	0.6837	-0.001364	0.006446	-0.211566	0.8377
LMC-DLCPI	-0.002764	0.002136	-1.293822	0.2037	0.007807	0.141880	0.055027	0.9575
LMC-DLNODA	0.004932	0.004430	1.113224	0.2728	0.656640	0.474424	1.384079	0.2037

LMC-DPGFCE	0.000050	0.000094	0.529387	0.5997	-0.005920	0.007545	-0.784522	0.4553
LMC-DLPFCE	0.766145	0.011549	66.33968	0.0000*	0.005649	0.015229	0.370923	0.7203
LMC-DLPR	-0.001870	0.002369	-0.789321	0.4350	-0.076598	0.596700	-0.128369	0.9010
Constant	-0.001702	0.000836	-2.034759	0.0491	-0.009857	0.063491	-0.155254	0.8805
Adj R-Square				0.997828				0.094828
F-Statistics				258.933				1.209525
Prob(F-statistics)				0.00000				0.397209
Durbin-Watson Stat				2.536612				1.541495

Source: Researcher's calculationsusingEViews@12

Table 6: Augmented Dickey-Fuller Test Results for Checking the presence of stationarity in the data

Variable	With Constant			With Trend and Constant			No Trend and No Constant		
	t-statistic @5%	ADF Test Critical value @5%	Probability	t-statistic @5%	ADF Test Critical value @5%	Probability	t-statistic @5%	ADF Test Critical value @5%	Probability
High-Income Countries (HIC)									
At level : I(1)									
HIC-CPI	-2.935001	-5.110218	0.0000*	-3.523623	-4.464983	0.0050*	-1.949609	-2.707723	0.0081*
HIC-LED	-2.926622	-2.547079	0.1114	-3.510740	-2.775822	0.2132	-1.948313	-0.729775	0.3949
HIC-LGDP	-2.922449	-3.302576	0.0201*	-3.502373	-2.441685	0.3547	-1.947520	2.670768	0.9978
HIC-LGDS	-2.923780	-3.140537	0.0301*	-3.504330	-2.120083	0.5220	-1.947665	2.456790	0.9961
HIC-LNODA	-2.921175	-1.242708	0.6487	-3.502373	-2.531957	0.3122	-1.947520	-0.170521	0.6197
HIC-LPR	-2.928142	-2.438201	0.1374	-3.502373	-2.737726	0.2267	-1.947520	2.927784	0.9989
HIC-LFDI	-2.923780	-1.196379	0.6687	-3.506374	-1.920191	0.6286	-1.947816	2.832792	0.9986
HIC-LGFCE	-2.935001	-3.524469	0.0012*	-3.523623	-1.334240	0.8650	-1.947520	2.516524	0.9967
HIC-LPFCE	-2.922449	-3.354588	0.0176*	-3.502373	-2.418333	0.3661	-1.947520	2.630398	0.9975
With First Difference I(1)									
HICDPED	-2.928142	-4.513521	0.0007*	-3.513075	-4.462309	0.0047*	-1.948313	-4.504512	0.0000*
HIC-DLGDP	-2.921175	-3.884307	0.0042*	-3.502373	-4.757474	0.0018*	-1.947816	-2.171058	0.0301*
HIC-DLGDS	-2.922449	-4.371200	0.0010*	-3.506374	-5.382700	0.0003*	-1.947665	-3.362896	0.0012*
HIC-DLNODA	-2.922449	-7.423971	0.0000*	-3.504330	-7.442698	0.0000*	-1.947665	-7.503370	0.0000*
HIC-DLPR	-2.921175	-6.599253	0.0000*	-3.502373	-7.276950	0.0000*	-1.947520	-5.368026	0.0000*
HIC-DLFDI	-2.923780	-6.153422	0.0000*	-3.515523	-4.320180	0.0069*	-1.947816	-5.058542	0.0000*
HIC-DLGFCE	-2.921175	-3.721780	0.0066*	-3.523623	-4.610366	0.0034*	-1.947520	-2.491578	0.0137*
HIC-DLPFCE	-2.921175	-3.755482	0.0060*	-3.502373	-4.725567	0.0020*	-1.947816	-2.025172	0.0421*
Upper-Middle Income Countries (UMI)									
At Level I(0)									
UMI-LCPI	-3.615588	-0.884993	0.7822	-3.552973	-4.344681	0.0082*	-1.949856	-1.234228	0.1955

UMI-LGDP	-2.921175	-0.830484	0.8016	-3.502373	-2.600376	0.2820	-1.947520	3.229678	0.9995
UMI-LGDS	-2.922449	-0.936402	0.7682	-3.504330	-2.667577	0.5504	-1.947665	3.627494	0.9992
UMI-LFDI	-2.919952	0.409533	0.9815	-3.506374	-3.141554	0.1085	-1.947381	2.473649	0.9963
UMI-LED	-2.922449	-2.746379	0.0737	-3.504330	-2.785648	0.2093	-1.947665	2.382094	0.9953
UMI-LNODA	-2.923780	-2.479470	0.1267	-3.502373	-2.130742	0.5165	-1.947520	-1.936891	0.9863
UMI-LPR	-2.928142	0.793969	0.8112	-3.513075	-1.995942	0.5877	-1.948313	2.500620	0.9964
UMI-LGFCE	-2.921175	-0.945953	0.7652	-3.502373	-2.670067	0.2530	-1.947520	3.601713	0.9991
UMI-LPFCE	-2.921175	-1.665984	0.7221	-3.502373	-2.837513	0.1913	-1.947520	3.233408	0.9995
At First Difference I(1)									
UMI-DLCPI	-2.941145	-6.833389	0.0000*	-3.533083	-6.705680	0.0000*	-1.949856	-6.77130	0.0000*
UMI-DLGDP	-2.921175	-4.549844	0.0006*	-3.502373	-4.520724	0.0036*	-1.947520	-2.872425	0.0049*
UMI-DLGDS	-2.922449	-4.785602	0.0003*	-3.504330	-4.766357	0.0018*	-1.947665	-3.359890	0.0012*
UMI-DLFDI	-2.921175	-3.884103	0.0042*	-3.502373	-3.716808	0.0303*	-1.947520	-2.990630	0.0035*
UMI-PED	-2.922449	-3.462696	0.0133*	-3.504330	-4.035376	0.0137*	-1.948495	-0.729039	0.3950
UMI-DLNODA	-2.923780	-6.156430	0.0000*	-3.506374	-6.607368	0.0000*	-1.947816	-5.383848	0.0000*
UMI-DLPR	-2.938987	-3.612986	0.0096*	-3.529758	-3.653299	0.0380*	-1.949609	-3.149301	0.0024*
UMI-DLGFCE	-2.921175	-4.312595	0.0012*	-3.502373	-4.312267	0.0065*	-1.947520	-2.787349	0.0062*
UMI-DLPFCE	-2.921175	-4.630993	0.0004*	-3.502373	-4.640344	0.0026*	-1.947520	-2.958446	0.0039*
Low-Middle Income Countries									
At level I(0)									
LMC-LGDP	-2.921175	-1.364345	0.5922	-3.502373	-2.585064	0.2886	-1.947520	2.971835	0.9990
LMC-LGDS	-2.921175	-2.887288	0.2505	-3.502373	-3.277279	0.0819	-1.947520	-2.907298	0.9988
LMC-LFDI	-2.921175	0.713790	0.9913	-3.500495	-2.633886	0.2677	-1.947520	2.888139	0.9988
LMC-PED	-2.925169	-1.685672	0.4318	-3.508508	-1.945576	0.6150	-1.947975	-0.697494	0.4094
LMC-LCPI	-2.925169	-2.484830	0.1255	-3.526609	-3.696843	0.0341*	-1.949609	-1.619272	0.0985
LMC-LNODA	-2.921175	-2.288496	0.1796	-3.502373	-2.753287	0.2209	-1.947520	3.053572	0.9992
LMC-PGFCE	-2.921175	-3.485195	0.0125*	-3.502373	-3.489822	0.0514	-1.947665	-0.313696	0.5675
LMC-LPFCE	-2.921175	-1.161946	0.6837	-3.504330	-2.618047	0.2745	-1.947520	3.313731	0.9996
LMC-LPR	-2.928142	-0.793969	0.8112	-3.513075	-1.995942	0.5877	-1.948313	2.500620	0.9964

At First Difference I(1)									
LMC-DLGDP	-2.921175	-4.889334	0.0017*	-3.502373	-4.258610	0.0075*	-1.947520	-2.651749	0.0090*
LMC-DLGDS	-2.921175	-5.671689	0.0000*	-3.502373	-5.843059	0.0001*	-1.947520	-4.450455	0.0000*
LMC-DLFDI	-2.921175	-6.186139	0.0000*	-3.502373	-6.166149	0.0000*	-1.947520	-5.198441	0.0000*
LMC-DPED	-2.925169	-9.630551	0.0000*	-3.508508	-8.933708	0.0000*	-1.947975	-9.076233	0.0000*
LMC-DLCPI	-2.941145	-3.584964	0.0108*	-3.533083	-3.488239	0.0551*	-1.949609	-3.311306	0.0015*
LMC-DLNODA	-2.922449	-5.579717	0.0000*	-3.504330	-5.682077	0.0001*	-1.947665	-4.829985	0.0000*
LMC-DPGFCE	-2.922449	-9.327248	0.0000*	-3.504330	-9.233399	0.0000*	-1.947665	-9.425057	0.0000*
LMC-DLPFCE	-2.921175	-4.546376	0.0006*	-3.502373	-4.582843	0.0030*	-1.947665	-1.839602	0.0531*
LMC-DLPR	-2.921175	-5.459095	0.0000*	-3.520787	-3.425381	0.0516*	-1.947816	-2.327014	0.0207*
Least Developed Countries (LDC)									
At level I(0)									
LDC-LGDP	-2.919952	-2.836176	0.2710	-3.500495	-1.997728	0.5885	-1.947381	3.929489	0.9999
LDC-LGDS	-2.976263	-1.861071	0.3446	-3.632896	-0.068829	0.9920	-1.953858	-1.579016	0.9686
LDC-LFDI	-2.922449	-1.554374	0.4980	-3.510740	-3.511175	0.0499*	-1.947665	-0.398354	0.7948
LDC-LCPI	-2.948404	-2.433440	0.1403	-3.580623	-3.382053	0.0742	-1.953858	-2.786071	0.0072*
LDC-LNODA	-2.923780	-2.664327	0.0877	-3.506374	-3.825981	0.0235*	-1.947816	-1.883838	0.9845
LDC-PGFCE	-3.029970	-2.890875	0.0651	-3.690814	-3.363295	0.0881	-1.962813	-0.497453	0.4855
LDC-PPFCE	-2.981038	-4.06063	0.0045*	-3.595026	-3.938269	0.0247*	-1.955681	-0.087700	0.6432
LDC-PED	-2.925169	-1.677066	0.4361	-3.508508	-1.932823	0.6217	-1.947975	-1.408663	0.1460
LDC-LPR	-2.921175	-4.506354	0.0007*	-3.502373	-3.492024	0.0512*	-1.947520	3.530765	0.9998
At first difference I(1)									
LDC-DLGDP	-2.921175	-5.922584	0.0000*	-3.502373	-6.118465	0.0000*	-1.947520	-4.819855	0.0000*
LDC-DLGDS	-2.981038	-5.076517	0.0004*	-3.632896	-5.806863	0.0006*	-1.954414	-4.685491	0.0000*
LDC-DLFDI	-2.922449	-11.84900	0.0000*	-3.504330	-11.71976	0.0000*	-1.947665	-11.90321	0.0000*
LDC-DLCPI	-2.976263	-5.082783	0.0003*	-3.587527	-4.921660	0.0026*	-1.951000	-7.855841	0.0000*
LDC-DLNODA	-2.923780	-4.070581	0.0025*	-3.506374	-4.341029	0.0062*	-1.947816	-3.447667	0.0009*
LDC-DPGFCE	-3.052169	-5.144106	0.0008*	-3.710482	-4.974412	0.0053*	-1.962813	-5.272419	0.0000*

LDC-DPPFCE	-2.991878	-6.127501	0.0000*	-3.612199	-6.006436	0.0003*	-1.955681	-6.291082	0.0000*
LDC-DPED	-2.925169	-9.058903	0.0000*	-3.508508	-8.962588	0.0000*	-1.947975	-9.103740	0.0000*
LDC-DLPR	-2.922449	-4.159254	0.0019*	-3.504330	-4.876208	0.0013*	-1.947816	-2.953065	0.0040*

Source: Researchers; calculations using EViews@12 Version

Table 7: Engle-Granger Causality Test Results Summary

Null Hypothesis	High-Income Countries		Upper-Middle Income Countries		Lower-Middle Income Countries		Least-Developed Countries	
	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob
FDI does not Granger cause GDP	0.09286	0.9115	2.56016	0.0885	8.36406	0.0008*	1.40735	0.2554
GDP does not Granger cause FDI	6.68703	0.0029*	9.74921	0.0003*	5.29738	0.0086*	1.75774	0.1841
ED does not Granger cause GDP	1.64393	0.2049	0.36477	0.6964	2.13839	0.1299	1.02283	0.3680
GDP does not Granger cause ED	4.75207	0.0135*	4.29923	0.0197*	7.21587	0.0019*	7.88656	0.0012*
GDS does not Granger cause GDP	3.54986	0.0372*	0.56117	0.5746	0.3914	0.3985	5.67363	0.0107*
GDP does not Granger cause GDS	6.41729	0.0036*	2.07845	0.1372	0.20372	0.8164	1.54400	0.2368
GFCE does not Granger cause GDP	2.27482	0.1145	5.71694	0.0061*	10.5849	0.0002*	0.07348	0.9295
GDP does not Granger cause GFCE	2.55820	0.0887	2.01399	0.1453	4.48186	0.0168*	1.43040	0.2721
NODA does not Granger cause GDP	0.00973	0.9903	6.00802	0.0049*	4.30883	0.0195*	0.35661	0.7021
GDP does not Granger cause NODA	2.83844	0.0693	0.35650	0.7021	1.75705	0.1844	2.85413	0.0686
PFCE does not Granger cause GDP	2.10661	0.1335	1.57537	0.2181	1.55678	0.2220	0.05648	0.9452
GDP does not Granger cause PFCE	1.35679	0.2678	2.09982	0.1343	4.06069	0.0239*	2.62499	0.0960
PR does not Granger cause GDP	1.67666	0.1985	15.3015	0.00000*	5.06471	0.0104*	0.44733	0.6422
GDP does not Granger cause PR	2.30407	0.1115	7.74922	0.0013*	16.3831	0.0000*	7.66540	0.0014

Null Hypothesis	High-Income Countries		Upper-Middle Income Countries		Lower-Middle Income Countries		Least-Developed Countries	
	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob
CPI does not Granger cause GDP	2.98098	0.0638	0.86783	0.4290	0.95479	0.3933	0.23498	0.7921
GDP does not Granger cause CPI	2.82108	0.0731	2.40051	0.1059	2.22367	0.1211	1.40482	0.2616
ED does not Granger cause FDI	0.67538	0.5142	0.52703	0.5940	4.15304	0.0001*	0.07572	0.9272
FDI does not Granger cause ED	1.76192	0.1836	1.72484	0.1900	11.4091	0.0223*	12.0886	0.0000*
GDS does not Granger cause FDI	3.10111	0.0550*	0.88738	0.4190	2.17169	0.1258	0.23258	0.7945
FDI does not Granger cause GDS	0.15942	0.8531	1.65307	0.2031	9.30820	0.0004*	3.36466	0.0540*
GFCE does not Granger cause FDI	5.35104	0.0082*	7.13493	0.0020*	0.80022	0.455	1.02282	0.3849
FDI does not Granger cause GFCE	0.76267	0.4724	1.51696	0.2304	12.9514	0.0000*	6.08118	0.0126*
NODA does not Granger cause FDI	0.80245	0.4547	11.7987	0.0000*	5.72203	0.0062*	4.04124	0.0246*
FDI does not Granger cause NODA	2.11120	0.1332	1.35039	0.2697	0.85017	0.4342	0.58650	0.5607
PFCE does not Granger cause FDI	6.17107	0.0043*	11.3714	0.0001*	7.28831	0.0018*	2.52709	0.1039
FDI does not Granger cause PFCE	0.05293	0.9485	3.93821	0.0265*	8.23649	0.0009*	3.2155	0.0605
PR does not Granger cause FDI	7.02602	0.0022*	10.5765	0.0002*	4.66357	0.0144*	7.15168	0.0020*
FDI does not Granger cause PR	1.15217	0.3251	3.39240	0.0424*	3.52618	0.0378*	10.8308	0.0001*

Null Hypothesis	High-Income Countries		Upper-Middle Income Countries		Lower-Middle Income Countries		Least-Developed Countries	
	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob
CPI does not Granger cause FDI	1.78377	0.1829	0.45348	0.6392	0.38480	0.6830	1.44432	0.2524
FDI does not Granger cause CPI	1.54976	0.2265	3.75879	0.0335*	2.11046	0.1342	0.50095	0.6111
GDS does not Granger cause ED	3.12123	0.0540*	4.74990	0.0136*	5.84842	0.0056*	4.36949	0.0266*
ED does not Granger cause GDS	0.47656	0.6241	1.20612	0.3091	1.06439	0.3537	0.00712	0.9929
GFCE does not Granger cause ED	5.17829	0.0096*	4.95520	0.0115*	7.00739	0.0023*	0.50875	0.6127
ED does not Granger cause GFCE	0.89468	0.4160	0.34041	0.7133	2.00766	0.1464	0.76783	0.4840
NODA does not Granger cause ED	0.16094	0.8518	1.58005	0.2174	2.05701	0.1400	5.80837	0.0058*
ED does not Granger Cause NODA	1.29997	0.2828	1.20861	0.3084	1.69350	0.1956	0.79508	0.4581
PFCE does not Granger cause ED	5.23847	0.0091*	6.80195	0.0264*	6.90684	0.0025*	8.42105	0.0022*
ED does not Granger cause PFCE	2.27645	0.1146	0.05999	0.9419	1.44577	0.2465	9.07990	0.0016*
CPI does not Granger cause ED	0.49218	0.6158	0.49145	0.6161	0.33602	0.7166	0.07024	0.9323
ED does not Granger cause CPI	3.51875	0.0408*	2.30452	0.1157	3.87528	0.0289*	1.66460	0.2075
GFCE does not Granger cause GDS	3.13767	0.0532*	2.69336	0.0788	6.53859	0.0032*	0.68682	0.5193
GDS does not Granger cause GFCE	0.14335	0.8669	0.08537	0.9183	0.46763	0.6295	0.66624	0.5292

Null Hypothesis	High-Income Countries		Upper-Middle Income Countries		Lower-Middle Income Countries		Least-Developed Countries	
	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob
NODA does not Granger cause GDS	0.00558	0.9944	5.85761	0.0056*	3.50290	0.0388*	2.13976	0.1542
GDS does not Granger cause NODA	2.80650	0.0713	0.29822	0.7436	1.32979	0.2750	3.69152	0.0442*
PFCE does not Granger cause GDS	6.41253	0.0036*	2.08856	0.1360	0.19761	0.8214	0.02443	0.9759
GDS does not Granger cause PFCE	2.24527	0.1179	0.37424	0.6900	3.31156	0.0455*	0.54046	0.5904
PR does not Granger cause GDS	1.42775	0.2507	15.7005	0.0000*	3.94264	0.0264*	0.06715	0.9353
GDS does not Granger cause PR	2.11925	0.1322	21.0447	0.0000*	13.5517	0.0000*	7.23382	0.0041*
CPI does not Granger cause GDS	6.37560	0.0045*	2.15555	0.1319	1.34749	0.2712	0.91158	0.4172
GDS does not Granger cause CPI	5.86750	0.0065*	2.48158	0.0991	2.07508	0.1385	0.65151	0.5315
NODA does not Granger cause GFCE	0.26923	0.7652	6.07305	0.0047*	2.77519	0.0733	2.05159	0.1712
GFCE does not Granger cause NODA	2.82903	0.0699	0.33626	0.7163	1.25102	0.2962	0.76366	0.4873
PFCE does not Granger cause GFCE	4.54818	0.0159*	4.36279	0.0185*	3.31470	0.0454*	0.44774	0.6479
GFCE does not Granger cause PFCE	4.13724	0.0224*	9.75223	0.0003*	10.3511	0.0002*	0.95015	0.4103
PR does not Granger cause GFCE	1.37036	0.2644	17.9309	0.0000*	16.4437	0.0000*	1.60844	0.2351
GFCE does not Granger cause PR	2.98222	0.0608	6.51389	0.0033*	4.34152	0.0189*	5.88426	0.0140*

Null Hypothesis	High-Income Countries		Upper-Middle Income Countries		Lower-Middle Income Countries		Least-Developed Countries	
	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob	F-Stat	Prob
CPI does not Granger cause GFCE	1.52604	0.2315	1.16916	0.3228	1.26350	0.2934	0.12236	0.8858
GFCE does not Granger cause CPI	3.52810	0.0402*	2.08239	0.1402	2.00534	0.1476	3.14718	0.0743
PFCE does not Granger cause NODA	2.83540	0.0695	0.39281	0.6775	1.71159	0.1924	0.41226	0.6679
NODA does not Granger cause PFCE	0.01965	0.9806	5.96143	0.0051*	5.29022	0.0087*	5.03315	0.0176*
PR does not Granger cause NODA	1.52883	0.2281	0.67179	0.5160	1.50569	0.2331	0.68480	0.5097
NODA does not Granger cause PR	0.67731	0.5132	5.15563	0.0097*	3.22629	0.0493*	11.4088	0.0001*
CPI does not Granger cause NODA	2.40131	0.1058	1.94540	0.1590	3.56586	0.0376*	2.75380	0.0816
NODA does not Granger cause CPI	1.13170	0.3343	1.56257	0.2247	1.62891	0.2089	1.06771	0.3579
PR does not Granger cause PFCE	1.74515	0.1862	7.78578	0.0012*	5.98917	0.0049*	1.29272	0.2955
PFCE does not Granger cause PR	2.38250	0.1039	7.68336	0.0013*	14.1558	0.0000*	12.1040	0.0003*
CPI does not Granger cause PFCE	2.20924	0.1249	0.74032	0.4845	0.74861	0.4794	0.61789	0.5486
PFCE does not Granger cause CPI	2.67383	0.0831	2.47538	0.0992	2.17931	0.1260	1.35716	0.2791
CPI does not Granger cause GFCE	1.52604	0.2315	1.64733	0.2076	1.26350	0.2934	0.12236	0.8858
GFCE does not Granger cause CPI	3.52810	0.0402	2.99105	0.0636*	2.00534	0.1476	3.14718	0.0743

Source: Researcher's calculations using EViews@12

Table 8: Autoregressive Distributed Lag (ARDL)Test Results for short term causality

Variable	Coefficient	Std. Error	t-statistic	probability
High-Income Countries (HIC)				
CONSTANT	0.534637	0.012310	43.43172	0.0000
HIC-DLGDP (-1)*	-0.998161	0.001430	-3698.1237	0.0000*
HIC-LGDS	0.227171	0.002353	96.55182	0.0000*
HIC-LFDI	0.000015	0.000153	0.101910	0.9195
HIC-LED	-0.000530	0.000478	-1.108653	0.2764
HIC-LCPI	0.000139	0.000171	0.814838	0.4216
HIC-LGFCE	-0.010391	0.005656	-1.836952	0.0761*
HIC-LNODA (-1)	0.000342	0.000214	1.597158	0.1207
HIC-LPFCE	0.778680	0.006632	117.4161	0.0000*
HIC-LPR	0.003070	0.001205	2.548269	0.0162*
HIC-LNODA (-2)	-0.000113	0.000230	-0.491547	0.6266
Upper-Middle Income Countries (UMI)				
CONSTANT	0.00000	0.00000	0.00000	0.0000
UMI-LGDP (-1)	-0.996151	0.001111	-896.7951	0.0000*
UMI-LGDS	0.999616	0.001396	717.4066	0.0000*
UMI-LFDI (-1)	-0.016332	0.002750	-5.938707	0.0000*
UMI-LED	-0.002140	0.001510	-1.417870	0.1677
UMI-LCPI	-285.84685	352.37494	0.000000	0.0000*
UMI-LGFCE	-0.038686	0.004240	-9.123668	0.0000*
UMI-LNODA (-1)	-0.167317	0.042658	-3.922298	0.0005*
UMI-LPFCE (-1)	1.005097	0.001541	652.1312	0.0000*
UMI-LPR	0.010720	0.015863	.675776	0.5049
UMI-FDI (-1)	-0.011015	0.002853	-3.860940	0.0006*
UMI-LNODA (-2)	-0.0963386	0.029718	-3.243313	0.0031*
UMI-LPFCE (-2)	1.010576	0.000752	1344.686	0.0000*
Lower-Middle Income Countries (LMC)				
CONSTANT	0.00000	0.00000	0.00000	0.0000
LMC-GDP(-1)	-0.932762	0.024514	-38.04944	0.0000*
LMC-FDI	0.224563	0.140025	1.603735	0.1186
LMC-ED	-0.003949	0.004973	-0.794028	0.4330
LMC-CPI(-1)	-0.00000	0.00000	0.0000	0.0000*
LMC-GDS	1.006825	0.029108	34.589932	0.0000*
LMC-GFCE(-1)	-0.134066	0.135287	-0.9909974	0.3291
LMC-NODA	0.442085	0.130210	3.395179	0.0018*
LMC-PFCE(-1)	0.946863	0.022608	41.88159	0.0000*
LMC-PR(-1)	-0.664583	0.167987	-3.956153	0.0004*

Variable	Coefficient	Std. Error	t-statistic	probability
LMC-CPI(-2)	-0.00000	0.00000	0.00000	0.0000*
LMC-GFCE(-2)	0.058523	0.089235	0.655825	0.5166
LMC-PFCE(-2)	1.040505	0.020094	51.78124	0.0000*
LMC-PR(-2)	-1.081728	0.225436	-4.798380	0.0000*
Least Developed Countries				
CONSTANT	-0.011033	0.069138	-0.159580	0.8777
LDC-DLGDP (-1)	-1.025615	0.290810	-3.526750	0.0096*
LDC-DLGDS	0.439424	0.194789	2.255901	0.0587*
LDC-DLFDI	-0.075788	0.246723	-0.307180	0.7676
LDC-DLCPI	0.007158	0.15177	0.047162	0.9637
LDC-DLNODA	0.671943	0.535848	1.253982	0.2501
LDC-DPGFCE	-0.005930	0.008063	-0.735528	0.4859
LDC-DPPFCE	0.005600	0.016281	0.343992	0.7410
LDC-DPED	-0.001344	0.006890	-0.195085	0.8509
LDC-DLPR	-0.061781	0.659364	-0.093698	0.9280

Source: Researcher's calculations using EViews@12

Table 9: Autoregressive Distributed Lag (ARDL)Bounds Test Results for long-run causality

High-Income Countries (GDP is the dependent variable)				
Variable	Coefficient	Std. Error	t-statistic	Probability
HIC-LGDS	0.227590	0.002362	96.34627	0.0000*
HIC-LFDI	0.000015	0.000154	0.101913	0.9195
HIC-LED	-0.000531	0.000479	-1.108079	0.2766
HIC-LCPI	0.000139	0.000171	0.814794	0.4216
HIC-LGFCE	-0.010410	0.005667	-1.836949	0.0761*
HIC-LNODA	0.000343	0.000215	1.597560	0.1206
HIC-LPFCE	0.780114	0.006547	119.1488	0.0000*
HIC-LPR	0.003075	0.001207	2.547920	0.0162
CONSTANT	0.535622	0.012257	43.69810	0.0000
Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	117411.68	5%	2.11	3.15
Upper-Middle Income Countries (Dependent variable–GDP)				
UMI-LGDS	1.003478	0.001634	614.2367	0.0000*
UMI-LFDI	-0.016395	0.002759	-5.943328	0.0000*
UMI-LED	-0.002149	0.001514	-1.418921	0.1674
UMI-LCPI	-286.95125	353.84133	-0.810960	0.4245
UMI-LGFCE	-0.038835	0.004269	-9.096890	0.0000*

UMI-LNODA	-0.167963	0.042804	-3.924037	0.0005*
UMI-LPFCE	1.008980	0.000799	1262.302	0.0000*
UMI-LPR	0.010761	0.015922	0.675867	0.5049
CONSTANT	0.000000	0.00000	-3.169223	0.0038*
F-statistic	158737.58	5%	2.11	3.15
Lower-Middle Income Countries (Dependent variable GDP)				
LMC-LFDI	0.540750	0.146979	1.637985	0.1112
LMC-LED	-0.004233	0.005364	-0.789204	0.4358
LMC-LCPI	-0.00000	0.000000	-3.6811595	0.0008*
LMC-LGDS	1.079401	0.035467	30.43361	0.0000*
LMC-LGFCE	-0.143730	0.147530	-0.974247	0.3372
LMC-LNODA	0.473952	0.139668	3.393422	0.0019*
LMC-LPFCE	1.015117	0.026869	37.77984	0.0000*
LMC-LPR	-0.712489	0.186451	-3.821322	0.0006*
CONSTANT	0.000000	0.00000	2.269553	0.0301
F-Statistic	452.9373	5%	2.11	3.15
Least-Developed Countries (Dependent variable-GDP)				
LDC-DLGDS	0.428449	0.194343	2.204601	0.0633*
LDC-DLFDI	-0.073896	0.236010	-0.313104	0.7633
LDC-DLCPI	0.006979	0.148090	0.047127	0.9637
LDC-DLNODA	0.655161	0.494510	1.324868	0.2268
LDC-DPGFCE	-0.005782	0.008006	-0.722259	0.4936
LDC-DPPFCE	0.005461	0.016001	0.341257	0.7429
LDC-DPED	-0.001311	0.006741	-0.194444	0.8514
LDC-DLPR	-0.060238	0.647464	-0.093037	09285
CONSTANT	-0.010758	0.066890	-0.160825	0.8768
F-statistic	1.723586	5%	2.11	3.15

Source: Researcher's calculations using EViews@12

Table 10: ARDL Error Correction Regression Test Results

High-Income Countries (HIC)				
Variable	*Coefficient*	*Std. Error*	*t-statistic*	*Probability*
CoinEq (-1) *	-0.998161	0.000808	-1235.456	0.0000*
Upper-Middle-Income Countries (UMI)				
CoinEq (-1)*	-0.996151	0.000685	-1454.820	0.0000*
Lower-Middle Income Countries				
CoinEq (-1)*	0.932762	0.012244	-76.17913	0.0000*

Source: Researcher's calculations using EViews@12

be negative and statistically significant as prerequisites. High-income countries have a negative (-0.998161) and statistically significant coefficient value for the cointegration equation, which means that any variations in the dependent variable will be quickly corrected by the independent variables at a rate of 0.998161%.

The Engle-Granger causality test is used to determine the causal relationship between the variables, and the findings are displayed in Table No. 8. Domestic savings (GDS) and Consumer Price Index (CPI) are correlated in both directions, and economic growth (GDP), government final consumption expenditure (GFCE), and private final consumption expenditure (PFCE) are correlated in only one way to domestic savings (GDS). Economic growth (GDP), government final consumption expenditure (GFCE), private final consumption expenditure (PFCE), private remittances (PR), and domestic savings (GDS) all run in a single-direction causal chain to foreign direct investment (FDI). In addition, unidirectional causality runs from GFCE, PFCE, PR, and GDS to External Debt.

One year lagged GDP (-1) has a negative effect on current year GDP in the Upper Middle-Income Countries. However, the current year's domestic savings as well as the current year's and the previous year's Private Final Consumption Expenditure (PFCE) are helping to fuel the current year's economic growth. In the medium term, domestic savings and private final consumption expenditures are the main forces behind the upper middle-income countries. Short-term economic growth is being slowed down by one year's foreign direct investment (-1), the current year's external debt (ED), the current year's consumer price index (CPI), and one year's worth of lagging net official development assistance (-1 NODA). Long-term economic growth drivers include domestic savings (GDS) and private final consumption expenditure (PFCE), while current-year economic growth inhibitors include foreign direct investment (FDI), external debt (ED), government final consumption expenditure (GFCE), and net official development assistance (NODA). The long-term growth rate of these economies is unaffected by the consumer price index. Private final consumer spending and domestic savings have a similar favorable effect on the expansion of these countries economies. There is a significant long-term relationship between the variables, as indicated by the F-statistic value of 158737.58, which is higher than the upper bound I(1) value of 3.15. The error correction model is used to check the rate of adjustment, and the result is negative (-0.996151), which is preferable and

statistically significant at 5%. Government Final Consumption Expenditure (GFCE), Net Official Development Aid (NODA), and Economic Growth (GDP) are all causally related in a single direction. There is a two-way causal relationship between personal remittances and economic growth (GDP) (PR). There is a single line of causality connecting GDP, FDI, GFCE, and CPI. There is a bidirectional causal relationship between personal remittances (PR) and domestic savings as well as PR and foreign direction investment (GDS). Savings domestically lead to savings abroad in a single direction.

The primary drivers of economic growth in lower-middle-income countries are domestic savings (GDS), net official development assistance (NODA), private final consumption expenditure (PFCE), and one-year lagged GDP (-1); nevertheless, personal remittances (PR) have a detrimental effect on these economies. The impact of domestic savings on economic growth, however, is greater than that of private final consumption expenditures and net official development assistance. Long-term economic drivers in these economies include domestic savings, official development assistance, and private final consumer expenditure; only personal remittances (PR) restrain the growth rate. These nations are known for their savings-based economies; the more they save, the more they will expand in the future. The long-run association among the variables is tested with an F-statistic value (452.9373) which is greater than I(1) bound value (3.15) stating that there is a long-run nexus among the variables. The coefficient value of the Cointegration Equation (-0.932762) is negative and statistically significant. Economic Growth (GDP) is caused by Government Final Consumption Expenditure (GFCE), Personal Remittances (PR), Net Development Aid, and Foreign Direct Investment. Bidirectional causality is running from GDP growth rate to FDI, External debt (ED) and Consumer Price Index (CPI), Private Final Consumption Expenditure (PFCE) and FDI, Personal Remittances (PR) and FDI, Personal Remittances (PR) and Private Consumption Expenditure (PFCE). Unidirectional causality is running from FDI and GFCE to Domestic Savings (GDS).

Domestic savings (GDS) are the main factor influencing the least developed nations, and no other factor significantly explains the dependent variable. The estimated F-Statistic value (1.72), which deviates from the lower bound value, indicates that the variables do not cointegrate over the long term. As there is no cointegration among the variables, it is not recommended to calculate the speed of adjustment or reversion rate using an error correction model. Unidirectional causality is running from Domestic Savings (GDS) to

Economic Growth (GDP) to External Debt (ED). Unidirectional causality is running from FDI to Domestic Savings (GDS) to Personal Remittances and Net Official Development Aid (NODA). Unidirectional causality is running from domestic savings (GDS) and NODA and PFCE to External Debt (ED).

8.   MAJOR FINDINGS

(a) Domestic savings (GDS), Private Final Consumption Expenditure (PFCE), and Personal Remittances (PR) are the major drivers of High-Income Countries in the long run.

(b) Domestic Savings (GDS), Private Final Consumption Expenditure (PFCE) are the major stimulating factors in the case of Upper-Middle Income Countries. But FDI, NODA, and Government Final Consumption Expenditure (GFCE) discourage economic growth in the long run, but it is insignificant.

(c) Even in the case of Lower-Middle Income countries, domestic savings, (GDS), Net Official Development Aid (NODA), and Private Final Consumption Expenditure (PFCE) are the major drivers of these economies and inflation (CPI) and Personal Remittances (PR) are slowing down the economic growth rate.

(d) In the case of Least Developed countries, the economic growth rate is independent meaning that none of the chosen variables influences the dependent variable.

9.   CONCLUSION

Independent of the country's socioeconomic standing, domestic savings are one of the main forces behind economic growth. They increase in size as they save more. The primary long-term drivers of the high and upper-middle-income countries are, in addition to savings, household expenditure (private final consumption expenditure), and personal remittances (PR). The contribution of foreign direct investment to economic growth in high-income countries is negligible, and in the case of upper-middle-income countries, it is slightly negative. Although the coefficient value is negligible, government final consumption expenditure also slows development in upper-middle-income nations. Domestic savings, official development assistance from international financial agencies and OECD countries, and household expenditure all play a significant role in the growth story of lower-income countries, which are known

for having high debt loads, high unemployment rates, and persistent poverty. The economic growth of these lower-income nations is inversely correlated with the inflation rate and personal remittances. The only factor putting pressure on least-developed countries' economic growth is their external debt. And it is discovered that the variables do not cointegrate

The anticipated outcomes support the Harrod-Domar Model of Economic Growth and other neo-classical theories of economic growth that promote domestic savings for a nation's economic development. All nations should encourage their citizens to save more and invest in financial assets in order to spur economic growth.

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