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MODELLING EXTERNAL-FACTORS-LED GROWTH HYPOTHESIS IN CAMEROON

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This study was out to examine the external determinants of economic growth in Cameroon from 1986 to 2019. Studies on external-factors-led growth hypothesis in Cameroon are narrow and limited. This study provides a new intuition into key external factor variables affecting growth. The autoregressive distributive lag (ARDL) bound test and error correction model (ECM) approach were used to answer the research questions. The result revealed that personal remittance, foreign direct investment (FDI), and foreign aid positively and significantly affect economic growth in both the short and long run while the exchange rate negatively and significantly affect economic growth in the short run but positively and significantly impact growth in the long run. The study indicates that external factors can be a great engine of growth if the government initiates proper foreign policies.

***Keywords*:** Economic growth, exchange rate, foreign aid, FDI, remittances, Cameroon

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1. INTRODUCTION

The relationship between external factors and economic growth is not new. Till date, it remains one of the essential ingredients most economies rely on to attain long-term growth especially in sectors where they face deficiency. To speed up development, external resources act as a catalyst in countries with low financial strength. The ultimate question is what external factors determines economic growth? Numerous potential external factors led-growth hypotheses have been examined by researchers over the years but bounding the reliable channels of growth has been a major concern for analysis (Ewane, 2022). This has made researchers express different views on external factors they considered as engines of growth. External indicators such as remittances, imports, and foreign direct investment (FDI) are considered vital catalysts of economic growth in less developed countries (LDC) (Almfraji & Almsafir, 2014; Arif et al., 2018; Barajas et al., 2009; Tahir et al., 2015). For Li (2011), export, tourism, and international transfers are external reliable instruments of economic prosperity while Joshua et al. (2020) further consider external debt, trade openness, and exchange rate. These external resources do not only close the saving-investment gap but also represent a key booster of economic growth in LDCs including Cameroon.

The strength of the Cameroon economy since its independence has been strongly attained due to its reliance on external resources to stimulate growth. The World Bank reports indicate that after the economic crisis faced by the country in 1987, the pace of economic growth was slow with annual growth rate being -6.1% in 1990 and 2.2% in 2009. With the slow pace of economic growth, the government initiated the "Growth and Employment Strategy Paper" (GESP) established in 2009 for Cameroon to emerge before 2035 (GESP, 2009). This made Development prospects remain the prime objective of the government especially in the domain of infrastructural development. However, the realization of these objectives depends on some key external factors that the economy relies heavily on to cover up its savings-investment gap. These external factors such as FDI, exchange rate, personal remittances, external debt, imports, and foreign aid are not only important for new technology adoption but also affect key macroeconomic variables such as domestic investment, unemployment reduction, technical know-how, and a suitable business ground (Fambon, 2013). With numerous external factors affecting growth in Cameroon, the study focused on four key factors: FDI, exchange rate, personal remittances, and foreign aid. Without doubt, scholarly research works exist on these key factors in both Cameroon and the world. However, the rationale for selecting these variables in Cameroon context is based

on a parsimonious model, availability of data, multicollinearity, limited empirical findings, and more importantly the controversial nature of the results which requires further attention.

Foreign direct investment (FDI) is considered a key external resource that directly affects the economy of Cameroon as it increases not only capital formation but also brings in new technology, infrastructural development, unemployment reduction, and economic integration (Magalie et al., 2018). Figure 1 indicates that the trend of FDI inflows has been fluctuating over the years registering zero FDI inflows in 1990, which was a period Cameroon faced economic crisis. However, it has been increasing in recent times. With key encouraging factors such as abundant natural resources, cheap labour, and equity participation, the a priori expectation between FDI and economic growth is expected to be positive. Nevertheless, there is mixed empirical evidence reporting a positive, negative, or ambiguous relationship. In past studies, (Achamoh & Baye, 2016; Fambon, 2013; Kang & Mbea, 2011; Numbu & Belyaeva, 2021; Forgha, 2009) found a positive relationship between FDI and growth in Cameroon, Nguea et al. (2020) had a negative relationship in the long run but positive in the short run while Magalie et al. (2018) had ambiguous results. This is an indication that the FDI-growth nexus is inconclusive in Cameroon. It is therefore imperative to conduct more studies.

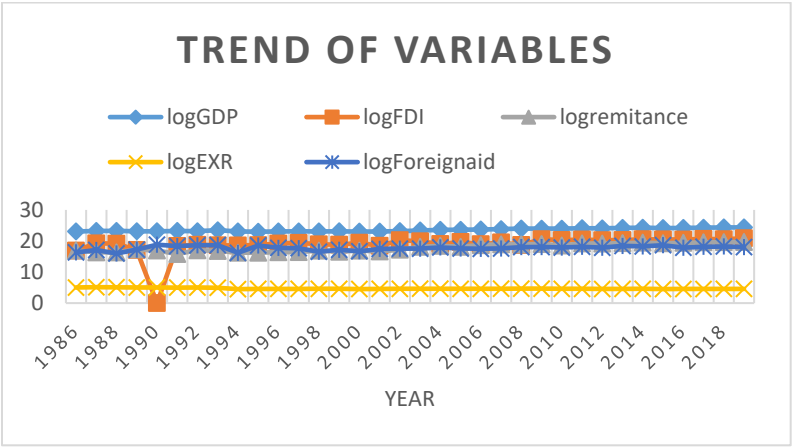

Figure 1: Trend of variables used in the study

Besides FDI, personal remittance also sparks economic growth in Cameroon as it does not only increase the purchasing power of households but also boosts consumption, savings, and domestic investment. The trend of personal remittances inflow has increasing over the years from 2010 (See Figure 1).

According to the World Bank, Cameroon received over 1.5 billion CFA in remittances in 2017. The IMF report further reveals that with access to mobile money, the volume of transactions further increased from 7.5 billion to 3,447 billion CFA francs between 2012 and 2017 (WorldRemit, 2019). Thus, migration has a great impact on national development representing about 0.83% of GDP in 2020 (World Bank, 2022). A study which was conducted in Cameroon by Atekmangoh (2011) considers non-economic factors such as legality, gender, and class to influence remittances flow while Ngouneou & Sundjo (2021) also had a positive relationship between personal remittance and growth. However, both studies failed to conduct causality tests which is a significant ingredient in research.

Official development assistance has been an important energizer that ignites economic growth throughout history (Yiew & Lau, 2018). It is often considered as an important stimulus for economic growth in Cameroon. Since 1986, Cameroon's economy has received a considerable rate of foreign aid inflows to increase economic growth as this was a period marked by an economic crisis (Thaddeus et al., 2021). The trend of foreign aid inflows in Figure 1 reveals a positive trend in recent time. Apart from making up for the domestic capital shortage, foreign aid also boosts the magnitude of Cameroon's economy in the domain of technology, skills acquisition, infrastructural development, and entry to global markets. According to the World Bank (2022), Net bilateral aid flows from DAC donors and EU institutions in Cameroon was reported at 99430000 USD in 2020 which constitutes a significant share of GDP. The foreign aid growth nexus in Cameroon is limited, old, and mixed. While Judith (1994), Murthy et al. (1994), and Ngang (2008) had a positive relationship, Charles (2017) had a negative relationship between foreign and growth. Hence, there is a need for more empirical verification.

Finally, this study will also look at the role played by the real effective exchange rate as an external factor indicator in Cameroon. Exchange rate is constantly fluctuating due to the market forces of demand and supply in the foreign exchange market (see Figure 1). The 1994 currency devaluation proved beneficial as it led to the development and growth of exported products like cocoa, coffee, and massive development in infrastructures such as roads, railways, petroleum industry, and timber industries. However, devaluation also comes with shortcomings ranging from expensive imports to higher inflation and low productivity as capital equipment becomes more expensive. Regardless of the vital role the exchange rate played in economic growth, little quantitative works has

been carried out in Cameroon which requires more attention as will be examined in the literature review.

The relationship between external factors and economic growth is paramount and ongoing but most empirical findings presents controversial results in Cameroon which requires further investigation. Also, the causal nexus amongst the variables have also been neglected in recent times. The persistent low level of employment, economic backwardness, and intense poverty in Cameroon has been the reason behind this study. These external indicators will be examined as to whether they will provide the necessary assistance needed for Cameroon to emerge before 2035. Thus, this research has the following objectives: (1) To examine the external growth factors (2) establish causality between the variables (3) identify the key external factor of growth.

2. LITERATURE REVIEW

Foreign direct investment and economic growth

The exogenous growth theory of neoclassical economics posits that economic prosperity is primarily influenced by external independent factors. To them, FDI inflows is important because it fill the saving-investment gap (Solow, 1956). This conclusion is supported empirically by Forgha (2009) who looked at the connection between FDI and economic performance in Cameroon from 1970–2007 using the ordinary least square (OLS) technique. The study indicates that FDI positively and significantly affects economic performance in Cameroon and reacts more rapidly to growth than any other variable. This is true with the findings of Kang & Mbea (2011) using regression analysis from 1980–2009 who confirm that FDI has a positive relationship with economic growth in Cameroon. They further reveal that domestic investment are less efficient than external resources (FDI and Foreign Aid). Fambon (2013) using autoregressive distributed lag (ARDL) model for 28 years indicate that a positive and significant short and long run relationship exist between domestic capital stock, foreign direct investment and economic growth in Cameroon but insist on sound fiscal and monetary policies. Supporting this study, Chenaa & Kimengsi (2016) also revealed that the coefficients of the value added by FDI in Cameroon growth is positive and significant. However, the authors encourage the law of equity between domestic and foreign entrepreneurship to boost FDI. Similarly, Numbu & Belyaeva (2021) using correlation and regression analysis found a strong correlation between FDI and GDP in Cameroon (2000–2020). On the contrary, Nguea et al. (2020) revealed that

the impact of FDI on poverty reduction is negative and significant in the long run but positive and significant in the short run in Cameroon. The study advises FDI may be used as a short-term poverty reduction instrument. Also, Magalie et al. (2018) finds an ambiguous link among FDI and growth in Cameroon. The results of the granger causality test further reveal no bi-directional relationship exists amongst both terms.

Out of Cameroon, some authors had found proof of a significant nexus in the long-run between FDI and growth (Baiashvili & Gattini, 2020; Sharma et al., 2018; Yusuf et al., 2020). Similarly, Chaudhury et al. (2020) concludes that sectoral composition had a role on the effect of FDI in the South Asian economy. Hence, it is imperative to attract FDI in target sectors to achieve better economic growth. Contrary, the dependency theory of Prebisch (1950) opines that for developing countries to grow, they should seek inward solutions by utilizing domestic resources efficiently rather than external resources. Empirically, Herzer (2010) study finds that in developing countries, FDI negatively affect economic growth but the growth effects of FDI is influenced by large cross-country differences. Similarly, Dinh et al. (2019) using developing countries from 2000 to 2014 also found FDI to have a short-run negative effects on Economic growth but found long run significant positive impact. Likewise, Khobai et al. (2018) using South Africa as a case study for 36 years and quantile regressions revealed that at the lower extreme quantiles, foreign direct investment negatively and substantially affect growth but at the higher quantiles it has no significant influence.

Foreign aid and economic growth

Foreign aid as an external factor is the highest humanitarian activity across the world. It does not only spur economic growth but breaches the saving-investment gap. The Harrod-Domar gap model states that to enhance growth rates, it is paramount to boost savings either internally or externally. Therefore, to achieve equilibrium in their saving investment gap, LDCs can use external inflow of funds (Olayungbo & Quadri, 2019). In Cameroon, the foreign aid-induced growth hypothesis lacks consensus as it is a controversial issue since 1993. Mbaku (1993) examines the effects of foreign aid on economic growth in Cameroon for 19 years. The study found out that foreign aid has no impact on growth. He further reveals that foreign resources have a weaker impact on growth than domestic resources. The results were criticized by Bring (1994) relating to aid definition, the times period used, and the adopted methodology. Mbaku (1994) in a reply stands by the results and conclusions of his novel study insisting that the methodology

used had been explicitly exhausted in literature. Judith (1994) and Murthy et al. (1994) in contrast to Mbaku finds foreign aid to have a positive effect on growth in Cameroon. They attributed the variances in the results to the differences in lag structure and the method used in the study. Ngang (2008) carried out a similar investigation in Cameroon for data that ranged from 1997-2006 using descriptive statistics and had the same conclusion. Contrary, Charles (2017) using VAR for a period of 53years found foreign aid to have a negative impact on growth.

Out of Cameroon, Farahmand (2021) concludes that official development assistance is the cause of economic growth in Afghanistan. The causality test further indicates a one-way causality relationship exists between the received aids and growth. Alemu & Lee (2015) using income levels examine the effects of foreign aid on economic growth in Africa. The GMM results support the theoretical hypothesis that there is a positive nexus between aid and growth but works only for African low-income countries and not middle-income ones. Golder et al. (2021) examine the influenced of foreign assistance on Bangladesh's economic progress from 1989 to 2018 using the ARDL. They conclude that in both the short and long run, aid and domestic investment are two significant factors of economic growth. They however emphasized that domestic investment is a stronger tool of development than foreign aid in the long run. Also, Sharma & Kautish (2021) using South and Southeast Asia from 1990 to 2016 also confirm that aid–policy interaction has a positive and significant impact on economic growth. Other authors found an ambiguous connection between aid and economic growth (Abate, 2022; Yiew & Lau, 2018). On the contrary, many researchers have found a negative relationship between the two concepts (Jena & Sethi, 2020; Kabete, 2008; Phiri & Phiri, 2017; Sabra & Eltalla, 2016).

Personal remittance and economic growth

Personal remittance is also a key external indicator that acts as an engine of growth. The income received by the household from family member's abroad boosts purchasing power, which goes a long way to stimulate domestic investment through the multiplier effects. The optimistic and perspective view are two important key theories in migration and remittance. The optimistic view believes return migrants are considered important catalysts of change and innovation as they play a significant role in the developmental process. They bring money home, modern ideas, and entrepreneurial skills (De Haas, 2010). From the perspective view, remitted incomes are vital as they boost household incomes, domestic investments, and the economy overall development (De Haas, 2007).

Empirically, this is true with the findings of Ngouneou & Sundjo (2021) on the effect of remittances on economic growth in Cameroon for 37 years using correlation. Their Correlation results indicate remittances positively and significantly affects GDP. Focusing on gender insight, Atekmangoh (2011) study remittance flow amongst Cameroonian "bush fallers" in Sweden. To him ''non-economic factors such as legality, gender, and class influence remittances flow''. However, remittance is a matter of luck, ceteris paribus.

In other studies, it was revealed that remittance have a positive effect on growth. (Arif et al., 2018; Farid & Naamane, 2013; Pllana & Tmava, 2019; Meyer & Shera, 2016). Similarly, Sutradhar (2020) had the same conclusion for the Indian economy but observed a negative relationship in Pakistan, Bangladesh, and Sri Lanka. This negative relationship was true with the findings of other authors (Barajas et al., 2009; Karagöz, 2009; Lacheheb & Ismail, 2020; Anetor, 2019) who concludes remittances hurt growth negatively in recipient countries.

Exchange rate and economic growth

The exchange rate is a key factor in the growth and development of a nation in both the short-run and long-run (Ehikioya, 2019). Theoretically, the conventional approach accepts rising exchange rate boost growth positively by increasing the volume of net exports. For instance, a depreciation of local currency reduces domestic goods prices but makes the prices of imported goods to be high. This will increase the volume of net exports as exportation is encourage while importation is discourage thereby boosting economic growth. The structuralist on the other hand had argue that growth is retarded when exchange rate is rising (Karahan, 2020). Also, the Balassa-Samuelson Hypothesis of 1964 persists a positive link exists between the real exchange rate and economic growth (García-Solanes & Torrejón-Flores, 2009). Empirically supporting the conventional approach and the Balassa-Samuelson Hypothesis, Yusoff & Nulambeh(2016) after investigating important factors of economic growth in Cameroon suggested that Cameroon's economic growth was spearheaded by the exchange rate. Similarly, Thaddeus et al (2021) also found exchange rate to positively and significantly affect Cameroon's economic growth from 1970 to 2018 using ARDL.

In different economies, some researchers were also in support of the conventional view (Sibanda, 2012; Habib et al., 2016; Pramanik, 2022) while on the other hand other authors take sites of the structuralist view who believes that high exchange rate volatility affects economic growth negatively (Karahan, 2020; Oloyede & Fapetu, 2018; Sharma et al., 2018).

3. DATA AND DESCRIPTION

This research utilized secondary data from world development indicators as published by the World Bank in 2022. The series spans over 34 years from 1986-2019. Data on the variables of interest used in the study are: GDP, which is the dependent variable used to capture economic growth define in US dollars. Foreign direct investment inflows, bilateral aid flow with a focus on the European Union, personal remittance received all define in dollars, and real effective exchange rate a measure of the value of a currency against a weighted average of several foreign currencies are explanatory variables. These variables where chosen based on parsimonious model and availability of data alongside multicollinearity. Foreign direct investment was rescale by adding a constant of one to the highest negative values to render the few negative values positive to apply the log. That is x = (y+a) where "a" is the constant. Okereke (2011) indicates that when a constant is added to a variable, the estimate of the slope is unaffected. Moreso, ''the estimate of the intercept of the regression line involving the transformed values of X and Y is a function of the added constants''. The minimum value of FDI will therefore take the value of zero.

Method of estimation

The study adopted the Pesaran et al. (2001) autoregressive distributive lag (ARDL) bound test approach. The method is applicable in cases of level series, first difference series or a mixture of both. The bound test has the null hypothesis of no co-integration; H0:a_{1i}=a_{2i}=a_{3i}=a_{4i} = a_{5i} =0, against the alternatives of co-integration; H1:$a_{1i} \neq a_{2i} \neq a_{3i} \neq a_{4i} \neq a_{5i} \neq 0$. If the calculates *F*-statistic is greater than the critical value for the upper bound, cointegration is confirmed (Ewane & Abonongi, 2022). To perform the bounds test for co-integration, the conditional ARDL (p,q_1, q_2, q_3, q_4) model with five variables have to be specified.

$$y_t = \gamma_{oj} + \sum_{j=1}^{p} \alpha_j y_{t-1} + \sum_{j=o}^{q} \beta_j x_{t-1} + \epsilon_{jt} \qquad \text{(Equation 1)}$$

From the equation, y_(t) is a vector, x_t are the explanatory variables which can be (I(0) or I(1)), α and β are the coefficients,pq are the optimal lag length, j is the number of variables which range from 1,……k, ϵ_jt indicate error terms vector, and γ is the constant.

If after running the ARDL bound test, there is cointegration, the error correction model (ECM) representation is specified thus;

$$\Delta logGDP_t = a_{01} + \sum_{i=1}^{p} a_{1i}\,\Delta logGDP_{t-i} + \sum_{i=i}^{q1} a_{2i}\,\Delta logFDI_{t-i} + \sum_{i=1}^{q2} a_{3i}\,\Delta logPR_{t-i} + \sum_{i=1}^{q3} a_{4i}\,\Delta logEXR_{t-1} + \sum_{i=1}^{q3} a_{5i}\,\Delta logFA_{t-1} + \lambda ECT_{t-1} + \epsilon_{1t} \quad \text{(Equation 2)}$$

If the bound test prove no cointegration, the equation becomes as follows;

$$\Delta logGDP_t = a_{01} + \sum_{i=1}^{p} a_{1i}\,\Delta logGDP_{t-i} + \sum_{i=i}^{q1} a_{2i}\,\Delta logFDI_{t-i} + \sum_{i=1}^{q2} a_{3i}\,\Delta logPR_{t-i} + \sum_{i=1}^{q3} a_{4i}\,\Delta logEXR_{t-1} + \sum_{i=1}^{q3} a_{5i}\,\Delta logFA_{t-1} + \epsilon_{1t} \quad \text{(Equation 3)}$$

where:

GDP	=	growth domestic product
FDI	=	foreign direct investment
FA	=	foreign aid
PR	=	personal remittance
ϵ_{1t}	=	error term
λ	=	speed of adjustment, which must be negative to show long run convergence
ECT	=	error correction term
$a_{2i} a_{3i}\ a_{4i}\ \ a_{5i}$	=	short-run estimates
Δ	=	difference operator

The rationale for using this framework in this study was due to a mixed order of integration of the variables (I(0), I(1))(Pesaran et al., 2001). With a small sample size of just 33 years, the method was more robust and performed better(Kripfganz & Schneider, 2018). The ARDL / ECM model was also useful to ascertain longrun convergence and to separate long-run relationship from short-run dynamics(Belloumi, 2014)

4. RESULTS AND DISCUSSION

Summary statistics and correlation matrix

The descriptive statistics presented in Table 1 reveals that GDP has a highest mean value of 23.58 and a maximum value of 24.38 while exchange rate has the smallest mean value of 4.69 while FDI has the lowest value in the

distribution of 0. The respective deviation from the sample average are 0.24 for GDP, 12.07 for FDI, 1.66 for personal remittance, 0.04 for exchange rate, and 0.26 for foreign aid while the dispersion among the observation are respectively 0.34 for GDP, -4.89 for FDI, 0.05 for personal remittance, 1.22 for exchange rate, and 0.21 for foreign aid. The statistics further reveal that FDI and foreign aid are leptokurtic since their kurtosis values are greater than 3 indicating that they have observations whose values are greater than the sample average while GDP, personal remittance, and exchange rate are platykurtic with observation below the sample average.

The correlation matrix also indicates that there is no exact linear association among the variables. Gujarati (2004) reveal that a strong association can be detected between variables when the value is above 0.8(-0.8).

Table 1: Summary statistics and correlation matrix

Variable	logGDP	logFDI	logPR	logEXR	logFA
mean	23.57679	18.8588	17.84616	4.696917	20.21431
Std. dev	.4906747	3.473985	1.287006	.1947652	.4992668
min	22.9896	0	15.80853	4.50216	21.67281
max	24.387	20.8522	19.68918	5.130482	23.18095
variance	.2407617	12.06857	1.656386	.0379335	.2564575
skewness	.3482806	-4.889476	0.04827	1.2229	0.21229
kurtosis	1.489455	27.1387	1.397858	2.761388	3.30542
Correlation matrix					
logGDP	1.0000				
logFDI	0.3621	1.0000			
logPR	0.9451	0.3149	1.0000		
logEXR	-0.3927	-0.4555	-0.4608	1.0000	
logFA	0.4505	-0.1376	0.3945	-0.0912	1.0000

Stationarity and bound test results

Most macroeconomic variables exhibit random walks. Thus, it was vital to conduct stationarity test to avoid spurious results (Gujarati, 2004; Shrestha & Bhatta, 2018). The Dickey & Fuller(1981) and Phillips & Perron(1988) was used to determine stationarity. The null hypothesis of a unit root is rejected if the absolute value is greater than the critical value.

The ADF and PP results in Table 2 reveals the series have a mixed order of integration. In this case, the Pesaran et al. (2001) bound test was deemed necessary to find out if the model exhibit long-run equilibrium.

Table 2. Unit Root Test

Test types	variables	Test statistics at level		Test statistic at first difference		decision
		constant	Constant and trend	constant	Constant and trend	
ADF	logGDP	0.269	-1.931	-4.247***	-4.520***	I(1)
	logFDI	-3.320***	-4.569***	---	---	I(0)
	logPR	-0.498	-2.423	-7.161***	-7.097***	I(I)
	logEXR	-2.391	-2.016	-4.443***	-4.746***	I(1)
	logFA	-2.817***	-2.955***	---	---	I(0)
pp	logGDP	0.076	-1.708	-6.370***	-6.624***	I(1)
	logFDI	-4.692***	-5.633***	---	---	I(0)
	logPR	-0.218	-3.290	-8.368***	-8.285***	I(1)
	logEXR	-1.719	-1.748	-6.083***	-6.390***	I(1)
	logFA	-4.358***	-4.631***	---	---	I(0)

*** indicate 1% significance levels.

The bound test results in Table 3 evidenced cointegration as F-statistic value of 14.622 is greater than the upper bounds at 5% critical values. Hence, this conclusion requires two estimates: the short-run ARDL and the long-run ECM.

Table 3. ARDL Bounds test for co-integration

cv	Lower bound I(0)	Upper bound I(1)	F-statistics	t-statistics
5%	2.86	4.01	14.622	-6.750

Short run and long run ARDL estimates

The result of the short-run and long run estimates in Table 4 reveals that the first lag of GDP (0.441) had a strong influence on its self-going by p-values. This means the past realization of GDP leads to a 44.1% increase in current GDP at a 1% significant level.

The result further disclosed that in the short run, the first and second lag of FDI had a positive effect on GDP at 10% and 5% significant level respectively while in the longrun, it positively affects GDP by 6.6% at a 1% significant level, ceteris paribus. This is true with the Neoclassical growth theory which states that the inflow of foreign investment is important because it fills the saving-investment gap (Solow, 1956). The conclusion is also consistent with past findings (Baiashvili & Gattini, 2020; Numbu & Belyaeva, 2021; Sharma et al., 2018; Yusuf et al., 2020) but defers to that of Herzer (2012) and Khobai et al. (2018).

Also, Personal remittance was found to boost GDP by 13.7% at a 1% significant level in the short run while in the long run, it positively and significantly increases GDP by 33.4%, ceteris paribus. The income received by family members abroad boosts domestic purchasing power, which stimulates domestic investment and growth. This conclusion validates other findings (Arif et al., 2018; Ngouneou & Sundjo, 2021; Pllana & Tmava, 2019).

However, exchange rate had a negative association with GDP in the short run as it reduces GDP by 49% at a 1% significant level ceteris paribus. The benefits of a weak exchange rate like that of Cameroon can only be visible in the long run. Thus, in the longrun, exchange rate was found to increase GDP by 78.3% at a 1% significant level, ceteris paribus. This confirms the Balassa (1964) and Samuelson (1964) Hypothesis and true with the findings of previous investigations (Pramanik, 2022; Thaddeus et al., 2021; Yusoff & Nulambeh, 2016).

In addition, foreign aid had a positive effect on GDP in both the short run and long run. That is a percentage point increase in foreign aid increases GDP by 6.9% in the shortrun and 18.9% in the longrun at a 1% significant level respectively, ceteris paribus. This is in line with the findings of the following authors (Alemu & Lee, 2015; Farahmand, 2021; Golder et al., 2021; Sharma & Kautish, 2021).

Table 4. Short run and long run ARDL estimates

Variables	Coefficient	Std. error
Shortrun		
L.logGDP	0.4416***	0.0828
logFDI	0.0178***	0.0039
L.logFDI	0.0079*	0.0042
L2.logFDI	0.0111**	0.0043
logPR	0.0503	0.0309
L.logPR	0.1372***	0.0387
logEXR	0.9281***	0.1836
L.logEXR	-0.4905***	0.1682
logFA	0.0360*	0.0204
L.logFA	0.0696***	0.0191
Constant	5.2623***	1.4471
longrun		
Adj. coeff	-0.5592***	0.0838
logFDI	0.0663***	0.0173
logPR	0.3345***	0.0231
logEXR	0.7836***	0.1735
logFA	0.1891***	0.0514
Observations	32	32
R-squared	0.992	0.992
DW statistic	2.172161	2.172

Note : ***,** ,* denote 1%, 5%, and 10% respectively.

The adjustment coefficient of -0.559 was significant at 1% level indicating that previous years errors are corrected in the current year at the speed of 55.9%. The R-square of 0.992 shows about 99% of the variation in economic growth is explained by variation in external determinants. Ozili (2022) indicates that an R-square closer to unity is acceptable in social science research if the high R-square is not caused by spurious causation or multicollinearity between the regressors.

Granger causality results

The decision rule of the granger test is to reject the null hypothesis of no causality if the p-value is lower or equal to 0.05. From the result in Table 5 where GDP is the target variable, personal remittance and exchange rate granger cause GDP. The results also indicate that there is a unidirectional causality between GDP, personal remittance, and foreign aid while there exists bidirectional causality between GDP and exchange rate, personal remittance and FDI, FDI and exchange rate, and finally between foreign aid and FDI.

Table 5. Granger causality tests

Variables	P-values					Direction of causality
	logGDP	logFDI	logPR	logEXR	logFA	
logGDP		0.390	0.000	0.001	0.245	PR&EXR>GDP
logFDI	0.993		0.000	0.000	0.000	PR,EXR & FA>FDI
logPR	0.777	0.002		0.358	0.287	FDI>PR
logEXR	0.000	0.000	0.064		0.004	GDP & FDI >EXR
logFA	0.001	0.000	0.000	0.265	-	GDP,FDI & PR>FA

Diagnostics test

The results in Table 6 indicates no serial correlation and heteroscedasticity exists in the model. In addition, the residual term is normally distributed and the model is correctly specified. The cusum and cusum square graph also shows stability along the 5% boundary.

Table 6. Results of diagnostic tests

Specification	p-values	conclusion
White Test for heteroscedasticity	0.4167	No conditional heteroscedasticity
Breusch-Godfrey LM test for autocorrelation	0.5824	No higher-order autocorrelation
Jarque-Bera (JB) test for normality	0.7266	There is normality in residuals
Ramsey RESET Test for omitted variable	0.9360	The model is correctly specified
Cusum		Stable
Cusum square		Stable

5. CONCLUSION AND RECOMMENDATION

This study aimed to explore the external factors led-growth-hypothesis in Cameroon over the period 1986 to 2019. The study employed the ARDL bound test to determine the long-run relationship. The ARDL and ECM results indicate that FDI, personal remittance, and foreign aid had a positive and significant short and long-run effects on GDP while the exchange rate had a negative and significant effects on GDP in the short run but a positive and significant impact in the long run.

Based on these findings, the paper recommends that to avoid devaluation, export should be made more competitive by initiating export-driven policies like the provision of subsidies to domestic exporters and issuance of free licenses to export companies to promote more exportation while providing local substitutes at home.

Also, measures should be put in place like anti-corruption strategies to avoid mismanagement of aid funds since the political environment has a great role to play in aid utilization. Lastly, the government should also reduce taxes levied on remitted income from abroad to encourage the inflow of foreign currency. However, for a complete appraisal of the external factor-led growth hypothesis to be made in Cameroon, it is also paramount for research studies to be carried out in areas related to other instruments of external determinants like corruption, capital, and labor. Also, the aspect of structural breaks should be looked into since most time series analysis are usually suffering from structural breaks which was not examined in this study.

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