International Journal of Strategic Management and Economic Studies (IJSMES)
ISSN: 2791-299X

# Foreign direct investment and Economic growth in Mauritania

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**Abstract:** This article examines the causal link between foreign direct investment and economic growth in Mauritania during the period 1973-2019 using the ARDL (Autoregressive Distributed Lag model) method developed by Pesaran and Shin in 1998. The stationarity tests have put in highlights a cointegration of order 1 for the growth rate, the schooling rate, the trade openness rate, and the money supply. The empirical results of this study have shown that foreign direct investment, the exchange rate, and education rate have negatively significant effects on economic growth. On the other hand, the development of the financial system and trade openness have a significantly positive effect. As for domestic investment and inflation, they exert negative but statically insignificant effects.

**Keywords:** FDI ; Economic growth ; ARDL ; Cointegration ; Estimation.

**Digital Object Identifier (DOI):** https://doi.org/10.5281/zenodo.10438801

**Published in:** Volume 2 Issue 6



## 1. Introduction

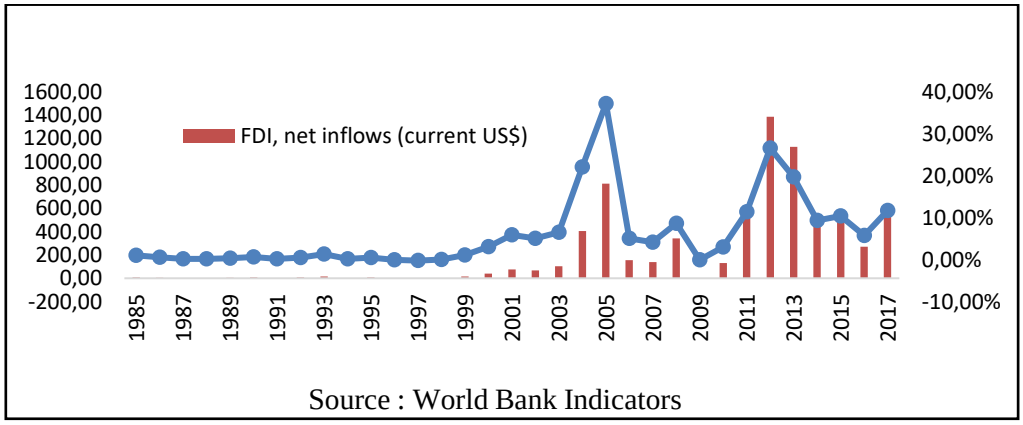
The economic situation of most African countries was fundamentally characterized by low levels of economic development. Communication infrastructure was practically non-existent, health coverage and the level of education were very poor. This is how these countries embarked on a process of economic development. They have invested in public infrastructure, agriculture, industry, and services with capital often borrowed from outside. This domestic accumulation effort is limited by a relatively low savings capacity, which makes external savings essential, especially FDI.

In this perspective, many theoretical and empirical works emphasize that FDIs are a catalyst for economic development through their participation in the creation of wealth. They particularly contribute to the promotion of private investment in the host countries, furthermore, promote the transfer of technology, contribute to the training and improvement of human capital, and contribute to

the development of companies in a competitive environment, in particular through increasing the productivity of factors of production. In addition, the development of FDI leads to greater integration of countries in international trade and should have the effect of facilitating the access of developing countries to international markets.

In the case of Mauritania, foreign direct investment is a recent phenomenon that emerged following the policy of privatization and liberalization of certain strategic sectors as well as the discovery, in 2001, of oil resources.

They remained almost absent after the application of the structural adjustment programs until the year 1999, with an annual average stock of 4.78 million dollars, i.e., 0.43% of GDP. The virtual absence of FDI during these years could be explained by several factors, including: the lack of infrastructure, the uncompetitive costs of production factors, the lack of skilled labor, low labor productivity and important issues of public administration governance.




Source : World Bank Indicators

**Figure 1.** FDI in Mauritania 1985 - 2017

From the year 2000 until 2017, despite the significant decrease experienced in 2009 due to the global economic crisis and the country's political instability, FDI flows experienced a strong but irregular increase, from $40 million in 2000 to $588.2 million in 2017; given two peaks recorded in 2005 and 2013 (***Figure 1***).

Reported by GDP, FDI represents an annual average of 10.85% during the period 2000-2017 against 0.43% in 1985-1999. This increase in FDI recorded during this period could be justified, among other things, by:

- ✓ The privatization process that several Mauritanian economic sectors have experienced and particularly the telecommunications sector since 2001, which opened the capital to foreign operators (Moroccan, Tunisian, and Sudanese), "investments in this sector represented between 2 and 4% of GDP between 2000 and 2003, with a record level in 2001"[1].
- ✓ The discovery of oil resources, which attracted significant flows of inward FDI between 2000 and 2005.
- ✓ Strengthening the legal and regulatory framework of the mining sector combined with the exploitation of new mining resources (gold, copper, diamond).

The main objective of this article is to examine the relationship between foreign direct investment and economic growth in Mauritania. In terms of organization, the research will be structured as follows: in the next section (2), we will present the literature review previously conducted on the link between

foreign direct investment and economic growth. Subsequently, in the third section (3), we will focus on the analysis of time series during the period from 1973 to 2019, we will also be interested in the specification of an econometric model inspired by the work of Alfaro (2003)[2] and Anwar and Nguyen (2010)[3]. Further, the fourth section (4), will be dedicated to the estimation of the model using the ARDL (Autoregressive Distributed Lag model) method developed by Pesaran and Shin (1998)[4], and which was extended by the work of Pesaran et al. .(2001)[5]. In the same section we will interpret and discuss the results. Finally, the fifth section will focus on the main conclusions.

## 2. Literature review

Empirically, several studies have been conducted to analyze the impact of FDI on economic growth. According to Neuhause (2006)[6], based on determinants such as: human capital, level of exports, macroeconomic stability, level of financial development and public investments, there are three main channels through which FDI can influence technological change, improving the stock of capital and fostering economic growth: (a) direct transmission (through "greenfield investments"), (b) indirect transmission (through "ownership participation"), and (c) second-round transmission (through technology spillover).

In a study examining the impact of FDI on economic growth in 23 Asian countries during the period 1986-2008, Tiwari and Mutascu (2010)[7] find that foreign direct investment and exports improve the process of economic growth. In addition, labor and capital also play an important role in the growth of Asian countries. A similar study in Vietnam during the years 1996-2005, Anwar and Nguyen (2010)[3] conclude that the impact of FDI on economic growth will be greater if more resources are invested in education and training, the development of financial markets and reducing the technology gap between foreign and domestic firms.

In the case of Thailand, using data from 1970 to 1999 and introducing the export variable into the growth-FDI equation, Kohpaiboon (2003)[8] found unidirectional causality from FDI to GDP by showing that the Growth impact on FDI tends to be greater in an export promotion trade regime compared to an import substitution regime.

For Eastern European countries, Bhandari et al. (2007)[9] concludes that the increase in national capital stock and FDI inflows are the main factors that positively affect economic growth. In the same vein, studying the case of the countries of the Gulf Cooperation Council (GCC) Faras and Ghali (2009)[10] point out that, for most of these countries, there is a weak but statistically significant causal impact of FDI inflow on economic growth.

In Africa, Adeniyi et al (2012)[11] examined the causal link between foreign direct investment (FDI), economic growth and financial development in a few African countries (Côte d'Ivoire, Gambia, Ghana, Nigeria, and Sierra Leone) during the period 1970-2005. The results show that financial sophistication is important in attracting the benefits of foreign direct investment on economic growth

in Ghana, Gambia, and Sierra Leone. In contrast, Nigeria presents no evidence of a short-run or long-run causal link of FDI between economic growth and financial development.

Furthermore, Wijeweera et al. (2010)[12] argued that FDI inflows exert a positive impact on economic growth, but only in the presence of a highly skilled labor force. Moreover, they found that corruption has a negative impact on economic growth and that trade openness increases economic growth through efficiency gains.

From an empirical study using cross-national data for the period 1981-1999, Alfaro (2003)[2] suggested that foreign direct investment generally exerts an ambiguous impact on economic growth. However, FDI in the primary sector tends to have a negative effect on growth, while investment in the manufacturing sector exerts a positive effect, and for the service sector the effect of FDI is ambiguous. Finally, we find that most studies on the link between foreign direct investment and economic growth show that FDI positively affects economic growth.

## 3. Methodology

### 3.1 Data description

Our study is based on the analysis of annual time series over the period from 1973 to 2019. The data used in this study were collected from the World Bank database (World Development Indicators). We will use the data in logarithm to find the elasticities.

**Table 1.** Description of the variables used in the study

| Variable | Description | Source |
|---|---|---|
| $\mathbf{G_t}$ | This variable measures the size of the host country market, it is measured by the GDP per capita of the host country. | World Bank's Database |
| $\mathbf{FDI_t}$ | It represents foreign direct investment as a percentage of GDP. | World Bank's Database |
| $\mathbf{GFCF_t}$ | Refers to domestic investment defined as gross fixed capital formation. | World Bank's Database |
| $\mathbf{INF_t}$ | It is the rate of inflation measured by the annual rate of change in the Consumer Price Index. | World Bank's Database |
| $\mathbf{M2_t}$ | It is the money supply measuring the level of development and the evolution of the domestic financial system. It is calculated by the money supply M2 as a percentage of real GDP. | World Bank's Database |
| $\mathbf{ER_t}$ | It is the rate of education measured by | World Bank's Database |
| $\mathbf{TO_t}$ | It is trade openness in the host country, measured by the sum of imports and exports as a percentage of GDP. | World Bank's Database |
| $\mathbf{RER_t}$ | This is the real exchange rate, calculated by the ratio between the nominal exchange rate and the consumer price index. | World Bank's Database |

### 3.2 Estimation methodology

We use time series econometrics to examine the causal relationships between Foreign Direct Investments and economic growth in Mauritania.

### 3.3 Regression specification

To analyze the effects of FDI on the promotion of economic growth in Mauritania, we will focus on the specification of an econometric model inspired by the work of Alfaro (2003)[2] and Anwar and Nguyen (2010)[3].

The model that will be estimated in this paper is the following:

$$\mathbf{LG_t} = \mathbf{C} + \boldsymbol{\beta_1}\mathbf{FDI_t} + \boldsymbol{\beta_2}\mathbf{LGFCF_t} + \boldsymbol{\beta_3}\mathbf{INF_t} + \boldsymbol{\beta_4}\mathbf{LM2_t} + \boldsymbol{\beta_5}\mathbf{LER_t} + \boldsymbol{\beta_{6L}}\mathbf{LTO_t} + \boldsymbol{\beta_7}\mathbf{LRER_t} + \boldsymbol{\varepsilon_t}$$

Where $\boldsymbol{\beta_1, \beta_2, \beta_4, \beta_5, \beta_6, \beta_7 > 0}$ **and** $\boldsymbol{\beta_3 < 0}$ **.** $\boldsymbol{\varepsilon_t}$ is the long-run error term.

The model above represents the behavior of long-run economic growth. The ARDL-ECM model associated to this equation can be written as below:

$$\Delta LG_t = \sum_{i=0}^{p} \gamma_i \Delta FDI_{t-i} + \sum_{i=0}^{p} \pi_i \Delta LGFCF_{t-i} + \sum_{i=0}^{p} \epsilon_i \Delta INF_{t-i} + \sum_{i=0}^{p} \rho_i \Delta LM2_{t-i}$$

$$+ \sum_{i=0}^{p} \omega_i \Delta LER_{t-i} + \sum_{i=0}^{p} \vartheta_i \Delta LTO_{t-i} + \sum_{i=0}^{p} \mu_i \Delta LRER_{t-i} + \delta ECM_{t-1} + \varphi_t$$

Where Δ is the first difference, $p$ is the number of optimal lags of the variable. $\boldsymbol{\gamma_i, \pi_i, \epsilon_i, \rho_i, \omega_i, \vartheta_i}$ $\boldsymbol{and}$ $\boldsymbol{\mu_i}$ are the weights of the explanatory variables in the short-run. $\boldsymbol{\delta}$ is the equilibrium restoring force (must be negatively significant), $\boldsymbol{ECM_{t-1}}$ is the residual term of the long-run relationship lagged by one year. $\varphi_t$ is the short-run error term.

## 4. Results and discussion

As part of the estimation of the model, we will use the ARDL (Autoregressive Distributed Lag model) method. But before this step, a verification of certain hypotheses will be necessary.

### 4.1 Stationarity

Before proceeding with the ARDL approach, we will test the stationarity of different series to ensure that none of them is integrated of order two I(2) or more. Indeed, the "bounds test" procedure is no longer valid in the presence of an integrated variable of order two or more. To do this, we will apply two categories of the most widespread tests, namely: the Augmented Dickey-Fuller (ADF) test and the Philips-Perron (PP) test, whose null hypothesis is non-stationarity.

**Table 2** shows that the variables: $\mathbf{LG_t}$, $\mathbf{LM2_t}$, $\mathbf{LER_t}$, $\mathbf{LTO_t}$ and $\mathbf{LRER_t}$ are not stationary in level. However, after applying the first difference (1st), the four variables became stationary at the 1% significance level and therefore they are integrated of order one I(1).

**Table 2 :** Stationarity tests

| Variables | ADF statistic (Level) | ADF statistic (1st differnece) | MacKinnon 5% | MacKinnon 10% | Order of integration |
|---|---|---|---|---|---|
| $\mathbf{LG_t}$ | -1.343642 | -5.277747 | -2.926622 | -2.615817 | I(1) |
| $\mathbf{FDI_t}$ | -3.740942 | | | | I(0) |
| $\mathbf{LGFCF_t}$ | -5.091252 | | | | I(0) |
| $\mathbf{INF_t}$ | -6.428694 | | | | I(0) |
| $\mathbf{LM2_t}$ | -2.103301 | -6.333394 | | | I(1) |
| $\mathbf{LER_t}$ | 1.432020 | -4.567837 | | | I(1) |
| $\mathbf{LTO_t}$ | -1.709991 | -5.774203 | | | I(1) |
| $\mathbf{LRER_t}$ | -1.961802 | -5.947830 | | | I(1) |
| **Variables** | **P-P statistic (Level)** | **P-P statistic (1st differnece)** | **MacKinnon 5%** | **MacKinnon 10%** | **Order of integration** |
| $\mathbf{LG_t}$ | -1.408925 | -5.277747 | -2.926622 | -2.601424 | I(1) |
| $\mathbf{FDI_t}$ | -3.682249 | | | | I(0) |
| $\mathbf{LGFCF_t}$ | -5.091252 | | | | I(0) |
| $\mathbf{INF_t}$ | -6.426956 | | | | I(0) |
| $\mathbf{LM2_t}$ | -2.057700 | -7.594625 | | | I(1) |
| $\mathbf{LER_t}$ | 1.043657 | -4.532801 | | | I(1) |
| $\mathbf{LTO_t}$ | -1.702844 | -5.759589 | | | I(1) |
| $\mathbf{LRER_t}$ | -1.999916 | -6.206111 | | | I(1) |
| **Notes: I(0) means that the variable is stationary in level without differentiation, and I(1) denotes that it has been differentiated only once to make it stationary.** | | | | | |

## 4.2 Bounds test

**Table 3** below provides values of the Bounds test which uses Fisher's test to verify the cointegration hypotheses.

**Table 3 :** Bounds test

| F-Bounds Test | | Null Hypothesis: No levels relationship | | |
|---|---|---|---|---|
| **Test Statistic** | **Value** | **Signif.** | **I(0)** | **I(1)** |
| **F-statistic** | 7.271753 | 10% | 1.92 | 2.89 |
| **K** | 7 | 5% | 2.17 | 3.21 |
| | | 2.5% | 2.43 | 3.51 |
| | | 1% | 2.73 | 3.9 |

The results show that the Fisher statistic (F=7.27) is greater than the upper limit of the interval of critical values for the different significance thresholds. So we reject the hypothesis of no long-term

relationship, we conclude that there is a long-run cointegration relationship for the estimated model. This result allows us to estimate the long-term and short-term relationships of our ARDL model.

### 4.3 Optimal lags and ARDL model

The graph below shows the values of the Akaike information criterion of the top twenty models. As we can see, the ARDL (1, 0, 3, 0, 2, 4, 0, 1) model is the most optimal compared to the other 19 presented, because it offers the smallest value of the SIC (Figure 2). We can say that the number of lags retained corresponds to the lowest value of the criteria is as follows: one lag for $\boldsymbol{LG_t}$ and $\boldsymbol{LRER_t}$, three lags for: $\boldsymbol{INF_t}$ , two lags for $\boldsymbol{LM2_t}$, four delays for $\boldsymbol{LER_t}$ and no lags was recorded for the rest of the variables.

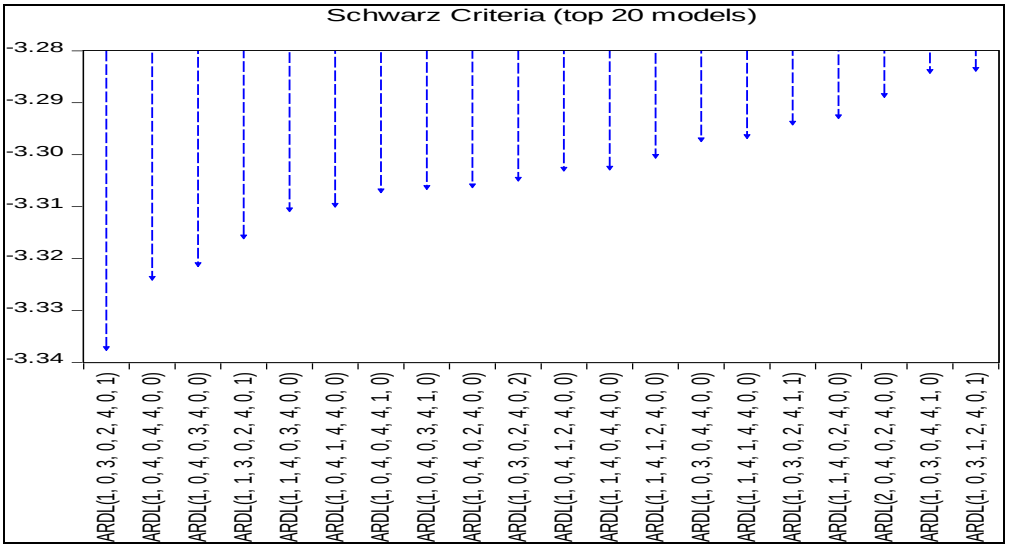



**Figure 2:** The graph of the Akaike Information Criterion (AIC)

The in the appendix presents the most optimal ARDL model equivalent to the number of lags which minimizes the Akaike criterion. The results show that the model is significant with a probability of F-statistic (0.0000) and an adjusted $\mathbf{R^2}$ (0.99), i.e., a very strong relationship between the explanatory variables and the explained variable.

Moreover, the Fisher statistic is higher than the tabulated value at the 5% threshold (2.59), this confirms that our model is globally significant. Similarly, the Durbin-Watson coefficient is close to 2, attesting to the correct identification of the equation studied.

### 4.4 Robustness tests

**Table 4** summarizes the robustness tests ensuring the validity of the model. For the Serial Correlation LM test, the probability obtained is greater than the critical value of 5%. We therefore accept the null hypothesis of the absence of autocorrelation of errors.

We also note that the probability obtained by the Ramsey test (RESET) is greater than 5%, that is to say that we accept the null hypothesis, the model is indeed linear and there is no problem of

specification. Moreover, the Jarque-Bera normality test and the heteroscedasticity test (ARCH) confirmed that the residuals are normally homoscedastic.

**Table 4 :** Robustness tests

| Statistical tests | Test stat probability | Hypothesis Acceptance Rule : H0 | The hypothesis : H0 |
|---|---|---|---|
| **Ramsey RESET** | **0.23 (0.82)** | **Prob > 0,05** | **The model is well specified** |
| **Serial correlation LM** | **1.99 (0.18)** | **Prob > 0,05** | **Uncorrelated errors** |
| **Wite** | **0.51(0.94)** | **Prob > 0,05** | **Homoscedastic errors** |
| **ARCH** | **0.08(0.78)** | **Prob > 0,05** | **Homoscedastic errors** |
| **Jarque-Bera** | **2.67(0.26)** | **Prob > 0,05** | **residue is normal** |
| **Notes: The values in parentheses () are the probabilities associated with the test statistics.** | | | |

Finally, to study the stability of the model, we used the graphical tests CUSUM and square CUSUM. It appears from the figures below that the two curves do not intersect the corridor (broken line in red), so the model is structurally **(Figure 3)** and punctually stable **(Figure 3)**.

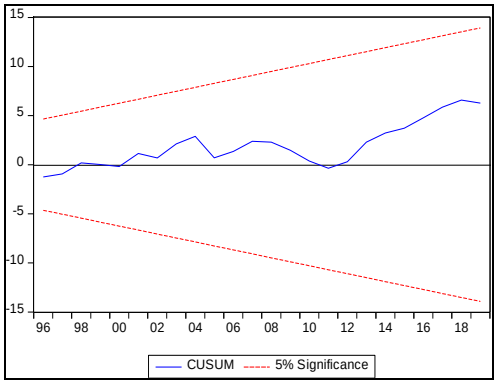



**Figure 3:** CUSUM test

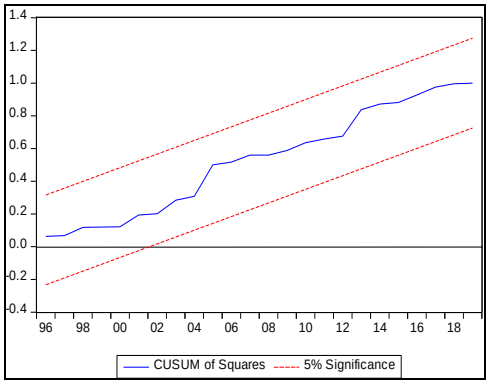



**Figure 4:** Square CUSUM test

### 4.5 Long-run coefficients and error correction model

The results obtained from the **Table 5** show that all the variables have significant long-run coefficients except for inflation and domestic investment.

**Table 5 :** Log-run coefficients and ECM

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| $FDI_t$ | *-0.656918* | *0.209739* | *-3.132075* | *0.0045* |
| $INF_t$ | *-0.070785* | *0.333202* | *-0.212437* | *0.8336* |
| $LGFCF_t$ | *-0.045076* | *0.050192* | *-0.898058* | *0.3781* |
| $LM2_t$ | *0.419202* | *0.160754* | *2.607731* | *0.0154* |
| $LER_t$ | *-0.317757* | *0.098135* | *-3.237951* | *0.0035* |
| $LTO_t$ | *0.196856* | *0.062634* | *3.142970* | *0.0044* |

| | | | | |
|---|---|---|---|---|
| $LRER_t$ | *-1.209716* | *0.054672* | *-22.12664* | *0.0000* |
| $C$ | *0.634013* | *0.291139* | *2.177693* | *0.0395* |
| $ECM_{t-1} = LG_t - (-0.6569*FDI_t - 0.0708*INF_t - 0.0451*LGFCF_t + 0.4192*LM2_t - 0.3178*LER_t + 0.1969*LTO_t - 1.2097*LRER_t + 0.6340)$ | | | | |

These estimated coefficients of the long-term relationship highlight that:

a. Foreign direct investment has a significant negative effect on economic growth. Indeed, an increase in FDI of 1% leads to a decrease in GDP of 0.65. This result can be explained by the competition that the entry of FDI can exert on local companies, thus causing the monopolization of certain sectors and the bankruptcy of certain local companies.

b. Inflation, despite its non-significance, negatively affects economic growth. The rise in the inflation rate is linked to macroeconomic instability, which discourages investment, savings and consequently the GDP growth rate.

c. Domestic investments have a negative but statistically insignificant effect on economic growth.

d. The relationship between the development of the financial system and economic growth proved to be negative and significant in the long term, an increase of 1% has the effect of an increase of 0.41 point in the rate of economic growth. This result could be due to the application of financial liberalization reforms adopted by the governments since the 1990s, such as: the establishment of a process of restructuring public banks in difficulty before their privatization, the progressive abolition of supervision of credit and the administration of interest rates, as well as the establishment of a treasury bill market in 1994, and the strengthening of banking supervision through the adoption of new regulations (the minimum capital, liquidity, solvency, coverage and division of risk).

e. The negative influence of the education rate on economic growth can be explained by the mediocrity of the quality of training and the non-compliance of educational outputs with the needs of the labor market, the fact that causes unemployment to soar and therefore hampering the country's economic growth.

f. Trade openness has a positive and statically significant impact on long-term economic growth, an increase of 1% has the effect of increasing the rate of economic growth by 0.19 points. This can be explained by the fact that trade openness improves the transfer of new technologies, facilitating technological progress and improving productivity.

g. The exchange rate has a significant and negative impact on economic growth, a 1% increase in the exchange rate results in a 1.2 point decrease in the economic growth rate. The devaluation of the Ouguiya has had a direct impact on prices in our market economy, resulting in higher prices and a direct decline in household purchasing power and spending.

### 4.6 Short-run coefficients

**Table 6** gives the result of the short-term dynamic coefficients associated with the long-term relations obtained from the ECM equation. Signs of short-run dynamic impacts are maintained over the long-run. However, the coefficient ($\boldsymbol{\delta}$) of the $\boldsymbol{ECM_{t-1}}$is negative and significant at risk of 5%, which shows the existence of a long-run adjustment mechanism. The estimated value (-0.552) for the ECM coefficient testifies to a rapid adjustment strategy of about (55%).

**Table 6 :** Short-run coefficients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| $\boldsymbol{\Delta INF_t}$ | *0.036118* | *0.054278* | *0.665424* | *0.5121* |
| $\boldsymbol{\Delta INF_{t-1}}$ | *0.044518* | *0.052274* | *0.851634* | *0.4028* |
| $\boldsymbol{\Delta INF_{t-2}}$ | *0.189435* | *0.040977* | *4.622906* | *0.0001* |
| $\boldsymbol{\Delta LM2_t}$ | *-0.007599* | *0.031130* | *-0.244107* | *0.8092* |
| $\boldsymbol{\Delta LM2_{t-1}}$ | *-0.247516* | *0.032789* | *-7.548699* | *0.0000* |
| $\boldsymbol{\Delta LER_t}$ | *-0.159330* | *0.039745* | *-4.008808* | *0.0005* |
| $\boldsymbol{\Delta LER_{t-1}}$ | *0.106200* | *0.041472* | *2.560733* | *0.0172* |
| $\boldsymbol{\Delta LER_{t-2}}$ | *0.137236* | *0.043302* | *3.169262* | *0.0041* |
| $\boldsymbol{\Delta LER_{t-3}}$ | *0.133038* | *0.039179* | *3.395644* | *0.0024* |
| $\boldsymbol{\Delta LRER_{t-1}}$ | *-0.951920* | *0.047769* | *-19.92767* | *0.0000* |
| $\boldsymbol{ECM_{t-1}}$ | *-0.552104* | *0.059103* | *-9.341362* | *0.0000* |

## 5. Conclusion

The main objective of this article is to re-examine the impact of foreign direct investment on economic growth in Mauritania using the most robust estimation method, namely the ARDL model and the cointegration bounds test of Pesaran et al. (2000). The long-term model was designed using annual data provided by the World Bank database over the period 1973-2019, an error correction model (ARDL-ECM) was also estimated.

The empirical results showed a cointegration of order 1 for all the variables used in this study, except for the variables of: foreign direct investment, gross fixed capital formation and inflation which was stationary at level.

As for elasticities, foreign direct investment has a significant negative effect on economic growth. This result can be explained by the competition that the entry of FDI can exert on local companies, thus causing the monopolization of certain sectors and the bankruptcy of certain local companies. The exchange rate has a significant and negative impact on economic growth, which is explained by the fact that the devaluation of the Ouguiya has had a direct impact on prices in our market economy, therefore an increase in prices and a direct drop in household purchasing power and spending. The money supply exerts a significantly negative influence, this could be due to the application of financial liberalization reforms adopted by the State since the 90s, such as: the establishment of a process of restructuring public banks in difficulty before their privatization, The gradual abolition of credit

control and the administration of interest rates, as well as the establishment of a treasury bill market in 1994, and The strengthening of banking supervision by the adoption of new regulations (minimum capital, liquidity, solvency, coverage and division of risk). Trade openness exerts a positive and statically significant impact on long-term economic growth, influence can be explained by the fact that trade openness improves the transfer of new technologies and technological progress and the improvement of the productivity. The influence of the schooling rate is negative because of the mediocrity of the quality of training and the non-conformity of the outputs of education with the needs of the labor market, the fact which makes unemployment soar and consequently slow down the economic growth. Domestic investments have a negative but statistically insignificant effect on economic growth. Finally, inflation, despite its non-significance, it negatively affects economic growth, in other words the rise in the inflation rate is linked to macroeconomic instability, which discourages investment, savings and consequently GDP growth rate.

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# Appendix

| | | | | |
|---|---|---|---|---|
| ***Dependent Variable : LG*** | | | | |
| ***Method : ARDL*** | | | | |
| ***Sample (adjusted): 1973 2019*** | | | | |
| ***Model selection method: Schwarz criterion (SIC)*** | | | | |
| ***Dynamic regressors (4 lags, automatic): FDI INF LGFCF LM2 LER LTO LRER*** | | | | |
| ***Selected Model : ARDL(1, 0, 3, 0, 2, 4, 0, 1)*** | | | | |
| ***Variable*** | ***Coefficient*** | ***Std. Error*** | ***t-Statistic*** | ***Prob.**** |
| ***LG (-1)*** | ***0.447896*** | ***0.105672*** | ***4.238558*** | ***0.0003*** |
| ***FDI*** | ***-0.362687*** | ***0.096566*** | ***-3.755864*** | ***0.0010*** |
| ***INF*** | ***0.036118*** | ***0.095607*** | ***0.377774*** | ***0.7089*** |
| ***INF (-1)*** | ***-0.030680*** | ***0.079504*** | ***-0.385889*** | ***0.7030*** |
| ***INF (-2)*** | ***0.144916*** | ***0.065467*** | ***2.213590*** | ***0.0366*** |
| ***INF (-3)*** | ***-0.189435*** | ***0.069379*** | ***-2.730441*** | ***0.0117*** |
| ***LGFCF*** | ***-0.024886*** | ***0.026554*** | ***-0.937208*** | ***0.3580*** |
| ***LM2*** | ***-0.007599*** | ***0.044618*** | ***-0.170312*** | ***0.8662*** |
| ***LM2(-1)*** | ***-0.008474*** | ***0.054568*** | ***-0.155284*** | ***0.8779*** |
| ***LM2(-2)*** | ***0.247516*** | ***0.045735*** | ***5.412017*** | ***0.0000*** |
| ***LER*** | ***-0.159330*** | ***0.079689*** | ***-1.999404*** | ***0.0570*** |
| ***LER (-1)*** | ***0.090095*** | ***0.082808*** | ***1.087998*** | ***0.2874*** |
| ***LER (-2)*** | ***0.031036*** | ***0.082446*** | ***0.376442*** | ***0.7099*** |
| ***LER (-3)*** | ***-0.004198*** | ***0.085332*** | ***-0.049197*** | ***0.9612*** |
| ***LER (-4)*** | ***-0.133038*** | ***0.054523*** | ***-2.440008*** | ***0.0224*** |
| ***LTO*** | ***0.108685*** | ***0.031535*** | ***3.446514*** | ***0.0021*** |
| ***LRER*** | ***-0.951920*** | ***0.074687*** | ***-12.74545*** | ***0.0000*** |
| ***LRER (-1)*** | ***0.284031*** | ***0.120053*** | ***2.365878*** | ***0.0264*** |
| ***C*** | ***0.350041*** | ***0.183652*** | ***1.906003*** | ***0.0687*** |
| ***R-squared :*** | ***0.997401*** | ***Mean dependent var*** | | ***6.853427*** |
| ***Adjusted R-squared*** | ***0.995452*** | ***S.D. dependent var*** | | ***0.394394*** |
| ***S.E. of regression*** | ***0.026596*** | ***Akaike info criterion*** | | ***-4.115516*** |
| ***Sum squared resid*** | ***0.016977*** | ***Schwarz criterion*** | | ***-3.337311*** |
| ***Log likelihood*** | ***107.4836*** | ***Hannan-Quinn criter.*** | | ***-3.828538*** |
| ***F-statistic*** | ***511.7581*** | ***Durbin-Watson stat*** | | ***2.174896*** |
| ***Prob(F-statistic)*** | ***0.000000*** | | | |
| ****Note: p-values and any subsequent tests do not account for model*** | | | | |