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Determinants of Foreign Direct Investment in Mauritania: Evidence from an ARDL Approach (1986–2020)

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Abstract

This study investigates the determinants of Foreign Direct Investment (FDI) in Mauritania from 1986 to 2020 using an Autoregressive Distributed Lag (ARDL) model. The results reveal a coexistence of long-run relationships among the variables. The analysis shows that natural resource rents and gross fixed capital formation exert a significant positive influence on FDI in the long term. Conversely, inflation, trade openness, and secondary education are negatively associated with FDI inflows. Traditional determinants such as GDP per capita growth and the exchange rate are found to be statistically insignificant. The short-term dynamics highlight a high sensitivity of FDI to economic shocks, reflected by a significant error correction mechanism. These findings suggest that Mauritania's attractiveness remains predominantly centered on its extractive sector. To foster sustainable and diversified FDI, economic policies should prioritize strengthening governance, improving institutional quality, and better aligning human capital development with the needs of investors.

Keywords: Foreign Direct Investment, Mauritania, ARDL, Determinants, Natural Resources, Macroeconomic Stability.

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1. Introduction

In the context of economic globalization, foreign direct investment (FDI) is a strategic driver of development, particularly for economies in transition. It is recognized as a catalyst for the transfer of capital, technology, and know-how, essential for productive diversification and strengthening international competitiveness. For Mauritania, whose economy remains structurally dependent on its natural resources, especially minerals and gas, attracting more diversified FDI represents a crucial challenge for economic transformation. However, this attractiveness is hampered by persistent weaknesses: a narrow productive base, institutions and infrastructure often perceived as deficient, and a marked exposure to exogenous shocks.

From a theoretical perspective, FDI analysis traditionally relies on Dunning's eclectic OLI (Ownership, Location, Internalization) paradigm, which emphasizes the importance of firm-specific advantages, host country characteristics, and transaction costs. From this perspective, a "pull-push" approach allows us to categorize the factors of attraction. However, beyond political stability and anti-corruption efforts, more nuanced approaches to institutional economics (North, 1990) emphasize the importance of formal and informal institutions in reducing transaction costs and protecting property rights—crucial elements for foreign investors. The quality of governance, encompassing accountability, political stability and the absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption (Kaufmann et al., 2011), is now recognized as a major determinant of FDI, influencing risk perception and investor confidence. Furthermore, integration into global value chains (GVCs) has become an increasingly relevant factor in FDI attractiveness, particularly for emerging economies. Multinational companies seek locations that allow them to optimize their production processes globally, which requires not only competitive labor costs but also efficient logistics, reliable communications infrastructure, and a regulatory environment conducive to integration into such complex networks (UNCTAD, 2013).

For a country like Mauritania, the expected location determinants relate both to the search for resources (access to raw materials) and, potentially, to the search for markets. The transmission mechanisms involve the size and growth of the domestic market, the endowment of natural resources, the quality of infrastructure that reduces logistical costs, and macroeconomic stability that minimizes risks and uncertainty for long-run investors.

The abundant empirical literature, both internationally and for sub-Saharan Africa, confirms the importance of these factors but also reveals significant heterogeneity in the results. A consensus is emerging on the positive role of market size, macroeconomic stability, and, for resource-rich countries, extractive rents. However, the impact of other variables, such as trade openness or human capital, can be ambivalent and heavily influenced by the institutional context. With regard to Mauritania specifically, the scarcity of empirical studies constitutes a major limitation. Few studies utilize long time series capable of distinguishing between short- and long-run influences. This gap fully justifies an in-depth study aimed at identifying the specific drivers of attractiveness of this rentier economy.

Based on this observation, the central question of this research is: what are the key determinants of FDI flows in Mauritania, and how do their influences differ between the short and long run? Consistent with the theoretical framework and the literature, we formulate working hypotheses concerning the signs of the expected relationships. We anticipate a positive effect from market

size, natural resource endowment, and fixed capital accumulation, the latter serving as a proxy for infrastructure development. Conversely, inflation is assumed to have a negative influence. The impact of trade openness and the exchange rate is, a priori, more ambiguous.

To test these hypotheses, our study uses annual time-series data covering a broad period, from 1986 to 2020, allowing us to capture economic cycles and long-run adjustments. The dependent variable is net FDI inflows as a percentage of GDP. The explanatory variables include indicators of market size, trade openness, human capital, macroeconomic stability, natural resources, and exchange rates. These data are primarily drawn from standardized international sources, such as the World Bank's World Development Indicators, ensuring their comparability and reliability.

Methodologically, we employ a time-series approach, using an Autoregressive Distributed Lag (ARDL) model coupled with an error correction mechanism (ECM). This framework is particularly well-suited for handling integrated series of different orders [I(0) and I(1)] and for simultaneously estimating long-run relationships and short-run adjustment dynamics. The robustness of the results will be subject to rigorous verification, including diagnostic tests and structural stability examinations.

The expected contributions of this research are twofold. From a scientific perspective, it fills a gap by providing a robust and contextualized econometric analysis of the determinants of FDI in Mauritania. From an economic policy perspective, its results should inform policymakers about priority levers for improving the country's attractiveness, whether these levers relate to improving the business climate, strengthening infrastructure, or managing extractive resource rents.

The remainder of the article is structured as follows. Section 2 presents a detailed review of the empirical literature. Section 3 describes the data and outlines the econometric methodology. Section 4 presents and discusses the estimation results. Finally, Section 5 concludes by summarizing the main findings and formulating economic policy recommendations.

2. Literature Review

The analysis of the determinants of foreign direct investment (FDI) has been the subject of significant empirical effort. Generally, the literature highlights several recurring categories of factors—the size and dynamics of the host market, the quality of factors of production (human capital, labor costs), infrastructure and natural resource endowment, the institutional framework and macroeconomic stability, as well as the degree of financial development and trade openness—while emphasizing that results can vary depending on the context, time period, and econometric specifications.

First, there is a broad consensus that identifies market size as a major determinant of FDI flows. Several empirical studies confirm that investors are attracted to large and growing domestic markets: Hussain and Kimuli (2012) demonstrate the significant importance of market size for developing countries; Fung et al. (2000), using Chinese provincial data, confirm the role of GDP level and its lag; Billington (1999) observes similar effects in the United Kingdom; Dees (1998) highlights the primacy of the domestic market in the Chinese case. Furthermore, Shatz and Venables (2000) emphasize that market size and geographical distance jointly determine the location of foreign subsidiaries: a significant portion of investments remains close to the country of origin once market size is taken into account. Finally, more recent studies (Mottaleb

& Kalirajan, 2010; Ang, 2008; El Sayed, 2011; Kumari & Sharma, 2017; Shah, 2016) confirm the attractiveness of large economies and growing markets for FDI, making market size a logical starting point for any national analysis.

Next, the quality and structure of the labor force constitute another determining factor. The availability of skilled human capital is often associated with higher FDI flows, although the effect depends on the nature of the FDI (extractive vs. manufacturing/technology). Thus, Hussain and Kimuli (2012) highlight the importance of a skilled workforce for developing countries; Fung et al. (2000) show that workforce quality has a greater impact on Japanese FDI than on US FDI in China; Mody et al. (1998) confirm the preference of Japanese investors for developed human capital, in line with Lucas's (1990) logic of complementarity. In contrast, Dees (1998) also notes that low labor costs can attract certain types of FDI (the Chinese case), while Feenstra and Hanson (1997) find a positive correlation between FDI and the relative demand for skilled labor in Mexico. Noorbakhsh et al. (2001) and Kumari & Sharma (2017) concur with the idea that human capital is a significant and growing determinant over time.

At the same time, the quality of infrastructure and the endowment of natural resources play complementary but distinct roles. Developed infrastructure reduces transaction costs and improves attractiveness: Wheeler & Mody (1992), Fung et al. (2000), Loree & Guisinger (1995), as well as recent work (Shah, 2016 and Ang, 2008) show that better infrastructure facilitates capital inflows. Conversely, the presence of natural resources often attracts resource-seeking FDI: Asiedu (2006), Alessandrini & Resmini (1999), Onyeiwu & Shrestha (2004), and Anyanwu & Nagede (2015) observe that natural resource rents are a significant draw, particularly in regions such as the Mediterranean and Africa. It is important to note, however, that extractive FDI can be volatile and concentrated, which impacts local economic outcomes and revenue stability.

The effectiveness of physical and human resource allocations is largely dependent on the institutional framework and political stability. Numerous studies demonstrate that a robust institutional environment and stable policies enhance attractiveness: Al Nasser & Gomez (2009) and Kinoshita & Campos (2003) emphasize the importance of institutions, Asiedu (2006) stresses low corruption, political stability, and a reliable legal system, while Loree & Guisinger (1995) and Wheeler & Mody (1992) highlight the role of incentives and stability in attracting FDI. Conversely, Schneider & Frey (1985) and Basu & Srinivasan (2002) show that political and macroeconomic instability significantly reduces FDI inflows. More recently, Aromasodun (2022) confirms that composite institutional indicators and control of corruption promote FDI, reinforcing the importance of governance.

In addition, macroeconomic stability and trade openness are frequently identified as key determinants. Hussain & Kimuli (2012), Dees (1998), and Mottaleb & Kalirajan (2010) show that macroeconomic stability and trade integration attract FDI; Singh & Jun (1996) and El Sayed (2011) observe the positive role of exports and openness, while Schneider & Frey (1985) and Onyeiwu & Shrestha (2004) emphasize that inflation discourages flows. Recent empirical studies (Aromasodun, 2022; Kumari & Sharma, 2017; Shah, 2016) confirm that prudent macroeconomic policies and liberalized trade regimes enhance a country's attractiveness, although anomalies (e.g., increased FDI during periods of uncertainty in certain contexts, Ang 2008) suggest conditional effects that warrant further investigation.

Finally, financial development and new determinants (technology, environment) complete this picture. The work of Al Nasser & Gomez (2009) and Alfaro et al. (2009) shows that developed financial markets facilitate the absorption of FDI and improve productivity gains. However, Aromasodun (2022) documents a negative effect of financial development on FDI in West Africa, highlighting the contextual complexity. Furthermore, recent research (Qamruzzaman et al., 2025) broadens the scope by showing that clean energy infrastructure, technological innovation, and environmental quality maintain long-run relationships with FDI inflows, opening new avenues for empirical analysis.

In conclusion, the literature offers a multidimensional framework for explaining FDI, but it also reveals heterogeneous results depending on the methodology, level of development, and sectoral structure. This observation justifies an in-depth national analysis — such as the one proposed for Mauritania — which allows for the simultaneous testing of short- and long-run channels (for example via an ARDL model), the treatment of endogeneity problems and the verification of robustness in the face of sectoral specificities (in particular the preponderance of extractive FDI).

3. Methodology

3.1 Data Description

This study uses time series data from 1986 to 2020 to analyze the determinants of Foreign Direct Investment (FDI) in Mauritania. The analysis aims to identify the most relevant determinants for explaining FDI flows in Mauritania. The data come from the World Bank's World Development Indicators database, which ensures their reliability and international comparability. The variables have been kept at levels to maintain the statistical consistency of the analysis.

Table 1. Description of the variables used in the study

Variable	Definition	Data Source	Justification for Variable Selection
FDI	Foreign direct investment, net inflows (% of GDP)	WDI, World Bank	
GDPG	GDP per capita growth (annual %)	WDI, World Bank	Robust GDP growth can signal market opportunities for foreign investors, although resource dependence may conceal limited diversification.
NATRES	Total natural resources rents (% of GDP).	WDI, World Bank	The Mauritanian economy is heavily reliant on mining (iron, gold, copper) and, more recently, gas. FDI in this sector is often driven by resource-seeking motives.
GFC	Gross capital formation (% of GDP)	WDI, World Bank	Improved infrastructure (ports, roads) is crucial for facilitating the operations of foreign companies.

EDUC	School enrollment, secondary (% gross)	WDI, World Bank	The quality and alignment of human capital with the needs of industries (particularly extractive and related services) can influence FDI attractiveness.
INF	Inflation, consumer prices (annual %)	WDI, World Bank	High inflation can erode investment profitability and generate uncertainty, thereby discouraging FDI.
EXR	Official exchange rate (local currency units per US$, period average)	WDI, World Bank	Exchange rate stability or volatility can affect export competitiveness and import costs for foreign companies operating in Mauritania.
OPEN	Trade openness, measured by the ratio of trade to GDP	WDI, World Bank	For Mauritania, openness can mean access to international markets, but also greater exposure to competition in non-extractive sectors.

3.2 Regression specification

This study examines the determinants of foreign direct investment (FDI) flows in Mauritania, drawing on empirical literature that identifies market size, trade openness, human capital, macroeconomic stability, natural resources, and the real exchange rate as key factors of attractiveness (Fung et al., 2000; Asiedu, 2006; Hussain & Kimuli, 2012). Given the dynamic nature of FDI and the heterogeneity of the statistical properties of macroeconomic series, an Autoregressive Distributed Lag (ARDL) model is used to simultaneously analyze short- and long-run relationships. This approach appears particularly relevant in the Mauritanian context, characterized by an open economy, abundant natural resources, and structural exposure to macroeconomic fluctuations, consistent with the predictions of host country attractiveness models.

The model estimated in this article is as follows:

$$\boldsymbol{FDI_t = C + \beta_1 GDPG_t + \beta_2 NATRES_t + \beta_3 GFC_t + \beta_4 EDUC_t + \beta_5 INF_t + \beta_6 EXR_t + \beta_7 OPEN_t + \varepsilon_t}$$

Où $\beta_1, \beta_2, \beta_3, \beta_4, \beta_7 > 0$ et $\beta_5, < 0$, β_6 (ambiguous sign, ±). $\boldsymbol{\varepsilon_t}$ is the error term.

The model above represents the behavior of foreign direct investment flows in Mauritania and their long-run determinants.

To assess the dynamic relationships between the variables, this study applies the Autoregressive Distributed Lag (ARDL) methodology developed by Pesaran et al. (2001). This methodological approach allows for the processing of integrated series of zero order [I(0)], first order [I(1)], or

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mixed orders, thus offering analytical flexibility adapted to the specific characteristics of the Mauritanian time series. Prior to this, the stationarity of the variables will be examined using the Augmented Dickey-Fuller (ADF) unit root test to determine their integration orders and ensure the validity of the estimates.

The ARDL model, combined with the error correction model (ECM), can be formulated as follows:

$$\Delta FDI_t = \sum_{i=0}^{p} \gamma_t GDPG_{t-i} + \sum_{i=0}^{p} \pi_t NATRES_{t-i} + \sum_{i=0}^{p} \varepsilon_t GFC_{t-i} + \sum_{i=0}^{p} \rho_t EDUC_{t-i} + \sum_{i=0}^{p} \partial_t INF_{t-i} + \sum_{i=0}^{p} \alpha_t EXR_{t-i} + \sum_{i=0}^{p} \vartheta_t OPEN_{t-i} + \delta ECM_{t-1} + \varphi_t$$

Where Δ denotes the first difference, and p the number of optimal lags of the variable. $\gamma_t, \pi_t, \varepsilon_t, \rho_t, \partial_t, \alpha_t,$ $and\ \vartheta_t$ represent the short-run coefficients of the explanatory variables. δ corresponds to the speed of adjustment to equilibrium (must be negative and significant), ECM_{t-1} denotes the error correction term lagged by one year. φ_t is the short-run error term.

To ensure the robustness of the estimates, standard diagnostic tests will be applied to check for the absence of autocorrelation of the residuals, the normality of their distribution, and heteroscedasticity. In addition, the structural stability of the model will be evaluated through cumulative sum tests (CUSUM) and cumulative sum of squares tests (CUSUMSQ), thus ensuring the validity and reliability of the chosen specification.

4. Results and discussion

The model estimation is based on the application of the ARDL method. Before proceeding with this estimation, a sequence of preliminary tests is necessary to validate the model's fundamental assumptions. This pre-estimation procedure requires, firstly, verification of the stationarity of the time series, performed using Augmented Dickey-Fuller (ADF) unit root tests. Secondly, the existence of a long-run equilibrium relationship between the variables is established by using the Bounds Test. The rigorous implementation of these methodological steps guarantees the statistical validity and robustness of the subsequent empirical results.

4.1 Stationarity

The results of the Augmented Dickey-Fuller (ADF) unit root test indicate stationarity properties that vary depending on the specifications of the chosen model. The variables GCF and OPEN appear stationary at level (I(0)) in the Trend and Intercept model, while in the Intercept model, they require first differencing to reach stationarity, thus becoming integrated of order one (I(1)). Furthermore, the variables FDI, GDPG, INF, and EDUC are stationary in levels for both models. In contrast, the variables NATRES and EXR consistently appear non-stationary in levels and reach stationarity only after first differencing, indicating integration of order one [I(1)] regardless of the specification used. This heterogeneity observed in the integration orders of the series, characterized by the coexistence of I(0) and I(1) variables, thus provides a solid econometric justification for using the ARDL (Autoregressive Distributed Lag) methodology.

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Table 2. Stationarity tests

Models	*Variables*	*ADF statistic (Level)*	*ADF statistic (1st differnece)*	*MacKinnon 5%*	*MacKinnon 10%*	*Order of integration*
Intercept	***FDI***	*-3.791280*				*I(0)*
	GDPG	*-5.407617*				*I(0)*
	NATRES	*-1.532713*	*-6.153952*			*I(1)*
	GCF	*-1.907223*	*-6.947905*			*I(1)*
	EXR	*-0.347768*	*-4.270208*			*I(1)*
	INF	*-5.419146*		*-2.954021*	*-2.614300*	*I(0)*
	EDUC	*-5.833420*				*I(0)*
	OPEN	*-1.927367*	-4.282678			*I(1)*
Trend and Intercept	***FDI***	*-4.278706*				*I(0)*
	GDPG	*-5.402441*				*I(0)*
	NATRES	*-1.454959*	*-6.125724*			*I(1)*
	GCF	*-3.446117*	*-6.847857*			*I(1)*
	EXR	*-1.998536*	*-4.198958*			*I(1)*
	INF	*-5.884247*		*-3.548490*	*-3.207094*	*I(0)*
	EDUC	*-5.779907*				*I(0)*
	OPEN	*-3.013462*	-4.321668			*I(1)*

Notes: Variables classified as I(0) are stationary in levels, whereas those classified as I(1) require first differencing to attain stationarity.

4.2 Bounds Test

Table 3. presents the results of the Bounds Test based on the F-statistic, used to detect a cointegrating relationship between variables. The F-statistic (17,10) exceeds the upper bound at the 1% significance level, leading to the rejection of the null hypothesis of no long-run relationship. These results confirm that the set of explanatory variables is significantly related to the dependent variable in the long run, thus demonstrating the existence of stable cointegration for the estimated model.

Table 3. Bounds Test for Cointegration

F-statistic	**K**	**Significance**	**Lower bound I(0)**	**Upper bound I(1)**
17.10562	7	10%	1.92	2.89
		5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9

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4.3 Selection of the Optimal ARDL Model

The appendix 1. presents the main performance indicators of the optimal ARDL model, selected based on minimizing the Akaike Information Criterion (AIC), ensuring an appropriate compromise between parsimony and goodness of fit. The selected model (1, 3, 0, 3, 3, 3, 2, 3) is the one that minimizes these criteria, thereby providing a parsimonious and statistically sound representation of the underlying dynamics. The adjusted coefficient of determination (adjusted R^2 = 0.822599) indicates that more than 82% of the variance of the dependent variable is explained by the model, reflecting a high level of fit to the observed data. Furthermore, the F-statistic is significant at the 5% level, which leads to the rejection of the null hypothesis of overall non-significance and confirms the joint relevance of the explanatory variables. Finally, the consistency between the Akaike and Schwarz Information Criteria reinforces the robustness of the chosen lag structure.

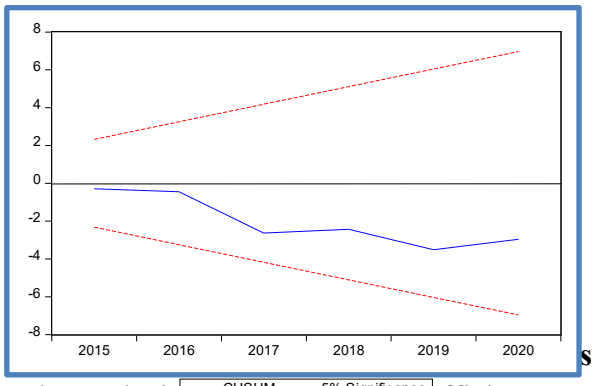
4.4 Robustness Tests

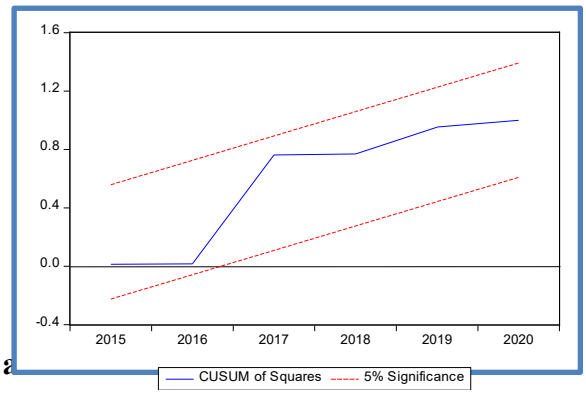
Finally, as illustrated in Table 5 and Figures 1 and 2, the ARDL model satisfies all the applied robustness tests. The LM serial correlation test shows a probability greater than the 5% threshold, which confirms the absence of autocorrelation in the error terms. Similarly, the Ramsey (RESET) test validates the good functional specification and the linearity of the estimated model. Furthermore, the Jarque-Bera normality and heteroscedasticity (ARCH) tests indicate that the residuals follow a normal distribution and are characterized by constant variance. To examine the stability of the estimated relationships in the short and long run, the CUSUM and CUSUMSQ tests were implemented. The results obtained show that the curves remain entirely within the corridor delimited by the critical red dashed lines, thus attesting to the structural stability of the model (Figure 1) as well as its point stability (Figure 2).

Statistical tests	***Test stat probability***	***Null hypothesis***	***Decision***
Ramsey RESET	***0.68 (0.52)***	*Model is correctly specified*	***Not rejected***
Serial correlation LM	***2.93 (0.16)***	*No serial correlation*	***Not rejected***
ARCH	***0.26 (0.61)***	*No heteroskedasticity*	***Not rejected***
Jarque-Bera	***0.43 (0.80)***	*Residuals are normally distributed*	***Not rejected***
Notes: Values reported in parentheses correspond to the p-values associated with the respective test statistics.			

Table 4. Diagnostic and Robustness Tests of the Estimated ARDL Model

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The analysis of the long-run coefficients, presented in **Table 5**, indicates that the majority of explanatory variables have a statistically significant impact on the dependent variable at the 5% level. In contrast, annual GDP per capita growth (GDPG) and the official exchange rate (EXR) do not show statistical significance, suggesting that their long-run influence on foreign direct investment flows remains limited in the Mauritanian context. The estimation of the long-run relationship highlights contrasting effects between the explanatory variables, which calls for a contextualized interpretation of the economic mechanisms in Mauritania, namely:

- Total natural resource rents (NATRES) have a positive and statistically significant effect on long-run foreign direct investment flows in Mauritania. According to estimates, a 1% increase in these natural resource revenues translates into an increase of approximately 1.16% in FDI. This result can be explained by structural mechanisms specific to the Mauritanian context. The predominance of large-scale extractive activities attracts resource-oriented investments, while also generating economies of scale and agglomeration that encourage foreign investment. Furthermore, revenues from natural resources are likely to improve the investment environment, particularly through infrastructure support, the expansion of domestic markets, and the easing of certain structural constraints, thereby enhancing the country's attractiveness.
- Gross fixed capital formation (GFC) has a positive and significant impact on long-run foreign direct investment (FDI) flows in Mauritania. Estimates indicate that a 1% increase in GFC leads to an increase of approximately 0.62% in FDI. This observed positive relationship reflects the structuring role of GFC within the Mauritanian economy. Strengthening capital accumulation contributes to expanding productive capacity, improving infrastructure, and reducing costs for foreign investors. In an environment characterized by persistent logistical constraints, domestic investment efforts thus appear as a credible indicator of economic strength and long-run profitability prospects.
- Inflation (INF) negatively impacts long-run foreign direct investment flows in Mauritania. A 1% increase in the price level is associated with a decrease of approximately 0.63% in FDI. This negative effect of inflation can be explained by the strain it places on macroeconomic stability and the uncertainty it creates for investors. Persistent price increases operating costs and reduces anticipated margins, while also signaling institutional and financial weaknesses. In a context marked by a concentrated production structure and a dual labor

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market, controlling inflation thus appears as a crucial lever for strengthening foreign investor confidence and supporting the country's attractiveness.

• Trade openness (OPEN) also has an adverse influence on long-run foreign direct investment (FDI). Estimates indicate that a 1% increase in the degree of openness translates into a decrease of approximately 0.57% in FDI. This counterintuitive result is explained by the narrow and outward-oriented productive structure of the Mauritanian economy. Increased trade openness primarily exposes resource-intensive primary sectors, without generating spillover effects towards higher value-added activities. In this context, trade liberalization tends to reveal competitive disadvantages outside the extractive sector, accentuate perceived institutional risks, and direct FDI flows towards economies better integrated into global value chains.

• Education negatively influences long-run FDI flows in Mauritania. Empirical results show that a 1% increase in this rate is associated with a decrease of approximately 0.04% in FDI. This result is likely explained by a mismatch between available skills and the needs of the dominant extractive sector, the main recipient of foreign capital. Increased skills are not immediately available, which weighs on the margins expected by investors, especially in a fragile institutional context and with a large informal sector.

• Per capita GDP growth shows a positive relationship with foreign direct investment (FDI) flows in Mauritania, although this association does not reach the usual thresholds for statistical significance. At the same time, the official exchange rate is negatively correlated with long-run FDI, but this effect is also statistically insignificant. This double lack of significance indicates that, within the framework of the chosen model, the influence of these variables remains uncertain and does not allow for the identification of a robust economic impact. It is therefore likely that deeper structural or institutional determinants prevail in explaining the country's attractiveness to foreign investment, relegating the role of per capita income and exchange rate fluctuations to a secondary position.

Table 5 : Long-run parameter estimates and ECM

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
GDPG	0.476050	0.520745	0.914171	0.3959
GCF	0.623500	0.142382	4.379077	0.0047
EXR	-0.249292	0.150228	-1.659426	0.1481
INF	-0.638782	0.189045	-3.378990	0.0149
EDUC	-0.041542	0.010283	-4.039795	0.0068
NATRES	1.160596	0.191751	6.052608	0.0009
OPEN	-0.573990	0.106237	-5.402932	0.0017
C	0.317260	0.083817	3.785128	0.0091
ECM = FDI - (0.4760*GDPG + 0.6235*GCF -0.2493*EXR -0.6388*INF2 - 0.0415*EDUC + 1.1606*NATRES -0.5740*OPEN + 0.3173)				

4.6 Short-run coefficients

The appendix 2. presents the results of the short-run dynamic coefficients associated with the long-run relationships derived from the ECM equation. The signs of the short-run dynamic impacts are maintained in the long run. However, the coefficient (β) of the ECM_{t-1}, estimated

at −1.75, is negative and highly significant. Although unconventional, a value between −1 and −2 remains econometrically acceptable and points to an oscillatory adjustment process marked by an overcorrection phenomenon. The deviation from equilibrium is thus absorbed by approximately 175% in the first period, inducing a transient overshoot of the long-run trajectory followed by a damped convergence. This dynamic reflects a high sensitivity of macroeconomic adjustments to shocks, likely linked to the Mauritanian economy's dependence on inherently volatile sectors, particularly extractive activities. Nevertheless, the overall stability of the convergence process is corroborated by the CUSUM and CUSUMSQ tests, which do not reveal any statistically significant structural breaks.

5. Conclusion

This study aimed to identify the key determinants of foreign direct investment (FDI) flows in Mauritania, specifically examining the distinct nature of their short- and long-run influences. To this end, it used annual data from 1986 to 2020, modeling net FDI inflows as a proportion of GDP using an Autoregressive Distributed Lag (ARDL) time-series econometric framework. The empirical analysis reveals a predictable yet unique mapping of determinants. In the long run, Mauritania's attractiveness is fundamentally based on natural resource rents and fixed capital accumulation, which exert robust positive effects. Conversely, inflation and the degree of trade openness negatively influence FDI, while the expansion of secondary education is associated with a small, albeit adverse, effect. Significantly, traditional variables such as GDP per capita growth and the exchange rate do not show a statistically significant impact, highlighting the specific nature of the context. The short-run dynamics, characterized by a high error correction coefficient, confirm the strong responsiveness of flows to shocks, reflecting the intrinsic volatility of an economy closely tied to commodity cycles.

The robustness of these relationships is supported by a battery of diagnostic and validation tests. The existence of a cointegrating relationship was confirmed by the bounds test, and the selected model satisfies the standard assumptions of no autocorrelation, homoscedasticity, and normality of residuals. The structural stability tests (CUSUM/CUSUMSQ) detected no significant breaks, reinforcing the reliability of the estimates obtained.

The economic interpretation of these results sheds light on the structural mechanisms of the Mauritanian economy. The positive effect of natural resources and fixed capital reinforces an attractiveness model centered on the extractive sector and its related infrastructure. Conversely, the negative effect of openness suggests that increased trade integration, without productive diversification, exposes the competitive disadvantages of non-extractive sectors. The unexpected sign associated with education points to a persistent mismatch between the qualifications offered and the specific skills required by the dominant sector, in an environment where the informal sector limits the effective development of human capital.

These findings suggest specific and actionable economic policy recommendations. To consolidate and diversify FDI flows, the Mauritanian authorities should consider the following actions:

• **Strengthen governance and institutional quality**: This includes reforming the investment code to make it more transparent and predictable, simplifying administrative procedures for the establishment and operation of foreign companies, and proactively combating corruption at all levels.

• **Develop a proactive industrial policy**: It is crucial to foster the creation of special economic zones (SEZs) offering tax incentives and dedicated infrastructure to attract FDI in non-extractive sectors. Particular attention should be paid to developing local value chains around existing extractive industries, for example, by encouraging local processing of minerals.
• **Improve alignment between training and employment**: To address the skills mismatch, the government should invest in targeted vocational and technical training programs, in partnership with the private sector and foreign companies.
• **Maintain macroeconomic stability and invest in infrastructure**: Controlling inflation through prudent monetary policy is essential. At the same time, strategic investments in transport and energy infrastructure are crucial to reducing business operating costs and improving the country's overall competitiveness.
Ultimately, the main contribution of this article lies in the rigorous application of a dynamic methodological framework to disentangle the determinants of FDI in Mauritania, thus offering a sound empirical analysis that underscores the preeminence of structural and institutional factors over conventional macroeconomic indicators. A clear message emerges: transforming Mauritania's natural resource endowment into a lever for sustainable and inclusive development absolutely requires targeted public action focused on governance, economic diversification, and the development of human capital.

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Dependent Variable: FDI				
Method: ARDL				
Sample (adjusted): 1989 2020				
Model selection method: Schwarz criterion (SIC)				
Dynamic regressors (3 lags, automatic):GDPG GCF EXR INF EDUC NATRES OPEN				
Selected Model: ARDL(1, 3, 0, 3, 3, 3, 2, 3)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
FDI(-1)	-0.756369	0.202355	-3.737840	0.0096
GDPG	-0.745709	0.309422	-2.410009	0.0526
GDPG(-1)	0.392838	0.341784	1.149373	0.2941
GDPG(-2)	0.406047	0.411584	0.986548	0.3620
GDPG(-3)	0.782944	0.429435	1.823196	0.1181
GCF	1.095095	0.231136	4.737883	0.0032
EXR	-2.762606	1.148770	-2.404838	0.0529
EXR(-1)	3.610074	1.434158	2.517209	0.0455
EXR(-2)	1.298025	1.322571	0.981441	0.3643
EXR(-3)	-2.583342	1.342439	-1.924365	0.1026
INF2	-0.184590	0.140703	-1.311911	0.2375
INF(-1)	-0.603685	0.113222	-5.331864	0.0018
INF(-2)	0.326575	0.111834	2.920183	0.0266
INF(-3)	-0.660238	0.123557	-5.343594	0.0018
EDUC	-0.021455	0.005387	-3.982770	0.0073
EDUC(-1)	-0.024017	0.007751	-3.098484	0.0212
EDUC(-2)	-0.001115	0.007950	-0.140302	0.8930
EDUC(-3)	-0.026376	0.004990	-5.286145	0.0019
NATRES	2.491904	0.376903	6.611527	0.0006
NATRES(-1)	-1.732104	0.459406	-3.770312	0.0093
NATRES(-2)	1.278634	0.317913	4.021961	0.0069
OPEN	-0.971297	0.212239	-4.576425	0.0038

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OPEN(-1)	0.415321	0.253416	1.638892	0.1523
OPEN(-2)	-0.123101	0.299732	-0.410703	0.6956
OPEN(-3)	-0.329060	0.127493	-2.581011	0.0417
C	0.557225	0.146037	3.815647	0.0088
R-squared	0.965664	**Mean dependent var**		0.050973
Adjusted R-squared	0.822599	**S.D. dependent var**		0.073710
S.E. of regression	0.031046	**Akaike info criterion**		-4.155670
Sum squared resid	0.005783	**Schwarz criterion**		-2.964759
Log likelihood	92.49072	**Hannan-Quinn criter.**		-3.760917
F-statistic	6.749833	**Durbin-Watson stat**		2.050203
Prob(F-statistic)	0.012264			
***Note:** p-values and any subsequent tests do not account for model selection.				

Appendix 1: **Model estimation**

Appendix 2: Selected short-run dynamic coefficients from the ECM equation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDPG)	-0.745709	0.117432	-6.350148	0.0007
D(GDPG(-1))	-1.188991	0.117690	-10.10276	0.0001
D(GDPG(-2))	-0.782944	0.115364	-6.786704	0.0005
D(EXR)	-2.762606	0.461312	-5.988588	0.0010
D(EXR(-1))	1.285317	0.465057	2.763783	0.0327
D(EXR(-2))	2.583342	0.436335	5.920551	0.0010
D(INF)	-0.184590	0.052677	-3.504209	0.0128
D(INF(-1))	0.333663	0.050553	6.600217	0.0006
D(INF(-2))	0.660238	0.055065	11.99006	0.0000
D(EDUC)	-0.021455	0.001674	-12.81303	0.0000
D(EDUC(-1))	0.027491	0.002420	11.35983	0.0000
D(EDUC(-2))	0.026376	0.002495	10.57241	0.0000
D(NATRES)	2.491904	0.187537	13.28755	0.0000
D(NATRES(-1))	-1.278634	0.125000	-10.22904	0.0001
D(OPEN)	-0.971297	0.090205	-10.76761	0.0000
D(OPEN(-1))	0.452161	0.070153	6.445329	0.0007
D(OPEN(-2))	0.329060	0.060025	5.482097	0.0015
CointEq(-1)*	-1.756369	0.092669	-18.95305	0.0000