Impact of Business Environment Economic Indicators on Foreign Direct Investment in Africa Using Autoregressive Distributed Lag (ARDL)

Dr. Mohamed MEDIANI * University of Adrar, Algeria *mediani_mohamed@univ-adrar.edu.dz*

Dr. Fatema Zohra TALHAOUI University of Adrar, Algeria *fat.talhaoui@univ-adrar.edu.dz*

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Abstract :
The purpose of this study is to prove whether the business environment is within the determinants of FDI in African countries over the period of (2000-2018). The study analyses the issue based on the autoregressive distributed lag (ARDL) using annual data for Mauritius, Rwanda, and Morocco. These countries rank first in Doing Business practices. The business environment variables have been determined according to the previous studies which consist of GDP per capita, inflation rate, interest rate and exchange rate. The empirical results revealed that GDP per capita, the exchange rate and the interest rate was reversed with FDI, For Rwanda, the impact of GDP per capita was negative on the FDI, while the other variables had a reverse effect. Concerning Morocco, GDP per capita has a positive effect other than the inflation rate and the insignificant exchange rate, as well as the neglected effect of the interest rate on FDI.
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* Corresponding author: Mediani Mohamed**,** *(mediani_mohamed@univ-adrar.edu.dz)*

Introduction :

Africa is attracting foreign direct investment from multiple sources, At the beginning of the last decade of the twentieth century, France, Germany, the United Kingdom, and the United States of America were the countries that invested the most in African countries, and at the beginning of the twenty-first century, new investments appeared from the Asian continent towards Africa from India, China, Malaysia. The investment attraction at the time was based on undiscovered natural resources (Abid, F., & Bahloul, S. 2011). In addition to the investment attractiveness factors that are represented in the various components of the investment environment, such as low labor costs, economic growth rates, and African countries' race towards trade openness; So that labor costs are reduced due to the abundance of labor that often lacks the skills required and required in investments imported from abroad (Asafu-Adjaye, J. 2004).

The rates of foreign direct investment in Africa are subject to two main factors, but they are contradictory. The catalyst for attracting foreign direct investment to Africa is the undiscovered natural resources, as for the second non-motivating factor, which is the fragility of the financial and political systems in African countries and the growing percentage of the informal economy in them (Naudé, W. A., & Krugell,

W. F. ,2007, p.1228); this factor is what causes foreign investors to hesitate to direct their capital towards African economies.

Researches have continued on the issue of attracting foreign investments, but at the beginning of the twenty-first century, attention focused on the topic of the business environment and linked it to the two types of investment variable (local or foreign), especially after the first Doing Business Report was issued in 2003; which is published by the World Bank Group to measure business costs for 190 countries. This report is an analytical indicator of the business environment; it includes requirements and procedures to which investors are subject; So that this report had a catalytic effect on regulatory reforms in developing countries by examining indicators that express the business climate, taking into account the ranking of countries according to these indicators, A total of 294 regulatory reforms were recorded between the period (May 2018 and May 2019) that made it easier for 115 economies to do business(World bank , 2020).

However, the business environments in developing countries - including African countries - are experiencing many fluctuations that make improving the investment climate, in addition to the challenges posed by globalization, a burden that limits the expectations of those in charge of investors about increasing investment opportunities and promoting increased financial returns. This is due to weaknesses in productive structures. It is the reality that gave priority to facing these challenges that transform the goals of developing countries that strive to devise strategies to attract foreign direct investment, which will positively affect their economic growth and then on domestic investment(.W. Fedderke, A.T. Romm b, 2006, p.745). And among the minimal negative repercussions on economic development. This is the situation that African countries seek to overcome by adopting several reforms and economic development programs despite their different foundations. However, it aims to attract better foreign direct investment from a business-friendly environment. Which leads to the following question: **What is the impact of the business environment on attracting foreign direct investment in Africa**?

Business environments differ in African countries, which may justify the different types and sources of foreign direct investment that African countries receive, the research seeks to find out the most important determinants that reflect the business environment and explain the foreign direct investment flows to African countries, the study sample, and then the following hypotheses can be formulated:

- Foreign investors rely on the market size index represented by per capita GDP to make their investment decisions in Africa;
- Both the inflation rate and the exchange rate negatively affect foreign direct investment flows to the African countries, the study sample.
- Administratively determined interest rates in African countries do not affect foreign direct investment flows.

I. Previous studies:

Economic studies have extensively dealt with foreign direct investment, its determinants and its effects on many macroeconomic variables, Most of them indicate that after developing countries have shown a desire to move towards a market economy and their race towards trade openness as a pathway for economic openness, The developed countries have been keen on directing their capital surpluses to these countries to take advantage of the economic advantages represented in natural resources in a manner that guarantees the achievement of accumulation of their capital. It is also what is reflected in economic research that dealt with the topics and destinations of global investment flows, Africa has had an important share of these flows.

The subject of the study can be identified through a group of previous studies that are the basis of this research:

Steve Onyeiwu, and Hemanta Shrestha in 2004, addressed determinants of foreign direct investment in Africa, using Panel data for 29 African countries during the period (1975-1999),_The researchers concluded that despite the economic and institutional reform in Africa during the 1990s, the flow of foreign direct investment in the region does not correspond to the investment incentives available to the sample countries due to a set of factors summarized in economic growth, Inflation, openness of the economy, international reserves, The study also concluded a controversial conclusion that the political situation is not important for foreign direct investment flows to Africa, and it is known in advance to foreign investors, as the turmoil in political and social systems pushes investors to direct their money towards financial portfolios and to refrain from real investments, which is negatively reflected on African economies (Steve, Shrestha, 2004, p.101)

While W. KRUGELL considers in his study of the determinants of foreign direct investment flows in Africa in 2005 that political risk is a major factor in the reluctance of foreign investors to invest in Africa, he also consider that Geography and natural resources are the main determinants of foreign investment flows into Africa. The researcher examined many obstacles that prevent African countries from benefiting from foreign direct investments. Africa is facing the challenge of transportation networks and transportation expenses and dealing with exports of investment products at the lowest costs in order to encourage investment and conclude its study by raising the problem of wage indicators and their impact on the decisions of foreign investors (KRUGELL, 2005, p. 65).

Abdelbagi Edrees's 2015 study, entitled "Foreign Direct Investment, Business Environment and Economic Growth in Sub-Saharan Africa," came out which dealt with the role that foreign direct investment and the business environment play in economic growth. The sample included 39 sub-Saharan African countries divided into two groups, 21 low-income countries and 18 middle-income countries from 1992 to 2012. The researcher concluded through his study that the effect of foreign direct investment on economic growth was negative and statistically overestimated in low-income and middle-income

countries.(Edrees, 2015, p5). This means that the greater the flow of foreign direct investment, its negative impact on economic growth in sub-Saharan Africa, and the business environment has a different effect on economic growth, especially with regard to the level of income

Researchers in the direction of investment from Asia towards Africa wonder about its effects in the short and long terms, and each researcher turns to stand on the most important factors that help foreign investors support their investment projects for the longest possible period and what are the obstacles facing foreign investment in Africa, especially the money invested from China; Paulo Reis Mourao conducted his study on Chinese investment in Africa with the following figures: What is China seeking from Africa? An analysis of the economic and political determinants of Chinese Outward Foreign Direct Investment (Mourao, 2017).The study was conducted in 2017 on 48 African countries. The researcher concluded that China's investment in Africa has not reached its peak due to low indicators of political stability and poor quality management that do not serve investment in attracting foreign direct investment, and limited data on the business environment, as for the effects of these foreign direct investment flows, they are not reflected in the economic conditions of the receiving state, especially with regard to the standard of living of individuals.

As for the study by Laleye Nicaise Abimbola and Akinleye Simeon Oludiran in 2018 on "the main determinants of foreign direct investment in the West African economic and monetary region", based on data of eight African countries for the period between 1980 and 2010, estimating a standard model based on joint integration analysis; the two researchers concluded that the main determinants of attracting direct investment are the market size that they expressed in the study in per capita terms of GDP, trade openness and a more suitable environment for business. However, it is not sufficient unless it is provided within low political risks. The researchers added other variables represented in macroeconomic stability represented by inflation rates and exchange rates, they focused on the importance of financial development to create internal balances that qualify the business environment to attract the most important and best investment projects (Abimbola1, Oludiran, 2018, p.157) .

The previous studies that were covered were distinguished by a scientific methodology and objective analysis, which contributed to adding aspects of knowledge, despite the importance of previous studies and their scientific value, which we hope will have a scientific addition. It is characterized by:

The study came to link two variables, namely the business environment and foreign direct investment flows for a sample of African countries during a time period from 2000 to 2018 based on the ranking of African countries according to the Doing Business 2019 report and using the ARDL methodology Slow Gaps Model in order to estimate the impact of business environment variables on foreign investment Each country directly.

II. Economic indicators of the business environment and its relationship to foreign direct investment:

Economic researchers have agreed to define the economic variables of the business environment, which they agree have had effects - albeit different - on the inflows of foreign investments, It is what Saad Farhan and Zakir Hadi detailed in their study entitled " The Impact of some Variables of the Economic Investment Environment on Foreign Direct Investment in the Kurdistan Region of Iraq for the Period 2006 - 2016" where they set out a set of economic variables represented in both the per capita gross domestic product, the interest rate , The inflation rate and the exchange rate, assuming the existence of a relationship for these variables with foreign direct investment, research into the nature of the impact and its measurement (Saad, Thakr Hadi, Alheibi, 2018, p.140). In the following, we will look at the various variables and research that dealt with their impact on foreign direct investment flows**.**

1. GDP per capita:

The GDP per capita is one of the most important macroeconomic indicators that give an image of an economy; it may express the market value of all final goods and services if it is related to foreign direct investment (Tucker, Irvin,2011, p.131). Researchers believe that the per capita gross domestic product is in fact an indicator of the size of the market and has a direct relationship with foreign direct investment After using the per capita GDP index as an indicator related to return on capital, (Edward.S,1990, p540), Jaspersen and others, concluded that there is an inverse relationship between per capita investment and the proportion of investment to GDP(Jaspersen.F, Aylward, Knox, 2000, p.89). While both Shneider, Fery, and Tsai found a positive relationship between the two variables and justify through their research the attraction of the best types of foreign direct investment due to the growth rates of per capita GDP(Elizabeth Asiedu, 2002, p.110). (Loree,1995,pp281-299), (Wei,2000, pp 1-11), and (Hausmann, 2000) deny that there is any relationship between both GDP per capita and FDI inflows in the host countries.

2. Profit rate:

Profit rates are the focus of investor interest, as they determine foreign direct investment flows to host countries; So that the capital is directed to where the return on it is high, and that only comes from high real interest rates; however, high interest rates have two economic implications, The first is the high degree of risk in the host economy, which concerns the foreign investor and affects his decision, which can limit these flows - foreign direct investment -. As for the second indication, it concerns the gap that occurs between domestic interest rates and high foreign interest rates, which leads to the reluctance of investors to this economy, given that this gap reflects political instability(Obsfeld,1986). Because high interest rates make government spending crowd out domestic investment and thus increase taxes imposed on investment activities(Ndikumana, 2000, p.384).

When studying this effect in African countries, Collier and Gunning found that the effect of interest rates on foreign investment is relatively negligible because the prevailing financial system in African countries reduces the volume of investment. Credit regulation is subject to factors far from the requirements of the monetary

market and to discriminatory measures in favor of government institutions. This makes the percentage of private investors obtaining loans very little(Collier, 1999, p.100), not to mention that these institutions often tend or have to default on their loans, either because of mismanagement or due to budgetary problems.

It should be noted that most African countries have few opportunities to obtain external loans due to their low level of economic performance. Hence, it resorts to borrowing from the local financial markets, which leads to high domestic interest rates, which are the rates that direct investment towards the financial sector instead of investment in the real sector, as happened in Zimbabwe in 2000, when interest rates exceeded 50%(Steve, 2004, p.93).

3. Inflation rate:

Inflation affects the cost of capital and therefore it negatively affects the return on foreign direct investment (De Mello, L.R. 1997, p.6) , as it reflects the poor performance of monetary and fiscal policy in the country hosting the investment(Calvo, Leiderman, & Reinhart, 1996, p.127). The instability of prices in Africa was the reason for the decline in investment towards Africa. In 1997 the inflation rate in Africa reached 47% (Brinkman, Gray, 1997, pp 3-5). In African countries, the high rate of inflation affects the decisions of foreign investors negatively because of the latter's reflection on the real exchange rates when assuming the nominal values of exchange rates are fixed.

4. Exchange rate:

The devaluation of the currency in the countries hosting foreign direct investment leads to a decrease in the investors 'foreign exchange earnings because the devaluation erodes the foreign currency's value for profits and stocks(Jenkins, & Thomas 2002, p39). Exchange rates are also an important indicator because of their impact on the economic performance of foreign investors and, consequently, on their returns from investment. The effect of the exchange rate depends on the nature of the investment activity, especially if the outputs of this investment activity are directed to export; if matters are related to this type of product (KRUGELL, 2005, p.57), then devaluation of the currency will enhance its competitiveness and return profit to the foreign investor and the host country.

Whereas if reliance is on imports to cover the inputs of the investment project, it will increase the costs, especially if there are local investments in the same sector that is open to foreign direct investment, the instability of exchange rates leads to the uncertainty associated with the host country's economic environment(Urata, & Kawai, 2000, 103). Other economists have concluded that there is no relationship between the exchange rate and foreign direct investment flows, among them we mention the findings of Raman-Raju & Gokhale during their studies in India during the period 1992-2010.

III. Method and Tools:

The standard study aims to measure the determinants of attracting foreign direct investment in Africa that have a direct relationship to the business environment; It has been relying on previous studies in selecting the economic variables that help in determining these factors. Thus, developing an ideal model for the study depends on the ability of this model to answer the research problem.

The study sample countries were selected according to the Doing Business 2020 report issued by the World Bank. Mauritius, Rwanda and Morocco were selected as the first countries in Africa in terms of ease of doing business, and according to the same report, they ranked 13, 38 and 57, respectively. The data for the three countries related to PIBPERC per capita growth rate, INF inflation, TCH, were obtained from the World Bank database. As for the nominal interest rate TI and real RTI, they come from the reports of the central banks of each country. And that during the period (2000-2018).

1. Examining the existence of a relationship between economic indicators of the business environment and foreign direct investment:

Establishing an ideal model for each country depends on the ability of this model to answer the problem of research by identifying the factors that are related to the business environment of each country and affect the flows of foreign direct investment, The slow-gap methodology developed by Pesaran et Al (2001), Shinand and Sun (1998) was relied on, So that the ARDL model allows separating the effects of the short-term from the long-term, and determining the effect of independent variables on the dependent variable in the short and long term, and measuring this effect as well.

The standard study in this work depends on several stages or steps to build models to measure the impact of the business environment on foreign direct investment flows in the countries. The study sample is shown below:

1.1. Time-series stability test

The importance of measuring the stability of the time series is evident in moving away from the possibility of obtaining a spurious regressions resulting from the regression of unstable time series (Granger, & Newbold 1974, pp 111-120) after studies were relied on to measure the relationship between variables on the significance of the estimates and accepting the results of the determination factor R tests and choosing T and

F to infer the existence of the relationship Among the studied variables.

The following are the results of the stability test for all time series of variables based on the methodology of the unit root test, using several statistical tests (ADF's Dickey and Fuller test, and Phillips and Peron PP test). By testing the null hypothesis that says the existence of the unit root and knowing the degree of stability of each time series.

Table (1): Results of PP and ADF time-series stability test

The study sample	Type of test	Dependent variable		Independent variables			
		FDIPIB	FDI BOP	PIBPER	INF	RTI	TCH
Mauritius	Developer Dickie Fuller test	I(0)**		I(0)***	I(1)***	I(1)***	
	Phillips Piron test	I(1)***		I(0)***	I(1)***	I(0)**	
Rwanda	Developer Dickie Fuller test		I(1)***	I(0)***	I(1)***	I(0)**	I(1)*
	Phillips Piron test		I(1)***	I(0)***	I(1)***	I(1)***	I(1)*
Morocco	Developer Dickie Fuller test		I(1)***	I(1)**			I(1)***
	Phillips Piron test		I(1)***	I(1)***			I(1)***

Source: Prepared by researchers based on Eviews 9.

*** 1% level of significance, ** 5% level of significance**.**

Through Table (1), we find that the time series that represent the dependent variable FDI using both ADF and PP tests are listed at the first level for each of the countries Mauritius, Rwanda, and Morocco. While the PIBPER per capita variable time series is stable at the level for Mauritius and Rwanda, while the time series for Morocco is stable at the first difference. All the time series settle for the rest of the independent variables at the first differences.

2. Bound Test:

Testing the presence of simultaneous integration between variables in the study is the first stage of building an ARDL model, as this test allows judging the presence or absence of a long-term relationship between the listed variables. In the case of verifying the existence of the relationship, the parameters of this model can be estimated and the relationship between the variables in the long run can be found, and the error correction factor can be obtained in the short term A relationship between variables in the short term is also obtained. And the presence of simultaneous integration between the variables is revealed by calculating the F statistic (F) in the Wald Test, as follows:

Null hypothesis: (lack of co-integration between variables)

Alternative hypothesis: (the existence of a long-term equilibrium relationship between the variables).

After doing the stability study and relying on the linear correlation matrix of the studied variables, the model was arrived at that takes the following formula by assuming the relationship between the dependent variable (Y) and the vector of independent variables (X):

$$\Delta Y = \alpha_0 + \beta_1 Y_{t-1} + \beta_2 X_{t-1} + \sum_{i=1}^{n} \vartheta_i \Delta Y_{t-1} + \sum_{i=1}^{m} \varphi_i \Delta X_{t-1} + u_t$$

After performing the Bound Test, based on EViews, the following results were reached:

Table (2): Test the limits for the variables of the study models

	Mauritius model		**Rwanda model**		**Morroco model**	
Statistical computed F	**7.659152**		**9,702,127**		**6.832748**	
Critical values	The minimum rate	the highest rate	The minimum rate	the highest rate	The minimum rate	the highest rate
At the 1% level of significance	3.65	4,66	3,29	4,37	3.65	4.66
At the 5% level of significance	2.79	3.67	2,56	3,49	2.79	3.67
At the 10% level of significance	2,37	3,2	2,2	3,09	2.37	3.2
the decision	The existence of a covariant relationship that goes from the independent variables to the dependent variable		The existence of a covariant relationship that goes from the independent variables to the dependent variable		The existence of a covariant relationship that goes from the independent variables to the dependent variable	

Source: Prepared by researchers based on Eviews 9

Through Table (2), which shows the results of the (F) statistical calculation, we find that it is greater than the value of the upper limit of the critical values in the model at levels of 1%, 5%, and 10% significance. The results indicate the rejection of the null hypothesis and thus confirm the existence of a long-term equilibrium relationship between foreign direct investment and business environment variables for Mauritius, Rwanda and Morocco.

2. Building study models and analysing results:

Due to the existence of a covariant relationship between the variables of the three models; This integration implies a long-term relationship between investment flows and business environment variables for each country. Co-integration is tested under UECM. After several attempts, the following results were obtained:

2.1. Results of assessing the Mauritius model:

Table (3): Results of estimating short-term parameters of the ARDL model for Mauritius

ARDL(1;1;0;1;1)		
The variable	**Estimated parameter**	**Possibilities**
D(PIBPER)	0.069798	0.3497
D(INF)	0.154598	**0.1133**
D(RTI)	-0.15199	**0.0858**
D(TCH (	-0.190173	**0.0662**

Source: Prepared by researchers based on Eviews 9.

Table (4): Results of estimating long-term parameters according to ARDL methodology for the Mauritius model

Coint Eq= FDI - (-0.109542*PIBPER + 0.246271*INF - 0.42055*RTI-0.022TCH+6.641452)		
The variable	The estimated parameter	Possibilities
PIBPER	-0.109542	0.5949
INF	0.246271	0.121
RTI	-0.42055	0.0018
TCH	-0.022155	0.8717
C	6.641452	0.1972

Source: Prepared by researchers based on Eviews 9.

Through Tables (3) and (4), the two equations for the short term and the long term were obtained respectively, and it is worth noting the significance of the correction factor, or what is known as the error coefficient of CointEQ (-1), and its negative sign, as he took a value of (-1.01) with a significance level less than 1% at 0.0000, it expresses the existence of a joint complementary relationship between the explanatory variables in the business environment in Mauritius and the dependent variable represented in the inflows of foreign direct investment towards it, As for the value of this factor, which reached 100%, it reveals the rapid return of foreign direct investment flows to their equilibrium value in the long term, so that all the imbalances that occur in the short term (T-1) are addressed in one year.

As for the rest of the estimated parameters, they were not statistically significant in the long run, with the exception of the significant exchange rate parameter, But after taking into account the F statistic which registered 0.007, which justifies the acceptance of the model statistically, this means that the independent variables which are grouped have the ability to explain the changes that occur to the dependent variable (FDI). The results showed that there was a positive effect on the per capita GDP of PIBPERC and on foreign direct investment in the short term, while the effect was negative in the long term. Where the increase in the growth rate of GDP per capita by 1% negatively affects foreign direct investment flows to Mauritius in the long term, with a decrease of 0.11 million US dollars, and this is consistent with the results of Edward (1990), Jaspersen (2000) and Elizabeth (2002).

The research justifies the existence of an inverse relationship between the per capita investment and the investment rate of the gross domestic product in countries with a high per capita rate, which is an indication of a high return on capital, but it carries high risks that lead to a decline in investment decisions in these countries, especially since Mauritius was A destination for foreign investment coming from the Asian countries, the latter that took Mauritius as an outlet for the European market.

In addition to Mauritius's strategy for economic diversification by moving from an economy dependent on agriculture to a diversified economy that depends on investment in the manufacturing industry, with a contribution of 21.6% of the real GDP in 2005, and the contribution of tourism to foreign direct investment flows by 35% in 2008. Then, attract foreign direct investment in the field of environment and knowledge; Which contributed 24% to the GDP in 2017, this strategy in diversifying the structure of exports by encouraging foreign direct investment made the per capita share of the GDP an indicator that does not reflect the size of the Mauritian market that attracts foreign direct investments that direct its returns to investment in other areas; This reinforces the fears of foreign investors in the long-term.

Regarding the parameter of the estimated inflation rate, it was statistically insignificant in the short and long term with a positive sign. Nevertheless, it indicates a positive relationship between the rate of inflation and the flow of foreign direct investment into Mauritius. Taking into account the development of the inflation rate in Mauritius, we find that during the last ten years it did not exceed 3%, while Mauritius recorded inflation rates that were not less than 8% before the year 2000 Bank of Mauritius, 2020), and this is an indication of the trend towards monetary stability that constitutes an incentive for foreign direct investment.

As for the estimated interest rate parameter, it is significant and has a negative sign. It expresses the existence of an inverse relationship between the real interest rate and foreign direct investment flows in Mauritius; (As high interest rates delay the foreign investor's decision to enter the Mauritian market, especially the investor who relies on borrowing from local banks).

Regarding the parameter of the negative exchange rate, it indicates the existence of an inverse relationship between the exchange rate and the flow of investment to Mauritius, which is the same conclusion reached by (Medha Kisto,2017, p375); And especially the import of raw materials, equipment and machinery that fall within the requirements of foreign direct investment in the manufacturing sector, in addition to the policy of devaluation adopted as a strategy to support the competitiveness of industrial exports resulting from foreign direct investment, but the latter - the policy of devaluation - increases the import bill for the foreign investor and then increases the costs, which negatively affects the foreign investor's decision, especially as this investor is Asian aims to reduce costs. Whereas, the devaluation of the currency in Mauritius leads to a decrease in the investors 'income from foreign currency due to the erosion of the foreign currency's value by 1% of profits and stocks This is what Jenkins found (Jenkins, &Thomas, 2002).

Through Appendix (1) that includes diagnostic tests, the quality of the model used in the analysis is confirmed, and that it is free from standard problems.

2.2. Results estimate the model State of Rwanda:

Table (5): Results of estimating short-term parameters of the ARDL model for Rwanda

ARDL (1,1,0,2,1)		
The variable	Estimated parameter	Possibilities
D(PIBPER)	-37.12781	0.0001
D(INF)	10.4722	0.0005
D(RTI)	12.64363	0.0018
D(TCH)	-1.687932	0.019

Source: Prepared by researchers based on Eviews 9.

Table (6): Results of estimating long-term parameters according to ARDL methodology for the Rwanda model

Cointeq = FDIBOP -(14.7676*RTI + 6.3815*INF + 0.5868*TCH -45.5265 *PIBPER -83.9690)		
ARDL 1,1,0,2,1)) Coint Eq(-1)= -1.615501(0.0000)		
The variable	Estimated parameter	Possibilities
PIBPER	-45.5265	0
INF	6.38146	0.015
RTI	14.76765	0.0002
TCH	0.586844	0
C	-83.96896	0.1331

Source: Prepared by researchers based on Eviews 9.

Both tables (5) and (6) include the long-term and short-term equations, respectively, and the significance of the CointEQ (-1), which was estimated at (1.61), with a significance level less than 1%, is 0.0000 It expresses the existence of a co-complementary relationship between the explanatory variables representing the Rwandan business environment and FDI flows, the value 161% reveals the rapid return of FDI inflows to their equilibrium value in the long term, so that 161% of the imbalances that occur in the short term (T-1) are addressed; In other words, foreign direct investment takes approximately six months to trend towards its equilibrium value.

Most of the estimated parameters were statistically significant at different levels of significance in the short and long term, with the exception of the constant parameter in the long term. The results showed that there is a significant relationship between per capita gross domestic product and foreign investment in the short and long terms at a level of less than 1%, and with a reverse trend, so that an increase in per capita by 1% leads to a decrease in the volume of foreign direct investment by 36.96 million dollars. This is what Edward (1990), Jaspersen (2000) and Elizabeth (2002) conclude, what distinguishes the Rwandan economy is its adoption of Vision 2020 (Republic of Rwanda 2000), which aims for the share of industry to constitute more than 20% of the GDP, with a growth rate in this sector exceeding 14% annually;

this directed efforts towards encouraging local investment in all sectors by relying on localizing technology resulting from openness to foreign direct investment, after qualifying the Rwandan business environment to be among the best business environments in Africa. Thus, Rwanda achieved a growth in the rate of per capita GDP by 7% annually, which is an indication of the increase in domestic investment activity (Bruno, Ruranga, & Kaberuka 2012, p85), which negatively affects the inflows of foreign direct investment.

Regarding the parameter of the estimated inflation rate, it was statistically significant in the short and long terms with a positive sign indicating the existence of a positive relationship between the rate of inflation and the flow of foreign direct investment into Rwanda, which is in line with what Alshamsi and others (2015) have concluded, for the difference with the economic theory which states that there is a relationship Contrarian between the two variables, but Obiamaka and others (2011) believe that the rate of inflation can be an incentive for investment, as investors consider it an indicator of the high value of return on capital, but provided that it does not exceed a certain threshold (Obiamaka, Onwumere, & Okpara, 2011).

As for the real interest rate parameter estimated, it was statistically significant and came to support the economic theory, which states the direct relationship between interest rates and flows of foreign direct investment, so that a change in the interest rate of 1% will lead to a change in the volume of inward investment by 14 million US dollars, which is A positive sign, especially with the improvement of the conditions for activists in the Rwandan business environment, embodying Vision 2020.

As for the parameter of the estimated exchange rate, the estimation results indicate its statistically significant in a reverse direction in the short term and a direct trend in the long term with foreign direct investment flows in Mauritius, as the devaluation of the currency aimed at enhancing the competitiveness of its exports leads to an increase in investors'revenues from the currency, by returning to the nature of economic activity that is open to foreign direct investment and directed towards exports (KRUGELL, 2005).

Appendix (2) describes the diagnostic tests performed to verify that the model used for analysis is free from standardized problems.

2.3. Results of estimating the model of Morocco:

Table (7): Results of estimating short-term parameters of the ARDL model for Morocco

ARDL (1,0,2,2)		
The variable	**The estimated parameter**	**Possibilities**
Log(PIBPER)	6.096569	0.078
Log(TI)	0.261799	0.736
log(TCH)	-2.751811	0.49

Source: Prepared by researchers based on Eviews 9.

Table (8): Results of estimating long-term parameters according to ARDL methodology for the model of Morocco

Cointeq = LOG(FDIBOP) - (5.2383*LOG(GDPPERC) + 0.3470 *LOG(TCH) + 2.2830*LOG(TI) -24.1935)		
Coint Eq(-1)= -1.269583 ; ARDL(1,2,2,2)		
The variable	The estimated parameter	Possibilities
Log(PIBPER)	5.23832	0.001
log(TCH)	0.346973	0.84
Log(TI)	2.282975	0.0647
C	-24.19345	0.09

Source: Prepared by researchers based on Eviews 9.

We notice through Table (8) that the CointEQ correction factor (-1) took a negative sign, a value of (1.27) and a significant level of 0,0001 less than 0.01, which expresses the existence of a joint complementarity relationship between the economic variables representing the Moroccan business environment and the volume of foreign direct investment The expatriate to Morocco, as the same value indicates that foreign direct investment takes approximately nine months to move towards its equilibrium value when one of its determinants is imbalanced.

As for the parameters of the estimated model, the results indicate the significance of the parameter of the per capita gross domestic product in the long and short term, with varying levels of significance. so the increase in Gdp per capita by 1% couse To the to the 0.063 increase in the volume of FDI inflows; This is consistent with the economic literature in this regard. As for the rest of the female teachers, they were not statistically significant, the ability of the nominal interest rate parameter takes a significant positive signal at a significance level of 10% and supports the conclusion reached by both collier and Gunning (1999) that the effect of interest rates on foreign investment is relatively negligible. Perhaps the prevailing financial system in some African countries does not contribute to Increase the size of the investment.

The parameter of the exchange rate in Morocco was statistically insignificant. This is what Addison and Mina (2013) found in their study on Dutch aid and disease in Morocco and Tunisia and their impact on foreign direct investment flows (Tony &a Baliamoune-Lutz, 2013), (Where their research concluded the lack of morale of the exchange rate when linked in relation to foreign direct investment, which is economically attributable when the state focuses on export activity, and the use of the exchange rate as a tool to enhance the competitiveness of exports and not take into account the impact of this on foreign direct investment. This is attributed economically when the state focuses on export activity, and the exchange rate is used as a tool to enhance the competitiveness of exports and not taking into account the impact of this on foreign direct investment.

The quality of the model used in the analysis was ascertained and it was free from standard problems, after performing the diagnostic tests described in Appendix (3).

Conclusion :

Based on the ranking of the Doing Business report for African countries, Mauritius, Rwanda, Morocco being the best African countries in terms of business environment, respectively, we tried to research the extent of the impact of economic indicators of the business environment on attracting foreign direct investment, and based on many previous studies related to the subject, some economic indicators were chosen to represent the business environment in these countries. The existence of its relationship to the volume of incoming FDI was tested using the Slow Gap Regression Model.

The inductive study has resulted in results of varying values, but it gives the same information about the business environment in these countries and its impact on attracting direct investment. Among the most important results are the following:

Mismatch between economic policies targeting internal and external balances; So that the economic indicators become clear and economic for the foreign investor. Returning to the study results for the three countries, the per capita gross domestic product negatively affects the flow of investment in Mauritius and Rwanda, while it has a positive effect on investment in Morocco. If the State of Mauritius is an indication of high costs and a high rate of return that involves risks, while in the State of Rwanda, it is an indication of the expansion of domestic investment, which negates the first hypothesis. In Morocco, it reflects the size of the market, which proves the first hypothesis.

African countries have the advantage of not controlling fiscal and monetary policy in a way that corrects their monetary imbalances. Both Mauritius and Rwanda must take into account the rate of inflation in order to ensure the continuity of its positive impact on the flow of foreign direct investment, which negates the second hypothesis. While it has no effect on Morocco; In addition, the inflation rates for the two countries are characterized by great fluctuation, which is an indicator of monetary instability.

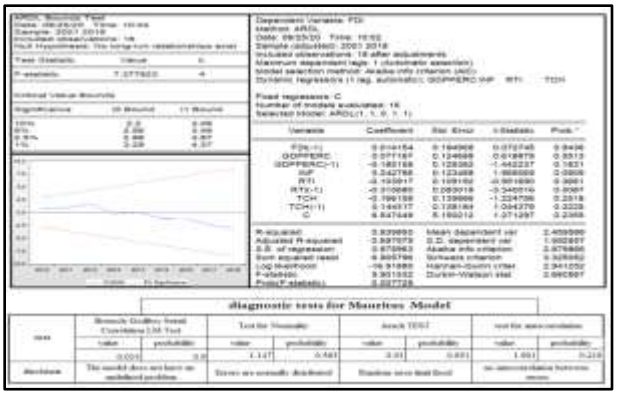
African countries rely on a policy of devaluation, which limits the effectiveness of the exchange rate as a policy to attract direct investment.

As for interest rates, its role remains neglected, and this result is consistent with the results of previous studies, which contradicts the economic logic that stipulates relying on interest rates as a catalyst for foreign direct investment, proves the correctness of the third hypothesis.

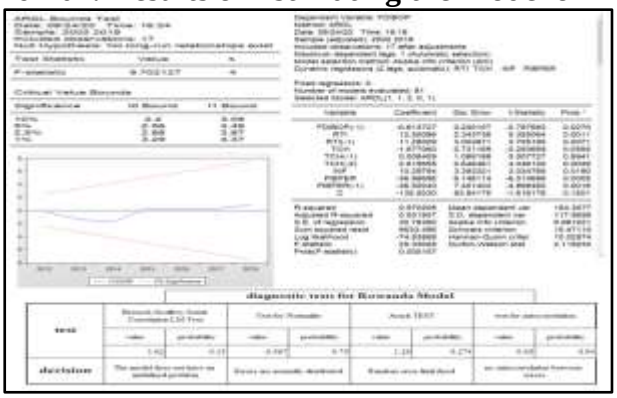
The most important thing that can be included as a recommendation in this study is the need for African countries to pay attention to the business environment as it is a very important indicator in identifying the destinations of capital in the world and adapting the resources available to them to the requirements of the business environment that attracts capital, taking into account economic, political and security stability, and to reduce the rate of changing legal frameworks, the organization for investments.

Appendix:

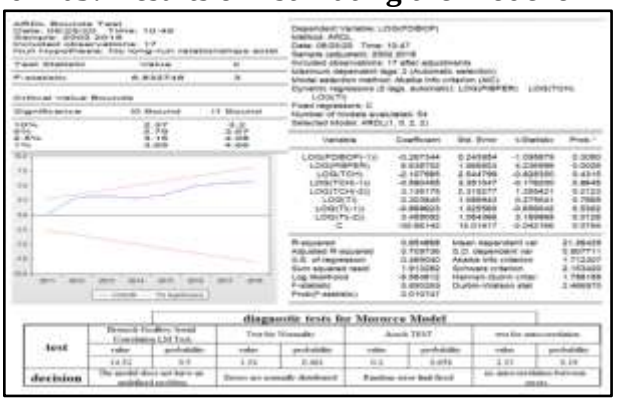
Appendix 01: Results of Estimating the Model of Mauritius



Appendix02: Results of Estimating the Model of Rwanda



Appendix 03: Results of Estimating the Model of Morocco



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