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Human capital and FDI attractiveness in Morocco: An econometric analysis using the error correction model

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Abstract

This article aims to examine the influence of human capital on foreign direct investment (FDI). The main objective of this study is to identify whether a high level of human capital, incorporating skills, innovation, and professional competencies, is a significant factor in positioning Morocco as an attractive destination for foreign direct investment. To achieve this, the study employs an econometric analysis of time series data using the Error Correction Model (ECM) over the period 1990–2019 in Morocco. The results indicate that the various components of human capital significantly contribute to FDI attractiveness, except for the literacy rate of the population aged 15 and above, which is not statistically significant. However, the number of graduates from institutes and higher schools negatively impacts FDI inflows to Morocco. Conversely, the number of graduates in vocational training positively influences FDI inflows. Regarding the control variables, GDP is significant but has a negative effect on FDI inflows, while gross fixed capital formation has a positive and significant impact on FDI.

Keywords: Cointegration, Error correction model, Foreign direct investment, Human capital, Morocco.

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1. Introduction

In recent decades, foreign direct investment (FDI) has played a crucial role in driving economic growth, making the enhancement of FDI attractiveness a top priority for host countries. Additionally, multinational corporations have become increasingly selective, intensifying competition among potential host countries. Thus, formulating policies that promote foreign direct investment (FDI) is essential for policymakers, as FDI serves as a key revenue source for many countries.

As a cornerstone of globalization, FDI encompasses a blend of capital, technology, management expertise, and entrepreneurship, enabling investors from one country to produce goods and services in another [1]. For this reason, attracting FDI has become a central objective for many developing countries, prompting significant interest from experts and policymakers in identifying the key factors that influence a country's FDI appeal. However, relying solely on traditional determinants of FDI attractiveness, such as differences in resource endowments, natural richness, and favorable regulations, is no longer adequate to ensure competitiveness. In recent years, human capital has become a key factor influencing FDI decisions for both host countries and multinational corporations (MNCs).

Human capital refers to the knowledge and skills that individuals bring to an organization [2]. It can be acquired and enhanced through education (general human capital) and professional experience/skills (specific human capital), both of which contribute to the firm's explicit and tacit knowledge. De la Fuente and Ciccone [3] highlight that "the knowledge and skills individuals acquire through schooling, training, and experience are essential for the production of goods, services, and further knowledge. As a key component of the host country's investment climate, strengthening human capital can significantly enhance the country's attractiveness to foreign direct investment (FDI).

there is a broad consensus that human capital constitutes a locational advantage for attracting FDI to host countries, in accordance with Dunning [4] eclectic paradigm theory and the majority of empirical studies conducted on the subject. Thus, Human capital has garnered significant attention from international economists as a key factor influencing foreign direct investment (FDI). Numerous country studies highlight this importance and conclude that human capital plays a significant role in influencing the inflow of foreign capital into host economies. Blomström and Kokko [5] emphasize that multinational corporations (MNCs) offer appealing job opportunities for highly skilled graduates in fields such as natural sciences, engineering, and business, which can motivate talented students to pursue and complete higher education. In other words, FDI tends to flow toward countries that offer not only high returns on capital but also provide a highly skilled workforce with specialized knowledge and skills.

This article seeks to examine the influence of human capital on foreign direct investment. The primary aim of this study is to identify whether a high level of human capital, incorporating skills, innovation, and professional competencies is a significant factor in positioning Morocco as an attractive destination for foreign direct investment. Studies that have found a positive impact of human capital on FDI inflows include, among others, Woodward [6]; Nachum [7]; Noorbakhsh et al. [8]; Axarloglou [9]; Checchi et al. [10]; Rodriguez and Pallas [11]; Naanwaab and Diarrassouba [12] and Alarcón [13]. In contrast, other studies have reported a negative influence, such as Urata and Kawai [14] and Goerg et al. [15]. Another series of studies found mixed results, with some showing either positive or negative effects depending on the proxy used for human capital Petrović-Ranđelović et al. [16]. Meanwhile, other studies, such as Broadman and Recanatini [17], Alsan et al. [18]; Majocchi and Presutti [19] and Miningou and Tapsoba [20] reported in significant effects.

Our question is as follows: Is human capital, which brings together skills, technologies, innovation, and professional competence, an important determinant of Morocco's attractiveness to FDI?

To address this question, we carry out econometric analysis using the latest developments in time-series econometrics. The methodology adopted is a three-stage approach. The first is to verify the statistical properties of time series by using the Dickey-Fuller unit root test. In the second stage, we use the cointegration test, adopting Johansen's multivariate maximum likelihood approach. Finally, the third step suggests the relevance of using an econometric error correction model (ECM). With this econometric study, our aim is to enrich the existing literature on this subject, which has received very little attention in economic research. Using data from Morocco over a period from 1990 to 2019.

The remainder of this work is organized as follows: The second section presents the theoretical framework and literature review. The third section deals with the data and empirical methodology. The fourth section presents the empirical results, while the fifth section is devoted to the discussion of the econometric results obtained. Finally, the conclusion of the study is presented in the sixth section.

2. Theoretical Framework and Literature Review

2.1. Concept of Human Capital

Human capital (HC) has been the focus of extensive research across various disciplines [21]. This concept is not new. Schultz [22], a pioneer of the Chicago School's human capital analysis, suggested « that individuals can broaden their choices by investing in themselves through education, whether in schools, colleges or training, or by on-the-job experience ».

The concept of Human Capital has become increasingly important, thanks to the influential work of Becker [23]. The author demonstrated that the prosperity of the regions cannot be explained exclusively by real estate investments, Instead, they identified a positive correlation between the level of education and well-being. According to Namasivayam and Denizci [24], human capital includes knowledge, education, work competence, and psychometric assessments. Kumar and Shah [25] argue that professional competence is a valuable corporate asset that can provide a long-term competitive advantage. The competence of employees is reflected in the company's capacity to efficiently execute its assigned tasks, including the ability to perform the work required. The fluctuating economic conditions necessitate ongoing adjustments to align employee competencies with the current environment. This development of human capital can contribute to enhancing the overall value of the organization. As defined by the OECD [26], human capital includes the knowledge, skills, competencies, and attributes that individuals possess and which contribute to personal, social, and economic well-being.

Today, many economists and policymakers view human capital, with its various components such as formal education, experience, and skills, as a crucial productive asset that complements technological capital. Similar to Becker [27] and Schultz [22], we define human capital as productive investments embodied in individuals that enhance their knowledge and skills.

Furthermore, investing in human capital is thought to improve employee performance [28]. Education serves as a form of "credential" that signifies higher productivity Ucbasaran et al. [29]. Hofheinz [30] has suggested that educational attainment is an effective measure for evaluating workforce skill levels, where Higher skills correspond to tertiary education or equivalent, while medium skills are associated with secondary education or equivalent.

In addition, Hofheinz [30] found that employees with higher skill levels consistently have better employment opportunities, earning potential and access to further training compared to those with lower skills. Lundvall and Johnson [31] suggest that higher education influences innovation in two ways: firstly, graduates can both invent and develop new technologies and secondly, these higher-educated graduates can effectively exploit technological progress.

Becker [32] identifies two categories of human capital: general and specific. General human capital refers to generic knowledge and skills that are not tied to a specific task or company, generally accumulated through education and professional experience. Specific human capital is usually accumulated through education and training focused on knowledge relevant to a specific firm or task [33, 34]. In the relevant empirical literature, education levels are often considered reliable indicators of general human capital, while working in a job can contribute to the accumulation of specific human capital [35]

Consequently, human capital intensity can be measured by the percentage of a firm's employees with post-secondary education ('general' human capital intensity) or who perform engineering-related tasks ('specific' human capital intensity).

2.2. HK and FDI: A Review of Empirical Evidence

The evidence on the relationship between human capital and foreign direct investment remains inconclusive. On the one hand, human capital is a key determinant of FDI location. Numerous empirical studies in the literature have highlighted this relationship. For instance, Dunning [36] affirms that the level of education and skills of the workforce can affect both the scale of foreign direct investment (FDI) inflows and the activities that multinational enterprises (MNEs) undertake in a country. Lucas [37] utilizes neoclassical growth models to examine why capital does not flow from richer to poorer countries, asserting that the level of human capital is a decisive factor. Zhang and Markusen [38] propose a model the availability of skilled labor, including managers, engineers, and technicians, in the host country plays a pivotal role in attracting multinational enterprises (MNEs) and greatly impacts the volume of foreign direct investment (FDI) inflows. Therefore, developing human capital is crucial to enhance the benefits of FDI on the economy. Their theory tests the inverted U-curve hypothesis of the relationship between HK and FDI. This means that multinationals won't invest, even if unskilled labor host country wages are extremely low, due to a lack of human capital Figure 1, [39].

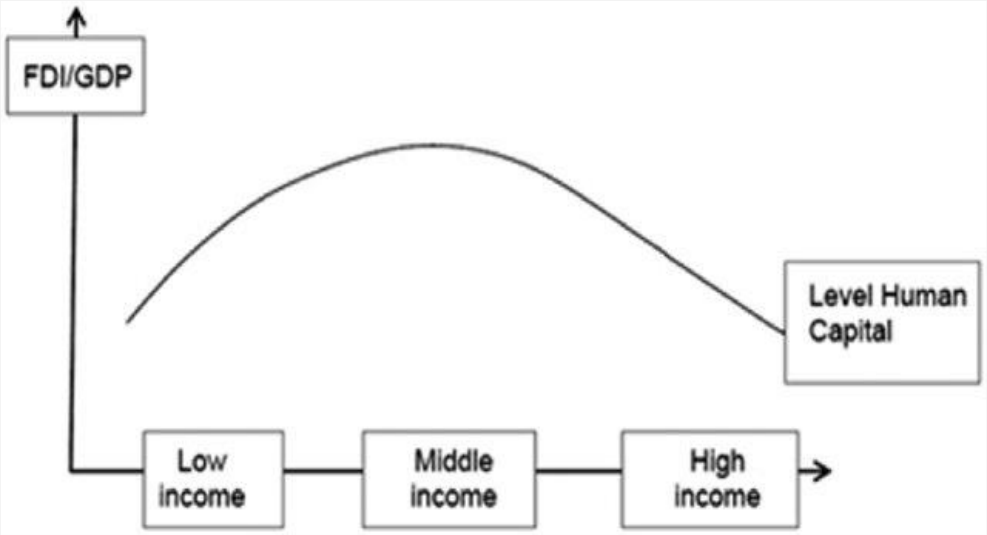

Figure 1.
Inverse U-shaped relationship between FDI and HK.
Source: Akin and Vlad [39].

Multinational activity will take place when the country offers a skilled workforce. Multinational production is increasingly skills-based, with a growing number of high-tech manufacturing and service activities. Akin and Vlad [39] test the inverted U-curve hypothesis of Zhang and Markusen [38], also known as the "ZM hypothesis". According to this hypothesis, the activities of multinational firms take place when the country has good labor skills.

Likewise, Noorbakhsh et al. [8] showed that human capital is one of the key determinants of FDI inflows, and the effect increases over time. UNCTAD [40] also identifies a strong correlation between human capital indicators, such as the gross tertiary enrollment ratio and the ratio of students in science and engineering, and FDI inflows across 140 developed and developing countries. Borensztein et al. [41] indicated that human capital plays a crucial role in enabling host countries to effectively absorb the technological advancements brought about by FDI inflows. Miyamoto [42] demonstrates that human resource development fosters a conducive environment for foreign investment by directly enhancing skills and indirectly promoting socio-political stability and improved health conditions. Amitendu and Shounkie [43], using UNCTAD data on FDI flows across 14 Asian countries from 1994 to 2003, concluded that countries with advanced technological capabilities, such as the ability to innovate, develop, and effectively apply new technologies through R&D activities, hold a competitive

advantage in attracting FDI compared to other economies. Lewis [44] identified education as a crucial factor in attracting FDI to less developed countries. Using the illiteracy rate as a proxy for education, Lewis demonstrated that this variable accounts for a significant portion of the variation in FDI inflows. Furthermore, he emphasized that education should place greater emphasis on technological disciplines, as FDI inflows tend to increase with a higher number of technicians in an LDC. Accordingly, Lewis [44] advocated for integrating technology-oriented disciplines into government educational programs. Brooks et al. [45] highlighted that human capital positively affects FDI inflows, particularly in skilled labor-intensive sectors, where higher education levels can facilitate technological innovation and enhance productivity. Shepotylo [46], in a study of the spatial determinants of FDI across 25 transition countries from 1993 to 2010, found that the share of the population aged 15 and above with completed tertiary education had a positive and significant impact on FDI. Völlmecke et al. [47] confirmed the positive interaction between foreign direct investment (FDI) and human capital, particularly in science and technology occupations, across 269 regions within the European Union (EU) during the period 2003–2010. Kheng et al. [48] conducted a study of 55 developing countries from 1980 to 2011, revealing a bidirectional causality between human capital and FDI. Sadeghi et al. [49] undertook a study of 26 countries within the Organization of Islamic Cooperation (OIC) from 1970 to 2014, revealing that in more than half of the sample countries, a causal relationship exists between human capital and FDI. Based on the aforementioned arguments, the following hypothesis will be tested to confirm or invalidate it:

H_1: Human capital has a significant and positive impact on FDI

However, several earlier empirical studies have failed to confirm the hypothesis that human capital has a significant impact on inward FDI flows. For instance, Root and Ahmed [50] analyzed the determinants of manufacturing FDI flows in a sample of developing countries between 1966 and 1970. Their findings revealed that three social variables representing human capital, the ratio of literacy and school enrolment, and the availability of technical and professional workers, did not significantly influence FDI inflows. Hanson II [51] in an analysis of 105 developing countries, found that the adult literacy rate did not serve as a significant factor influencing FDI. Narula [52] indicates that the number of people with tertiary education was not a statistically significant determinant of FDI inflows among 22 developing countries. Checchi et al. [10] found that the share of the population with tertiary education attainment did not significantly influence net FDI inflows (measured as a percentage of GDP) in their sample of 67 developing countries during the period 1985–2000. Tast [53] analyzed the determinants of FDI in SEE and CIS countries between 2004 and 2011 and concluded that workforce-related factors, including the average monthly salary and university enrollment rates, were negatively correlated with FDI inflows in both groups of countries. Other empirical studies have shown that human capital does not influence FDI flows. For example, research by Cleeve [54] and Cleeve et al. [55] found that human capital does not serve as a determinant of FDI. This brings us to another hypothesis:

H_2: Human capital has a significant and negative impact on FDI.

3. Data and Empirical Methodology

3.1. Data Collection

This study utilizes an econometric analysis of time series data through the error correction model (ECM). The objective is to examine the role of human capital as a determinant in attracting foreign direct investment to Morocco, using EViews 10 software.

To achieve this, we will follow a series of necessary steps. The first step consists of checking the statistical properties of the time series through the Dickey-Fuller unit root test. In the second step, we use the Johansen multivariate maximum likelihood cointegration test to identify long-term equilibrium relationships among the variables. Finally, the third step suggests the relevance of using an ECM.

The study uses data from Morocco covering the period between 1990 and 2019. The statistical data used in this study were obtained from various sources, such as the World Bank (World Development Indicators), the Haut Commissariat au Plan, the UNESCO Institute for Statistics, the Ministry of Higher Education, Scientific Research and Innovation, and Perspective Monde.

3.2. Model Specification and Variable Presentation

An initial mathematical formulation of the model is presented as follows:

$$FDI_{it} = \alpha_i + \beta_1 HK_{it} + \beta_2 GDP_{it} + \beta_3 GFCF_{it} + \varepsilon_{it}$$

Where,

FDI_{it}: Is measured by net inflows (current US$) of FDI into Morocco i for the year *t*.

HK_{it} : Human capital is measured by the literacy rate of the population aged 15 and above (LRP), the number of graduates from institutes, higher schools (NGIHS), and the number of graduates in vocational training (NGVT).

GDP_{it} : Represents the market size. Measured by gross domestic product (current US$).

$GFCF_{it}$: Represents Internal investment capacity. It is measured by gross fixed capital formation (current US$).

α_i : Is the constant that can capture the effect of other factors not specified in the model.

ε_{it} : Is the error term.

4. Empirical Results

4.1. Test for Stationarity

Prior to estimating the relationships between the variables, it is necessary to examine the stationarity of each variable and determine its order of integration to avoid making spurious estimates. To do this, we apply Dickey & Fuller's ADF tests on both the dependent and independent variables. The results of this test are presented in Table 1.

Table 1.
ADF test results.

Variables	In Level	First Difference	Order of Integration
LFDI	-2.4242	-14.0329***	I (1)
LLRP	-2.0350	-4.1169**	I (1)
LNGVT	-2.6602	-5.1935***	I (1)
LNGIHS	-2.7800	-6.2693 ***	I (1)
L GDP	-1.5548	-4.3064**	I (1)
LGFCF	-0.6829	-3.8198***	I (1)

Note: *, **, *** are rejections of the null hypothesis of non-stationarity at the 1%, 5%.

The results of the stationarity tests presented in the table reveal that the level series are non-stationary, whereas all series become stationary at the first difference. Based on economic theory, it is suspected that long-run economic relationships exist between these series. Therefore, we will perform a cointegration test to determine whether a stable long-term relationship exists between FDI, human capital, and the control variables.

4.2. Cointegration Test

4.2.1. Determination of the Optimal Lag Order

Determining the optimal number of lags is the first step in the model estimation process. To do this, we utilized the AKAIKE Information Criterion (AIC) and SCHWARZ Information Criterion (SIC). From the following table, we can determine the optimal lag for our model: the (AIC) suggests a lag of 2, while (SIC) indicates a lag of 1.

Table 2.
Values of information criteria for determining optimum delay.

Lag	LogL	LR	FPE	AIC	SC	HQ
0	98.23424	NA	5.55e-11	-6.588160	-6.302688	-6.500888
1	219.6545	182.1303*	1.33e-13	-12.68961	-10.6913*	-12.07870
2	264.6115	48.16824	1.04e-13*	-13.3293*	-9.618252	-12.1948*

Note: * Indicates the shift order chosen by the criterion.

Following the principle of parsimony, the model will be estimated using the number of lags suggested by SCHWARZ Information Criterion (SIC), which is p = 1.

4.2.2. Cointegration Relationship Between FDI and Human Capital

We use the cointegration analysis method to perform the Johansen test, which then enables us to identify a long-term relationship among the variables FDI, LLRP, LNGVT, LNGIHS, LGDP, and LGFCF through the trace statistic and the maximum eigenvalue. The results of the test are displayed in the table.

Table 3.
Cointegration test of the Trace.

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistics	Critical Value	Prob. **
None *	0.856122	121.7635	95.75366	0.0003
At most 1	0.645834	67.47749	69.81889	0.0758
At most 2	0.475404	38.41375	47.85613	0.2843
At most 3	0.377265	20.35019	29.79707	0.3994
At most 4	0.138937	7.088409	15.49471	0.5674
At most 5	0.098387	2.899943	3.841466	0.0886

Table 4.
Maximum Own Value cointegration test.

Unrestricted Cointegration Rank Test				
Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistics**	**Critical Value**	**Prob. ****
None *	0.856122	54.28604	40.07757	0.0007
At most 1	0.645834	29.06374	33.87687	0.1686
At most 2	0.475404	18.06357	27.58434	0.4898
At most 3	0.377265	13.26178	21.13162	0.4284
At most 4	0.138937	4.188466	14.26460	0.8390
At most 5	0.098387	2.899943	3.841466	0.0886

The tables provide the results of the cointegration test between FDI and HK expressed as (**L**LRP, **L**NGVT, **L**NGIHS), **L**GDP, and **L**GFCF. The trace statistic and the maximum eigenvalue statistic reject the null hypothesis of no long-term relationship among the variables studied at the 5% level. The findings from the two Johansen cointegration tests confirm the presence of a single cointegrating relationship between the different series. Both the trace statistic and the maximum eigenvalue exceed the corresponding critical values for the 5% threshold.

L FDI	**LLRP**	**LNGIHS**	**LNGVT**	**LGDP**	**LGFCF**
1.000000	1.658131	0.756400	-2.268715	3.585077	-3.474117
	(1.09909)	(0.26385)	(0.67390)	(1.00460)	(0.56593)

4.3. Error Correction Model Estimation

The presence of at least one cointegrating relationship between the variables in this model, all integrated of order 1, I(1), suggests the relevance of using an error correction model. The estimated model is as follows:

Table 5.
Estimation of ECM model (short term).

Variable	**Coefficient**	**Std. error**	**t-statistic**	**Prob.**
C	0.254163	0.196132	1.295875	0.2146
D(LLRP)	1.801101	4.216763	0.427129	0.6754
D(LNGIHS)	0.387687	0.573312	0.676224	0.5092
D(LNGVT)	-0.029200	2.030777	-0.014379	0.9887
D(LGDP)	-1.585167	2.205362	-0.718779	0.4833
D(LGFCF)	3.313136	1.722824	1.923085	0.0737
D(LLRP (-1))	-9.688770	4.646917	-2.084989	0.0546
D(LNGIHS (-1))	-0.066615	0.529178	-0.125883	0.9015
D(LNGVT (-1))	0.188062	2.657891	0.070756	0.9445
D(LGDP(-1))	-0.681292	2.069087	-0.329272	0.7465
D(LGFCF(-1))	-0.184587	1.910494	-0.096618	0.9243
D(LFDI (-1))	-0.090394	0.289597	-0.312138	0.7592
ECM(-1)	-1.588430	0.500486	-3.173777	0.0063

The results of the model appear quite satisfactory. The R^2 value is high (84.86%), indicating that the selected variables explain 84.86% of the variation in FDI flows to Morocco. The error correction coefficient is negative and statistically significant at the 5% level (the probability of t-student is less than 0.05). This indicates that shocks to the FDI variable are corrected with a promotion of 158.84. This means that there is an error-correction mechanism and a long-term relationship, and that movements among the different variables in the model are considered permanent. Thus, the significance of the error-correction term coefficient proves the existence of Granger causality between FDI and the explanatory variables. This can also be explained by the Durbin-Watson (DW) coefficient, which is very strong (above 2).

4.4. Diagnostic Tests

To determine the level of reliability of our estimates, we performed the following tests:

Table 6.
Diagnostic Tests.

Test	Values	Probability
Normality (Jarque-Bera) test	5.561	0.062
Auto-correlation LM test	0.399	0.537
HeteroskedasticityTest	0.957	0.523
ARCH Test	0.001	0.969
Ramsey RESET test	0.028	0.869

For the Jarque-Bera test, we note that the errors follow a normal distribution, especially as their probability (0.062) is above 5%. Acceptance of the null hypothesis of H_0 normality. The Auto-correlation LM Test shows that there is no auto-correlation of errors in the estimated model; P = 0.537 > 0.05 is above the 5% level. The null hypothesis is therefore accepted. The results obtained in the table show that the probability of heteroscedasticity is greater than 5%. We therefore conclude that the null hypothesis indicating the existence of homoscedasticity is accepted. The ARCH test results suggest a probability above the significance level of 0.05, so there is no heteroscedasticity. The Ramsey RESET TEST indicates that the model is well specified: with a probability of 0.869, it proves that the model has sufficient explanatory variables. We also used the CUSUM and CUSUM of squares tests. These confirm the same result as the previous ones. These tests give us the following results:

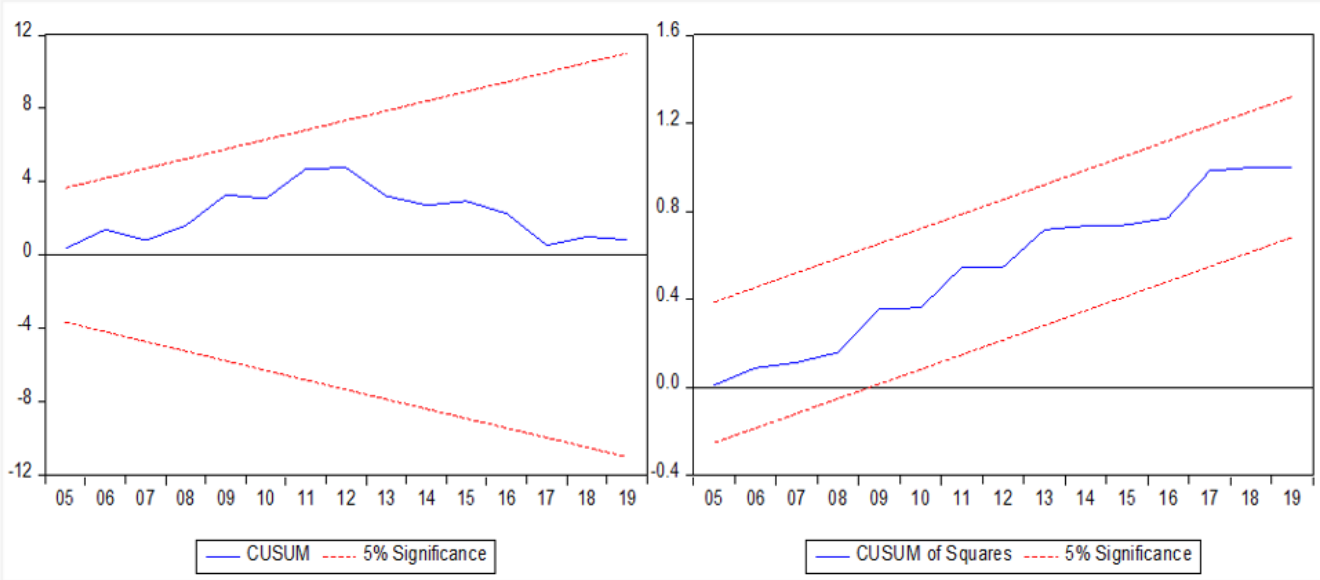

Figure 2.
The CUSUM and CUSUMQ test.

The CUSUM and CUSUM of Squares tests we have analyzed indicate that the graph of residuals does not exceed threshold limits. Based on these test results, the model is generally stable.

We therefore conclude that our model is validated and qualifies as significant. Having validated our model, we conclude that our results are valuable and significant.

4.5. Forecasting in the Model Sample

Once the model has been validated, the forecast can be calculated. The forecasts in the model sample are recorded in the following figure:

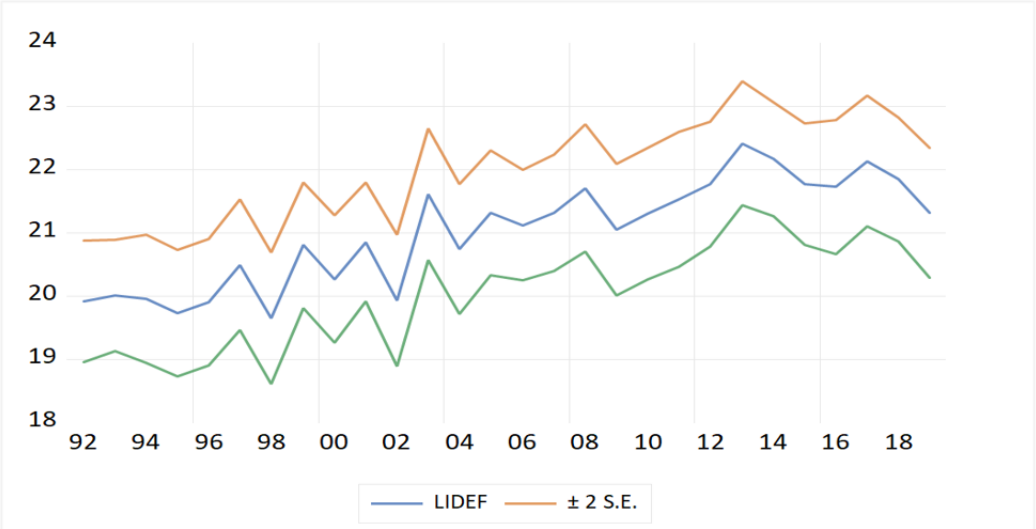

Figure 3.
Model forecast.

The forecast in our model is better since it minimizes the Mean Absolute Percentage Error to 1.0702 and has a Theil coefficient close to zero.

5. Discussion of Results

The results from the ECM model estimation reveal that, in the long term, human capital, as measured by the literacy rate of the population aged 15 and above (LRP), appears insignificant. This result suggests that hypothesis 2 is confirmed.

Furthermore, human capital, measured by the number of graduates from institutes and higher schools (NGIHS), negatively impacts the inflow of FDI into Morocco, thus supporting our second hypothesis. our results align with the conclusions of Narula [52]; Hanson II [51]; Urata and Kawai [14]; Campos and Kinoshita [56], and Mina [57], who find that human capital exerts a negative effect on FDI attraction. The findings suggest that Morocco can enhance its attractiveness to foreign direct investment (FDI) by implementing targeted policies for institutes and higher schools. This can be achieved by improving the efficiency of the education system, particularly in higher education, through the development of high-quality programs that align with the needs of economic sectors.

Conversely, the number of graduates in vocational training (NGVT) has a positive impact on FDI inflows. Our first hypothesis is thus confirmed. This finding aligns with various studies that consider human capital to be a powerful determinant in attracting foreign direct investment [8, 10, 41, 42, 58]. These findings also indicate that graduates from vocational training programs play a crucial role in enhancing FDI attractiveness. This finding reinforces the idea that Morocco has long recognized the importance of skilled human capital, particularly through vocational training. This factor seems to play an important role in influencing firms' location decisions. However, additional efforts are needed to increase Morocco's attractiveness to FDI by improving access to vocational training and by increasing the availability and quality of specialized vocational and technical education programs.

Moreover, even though GDP is significant, its impact on FDI attractiveness in Morocco is negative. This finding is unexpected in the Moroccan context, as it contradicts numerous studies that highlight GDP as a key factor in attracting FDI, both in Morocco [59, 60] and in other developing countries [61-63]. However, our results align with the findings of Azeroual and Cherkaoui [64] in the case of Morocco.

With regard to gross fixed capital formation (GFCF), which represents the country's domestic investment effort, it is found to be significant and positively influences FDI attractiveness. Consequently, the various large-scale projects undertaken by Morocco naturally serve as opportunities for both domestic and foreign investors. This finding aligns with several studies that identify GFCF as a key determinant of FDI [59, 64].

6. Conclusion

This article seeks to examine the influence of human capital on foreign direct investment. The primary aim of this study is to identify whether a high level of human capital, incorporating skills, innovation, and professional competencies, is a significant factor in positioning Morocco as an attractive destination for foreign direct investment.

This paper provides a theoretical overview of human capital and reviews empirical studies on its relationship with foreign direct investment (FDI). The literature review highlights divergent perspectives regarding the nature of the link between human capital and FDI. Subsequently, the study examines and econometrically tests the effect of human capital on foreign direct investment attractiveness in Morocco, employing time series econometrics through the error correction model (ECM). The analysis covers the period 1990–2019.

The empirical model aims to estimate the net inflows of foreign direct investment (current US$) into Morocco as a function of human capital. Human capital is measured using the literacy rate of the population aged 15 and above (LRP), the number of graduates in vocational training (NGVT), and the number of graduates from institutes and higher schools (NGIHS).

The model also incorporates control variables that are likely to influence this relationship, namely gross domestic product (current US$) and gross fixed capital formation (current US$).

Based on the study's results, we find that in the long term, the different components of HK contribute to FDI attractiveness in a statistically significant way, except for the literacy rate of the population aged 15 and above (LRP), which is not significant. Nevertheless, the number of graduates from institutes and higher schools (NGIHS) has an adverse effect on the flow of FDI into Morocco. Conversely, we note that the number of graduates in vocational training (NGVT) positively influences the inflow of FDI, suggesting that graduates in vocational training programs are a powerful driver of FDI attractiveness. We observe that graduates in vocational training programs seem to play a crucial role in attracting FDI. This finding reinforces the idea that Morocco has long recognized the importance of skilled human capital, particularly through its focus on vocational training. Furthermore, the GDP control variable is significant and has a negative effect on FDI inflows to Morocco. This result is unexpected in the context of Morocco, as it contrasts with the findings of numerous studies that identify GDP as a crucial factor in attracting FDI. The control variable, gross fixed capital formation (GFCF), has a positive and significant impact on FDI, highlighting its importance in attracting investment. It confirms that an economy's internal investment effort is a driver of FDI attractiveness.

It is important to point out that our work has certain limitations, mainly relating to the indicators used to measure human capital. The variables we have used are limited to the aspect of education and vocational training, whereas the concept of human capital is multidimensional, as it includes several elements likely to develop human capital, such as health. It would, therefore, be interesting to extend this study by including other variables in our next article and to extend the study sample to several developing countries (DC).

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