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RESEARCH ARTICLE

The influence of Foreign Direct Investment on Morocco's Unemployment Rate

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ARTICLE INFO	ABSTRACT
	Foreign direct investment (FDI) has become one of the most important indicators of a country's economic attractiveness. As globalisation has taken hold of our century, we can now consider the world to be interconnected, thanks in part to FDI. Morocco is no exception. Moreover, the impact of FDI on economic growth and employment is the subject of theoretical debate in the literature, but the nature and extent of these effects vary from one study to another. The aim of this article is to examine the impact of FDI on unemployment in Morocco over the period 1991-2019. The methodology used is ARDL. The main results of the study show that FDI has a negative impact on job creation over the period studied.

1. INTRODUCTION

Foreign direct investment (FDI) has become a key element of economic globalization and plays an important role in the economic development of developing countries.

The relationship between economic growth and FDI is intriguing in that FDI acts as a catalyst for growth and thus for the development of emerging and developing countries (Dunning, 1993: Graham and Krugman, 1995; Caves, 1996; Eva Fouda, 2005).

The endogenous growth model suggests that technology diffusion is one channel through which FDI promotes economic growth in host countries (De Mello, 1997).

These researchers show that the main contribution of FDI to job creation remains its positive effect on stimulating economic growth in the host country.

The aim of this article is to analyze the impact of FDI on economic growth and unemployment in Morocco by examining the causality between FDI flows and economic growth and unemployment. To this end, the rest of this paper will present a literature review, followed by the methodology adopted and, finally, an analysis of the empirical results.

2-LITERATURE   REVIEW

Several theoretical and empirical studies show that the major contribution of FDI to job creation is its positive effect on stimulating economic growth in the host country, which in turn accelerates job creation.

UNCTAD (1994) estimates that at least one or two jobs are created indirectly for each worker employed by MNFs. Several empirical studies on developing countries have confirmed this 'multiplier effect' on local employment. In the same perspective, Lyanda (1999) shows that in Namibia, each job created indirectly generates 2 to 4 more jobs in the country's economy. Aaron (1999) estimates that FDI in developing countries created around 26 million direct jobs and 41.6 million   indirect   jobs   in   1997.

According to Mucchielli (1998), the net impact of FDI on employment depends on a multitude of factors, including the distinction between the direct and indirect effects on employment, the mode of establishment (whether it is a start-up FDI, an acquisition or a partnership), the strategy followed by the MNF (market or export strategy), the sector of activity, and the competitive relations between foreign and local firms.

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BOISEMERY HERVÉ asserts that 'For the host economy to benefit from positive externalities in terms of employment, the products exported must necessarily and exclusively be labor-intensive, which can   only   limit   the   transfer   of   technology   and   the   knock-on   effects   '.

According to Ibi Ajayi (2006), firstly, it consists of directly employing the population for operations located   within   the   national   economy. Employment is created by upstream and downstream links: job creation serving as suppliers, subcontractors or service providers. The third mode of job creation is through economic growth, which   creates   new   jobs   on   a   national   scale. Abor and Harvey (2008) state that FDI has a positive impact on employment in Ghana. An identical result is supported by Jayaraman and Singh's (2007) study of Fiji between 1970 and 2003.

Another study carried out on three Asian countries (China, Pakistan and India) between 1985 and 2008, by Rizvi and Nishat (2009), considers that there is no effect of FDI on job creation, with these researchers believing that only the GDP variable has a significant impact on the level of employment. In other words, FDI can have a positive effect on employment through economic growth.

Although FDI has many positive effects in terms of job creation, it can also have a multitude of negative effects on a country's employment. This can be explained by the fact that some domestic companies are subject to substitution effects in relation to the replacement of employment in the countries of origin by the foreign employment of multinational companies. Markusen and Venable (1998), show that FDI entering host countries can generate an increase in unemployment. These researchers explain this by the fact that local companies restructure in order to resist competition from foreign-owned companies, which can lead to bankruptcies and therefore job losses in the host countries.

Section II: Study of the FDI-Unemployment nexus

PARAGRAPH I: METHODOLOGY

The aim of this study is to examine the relationship between foreign direct investment, economic growth   and   unemployment,   using   the   ARDL   model   approach. The ARDL model has an advantage in terms of sample size. In fact, this model is better suited to small samples and allows more reliable results to be obtained in these cases, compared with other tests.

$$y_t = \beta_0 + \beta_1 X_{1_t} + \beta_2 X_{2_t} + \varepsilon_t$$

With ;
β_0: the constant, and $(\beta_1, \dots, \beta_4)$: coefficients of the parameters ;

ε_{it} error.

To test the relationship between unemployment, foreign direct investment, gross fixed capital formation and trade openness for the case of Morocco, the following linear logarithmic form is proposed:

LCht = α + β1 LIDEt + β2 LFBCFt + β3 LOCt + εt

Where: LCH represents the unemployment rate, FDI represents foreign direct investment, GFCF represents gross fixed capital formation and OC represents trade openness.

We used statistical data available on the World Bank website and more specifically on the 'World Development Indicator' platform.

Our ARDL analysis follows four steps: The first examines the stationary properties of each variable using the unit root test, which is used to define the order of integration of the variables. The Augmented Dickey Fuller (ADF) and Phillips Perron (PP) stationarity tests are used for this purpose.

The second step consists of verifying the existence of long-term relationships between the variables, using the Bound Test ARDL approach. The aim of the third stage is to estimate the short- and long-term parameters and to test the model's stability.

Paragraph II: Results and discussion
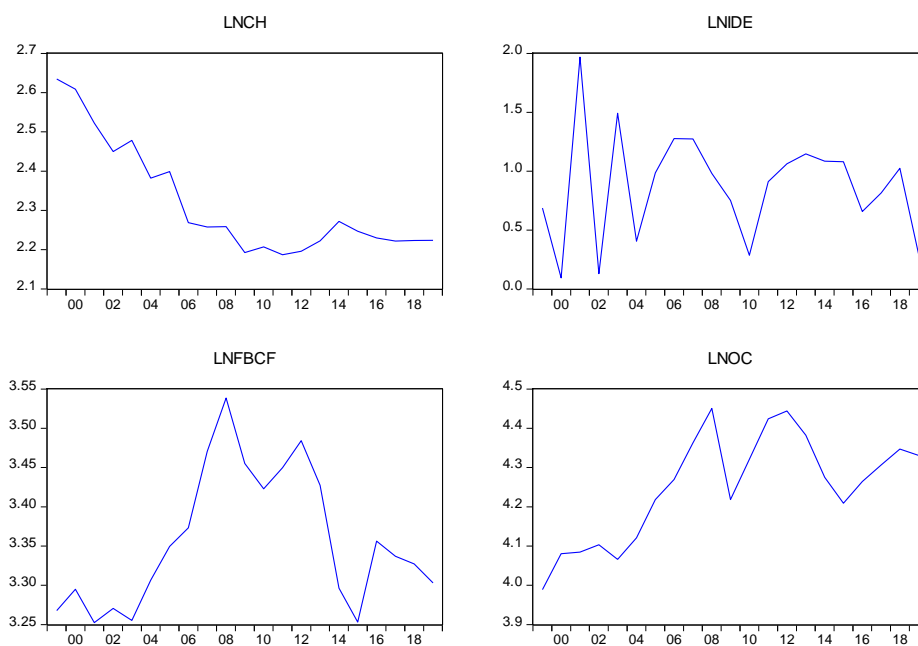
1. RESULTS

Figure 1: Graph showing the non-stationarity of the variables
Source: Author based on Eviews

The graphical representation highlights the non-stationarity of the variables studied, which rules out the possibility of using the linear regression model.

STATIONARITY TEST

ADF TEST (DICKEY FULLER AUGMENTED)

We test the null hypothesis of unit root (non-stationarity) by comparing the t-statistics of φ with the values tabulated by Dickey and Fuller. The decision rule is as follows:

- If the t-statistic is less than the critical value, the null hypothesis is rejected. The series is therefore stationary.

- If the t-statistic is greater than the critical value, the null hypothesis of the presence of a unit root is accepted. The series is therefore non-stationary.

PP TEST (PHILIPP PERON)
This test follows the same approach as the ADF test. The critical values are the same as those tabulated by Dickey-Fuller. The decision rule is as follows:

- If the calculated value of tp is less than the critical value, the null hypothesis is rejected. The series is therefore stationary.

- If the t-statistic is greater than the critical value, the null hypothesis of the presence of a unit root is accepted. The series is therefore non-stationary.

3-Study results

We begin by examining the unit root test in order to define the order of integration of the variables, those of level I (0), and those of level I (1). We used the Augmented Dickey Fuller (ADF) and Phillips Perron (PP) stationarity tests.

Table 1: Results of ADF and PP stationarity test

	ADF (%5) STAT 9.18308 Prob 0.3271	ADF (%5) STAT 57.0662 Prob 0.0000	PP (%5) STAT 66.4457 Prob 0.0000	Results
Variable	Level	1ère difference	1ère difference	
LCH	0.0341	0.0305	0.0003	I (0)
LIDE	0.4803	0,0001	0.0001	I (0)
LFBCF	0.7009	0.0007	0.0015	I (1)
LOC	0.8832	0.0002	0.0001	I (1)

Source: Author based on Eviews

The results of the ADF Test show that some variables are integrated of order (1), others of order 0. But none are integrated of order 2, which allows us to proceed with the ARDL model.

The second step involves selecting the optimal lag number of the vector autoregression. Using information criteria such as the Akaike (AIC), Schwarz (SC) or Hannan and Quinn (HQ) criteria, four VAR models (P = 0, 1, 2, 3) were estimated for the 1999-2019 period. The AIC selection criterion for the optimal lag of the model is equal to 2, which will be used in our study.

Table 2: Statistics and choice criteria for selecting the optimal model delay.

VAR Lag Order Selection Criteria					
Endogenous variables: LNCH LNIDE LNFBCF LNOC					
Exogenous variables: C					
Date: 12/02/23 Time: 16:11					
Sample: 1999 2019					
Included observations: 19					
Lag	LogL	LR	FPE	AIC	SC	HQ
0	60.25823	NA	3.15e-08	-5.921919	-5.723090	-5.888269
1	98.71267	56.66970*	3.12e-09	-8.285544	-7.291398*	-8.117295
2	121.0788	23.54335	2.11e-09*	-8.955668*	-7.166205	-8.652820*
* indicates the order selected by the criterion					

LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Author based on Eviews

Co-integration test:

After determining the order of integration of the different variables, we use the ARDL approach to determine the long-term relationship between the variables. The test used is called the "Bound Test". Its purpose is to verify the existence of a long-term co-integration relationship between the model's determining variables. The aim is to calculate the F-statistic.

Test assumptions:

$$\begin{cases} H_0: \alpha_1 = 0 & ; \quad \forall\, i = 1,2,..4 \\ H_0: \alpha_1 \neq 0 & ; \quad \forall\, i = 1,2,..4 \end{cases}$$

Decision:

If Fisher calculated > upper bound: existence of Co-integration

If calculated Fisher < lower bound: No co-integration

If lower Fisher < calculated Fisher < upper bound: no conclusion

In fact, if the calculated F statistic is greater than the critical value of the upper limit I (1), the null hypothesis will be rejected.

If the F statistic is below the lower critical value I (0), the null hypothesis cannot be rejected.

When it lies between I (0) and I (1), the co-integration results are considered nominally conclusive.

Table 3: ARDL Bound Test results

Fisher Calculated statistic	3.093449	
Critical threshold	**BI**	**BS**
5%	**3.23**	**4.35**
2.5%	**3.69**	**4.89**
1%	**4.29**	**5.61**

Source : Author based on Eviews

The results of the Bound Test indicate that the Fisher statistic is equal to 3.093449 when compared with the critical values below and above the significance level of 5%, 2.5% and 1%. The Fisher Bound Test statistic is below the lower bound of 3.23, 3.69 and 4.29 respectively. So, the Null Hypothesis cannot be rejected, and we can conclude that there is an absence of Co-integration.

Estimation of the short-term ARDL model:

The dynamics of short-term relationship adjustments: (Short run)

$$\Delta LNCH_t = \beta_0 + \sum_{i=0}^{p} \beta_1 \Delta LNCH_{t-i} + \sum_{i=0}^{p} \beta_2 \Delta LNIDE_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta LNFBCF_{t-i} + \sum_{i=0}^{p} \beta_4 \Delta LNOC_{t-i}$$

Table 4: Estimation of the short-term ARDL model

Dependent Variable: LNCH		
Method: ARDL		

	Coefficient	Std. Error	t-Statistic	Prob.*
Date: 12/02/23 Time: 16:16				
Sample (adjusted): 2001 2019				
Included observations: 19 after adjustments				
Maximum dependent lags: 2 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (2 lags, automatic): LNIDE LNFBCF LNOC				
Fixed regressors: C				
Number of models evalulated: 54				
Selected Model: ARDL(2, 2, 1, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNCH(-1)	0.509076	0.288163	1.766626	0.1077
LNCH(-2)	0.399403	0.194069	2.058052	0.0666
LNIDE	-0.003417	0.024720	-0.138221	0.8928
LNIDE(-1)	0.006540	0.021837	0.299476	0.7707
LNIDE(-2)	0.049606	0.025262	1.963626	0.0780
LNFBCF	-0.490153	0.218252	-2.245813	0.0485
LNFBCF(-1)	0.174945	0.165072	1.059812	0.3142
LNOC	0.318348	0.213484	1.491204	0.1668
C	-0.165070	1.117786	-0.147676	0.8855
R-squared	0.950320	Mean dependent var		2.286383
Adjusted R-squared	0.910577	S.D. dependent var		0.104670
S.E. of regression	0.031300	Akaike info criterion		-3.784872
Sum squared resid	0.009797	Schwarz criterion		-3.337506
Log likelihood	44.95628	Hannan-Quinn criter.		-3.709160
F-statistic	23.91124	Durbin-Watson stat		1.465855
Prob(F-statistic)	0.000015			

*Note: p-values and any subsequent tests do not account for model selection.

Source : Author based on Eviews

LNCH = *0.509076487269*LNCH (-1) + 0.399403391404*LNCH (-2) - 0.00341688202636*LNIDE + 0.00653967270563*LNIDE (-1) + 0.0496058054294*LNIDE (-2) - 0.49015271271*LNFBCF + 0.174945414172*LNFBCF (-1) + 0.318347907997*LNOC - 0.165069629336.*

We note that our target variable, FDI, has a negative and statistically insignificant effect on unemployment in the same year. On the other hand, FDI delayed by 2 years shows a positive and statistically significant impact at the 10% threshold, meaning that an increase in FDI implies a 0.04% increase in the unemployment rate. In addition, GFCF has a negative and statistically significant effect, meaning that a 1% increase in GFCF implies a 0.49% decrease in unemployment. This result can be explained by the fact that the greater the external demand, the greater the need to produce, which also leads to job creation.
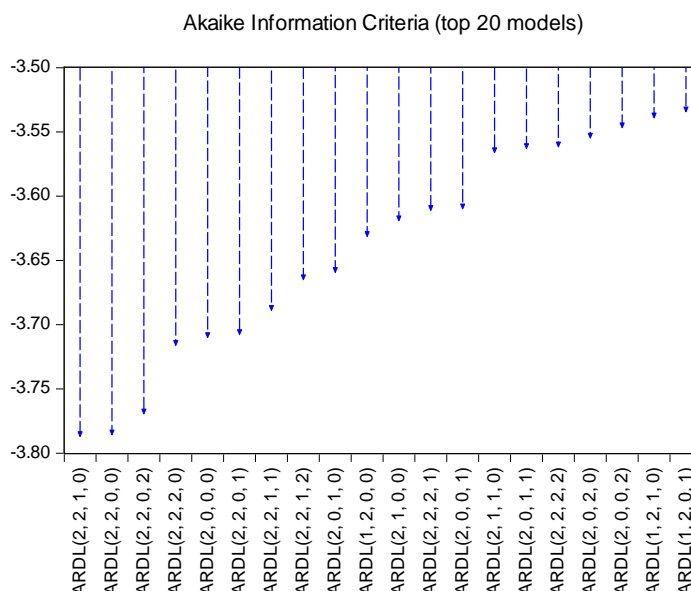
Figure 2 : Akaike information criteria

Source: Author based on Eviews

We note that the optimal model selected is the **ARDL (2,2,1,0)** among the 54 models evaluated as well as the top 20 models according to the AIC criterion, a model that explains 95.**03%** of the observed variability of the **CH**. In addition, we still need to diagnose the robustness of the selected model in order to check the normality of the errors as well as the absence and finally validate and continue our estimates.

Diagnosis and validation of the ARDL model:

Table 5: ARDL model test validation

Tests	Statistics	Prob
BG seriel correlation LM Test	**0.694572**	**0.5271**
Breusch-Pagan-Godfrey (Heterosedasticity)	**0.622618**	**0.7431**
Jarque-Berra (normality)	**0.312260**	**0.855448**

Source : Author based on Eviews

Probabilities are greater than 0.05, which leads us to accept the null hypotheses for all tests.

Residual heteroscedasticity test.

Table 6: Results of the heteroscedasticity test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.622618	Prob. F(8,10)	0.7431
Obs*R-squared	6.317220	Prob. Chi-Square(8)	0.6117
Scaled explained SS	1.482906	Prob. Chi-Square(8)	0.9930

Source: The authors based on Eviews

According to table (6), the probability obtained (0.7431) is greater than the 0.05 significance level. This indicates the absence of heteroscedasticity.

Residual autocorrelation test.

Table 7: Breusch-Godfrey Serial Correlation LM Test results

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.694572	Prob. F(2,8)	0.5271
Obs*R-squared	2.811092	Prob. Chi-Square(2)	0.2452

Source: The authors based on Eviews

According to the results in Table 7, the LM probability (0.5271) is greater than the 0.05 significance level. Hypothesis H0 is therefore rejected, meaning that the residuals are not autocorrelated.
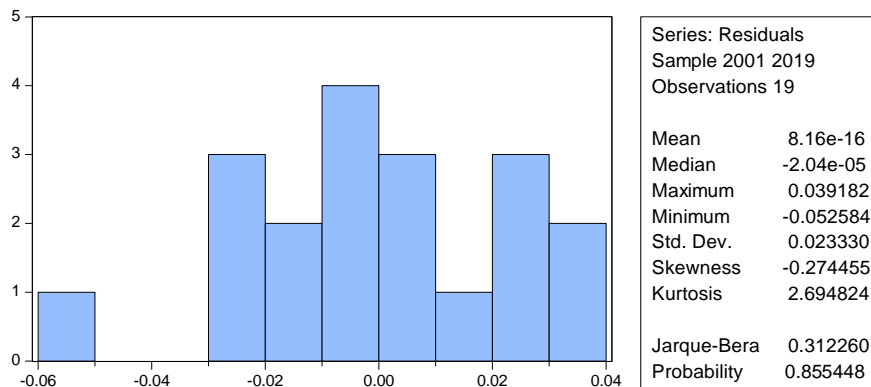

Series: Residuals	
Sample 2001 2019	
Observations 19	
Mean	8.16e-16
Median	-2.04e-05
Maximum	0.039182
Minimum	-0.052584
Std. Dev.	0.023330
Skewness	-0.274455
Kurtosis	2.694824
Jarque-Bera	0.312260
Probability	0.855448

Table 8 : Jarque-Berra results Normality test

Source: The authors based on Eviews

According to the results in Table 8, the probability (0.855448) is above the 0.05 significance level. This means that there is no autocorrelation between the errors.
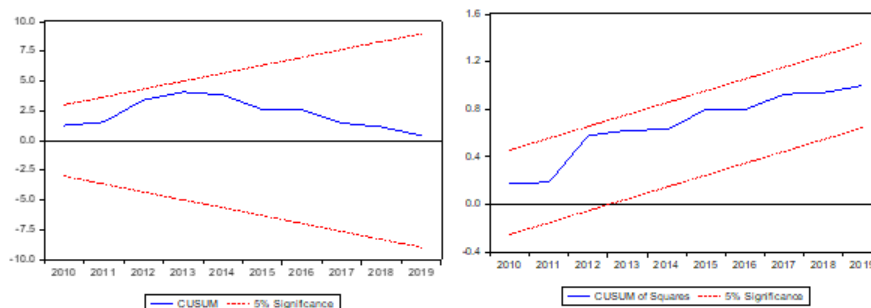
Model stability

Figure 3 : CUSUM and CUSUMQ stability test results

Source: Author based on Eviews

According to the results of the CUSUM and CUSUMQ stability tests, applied to the residuals of our model equation, we note that the curves lie in the critical zone between the two lines representing the limits of the interval (5% significance threshold). We therefore reject the hypothesis of structural change over time, and note that the model is stable in the short term over the study period.

Overall, the three tests applied to the residual and the CUSUM and CUSUM of Squares curves lead us to conclude that the residuals meet the conditions for the validity of our ARDL, i.e. normality, and the absence of residuals within the ARDL (2,2,1,0), which are essential conditions for the continuation of our model estimation*.*

Discussion of the results:

Our results show that FDI had a negative impact on reducing unemployment in Morocco during the period under study. Thus, our results are in line with those of Markusen and Venable (1998), who argue that FDI can lead to an increase in unemployment in host countries. They explain this by the

fact that local firms restructure in order to withstand competition from foreign firms, which can lead to bankruptcies and hence job losses in the host countries.

Indeed, foreign direct investment (FDI) is often seen as a factor in reducing unemployment in many countries, as investment creates jobs. This view is based on a number of mechanisms by which FDI can contribute to job creation and ultimately to reducing unemployment. However, it can also have a number of negative effects on a country's employment. This can be explained by the fact that some domestic firms are subject to substitution effects related to the replacement of employment in countries of origin by foreign employment of multinational firms.

There are different views on the net effect of FDI on employment. It therefore seems difficult to make a definitive judgement. However, it is legitimate to ask what would have happened to employment in the absence of FDI or with a low presence of FDI. (Chudnovsky and López, 1999).

Morocco's structural adjustment program has helped to increase and attract foreign direct investment. This type of investment has mainly consisted of takeovers of existing companies (such as Itissalat Al Maghrib or Régie des Tabacs), which explains the low employment rate of all investments. According to the report of the privatization department, the transfer of public companies to the private sector would have led to a loss of jobs.

During the first period of our study, foreign investment projects in Morocco mainly involved the privatization of public companies, which did not lead to the creation of new jobs, but rather to the restructuring of companies and the liberalization of the economy. This led to a feeling of insecurity among workers about their status in the public sector, knowing that the company acquiring the capital was foreign. This feeling of insecurity has led workers to leave their jobs.

CONCLUSION

Over the past decade, Morocco has experienced sustained growth, but with few decent jobs. Precarious work with low productivity, forced inactivity among young graduates and informal employment are the main characteristics of employment in the host country. A situation that is detrimental to the population, the economy and social cohesion.

The Ministry of Employment and Social Affairs has put in place a new National Employment Strategy (SNE), designed to meet the high demand for decent jobs arising from the country's demographic transition and social change.

The central objective of the NES is to promote decent employment through a growing number of productive, quality jobs. To achieve this, and in partnership with other ministries, the plan must first and foremost develop human capital by providing quality education and training.

Developing human capital can take several forms, including ensuring that new entrants to the labor market are qualified. This means reducing the number of early school leavers, broadening the range of training on offer, reinforcing learning of the skills required by national employers and foreign investors, and introducing mechanisms for monitoring and anticipating skills needs.

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