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Comparative Analysis of the Determinants of Foreign Direct Investments in Morocco and Türkiye

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Abstract

Foreign Direct Investments (FDI) can have a positive effect on the development of the economic and social potential of emerging countries provided that they make efforts to attract appropriate investors. Among developing countries, we are interested to analyze FDI attractiveness in Türkiye and Morocco and proceed with a comparative analysis between these two countries.

Very few empirical studies present an overview of FDI determinants and how they can influence the FDI attractiveness of Türkiye and Morocco separately. Consequently, the contribution of this paper is to compare FDI inflows in these countries and then identify the determinants that impact their FDI attractiveness. For this purpose, we used an ARDL econometric model in both countries over the period 1980 to 2020.

Our results show that there is an important similarity between the impacting factors on FDI flows in the short run in both countries. Openness and inflation have positive effects in both countries, while market size has a negative impact on FDI attractiveness. Credit, however, has a positive effect only in Türkiye but no significance in Morocco. On the other hand, there is less similarity between Türkiye and Morocco in the long run, since only GDP has a significant and positive impact in both countries. Inflation has a significant and negative impact only in Morocco, and human capital is positively impactful only in Türkiye, while openness and credit have a significant and negative impact also only in Türkiye. This

difference between the long-run results in both countries shows that FDI determinants play a more effective role in attracting FDI inflows in Türkiye than in Morocco, which substantiates the difference in the level of FDI inflows that each country gets.

Keywords: FDI, Market size, Human capital, Inflation, Credit, Openness, Morocco, Türkiye

1. Introduction

As globalization is changing the world's economic lineaments, and FDI is one of its most important pillars, competition on how to be the most suitable for FDI attractiveness is very high. Most of the developing countries are improving the majority of the factors that ease attracting more FDI inflows to their economies. So, these countries implement measures like creating economic free zones, exemption of income taxes and import duties, improving local infrastructures, and sometimes even monopoly rights. The reason behind these major implementations is the important role that FDI plays in creating, among others, jobs and transferring technologies to local firms. FDI has also led nations to substantial economic growth and restructuration of their Macro and Micro economic parameters, thanks to the positive knowledge spillovers.

Despite that developed countries are the main receivers of FDIs (Bouoiyour 2003: 2), developing countries are still important destinations for foreign investors. The criteria behind the choosing of an FDI hosting country are mainly related to the investor's activity and the awaited outcome. Some are looking for a low Labor Cost (LC), and others are looking for qualified human capital that would easily adopt their technologies. Also, the market size is a key criterion for companies looking to commercialize their products locally, while for others the geographical location is more important because it would help them export their products to a specific region. Adding to that, the natural resources for companies looking to manufacture certain products using the raw materials existing in the country, such as phosphates in Morocco, and gas and petrol in Algeria and the middle east...

These elements show that FDIs are based on a win-win equation where each party takes advantage of what the other has to offer. For example, in the Middle East & North Africa (MENA) region, FDI inflows in 2020 reached 65.93 billion US $ (world bank, 2020). Within this region, some countries attract more FDIs than others, due to the advantages that they can offer to foreign investors. For example, among developing economies, Türkiye is one of the most qualified countries to host FDIs. Partly owing to its geographical location (between Europe and Asia), its large population (84.78 M. in 2021), and the qualifications of its human capital. However, several other determinants conduct the attractiveness of FDIs to Türkiye more than other countries, which are related to the economic, social, and political measures that the country applies. On the other hand, there is Morocco, which is one of the preferred targets of FDI in the MENA region, somewhat thanks to its geographical location in Africa and proximity to Europe. Other than that, more elements encourage FDI inflows in Morocco rather than in other countries from the same region. Nevertheless, even if both Morocco and Türkiye seem to have a high advantage in terms of their FDI attractiveness, it appears a huge difference in their records over the last few years. For instance, the volume of FDI inflows in Türkiye was about 7.83 billion US $ in 2020 while in Morocco it was 1.42 billion US $ in

2020 over the same period (world bank, 2020). It seems thus interesting to think about the factors behind this difference in their FDI inflows.

After observation of the existing literature, we conclude that there is no empirical research that investigates and compares FDI inflows and their determinants in Morocco and Türkiye. The present study will thus, contribute to the literature by analyzing FDI inflows and the impact of their determinants in each of the chosen countries, and then proceed to a comparison between them. Therefore, our aim with this paper is to put together the different FDI determinants in Türkiye and Morocco as case studies. Then we evaluate the impact of these factors on FDI inflows in both countries over the period **(1980-2020)**. The reason behind the choosing of Türkiye and Morocco for our study is mainly the nature of their economic built and the similarities in their economic models even at different levels of economic growth, population, and market size. We are also interested in comparing the results obtained from our econometric model in both countries, and analyzing them to figure out the reasons behind the difference in inward FDI flows in each of these countries (see figure 1). This comparison will allow us to think about how Morocco can learn from the Turkish experience and improve the volume of its inward FDI. Furthermore, this study will allow us to verify the correctness of the following assumptions:

- The similarity between the geostrategic advantages in Morocco and Türkiye allows them to attract the same type of FDIs.
- Both countries attract foreign investors who are wishing to export their products to subregions.
- FDI inflows are impacted by the same kind of determinants in both countries.
- Short-run and long-run effects of FDI determinants are similar in both countries.

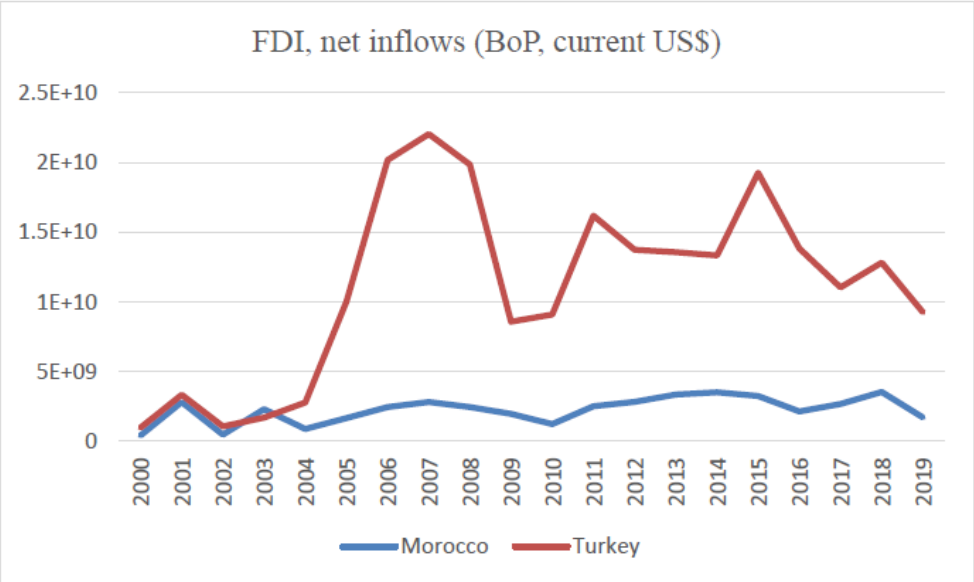

Figure 1. FDI inflows in Morocco and Türkiye

Source: Author's elaboration using data from WDI

For this purpose, in this work, we first refer to some of the main FDI theories and then analyze some of the major empirical research that studied FDI determinants. In the second part, we analyze time series data from Morocco and Türkiye using the *Autoregressive Distributed Lag* (ARDL) modeling approach. This allows us to define the significance of our chosen variables and their impact on FDI as a dependent variable. Then, we observe if FDI attractiveness is directly impacted by the same determinants in both countries in the short and long run. Finally, we will present our conclusion where we summarize our empirical results, and introduce some recommendations.

2. Literature Review

FDIs are considered by many scholars as the most beneficial capital movement between countries of their contribution to the progress of developing economies. Many theories examine FDI to underline its advantages and disadvantages for multinationals and hosting countries. There is also a multitude of empirical studies explaining the effects of FDI determinants in specific countries. In this section, we will try to state firstly some of the most important FDI theories from a general point of view. And secondly some of the empirical studies that were made about FDI determinants in general and in our chosen countries Türkiye and Morocco.

2.1 Theoretical Literature

Since the first introduction of FDI as a new concept of international capital movements, there have been several theories that tried to analyze its different forms and contributions to the economic development of countries and Multinational Corporations (MNCs). From our end, and since there is no unified theoretical framework that can fully explain the determinants of FDI, we shall try to refer to the few most important, theories that explained FDI in its major forms.

2.1.1 The Theory of Internalization of FDI

The most obvious explanation of FDI is being a measure undertaken by Multinational Enterprises (MNEs) to get access to other countries where the business conditions are more convenient to increase their wealth. One of the most important FDI theories is the internalization theory, which tries to explain the motivations behind multinational companies in investing abroad.

According to this theory, internalization is a business strategy that ensues when a business entity decides to handle a part or all of its activities internally through its different branches rather than outsourcing it from a different entity. In the case of MNCs, they aim on investing in other countries where the business conditions are more convenient. And this is through a sort of FDI where they subcontract to their foreign branch to reduce their costs instead of routing out their activity to another company (Buckley, 2009: 1564).

This theory was first stressed by the economist Coase (1937) who implemented the concept of external contracting at a different branch within the same company but at a national level. It was also later emphasized by Hymer (1976) when he analyzed the different aspects of

multinational firms and multinational corporate capital. Hymer states that there are two major determinants of FDI. The first is the advantage that a multinational acquires for a particular activity in a particular location. The second is the elimination of the competition by moving this activity to a location with no or fewer competition (Hymer 1976: 10). Later on, this theory was also synthesized by multiple economists (Buckley & Casson, 1976; Hennart, 1982; Casson, 1983). The internalization theory was also used by John Dunning in his theory "*the Eclectic Paradigm*" in 1979 where he argues that despite being a very important aspect of FDI, internalization can only explain a small part of the FDI flows.

2.1.2 The OLI Theory (Eclectic Paradigm)

The OLI theory is a model composed of a three-tiered study framework that MNCs should evaluate to determine if pursuing an FDI in a foreign country will be beneficial to their business. This model's three axles are *Ownership*, *Location,* and *Internalization*. Based on the internalization theory, this model was first introduced by Dunning (1979).

The Eclectic Paradigm emphasizes that every company shall evaluate its abilities in internalizing its activities by owning a dedicated specific subsidiary in a location that will help cut down the production costs, which would evolve in case this company outsourced its activities. By doing so, this institution would avoid going through the open market to complete some actions that it can handle in-house at a lower price. In this case, MNCs establish FDIs in developing countries that help them reduce their production costs and preserve the execution of their activities internally (Cantwell, Narula, 2001: 157).

2.1.3 Institutional FDI Fitness Theory

In 1998 Wilhelms and Witter introduced a theory called "*the institutional FDI fitness theory*" that treats the different abilities that countries should have to attract, incorporate and retain FDI. A country's ability to match with the investor's external and internal conditions and expectations would give it a considerable advantage in collecting FDI inflows. This theory also explains the unevenness in FDI flows between countries (Wilhelms & Witter 1998).

Wilhelms and Witter mention four essential principles in the institutional FDI fitness of a country. These pillars are the sociocultural factors, the educational factors, the market factors, and the governmental factors.

The socio-cultural aspect of a country is considered by Wilhemls and Witter as the base of its ability to receive FDI inflows. Education is the second most important pillar that affects the fitness of a country. Since an educated workforce would make the implementation of foreign investments easier, accelerate the learning processes, enhance the research and development creativity, and increase the information processing cadence.

Wilhelms and Witter also consider the market factors characterized by the economic and financial aspects of the country as a very important tool in attracting FDI. The first and most considerable factor of a market is the financial capital which will allow investors the possibility of credits. The second factor is the physical capital which would ensure the availability of machinery and adequate technologies that can be used in implementing the

FDI. And the final important factor that Wilhelms and Witter state in this theory is the government, as it is a major player in attracting FDIs and retaining them. A country's political stability is an essential criterion in the investment decision-making for Multinationals. The level of its political strength reflects the ability of this country to handle crises and adopt protective measures in order to keep its fitness to the market. Thus, a strong government would ensure great transparency in the country's policies, lower the corruption risks, increase economic trade openness, and firmly manage the exchange rate interventions (Popovici & Calin, 2014).

2.2 Empirical Literature

From an empirical point of view, many pieces of research were made about the factors impacting FDI flows. The big majority of these studies consider six main determinants that can possibly impact FDI. These are human capital, market size, trade openness, economic growth, infrastructure, and financial market development (Meivitawanli, 2021: 58). Some other researchers add Inflation and Real Effective Exchange Rate *(REER)*. Market size is for example considered by multiple authors as the most significant determinant of FDI (Lim, 2001: 14).

It is also stated that FDIs are destined for two categories of host countries (Shatz & Venables, 2000). One is chosen by its market size, where local consumers are the target customers for the incoming horizontal investments (Mistura & Roulet, OECD 2019; Petrović-Ranđelović et al. 2017). And the other is by its geographical location since MNCs are queen to keeping their capital close to them. On the other hand, other researchers consider human capital as the most prominent factor for FDI attractiveness, together with a properly transparent institutional environment, and a proper forming of this capital (Diaconu 2016; Noorbakhsh & Paloni 2001; Karimi et al. 2013).

Thus, FDI determinants are subject to multiple conditions related not only to the investing MNCs and their interests but also to the host countries and their economic and institutional built. For example, a study made for the European Central Bank (ECB) states that the quality of the institutions and the economic structures are important key factors for FDI attractiveness (Dellis, et al. 2017). This makes economically advanced countries more suitable for foreign investors. This study took into consideration countries from the Organization for Economic Co-operation and Development (OECD), and the euro area countries which accounted in 2015 for one-fifth of the global stock of inward FDI (see also Özcan & Ari, 2010). However, there are also other factors that incite investors to choose emerging economies as a destination for their capital. For example, Onyeiwu and Shrestha (2004) in their study about FDI determinants in Africa, state that economic growth, inflation, openness, international reserves, and natural resources availability are significant determinants for FDI attractiveness in Africa. This finding was also confirmed in the MENA region by Jabri et al. (2013) who stated that the most significant determinants of FDI attractiveness to the MENA region are openness, growth rate, exchange rate, and economic instability in the long run (see also Bouri & Benmassoud, 2014).

Furthermore, several other types of research were made about FDI determinants in different

other locations. This shows that every region can attract a specific type of investment according to what it has to offer to specific types of investors. For example, Morocco started several incentives to attract FDI inflows in the 1990s, after understanding the importance of FDI in helping improve the economic development of other countries (Bouoiyour & Toufik, 2007). The aim was to encourage foreign MNCs to invest in Morocco by undertaking several reforms in its financial, economic, and fiscal institutions. However, not all these reforms were significant and had a positive impact on FDI attractiveness (Moujahid & Khariss, 2021). The results obtained by this study show that only infrastructure and openness variables are significant and promote FDI attractiveness in Morocco. Yet, other variables such as human capital, internal investment capacity, and market size have a positive but insignificant effect. On the other hand, the variables Labor Cost (LC) and delayed FDI by one period are important determinants but have a negative effect, while the quality of institutions has a negative and insignificant effect.

Another study made by Belhaj (2021) explains that FDI attractiveness is not only a work of economics but also depends on several other factors such as political, institutional, and sociological. The results obtained by Belhaj show that the liquidity rate has a positive effect on FDI inflows, but private savings and importations have a negative effect in the long run. FDI, on the other hand, when taken with one or two periods' delay has a negative effect as well on FDI attractiveness. This can be related to the competition that the imported products can create with FDI products, and to the fact that foreign investors dread the competitiveness that might be created by the already existing FDIs in the country.

Thus, among this multitude of variables that can explain FDI attractiveness, we remark that different studies obtained different results in terms of the significance of FDI determinants. We also understand that FDI determinants panoply is very large and diverse and that the studies that are available about this topic did not test all the variables that can be explicative. However, the big majority of these studies are concluded with the same statement that despite all the efforts that Morocco made since 1990, FDI inflows remain relatively modest compared to competing countries. This means that Morocco needs to create a conducive climate for investments in general and FDI in particular. Notably through the strengthening of the credibility of administrations and legal departments as well as the efficiency of the financial system (Abouch & Maarouf, 2007: 106).

On the other hand, Türkiye is constantly improving its ability to attract MNCs to invest on its soil by carrying on several reforms. FDI attractiveness in Türkiye is thus an important subject that was analyzed by several researchers who define FDI determinants in Türkiye according to the different results that they got. For example, Pehlivan (2019) in his study about FDI determinants in Türkiye finds out that REER and LC are significant determinants in the long run, but the first one has a positive relationship with FDI inflows and the second one has a negative effect. According to Pehlivan (2019), FDI inflows in Türkiye are negatively impacted by exchange rate increases, which raises the costs of imported raw materials used in the production, and subsequently makes FDIs in Türkiye not export-oriented but rather for local use in the national market. On the other hand, there is a negative correlation between LC and FDI which means that expensive LC causes a drop in FDI inflows, especially for

manufacturing industries that require a low LC (Pehlivan, 2019: 457).

Meanwhile, Dumludag (2009) states that FDI can be positively impacted by macroeconomic indicators such as GDP per capita, growth rate, and market size (see also Kurtaran 2010; Lebe & Ersungur, 2011). However, he also mentions the importance of institutional variables such as political and economic stability, low level of corruption, and intellectual property rights, plus the transparency and good functioning of the judicial system. Moreover, (Aldalou & Sarsour, 2022; Karagöz 2007; Kariş & Ayla 2018) confirm that the size of the market and openness of the economy positively affect FDI inflows, and these latter are negatively correlated with account deficit and exchange rate. Though, FDIs are not affected by LC, the cost of capital, and inflation rates.

On the other hand, Demir et al. (2021) state in their analysis of the effect of macroeconomic variables on FDIs that these latter and inflation have a bidirectional causation in the long run and a unidirectional relationship from economic growth to FDI. These results were also confirmed in a recent study by Batmaz and Yürük (2023), which specifies that a high inflation rate has a negative effect on FDI inflows in Türkiye, while income per capita has a positive effect, and labor force appeared to be statistically insignificant.

After analyzing several empirical studies that were made about FDI attractiveness in Türkiye, we remark that there are some differences between the short-term and the long-term adequacy of the variables. Also, the time ranges that were covered by these studies make a difference and impact the obtained results. This can be explained by the constant changes that globalization involves and also the changes in governments and thus the structural reforms they induce. Taking this into consideration, our empirical study uses few of the most important variables and measures their impact on FDI in both Türkiye and Morocco, which allows us to make a comparative analysis between both countries.

3. Methodology

We use econometrical analysis to compare the determinants of FDI between Morocco and Türkiye. Inspired by (Yimer 2017), we use the ARDL modeling approach which allows (when the conditions are filled) to obtain the long-run and the short-run estimation with time series data (see Pesaran & Shin & Smith, 2001). The generalized ARDL (p, q) model is presented below.

$$Y_t = \gamma_0 + \sum_{i=1}^{p} \delta_i Y_{t-i} + \sum_{j=0}^{q} \beta_j X_{t-j} + \varepsilon_t \quad (1)$$

With Y_t a vector of dependent variables, X_t a vector of independent variables, which are allowed to be integrated at level or first difference only; δ and β are the coefficients, γ the constant factor; i and j represented the lags; p and q respectively the optimal lags of the dependent and independent variables. Here it is important to note that in the ARDL models, the value of q can change from one variable to another as the optimal lags are determined for each independent variable using the AIC criterion. ε is a vector of error terms.

The ad hoc version of our model is below.

$$\Delta lnFDI_t^{(c)} = \alpha_0 + \beta_1 lnFDI_{t-1} + \beta_2 lnGDP_{t-1} + \beta_3 Infl_{t-1} + \beta_4 Openness_{t-1} + \beta_5 Credit_{t-1} + \beta_6 LifeEx/InfM_{t-1} + \sum_{i=0}^{p} \delta_1 \Delta lnFDI_{t-i} + \sum_{i=0}^{p} \delta_2 \Delta lnGDP_{t-i} + \sum_{i=0}^{p} \delta_3 \Delta Infl_{t-i} + \sum_{i=0}^{p} \delta_4 \Delta Openness_{t-i} + \sum_{i=0}^{p} \delta_5 \Delta Credit_{t-i} + \sum_{i=0}^{p} \delta_6 \Delta lnLifeEx/InfM_{t-i} + \varepsilon_t \quad (2)$$

Where:

- **lnFDI** is the logarithm (log) Net Foreign Direct Inflows, in current USD
- **lnGDP:** the Logarithm of Nominal GDP current USD (or constant 2015), is a Proxy of the host country size and a measure of its demand potentiality.
- **Inflation:** annual inflation rate (or GDP deflator) is expected to negatively impact FDI inflows. But as the study looks at both the long-run and short-run effects, contradictory effects could appear according to the term considered.
- **Openness:** represents the share of the sum of imports and exports in the GDP.
- **Credit** is the monetary sector credit to the private sector (% GDP). This variable is used as a proxy for the country's financial development.
- **lnLife:** the logarithm of Life Expectancy or infant Mortality is used as a proxy of human capital, (see Bane, 2018, p.238 and Azman-Saini et al., 2010).

After the model specification, the following step is the co-integration checking among the variables. And for that, the bound test is used to test the below hypothesis.

$$H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6$$

$$H_1: \beta_1 \neq 0;\ i = 1,2,\dots,5$$

To conclude on the test results, we compare the Wald F-statistics to the tabulated critical values (see Pesaran et al. 2001). The hypothesis H_0 is rejected if the value of calculated F is higher than all the upper bound critical values.

The rejection of the null hypothesis allows the estimation of both the long-run and short-run equations. We can then get both the ARDL and the (vector) Error Correction Model (V)ECM models. Otherwise, only the ARDL model can be estimated. Below are the ad hoc ARDL and ECM specifications for this study.

ARDL/Long-run Model:

$$\Delta lnFDI_t^{(c)} = \alpha_0 + \beta_1 lnFDI_{t-1} + \beta_2 lnGDP_{t-1} + \beta_3 Infl_{t-1} + \beta_4 Openness_{t-1} + \beta_5 Credit_{t-1} + \beta_6 LifeEx/InfM_{t-1} + \varepsilon_t \quad (3)$$

Short-run / ECM model:

$$\Delta lnFDI_t^{(c)} = \alpha_0 + \sum_{i=0}^{p} \delta_1 \Delta lnFDI_{t-i} + \sum_{i=0}^{p} \delta_2 \Delta lnGDP_{t-i} + \sum_{i=0}^{p} \delta_3 \Delta Infl_{t-i} +$$

$$\sum_{i=0}^{p} \delta_4 \, \Delta Openness_{t-i} + \sum_{i=0}^{p} \delta_5 \, \Delta Credit_{t-i} + \sum_{i=0}^{p} \delta_6 \, \Delta LifeEx/InfM_{t-i} + \varepsilon_t \quad (4)$$

4. Results and Discussion

Compared to other co-integration models, ARDL estimation has many advantages. It allows, among others, to get robust estimates even with small samples, to get both long-run and short-run effects, and to deal with endogeneity problems (see Nkoro & Uko 2016; Ahmed et al. 2021). Besides this, the ARDL estimator has the advantage to allow for estimation with variables with mixed integration levels (I (0) & I (1)). To test the stationarity of the variable we used the Dikey-Fuller test (see Table 1 below). As we can see, all the variables involved in this study are integrated at the first difference or level. The ARDL model is then appropriate. The data are from the World Bank's World Development Indicators (WDI) and cover the period 1980 to 2020 for Morocco and 1985 to 2020 for Türkiye. Table 2 summarizes the variables for each country for the periods of the study.

Table 1. Unit Root Stationarity Test Results

Variables	**Morocco**			**Türkiye**		
	Z(t)	p-value	Conclusion	Z(t)	p-value	Conclusion
lnFDI (cur. USD)	-10.366	0.0000	I(1)	-5.630	0.0000	I(1)
lnGDP (Cur. USD)	-5.214	0.0000	I(1)	-5.976	0.0000	I(1)
lnGDP (C2015 USD)	-10.896	0.0000	I(1)	-6.082	0.0000	I(1)
Inflation (%)	-10.094	0.0000	I(1)	-5.790	0.0000	I(1)
GDP Deflator	-10.523	0.0000	I(0)	-7.818	0.0000	I(1)
Openness (% GDP)	-7.243	0.0000	I(1)	-5.732	0.0000	I(1)
Credit	-5.095	0.0000	I(1)	-3.778	0.0031	I(1)
lnLife Expectancy (year)	-7.330	0.0000	I(0)	-7.251	0.000	I(0)
Infant Mortality	-22.108	0.0000	I(0)	-29.422	0.000	I(0)

To obtain a good quality estimation for both countries' empirical models, we tried many combinations of variables and periods while keeping in mind to get a similar model for both of our countries. After diagnostics tests on the different combinations, the below characteristics are retained for each of the countries.

Period of the study: Morocco: 1980-2020; Türkiye: 1985-2020

Inflation variable: Morocco: Annual inflation rate; Türkiye: GDP deflator

Production Proxy: Morocco: GDP in current USD; Türkiye: GDP in constant USD 2015

Human Capital Proxy: Morocco: Life expectancy; Türkiye: Infant mortality.

Table 2 summarizes the variables involved in this study for both countries. As we can see, on average, production level and FDI inflow are higher in Türkiye compared to Morocco.

However, inflation seems more under control in Morocco than in Türkiye (see figure 2). While on average the inflation and deflator are around 3.5% in Morocco, their values are above 30% on average in Türkiye during the study period. The performances of the health system appear to be better in Türkiye than in Morocco in terms of life expectancy and infant

mortality. For the variable Credit, it appears that both countries seem to be at similar levels.

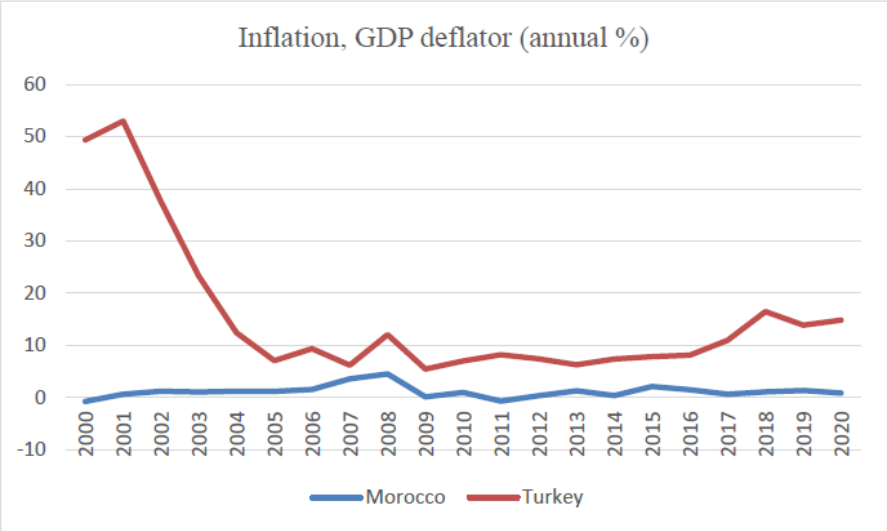

Figure 2. Inflation, GDP deflator (annual %) in Morocco and Türkiye

Source: Author's elaboration using data from WDI.

Table 2. Summarizes the variables involved in this study for both countries

Variables	Morocco					Türkiye				
	Obs.	Mean	Std. Dev	Min	Max	Obs.	Mean	Std. Dev	Min	Max
FDI (cur. USD)	41	1293438	1196547	550	3561003	36	6633500	7113649	99000	2.20e+07
GDP (Cur. USD)	41	5.78e+10	3.56e+10	1.48e+10	1.20e+11	36	4.48e+11	3.16e+11	6.72e+10	9.58e+11
GDP (C2015. USD)	41	6.05e+10	2.78e+10	2.39e+10	1.13e+11	36	5.26e+11	2.47e+11	2.20e+11	1.02e+12
Inflation (%)	41	3.695942	3.401154	0.303386	12.49253	36	37.81236	30.98131	6.250977	105.215
Deflator	41	3.495904	5.492924	-.7422882	33.02313	36	38.60129	34.35738	5.446449	143.6397
Openness (%)	41	63.66076	13.87893	47.09554	87.97578	36	45.5081	9.300225	29.41446	62.61188
Credit	41	39.77092	21.41854	12.90429	71.54544	36	31.57904	19.21998	14.01066	70.92024
Life Expectancy (year)	41	68.83905	5.795647	57.56	76.901	36	70.63703	5.101622	61.682	77.928
Inf. Mortality	41	46.95366	23.08195	16	94.3	36	32.775	20.31076	8.7	75

The results of the bound test of co-integration are summarized in table 3. For both countries, the obtained F-statistics are higher than the upper values of the critical values at all the significance levels. So, we can conclude on the existence of co-integration relations between FDI and the selected variables for Türkiye and Morocco.

Table 3. Bound Tests for Co-integration

Model	Calculated F-statistics	Level of significance/Critical Values			
		10%		1%	
		I0 bound	I1 bound	I0 bound	I1 bound
Morocco	8.121	2.26	3.35	3.41	4.68
Türkiye	6.091	2.26	3.35	3.41	4.68

Various validation tests are performed on the models (see Table 4). R-squared and adjusted R-squared are high and reach respectively about 0.88 and 0.84 for Morocco and 0.97 and 0.94 for Türkiye. The models are globally significant with an F-statistic of 21.10 and 33.05 for Morocco and Türkiye respectively. The Durbin-Watson d-statistics on both models are close to 2, showing that there is an absence of autocorrelation of errors. This result is confirmed by the Breusch-Godfrey serial correlation test results. White's tests also confirmed the homoscedasticity of the estimated errors. Finally, we perform the Cusum-squared tests to confirm the stability of the coefficients for both the Morocco and Türkiye models (see Appendix 1).

Table 4. Diagnostic and Stability tests

Test	Morocco	Türkiye
R-squared	0.88	0.97
Adjusted R-square	0.84	0.94
F-statistic	21.10	33.05
Prob (F-statistic)	0.000	0.000
Durbin Watson	2.014831	2.15914
Breusch-Godfrey Serial Correlation LM test	0.014 (P=0.9071)	2.075 (P= 0.1497)
White's test for homoscedasticity	39.00 (P=0.4246)	34.00 (P=0.4192)

The first observations from our estimations are the difference between short-run and long-run variable effects for each country and the differences between their effects from one country to another when considering the same runs.

4.1 Intra-country Runs-based Comparisons of the FDI Determinants

The results of the ARDL model applied to Morocco represent the effects of the independent variables in the long run and the short run. In the long run, two variables lnGDP and Inflation appear to have significant effects while in the short run, FDI is impacted by 3 variables which are: LnGDP, Inflation, and Openness. The market size (production) and inflation seem to play an important role in determining the level of FDI inflows in Morocco in both the long and the short run. However, their impacts seem opposite from one term to another. In the long-run GDP is significant at 5% and has a positive effect while Inflation is significant at 10% and effects negatively the dependent variable. These results are similar to Moujahid and Khariss (2021), and Bouoiyour (2003) findings. The effects of these variables seem however to be contradictory when it comes to the short run where the GDP effect seems negative and significant at 1% while Inflation has a positive effect and is significant at 1% too. This opposition between the role of the variables in the long and short run can be explained by the measures that Morocco implements to improve FDI attractiveness and the time that these reforms take to be applied and become effective. Also, the effectiveness of variables is sometimes not instantly tangible but takes time to be perceived. Regarding openness, its effect on FDI inflows in Morocco in the short run is confirmed by Lam'hammdi (2018) who concluded that openness impacts FDI positively at 5% of significance. Besides, variables such as Credit and Life expectancy do not affect FDI in Morocco in the short and in long run.

Concerning Türkiye, the contradictions between the effects of the independent variables in the short and long runs are observed too. For instance, FDI inflows in Türkiye are, in the long run, affected by 4 variables out of the 5 involved in this study. These are GDP and Infant mortality with a positive effect and significance at 5% (see also Dumludag, 2009), and Openness and Credit which have negative and strongly significant effects on FDI (see Aslan et al. 2019). The effects of GDP and Infant mortality are conformed to our expectations but also confirmed by (Hellström & Sungur 2006; Krimi et al. 2013) results. On the other hand, even though the effects of Openness and Credit could seem contradictory, they are balanced by their effects, in the short run, which conforms to our expectations: positive and significant at 5 and 1%, respectively (Özen, Kidemli, 2020). Besides, the effect of Inflation remains non-significant in the long run while remaining significant only at 10% with a positive effect in the short run. GDP effect is negative in the short run.

These differences between long-run and short-run results especially in market size and inflation variables can be related to the reason behind the FDI flows to the country. Some foreign investors are interested in commercializing their products in the local market, which makes the market size and inflation significant variables for them. Adding to that openness which can negatively impact FDI inflows in the long run, as is the case in Türkiye, where foreign investors are interested in using its large population as a consumer market rather than getting invaded by foreign competitor products through trade agreements. On the other hand, other investors are interested in using local human capital to manufacture their products and reexport them. For these latter, human capital is more significant in the long run while inflation has a negative (case of Morocco) or a non-significant effect (case of Türkiye). We can take as an example here the FDI that the French automotive group *Renault* established in Morocco in 2012 with a value of 1.6 B. US$, with the aim to manufacture entry-level cars and reexport them to Europe (Benabdeljlil et al., 2019: 1). With this investment, Renault was interested in the low LC and in the facilities that Morocco could provide. These are the creation of a free economic zone with full tax exemptions for the first five years, the establishment of important infrastructures linking their factory to railroads and ports, and the creation of training centers for the human capital destined to work the in Renault factory (Benabdeljlil et al., 2019: 3).

Table 5. The Determinants of FDI in the Long-run Estimates

Variables	**Morocco** ARDL (1,1,2,1,0,0)		**Türkiye** ARDL (2,1,2,2,2,2)	
	Coefficient	t-statistic	Coefficient	t-statistics
Log of GDP	4.197[b]	2.55	6.590[b]	2.77
Inflation	-0.265[c]	-1.74	.006	0.92
Openness	-0.040	-1.35	-0.074[b]	-2.83
Credit	-0.013	-0.44	-0.109[a]	-3.40
Log of Life Expectancy	-15.561	-0.94		
Infant Mortality			0.143[c]	1.87
Constant	-22.634	-0.66	-156.532[b]	-2.47

Dependent Variable: Log of FDI inflows (lnFDI)
Sample Morocco; 1982-2020; N Obs. Morocco: 39
Sample Türkiye: 1987-2020; N Obs. Türkiye: 34
Note: “c” significant at 10% level, “b” significant at 5%, and “a” significant at 1% level.

Table 6. The Determinants of FDI in the Short-run Estimates

	Morocco ARDL (1,1,2,1,0,0)		**Türkiye** ARDL (2,1,2,2,2,2)	
Variables	Coefficient	t-statistic	Coefficient	t-statistics
Δ(log of GDP)	-5.035[a]	-3.01	-5.877[b]	-2.42
Δ(Inflation)	0.227[a]	3.35	0.008[c]	1.91
Δ(Openness)	0.071[b]	2.62	0.054[b]	2.39
Δ(Credit)	-0.011	-0.45	0.108[a]	2.99
Δ(log of Life Expectancy)	-13.197	-0.97		
Δ(Infant Mortality)			1.923	1.61
ECM	-0.848[a]	-5.87	-0.976[a]	-5.22

Dependent Variable: Δ(lnFDI)
Sample Morocco; 1982-2020; N Obs. Morocco: 39
Sample Türkiye: 1987-2020; N Obs. Türkiye: 34
Note: "c" Significant at 10% level, "b" at 5%, and "a" at 1% level.

4.2 Inter-countries Comparisons of the FDI Determinants

In this section, we will try to compare the effects of the independent variables on FDI inflows in Morocco and Türkiye both in the long and short run. An overview of the calculated estimates seems to reveal a similarity in the determinants of FDI in the two countries. For instance, we can see in table 6 that in the short run, three factors affect FDI in Morocco against four factors in Türkiye. Among them, three factors appear to have the same effects on FDI in both countries. These are:

- GDP which has a negative and strongly significant effect on FDI in both countries;
- Inflation with a positive effect in the short run in both countries with a significance of 1% in Morocco and 10% in Türkiye;
- Openness which has a positive effect with 5% significance in both countries.

Besides, the other independent variables remain effectless on the FDI inflows in the short run in Morocco while for Türkiye, Credit has, as expected, a positive and strongly significant effect on FDI in the short run.

Concerning the long run (see table 5), the situation seems less similar between the two countries than in the short run. Here there are only two factors that affect FDI in Morocco. While in Türkiye four among the five selected variables are significant, with GDP as the only factor which seems to make unanimity for both countries. GDP has a positive effect on FDI and is significant at 5% in both countries (Abouch & Maarouf 2007; Dumludag 2009; Bouoiyour 2003), while inflation has a negative effect in Morocco and is significant at 10% but has no significance in Türkiye. The rest of the variables; openness, credit, and infant mortality, negatively impact FDI inflows in Türkiye but are insignificant not in Morocco.

Comparing the obtained results for both countries, we think that FDI attractiveness in Türkiye is more operative than in Morocco. GDP has a positive effect on FDI in Morocco and Türkiye, this shows that foreign investors are more interested in commercializing their products locally. And a negative effect of inflation shows the will of other investors to use Morocco as a producing platform to reexport their products (example of Renault, Peugeot & Citroen,

aeronautic manufacturers…). Openness on the other hand, being insignificant for FDI inflows in Morocco and negative in Türkiye shows that it is inefficient as a determinant in Morocco (see also Mudiyanselage et al 2021), but encourages local consumption in Türkiye. The strong negative effect of credit on FDI inflows in Türkiye shows that the country has high sovereign credit ratings, which encourages foreign investors looking for financial facilitations to relocate their investments to Türkiye. Furthermore, the negative effect of infant mortality shows that human capital is an important determinant in attracting FDIs. These both factors prove that the financial measures and the development of human capital that Türkiye made are effective.

5. Conclusion

Morocco and Türkiye are among the countries that benefit from an important comparative advantage in terms of FDI attractiveness due to their geostrategic position. However, this element alone is not enough to guarantee a significant flow of FDI to these two countries. This paper studies the impact of some FDI determinants on FDI flows to Morocco and Türkiye using the ARDL modeling approach. In this empirical study, we tried to choose the same variables for both countries considering the stationarity of these variables and the existence of co-integration between FDI and the selected variables. We have also tried to use the same econometric model that would be significant for both countries using these variables.

The initial results of our empirical study show few differences in some variables between Türkiye and Morocco. From these results, we can conclude that there is an important similarity between the FDI determinants' effects in Morocco and Türkiye in the short run and a less important similarity in the long run. For example, Openness and inflation have positive effects in both countries, while market size has a negative impact on FDI attractiveness in the short run. Credit, however, has a positive effect only in Türkiye but no significance in Morocco, which confirms the existence of a more developed financial system in Türkiye. On the other hand, there is less similarity between Türkiye and Morocco in the long run, since only GDP has a significant and positive impact in both countries. This shows that the attracted foreign investors are interested in commercializing their products in the local markets of these countries, and not only use these latter as export platforms. Inflation has a significant and negative impact only in Morocco, and human capital is positively impactful only in Türkiye, while openness and credit have a significant and negative impact also only in Türkiye.

These results can partly be explained by the difference in the level of economic development of each of these countries. The Turkish economy might be more receptive to the encouraging policies for FDIs, which makes it attract different types of foreign investors than Morocco, and this can be seen in the FDI target sectors in both countries. For example, in Türkiye the two most attractive sectors to FDI are first the financial sector and second manufacturing (the investment office of Türkiye, 2023). While in Morocco Agriculture is the main sector and the second is insurance and financial activities, with future investment promises in green energies (Export Enterprises SA, 2022).

This study contributes to the existing literature by showing that Morocco should work more on its financial incentives to boost its credit ratings, and to invest more in its workforce. MNCs will always foster countries that offer financial assistance and a qualified workforce to properly host their technologies. Moreover, we also think that Morocco and Türkiye need to multiply their trade agreements to attract MNCs that are wishing to export their products, especially to Africa and the Middle East. Nevertheless, this study did not take into consideration all the FDI determinants that can explain FDI inflows in these two countries. Further studies can thus analyze a bigger variety of variables and possibly include other countries from North Africa and the Middle East. It would also be interesting to investigate economic growth determinants in these two countries and see if they justify the big gap in economic development between them.

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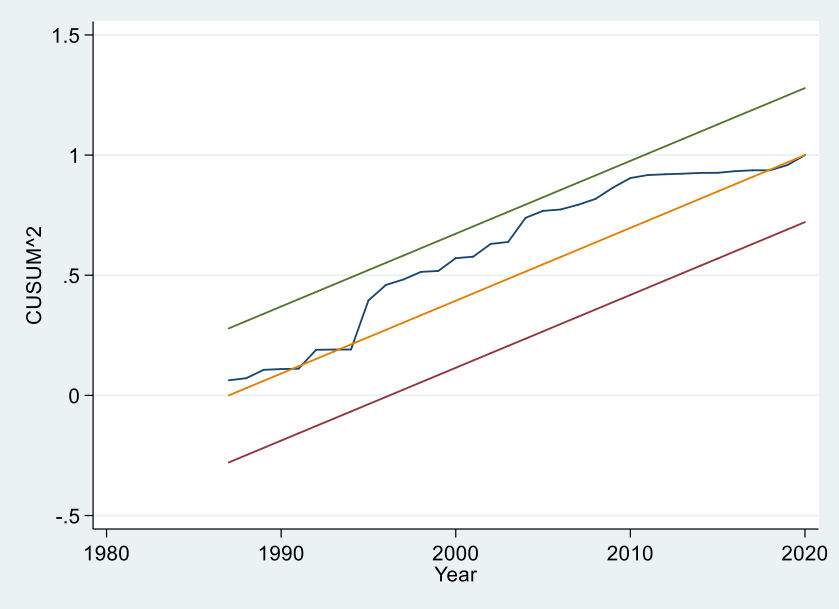
Appendix

Appendix 1: Parameter Stability test

CusumQ Morocco



CusumQ Türkiye