"International Days of Macroeconomics and Finance 2024"

May 22–24, 2024

AfCFTA Membership: Boon or Bane for Moroccan Outward FDI? An Econometric Panel Data Analysis

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Introduction

- Regional integration remains the most conspicuous form of globalization that encourages countries to abandon autarky and move towards mutually beneficial free trade for member parties.
- Following previous experiences, African countries have begun planning for the establishment of a free trade zone aimed at eliminating 90% of customs barriers.

Introduction

- On the other hand, Morocco has long established economic relations with the African continent by investing in certain countries in the form of FDI to capitalize on the comparative advantages and opportunities offered by emerging African economies.
- However, Morocco's integration into the AfCFTA may change the behavior of Moroccan FDI. This is why the issue of this communication is posed as follows:

Introduction

To what extent does Morocco's accession to the AfCFTA impact Moroccan Direct Investments in Africa?

Literature Review and Theoretical Framework

- The reduction of inter-regional tariff barriers affects foreign trade between the source country and partner economies. Additionally, the type of motivation of multinational enterprises (MNEs) may explain the impact of tariff reduction (trade cost) on their Foreign Direct Investment (FDI) (Barrell and Te Velde, 2002). In this regard, it is necessary to distinguish between vertical and horizontal FDI on one hand, and between intra-regional and extra-regional FDI on the other hand.
- In the present literature, we focus on inter-regional FDI, whether they are horizontal or vertical. However, studies predicting the movement of FDI a priori based on accession to a free trade zone are scarce. The majority of the literature has analyzed the effect of accession to the free trade zone and attempted to explain FDI movements post hoc.

Literature Review and Theoretical Framework

Membership in a Free Trade Zone and Horizontal FDI:

- Integration into a free trade zone obviously implies a reduction in tariffs on goods traded between member countries. This reduction in tariff barriers constitutes a decrease in consumer prices, which will increase demand and hence increase external trade in the form of exports and imports.
- Therefore, a decrease in tariff barriers increases exports. The question that arises at this point is whether the increase in exports after lowering tariff barriers is accompanied by an increase or a decrease in horizontal FDI.

Membership in a Free Trade Zone and Horizontal FDI:

1. Substitution between Horizontal FDI and Exports:

- When tariff barriers are high, multinational firms (MNEs) opt to duplicate the production process in the territories of foreign markets to maintain their competitiveness compared to domestic competition, thereby avoiding trade costs (tariffs). This strategy is known as "tariff-jumping."
- As a result, the reduction in tariffs after participating in the free trade zone implies that the firm chooses exports instead of horizontal FDI because products can enter markets without incurring additional costs under the assumption that the decrease in tariff costs is significant. Additionally, there is a competitiveness gain resulting from the concentration of production in the same workshop as the parent company.

Membership in a Free Trade Zone and Horizontal FDI:

1. Substitution between Horizontal FDI and Exports:

- In this perspective, several authors (Mundell 1957, Graham 1996, Bajoumi and LpWorth 1997, Bakamura and Oyama 1998) consider horizontal FDI and exports as alternative means for conquering foreign markets. These "tariff-jumping" type FDIs are encouraged by high tariff barriers.
- As such, the reduction in tariffs within the same regional integration can lead to a decrease in horizontal FDI because it is less costly to export to countries within the same region and satisfy local demand without building subsidiaries and consequently incurring additional installation and management costs. Typically, these horizontal FDIs are identified as "market-seeking" type.

Membership in a Free Trade Zone and Horizontal FDI:

2. Complementarity between Horizontal FDI and Exports:

- On the other hand, Blomstrom and Kokko (1997) argue that a free trade agreement can increase horizontal FDI along with exports because accession to a free trade zone allows access to a larger market.
- Irarrazabal et al. (2009) indicate that there is an intra-firm exchange between the parent company and its subsidiaries. Therefore, a decrease in trade costs (customs tariffs on intermediate goods) through a free trade agreement increases exports of components necessary for production on-site in horizontal subsidiaries. Furthermore, final products made in the source economy will not be re-imported by the source economy as they will be primarily destined for the market where they are produced.

Membership in a Free Trade Zone and Vertical FDI:

Complementarity between Horizontal FDI and Exports:

- When it comes to vertical FDIs, they are motivated by the abundance of factors of production and an efficient platform. These FDIs are associated with the "cost and resource-seeking" type. Vertical FDIs aim to re-import to the source economy or export directly to another country located within the same value chain, the final product to end consumers or intermediate goods to be reintegrated into the production process at vertical subsidiaries in another country.
- As a result, these FDIs are discouraged by customs tariffs between member countries, which explains the complementary relationship between vertical FDIs and exports of intermediate goods (Helpmann 1984, Helpmann and Krugman 1987).

Membership in a Free Trade Zone and Vertical FDI:

Complementarity between Horizontal FDI and Exports:

- Just as there is a complementary relationship between horizontal FDIs and exports of components and semi-finished products, the reduction of tariff barriers encourages MNEs to export components to the host economy to carry out vertical FDIs within the framework of the DIPP (Domestic International Production Platform).
- The difference between the two types of investment is that horizontal FDIs tend to complete the production process in the host country to sell the final product in the same country, whereas vertical FDIs, even though they continue the production process until the finalization of the product, aim to sell the final product in the source country or another country with a large market size.

Empirical design and research methodoloy

<u>The empirical strategy: "Knowledge-capital" model »</u>

- Drawing from the "Knowledge-capital" model proposed by Markusen and Venables (1998), our empirical methodology integrates various determinants of FDI, including market size of both countries, factor endowment differences, and FDI barriers, alongside direct trade costs (tariff barriers). This approach allows us to discern the nature and motivation of FDI, whether horizontal or vertical, especially considering the mixed nature of Moroccan FDI data towards Africa.
- Inspired by the models suggested by the "knowledge-capital model," we propose a research strategy that organizes hypotheses as follows:

Empirical design and research methodoloy

Sources and Data Description:

Variable	**Measure**	**Source**
FDI	The flows of Moroccan FDI to African countries in terms of expenditures towards African countries in millions of Moroccan dirhams	Office des Changes (OC)
Tar_Ex_fin	The weighted average tariffs effectively applied to Moroccan exports of finished products by African countries	The World Integrated Trade Solution (WITS)
Tar_Ex_Inter	The weighted average tariffs effectively applied to Moroccan exports of intermediary products by African countries	
Tar_Imp_fin	The weighted average tariffs effectively applied to imports of finished products from African countries by Morocco	
Tar_Imp_Inter	The weighted average tariffs effectively applied to imports of intermediary products from African countries by Morocco	

Empirical design and research methodoloy

Sources and Data Description:

Variable	**Mesure**	**Source**
RCA	Revealed comparative advantage of Moroccan products compared to African countries	The World Integrated Trade Solution (WITS)
Dist	The geographical distance between Morocco and African countries in kilometers	Cartographic websites
Seize	The gross national income of African countries per capita in current international $PPP	World Bank
Logis	The Logistics Performance Index of African countries	

Empirical design and research methodoloy

Sample of countries and temporal data

Country	**Years**
Algeria, Benin, Burkina Faso, Cameroon, Congo, Cote d'Ivoire, Egypt, Gabon, Ghana, Guinea, Kenya, Madagascar, Mali, Mauritius, Mauritania, Niger, Nigeria, Central African Republic, Democratic Republic of Congo, Senegal, Tanzania, Tunisia.	2007 to 2020

A non-balanced cylindrical panel of 304 observations: 22 countries and 14 years.

Empirical design and research methodoloy

1.The effect of customs tariffs applied to Moroccan exports on outward FDI to African countries :

- The empirical model:

$$FDI_{it} = A.(Tar\_Ex\_fin)^{\beta_1}{}_{it}.(Tar\_Ex\_inter)^{\beta_2}{}_{it}$$

- After logarithmic transformation, we obtain:

$$Log(FDI)_{it} = \alpha_i + \beta_1 Log(Tar\_Ex\_fin+1)_{it} + \beta_2 Log(Tar\_Ex\_inter+1)_{it} + \varepsilon_{it}$$

FDI_{it} : Outward Moroccan FDI expenditures towards African countries in millions of dirhams in country i in year t;

$Tar\_Ex\_fin_{it}$: The weighted average tariff effectively applied by African countries to Moroccan finished products in country i in year t;

$Tar\_Ex\_inter_{it}$: The weighted average tariff effectively applied by African countries to Moroccan intermediate goods in country i in year t ;

Empirical Results

1. The effect of customs tariffs applied to Moroccan exports on outward FDI to African countries :

Step 1:Testing for unit root						
Variable :	Common Unit Root			Individual Unit Root		
	LLC	Breitung	Hadri :	IPS	ADF	PP
Tar_Ex_fin	I(0)**	I(2)***	I(0)***	I(0)**	I(0)**	I(0)***
Tar_Ex_inter	I(0)***	I(01)***	I(2)*	I(0)***	I(0)***	I(0)***
Step 2 :Testing for panel cointegration						
Johansen	Trace			Max-eigen		
	COI≤1**			COI≤1*		
Step 3 : Determining the impact of customs tariffs on FDI.						
Panel Method :	PDOLS			FMOLS		
Tar_Ex_fin	1.69821 (0.0028)***			3.994336 (0.0000)***		
Tar_Ex_inter	-3.846501 (0.0000)***			-1.549516 (0.1958)		

Empirical design and research methodoloy

2.The effect of customs tariffs applied to Moroccan imports on outward FDI to African countries :

- The empirical model:

$$FDI_{it} = A.(Tar\_\mathrm{Im}p\_fin)^{\beta_1}{}_{it}.(Tar\_\mathrm{Im}p\_\mathrm{int}er)^{\beta_2}{}_{it}$$

- After logarithmic transformation, we obtain:

$$Log(FDI)_{it} = \alpha_i + \beta_1 Log(Tar\_\mathrm{Im}p\_fin+1)_{it} + \beta_2 Log(Tar\_\mathrm{Im}p\_\mathrm{int}er+1)_{it} + \varepsilon_{it}$$

FDI_{it} : Outward Moroccan FDI expenditures towards African countries in millions of dirhams in country i in year t

$Tar\_\mathrm{Im}p\_fin_{it}$: The weighted average tariff effectively applied by Morocco to imports of finished products from African countries for country i in year t.

$Tar\_\mathrm{Im}p\_\mathrm{int}er_{it}$: The weighted average tariff effectively applied by Morocco to imports of intermediate goods from African countries for country i in year t;

Empirical Results

2.The effect of customs tariffs applied to Moroccan imports on outward FDI to African countries :

Step 1:Testing for unit root						
Variable :	Common Unit Root			Individual Unit Root		
	LLC	Breitung	Hadri :	IPS	ADF	PP
Tar_Imp_fin	I(1)***	-	I(0)***	I(1)***	I(0)*	I(0)***
Tar_Imp_inter	I(0)***	I(1)***	I(0)***	I(1)***	I(1)***	I(1)***
Step 2 :Testing for panel cointegration						
Johansen	Trace			Max-eigen		
	COI≤1**			COI≤1*		
Step 3 : Determining the impact of customs tariffs on FDI.						
Panel Method:	PDOLS			FMOLS		
Tar_Imp_fin	0.181924 (0.8388)			0.194036 (0.5117)		
Tar_Imp_inter	0.856801 (0.3656)			0.307965 (0.2420)		

Empirical Results

3. Explanation of Moroccan FDI according to the gravity model :

The empirical model:

$$FDI_{it} = A.(Dist)^{\beta_1}{}_{it}.(Seize)^{\beta_2}{}_{it}.(RCA)^{\beta_3}{}_{it}.(\log is)^{\beta_4}{}_{it}$$

- After logarithmic transformation, we obtain:

$$Log(FDI)_{it} = \alpha_i + \beta_1 Log(Dist)_{it} + \beta_2 Log(Seize)_{it} + \beta_3 Log(RCA)_{it} + \beta_4 Log(Logis)_{it} + \varepsilon_{it}$$

FDI_{it} : Outward Moroccan FDI expenditures towards African countries in millions of dirhams in country i in year t;

$Dist_{it}$: The distance between Morocco and country i in year t;

$Seize_{it}$: The market size measured by GNI in international dollars per capita in country i in year t ;

RCA_{it} : The revealed comparative advantage of Moroccan products compared to country i in year t ;

$Logis_{it}$: The Logistics Performance Index of country i in year t ;

Empirical Results

3. Explanation of Moroccan FDI according to the gravity model :

Step 1:Testing for unit root						
Variable :	Common Unit Root			Individual Unit Root		
	LLC	Breitung	Hadri :	IPS	ADF	PP
Dist	I(0)***	I(0)***	I(0)***	I(0)***	I(0)***	I(0)***
Seize	I(1)***	I(0)***	I(1)***	I(1)***	I(1)***	I(1)***
RCA	I(1)***	I(1)***	I(1)**	I(1)***	I(1)***	I(1)*
Logis	I(0)***	I(0)***	I(0)***	I(0)***	I(0)***	I(0)***
Step 2 :Testing for panel cointegration						
Johansen	Trace			Max-eigen		
	COI≤1**			COI≤1*		
Step 3 : Determining the impact of customs tariffs on FDI						
Panel method :	PDOLS			FMOLS		
Dist	1.016391 (0.0917)*			0.221381 (0.4941)		
Seize	0.085989 (0.6168)			0.366983 (0.0135)**		
RCA	-0.441216 (0.5710)			0.371208 (0.5846)		
Logis	-0.441216 (0.5710)			-0.19316 (0.9242)		

Conclusion

- The African Continental Free Trade Area (AfCFTA) presents an opportunity for African countries to enhance their external trade and improve the well-being of their citizens. Morocco chooses to join this regional integration to leverage the benefits offered by the continent and to strengthen its position within the framework of South-South cooperation. The reaction of Moroccan outward FDI is one of the most frequently asked research questions when a country participates in a free trade zone.
- Therefore, we have studied the impact of Morocco's accession to the AfCFTA on the movement of Moroccan FDI in African countries using panel data from 22 African countries during the period 2007-2020. Additionally, we have employed the conceptual model of "Knowledge-capital" to determine the nature of FDI based on its reactions to effectively applied average tariffs and a gravity model to confirm the results obtained.
- Ultimately, we have concluded that Moroccan outward FDI to African countries consists of horizontal FDI seeking the African market size, with multinational enterprises adopting a "tariff-jumping" strategy to bypass high customs tariffs.

THANK YOU