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Economic Freedom in North African Countries

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ABSTRACT

This paper surveys the determinants of economic freedom "under the five sub-indices" in the North African region from 1995 to 2020. Graphically, this document shows that North African countries have a different degree of economic freedom. In 2020, the Moroccan and Tunisian economic freedom index is above average, the Algerian economic freedom index is not acceptable and Egypt recorded an equivalent index of 5. Empirically, the results of the Generalized Method of Moments econometric technique show that commercial openness is the most explanatory factor of economic freedom in the North African region and regulation does not affect economic freedom in the North African region.

1. Introduction

Africa contains the North African region, the sub-Saharan region, the East African region, Central Africa, West Africa, etc. Each region is different in terms of economic growth rates, education, life expectancy, quality of institutions, human capital, economic freedom, the nature of capital flow, geological climate, etc. Economic freedom is an economic and political concept born with the classical current. The link is explained through encouragement investment, attractiveness of foreign investors through the respect of private property rights, market freedom, etc.

Economic freedom is defined as the fundamental right of every man to control his own work and property. In an economically free society, individuals are free to work, produce, consume and invest as they see fit.The link between economic freedom and countries' economic performance can be explained by investment. According to Joshua and Robert (2014), private property protection, quality of the monetary system, degree of freedom of international trade and regulation are the main components of the "Economic Freedom" index. Economic freedom contributes to the economic growth and development of nations through increased domestic investment, attractiveness of foreign investors, etc.

The study of the economic freedom in North African countries requires the following problems: What are the factors that explain the economic freedom in North African countries?

In light of our problem we make the following assumptions. The economic freedom in North African countries does not depend on regulation. The economic freedom of North African countries depends on open trade.

The first section presents an overview of the theoretical literature. In the second section we analyse the evolution of the sub-indices of economic freedom. In the third section we study the evolution of economic freedom. The fourth section is devoted to empirical study.

2. Literature review

A large literature has found positive associations between economic freedom and income, growth, and a variety of other desirable outcomes. According to Dabee and Greenaway (2001), Foreign investors were attracted by generous incentives such as tax exemptions and imports of raw materials, free repatriation of capital, the availability of a docile and cheap labour force and a relatively stable political and social climate.

Justesen (2008) analysed the relationship between economic freedom and GDP, investment and democracy in

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a set of panel data from 1970 to 1990. It showed the positive relationship between GDP and investment. However, the inverse relationship between democracy and economic freedom is justified. According to Justesen (2008), we recommend that countries with political instability stabilize the political space to improve the business climate. Improving the business climate is a source of growth and development of nations.

Abdelkafi et Derbel (2009) have shown that economic freedom in developing countries is not necessarily effective. However, the economic freedom index in developing countries is important. They recommended developing countries to improve the quality of political institutions to free the business climate

Christophe and al. (2015) examined the relationship between financial development, governance and economic growth. They showed the contribution of good governance to economic growth. The interaction between good governance and bank loans does not encourage economic growth.

Boudjelil and Aloui (2018) examined the link between good governance, development of regulatory institutions and economic freedom. They have shown that good governance, development of regulatory institutions and economic freedom are positively corroded between them. They explained the positive effect of good governance on economic freedom through the independence of the judiciary, good compliance with banking regulations and strong transparency of public procurement.

According to the Fraser Institute (2018), the size of government depends on the value of government spending and the maximum marginal tax rate, the Means, the size of government deteriorates in the event of a government deficit and high marginal tax rate. Again, respect for private property rights refers to the core of the economic freedom index. That is to say, respect for the private property rights of investors encourages the business climate, transactions with outsiders.

James and al. (2019) showed the inverse relationship between controls on exchange rates, customs restrections, limits on capital movements, hidden administrative restrictions and economic freedom. that is, more customs and administrative restrections, less economic freedom.

Theoretically, economic freedom leads to economic growth and the development of nations. Economic freedom ensures economic growth by reducing investment costs as a result of the reduction in administrative burdens, by encouraging external trade through the reduction of customs taxes, improving the confidence of foreign investors following the guarantee of private property rights of foreign investors.

The two components of the currency index of economic freedom are the convertibility of the currency and the stability of the monetary system. Inflation generally reduces economic freedom. It makes the long-term economic calculation difficult. Still, the total convertibility of the currency facilitates trade with the outside.

Robert et al. (2020), examined the relationship between economic freedom in emerging countries and political freedom, democracy and income inequality. They justified the positive relationship between economic freedom and political freedom and democracy. However, the inequality of GDP between agents is negatively related to economic freedom. They urged emerging countries to avoid GDP inequality among agents to improve the index of economic freedom.

3. Sub-indices of economic freedom

As we have highly explained the size of government, protection of private property, quality of the monetary system, degree of freedom of international trade and regulation are the main components of the "economic freedom" index, in the section we will study the state of each sub-index. In a first step we define each index of economic freedom and in a second step we analyze the evolution of each index.

3.1. Définition

- Economic freedom is an economic and political concept born with the classical current. Economic freedom contains the size of government, protection of private property, quality of monetary system, international trade and regulation.
- Size of government: This indicator includes judicial independence, impartiality of the courts, protection of property rights, military interference in the political process, the integrity of the legal system, compliance with contracts, regulatory costs of selling real property, police reliability, and crime costs for business.
- International trade under the various sub-indices (controls on exchange rates, customs duties, limits on capital movements and quotas, hidden administrative restrictions) is a component of the Economic Freedom Index. Indeed, more freedom of trade across national borders more economic freedom.
- Right of private property means the protection of persons and their material, intangible property. Respect for private property rights refers to the core of the economic freedom index.
- Currency conversions and the stability of the monetary system are the two components of the monetary freedom index. That is, more convertibility of the national currency and a more stable monetary system, more economic freedom. The total convertibility of the currency facilitates trade.
- Freedom trade credit, services markets and protection of individuals and their material, intangible goods are

the indicators of the regulatory index. Each index contains sub-indices. Indeed, the strict regulation credit market and goods services, absence voluntary change of workers can reduce economic freedom.

3.2. Analyse

3.2.1 Freedom of international trade

Freedom of international trade under different sub-indices (exchange rate controls, customs duties, limit on capital movement and quota, hidden administrative restriction) is a component of the economic freedom index. Indeed, more freedom of trade across national borders more economic freedom. The diagram below shows the degree of freedom of international trade in North African countries from 1995 to 2020.

According to the above diagram, Algeria is the closest country with the rest of the world. The Algerian International Trade Freedom Index has three phases:

- From 1995 to 2000: In this phase the index of freedom of international trade increased from 2 to 5.5. This improvement is explained by the positive effects of the SAP. In other words, the reduction of regulatory tariffs on international trade and the regulation of capital and people transfer channels. In this phase it is said the index of the freedom of international trade Algerian is weak compared to the other countries of the region.
- From 2000 to 2010: In this phase the index of international trade freedom is constant. This stability is explained by the commitment of Algeria whose application of the rules proposed by the WB.
- From 2010 to 2020: The International Trade Freedom Index dropped from 5.8 to 2.8. This can be explained by the lack of control of the exchange rate on the black market and the increase in regulatory tariffs on short-term transactions.

In 2020, Tunisia recorded an international trade freedom index of 6.8. This index has seen a remarkable improvement since 1995. In 2020 the Moroccan International Trade Freedom Index is the highest in the North African region. This index increased from 5 in 1995 to 7 in 2020.This situation can be explained by the intention of Morocco and Tunis to integrate more into international trade. From 1995 to 2020 the Egyptian International Trade Freedom Index decreased slightly from 6 to 5.8 with some volatility.

3.2.2 Size of government

As we have explained highly the index economic freedom contains size of government or the size state. In subtitle we will study the size of the government of each economy of North Africa. According to Fraser Institute (2020), the size of government contains the value of government spending, transfer and subsidy, public investment, and the top marginal tax rate. The diagram above traces the evolution of the size of the government of North African countries from 1995 to 2020.

From 1995 to 2020 the size index of the Algerian government experienced a downward trend of 5 to 3.5. This decrease can be explained by the domination of state enterprises over the main activities.

The size of the Egyptian government improved from 1995 to 2000 and a downward trend from 6.1 in 2010 to 4.9 in 2020. This decrease is explained by the increase in public spending after the events of 2011. From 1995 to 20120 the size index of the Algerian government experienced a downward trend of 5 to 3.5. This decrease can be explained by the domination of state enterprises over the main activities.The size of the Egyptian government improved from 1995 to 2000 and a downward trend from 6.1 in 2010 to 4.9 in 2020. This decrease is explained by the increase in public spending after the events of 2011. The size index of the Moroccan government is stable from 6 in 1995 to 6.2 in 2020 with some improvement in 2005. This is explained by the stability of the marginal tax rate as a result of the stability of the top marginal income tax rate and the marginal income tax and payroll tax rate.

3.2.3 Private property rights

The third sub-index of economic freedom is private property. Economic freedom means the protection of persons and their tangible, intangible property acquired in a civil space. Respect for private property rights refers to the core of the index of economic freedom. The diagram below shows the evolution of the private property index of North African countries from 1995 to 2020.

According to the above diagram, the countries of North Africa are characterized by a volatile private property index from 1995 to 2020 with the exception of Tunisia. This is explained by the judicial dependence of countries. In 2020 the Moroccan private property rights index is 5.6. It is the highest index in the North African region. Egypt has a property rights index of 4 in 2020. It designates the lowest index in the North African region. This can be explained by the increased regulatory costs of selling and the costs of crime for business. According to the private property rights index, it is concluded that North African countries do not respect the private property rights of citizens.

3.2.4 Currency

The convertibility of the currency and the stability of the monetary system are the two components of the monetary index of economic freedom. That is, more convertibility of the national currency and a more stable monetary system, more economic freedom. Indeed, the total convertibility of the currency facilitates exchanges. In particular, inflation, which reduces economic freedom, makes the long-term economic calculation difficult. The chart below shows the North African Currency Index from 2000 to 2020.

According to the above diagram it is concluded that the index of the currency of the countries of North Africa is stable from 2000 to 2017 with the exception of Egypt. This situation is explained by the control of the money supply, and a great freedom to own bank accounts in foreign currencies. In Egypt, the currency index decreased from 9.1 in 2000 to 6.01 in 2017. From an economic point of view, this decline is explained by the increase in inflation since 2010 and the instability of the exchange rate.

3.2.5 Regulation

Freedom of trade in credit, labor and goods and services markets and business regulation are indicators of the regulatory index. Each index contains sub-indices. Indeed, strict regulation on the credit and goods and services market, the lack of voluntary change of workers can reduce economic freedom. The diagram below shows the evolution of the regulatory index for North African countries from 2000 to 2017.

According to the table above, the regulatory index for North African countries in 2020 differs from country to country. From 2012 Morocco is the most regulated countries. Egypt comes last after Algeria and Tunisia. The Moroccan regulatory index improved from 5 in 1995 to 7.2 in 2020. This increase is explained by the mere regulation of the granting of credits. That is, the adaptation of a program which facilitates and encourages the approval of loans private sector and proper control interest rate of the central bank. Egypt recorded a regulatory index of 4.8 in 2020. This situation can be explained by the poor regulation credit and labor markets, strict regulation of the Egyptian and Algerian business climate and the commitment to administrative requirements.

4. Economic freedom

According to Mathieu (2016), index of economic freedom integrates the regulatory index, the currency index, the private property index, the government size index and the international trade freedom index. The table below shows the evolution of the North African Economic Freedom Index from 1995 to 2020.

According to the above diagram, Morocco is the most liberal country in 2020. Indeed, the Moroccan economic freedom index increased from 5.8 in 1995 to 6.9 in 2020. From the economic point of view the improvement of the business climate is explained by the increase of the size of government following stability marginal rate and the intention. And the commitment of the Moroccan governor in the freedom of international trade by the reducing tariffs and removing regulatory barriers related to international trade.

Algeria recorded an economic freedom index of 4.8 in 2020. This index denotes the lowest index between 1995 and 2020 compared to other North African countries. The index of economic freedom increased from 3.8 in 1995 to 5.5 in 2005. This improvement can be explained by the increase in the index of freedom of international trade, thanks to the effects of the SAP applied by Algeria in 1994. From 2005 to 2020 the index of economic freedom decreased slightly from 5.5 to 4.8. This trend is explained by the deterioration of the size of the government due to the heavy intervention of the state in economic activity and the increase in public spending.

From 1995 to 2020 the evolution of the Egyptian Economic Freedom Index went through two phases:

-From 1995 to 2010 the index economic freedom is almost stable. The index of economic freedom increased slightly from 5.9 to 6.1. This situation is explained by the stability of all the sub-indices except the currency index, which is experiencing a remarkable decrease.

-From 2010 to 2020 the index of economic freedom showed a downward trend of 6.1 to 5.01. This decrease is explained by the small size of international trade due to exchange rate volatility, the deterioration of the size of government following the increase in public spending and public investment after the Egyptian revolution in 2011.

Despite socio-political events in 2011, the depreciation of the Tunisian Dinar against the euro, etc. the Tunisian Economic Freedom Index increased slightly from 5.7 in 1995 to 6.2 in 2020. This is explained by the increase in the index of freedom of international trade following the removal of regulatory barriers linked to exports and imports.

5. Empirical study

5.1 Data

Our study analyzes data from the four North African countries over the period 2000 to 2020. We chose only the country area to have a continuous and complete database to avoid the problem of missing values. The database was obtained from the Fraser Institute (2020).

5.2 Empirical methodology

5.2.1 Model

To identify the determinants of institutional development in the region North Africa, we estimate the riding below. Our model is inspired by the work of Diagla et Vallée (2015).

$$EF_{it} = \alpha_0 + \alpha_1 IT + \alpha_2 SG_{it} + \alpha_3 PP_{it} + \alpha_4 C_{it} + \alpha_5 R_{it} + \varepsilon_{it}$$

With: $\varepsilon_{it} = \gamma_i + \mu_t + \theta_{it}$ $t = 2000 \ldots\ldots\ldots 2017$ and $i = 1,2,3,4$

5.2.2 Panel data tests

In this part, we present and explain the results of the unit root, cointegration, serial autocorrelation, individual heteroscedasticity tests as well as the Durbin-Watson test.

5.2.2.1 Unit root test

We begin by presenting the results of the Hadri LM (2000) test of the level and first difference variables. The null hypothesis of Hadri LM (2000) assumes that all series are stationary. The alternative assumption is that some series contain unit roots. The hypothesis of the Hadri LM test is: H0: T-statistic < 0 versus H1: T-statistic > 0. The results of the Hadri LM (2000) tests are presented in the table below.

Based on the results of the Hadri LM test we found that not all variables are stationary at level with the exception of the "private ownership" indicator. When we go to the first difference we notice that all the variables become stationary. So we reject H0. Based on the results of the Hadri LM test, we observe that all series are stationary at first difference. Therefore, we state that all variables are integrated in order 1. For this, we test the existence of a long-term cointegration relationship using the Kao (1999) test.

5.2.2.2 Cointegration test

The treatment of cointegration makes it possible to test the presence of a stable long-term relationship between two non-stationary series. Indeed, the treatment of cointegration admits to determine the link between the two series, by identifying the vector of cointegration of the two series and by removing its impact if necessary.The null hypothesis of Kao (1999) assumes the absence of cointegration between panels. The alternative hypothesis assumes that all panels are co-integrated. The test hypothesis are formulated as: No cointegration between panels versus all panels are co-integrated. Kao (1999) test are presented in the table below.

Indeed, according to this table, the null hypothesis of the absence of cointegration between the panels is rejected. That is, each variable has at least one long-term cointegration relationship.

5.2.2.3 Residue validation

In order to validate the results of the cointegration test, we conducted a series of residue tests. The results are shown in the table below.

According to the results of the Breusch-Pagan LM test the null hypothesis of independence of errors is accepted. That is, there is no problem of serial autocorrelation of errors. According to the Wald test of individual heteroscedasticity we reject the homoscedasticity hypothesis and assume the heteroscedasticity hypothesis for all models. So there is a heteroscedasticity problem. According to the table above, the null hypothesis of autocorrelation between residues for the majority of the models is rejected. That is to say, there is a problem of autocorrelation between residues.

5.3 Results

After processing the data on STATA 15 the following results are obtained. The table below shows the result of the Generalized Method of Moments estimate.

According to the results below, all variables have positive and significant effect on the economic freedom, with exception regulatory variable, which has non-significant effect. Commercial openness and private property rights are the most explanatory factors of economic freedom in the North African region. According to Sargan test results, H0 is rejected. That is, the estimation instruments are specific.

The size of the government of North African countries has positive effect of 0.038 and statistically significant at the 1% threshold. Thus an increase in the size of government by 1% generates to the increase of the indicator «development of institutions» of 0.038. This result is explained by the increase in public spending and the decrease in the maximum marginal tax rate in the North African region.

The "private property" indicator favorably affects the development of institutions in North African countries. Indeed, the "private property" indicator has positive effect of 0.122 and statistically significant at the 5% threshold. From an economic point of view, our result is explained by the protection of people and their material, intangible assets.

The sign associated with the variable "regulation" is positive but not significant. The absence of the assignment may explain by adopting strict regulations on the credit market and goods and services and the labor market. So, our second hypothesis are justified.

International trade in North African countries has positive effect threshold. Therefore, increase the "international trade" indicator generates an improvement in the "institutional development" indicator of 0.172. Then, the first hypothesis is justified. We explain our result by reducing tariffs in North African countries, reducing controls related to capital movements and quotas, and the lack of administrative restrictions.

The sign associated with the variable "monetary system" has positive and statistically significant effect at the 5% threshold. Thus, an improvement of the monetary system of 1% contributes to the increase of the indicator «institutional development» of the countries of North Africa of 0.003. On the economic front, the positive relationship between the monetary system and institutional development is explained by the stability of the monetary system in most North African countries.

6. Conclusion and recommendations

In this paper, we have based on a graphical analysis of the state of the economic freedom index of North African countries from 1995 to 2020. North African countries recorded different indices. This difference is explained

by the adoption of a different economic planning (commercial openness and integration into the world economy) and social (development of human capital) and political (democracy, autocracy). The latter makes the index of economic freedom distinct between the countries of North Africa. Morocco is currently the most economically liberal countries. Tunisia and Egypt record an acceptable index of economic freedom. Algeria does not fan the desired level. Econometrically, commercial openness and private property are most explanatory factors of economic freedom in the North African region.

According to the Economic Freedom Index and their sub-indices it is important to Algeria integrate into international trade either through the abolition customs duties and elimination limits on movements and quotas, increase the size of government by weakening the domination of state enterprises over the main activities, respect investors private property rights. It is important to Egypt improve the size of government, respect investors' private property rights. It is important to Tunisia adopt strict regulations in terms of freedom of trade in the credit, labor and goods and services markets and business regulation, further improve the size of government. It is important to Morocco count the improvement in the size of government, respect more private property rights. In this context, it is important for the North African region to improve the regulatory space through free trade in credit, labor and goods and services markets and to protect it from people and their intangible material goods.

References

Abdelkafi R. et Derbel H. (2009), **« Libéralisme Économique et Croissance: Le Cas de Six Pays Méditerranéens », ResearchGate, Junuary, 2009.**

Boudjelil A. et Aloui F. (2018), « l'impact des institutions sur le développement financier Algérie », Mémoire en ligne, Faculté des sciences économiques, communications et des sciences de gestion, Université Abderrahmane Mira BJAIA, 2018.

Christophe K.T., Luc N.N. et Edward T.E. (2015), « développement financier et croissance économique dans les pays africains dans la zone Franc : le rôle de la gouvernance », revue économique, European Scientific Journal, V.11, February 2015.

Dialga I., & Vallée T. (2018), "The index of economic freedom: Methodological matters". Studies in Economics and Finance, 2018.

Dabee R. et David G. (2001), « La liberté économique : une rampe de lancement pour Maurice » The Mauritian Economy- A Reader.

Fred M. et Boris N. (2019), "Economic Freedom of the World", Fraser Institute, Annual Report 2019.

Joshua H. and Robert L., (2014), "Economic Freedom of the World: An Accounting of the Literature", Contemporary Economic Policy, 32, 1: 1–19.

Justesen M.K. (2008), "The effect of economic freedom on growth revisited: New evidence on causality from a panel of countries 1970–1999", European Journal of Political Economy, 24(3), 642-660.

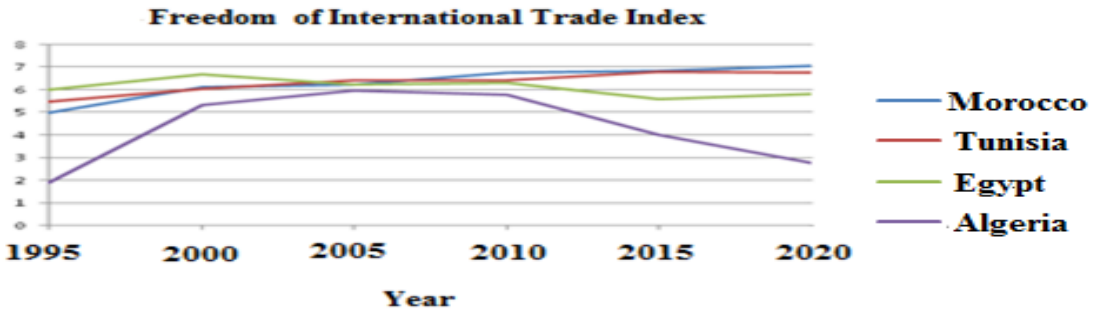
Hadri, K. (2000), "Testing for stationarity in heterogeneous panel data", The Econometrics Journal, 3(2), 148-161.

Mathieu B. (2016), « Entrepreneuriat et liberté économique Une analyse des études empiriques », Report Institut économique de Montréal, November 2016.

Robert L., Rayan M. et Benjamin P. (2020), « The Determinants of Economic Freedom : A Survey », Contemporary Economic Policy, 11/3/2020, V. 38, Issue 4.

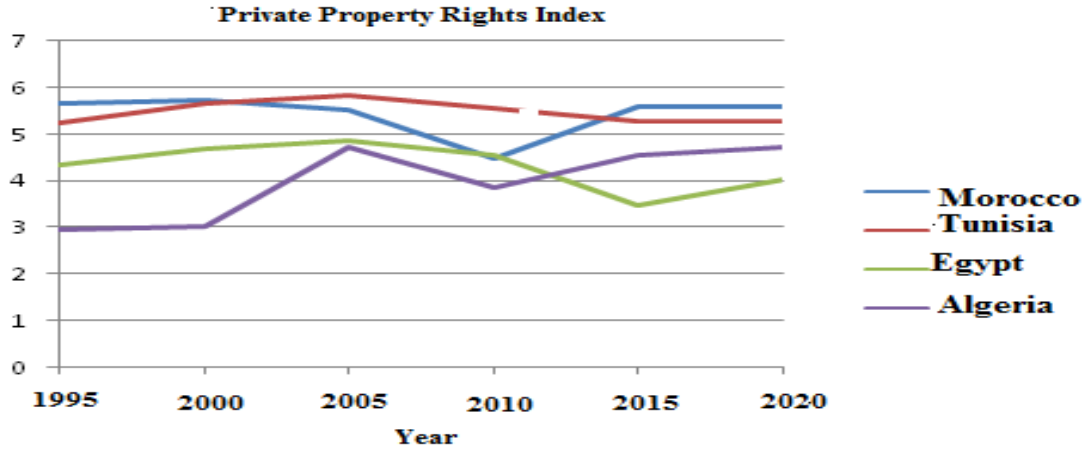
Appendix

Figure 1: Freedom of International Trade Index for North African Countries from 1995 to 2020



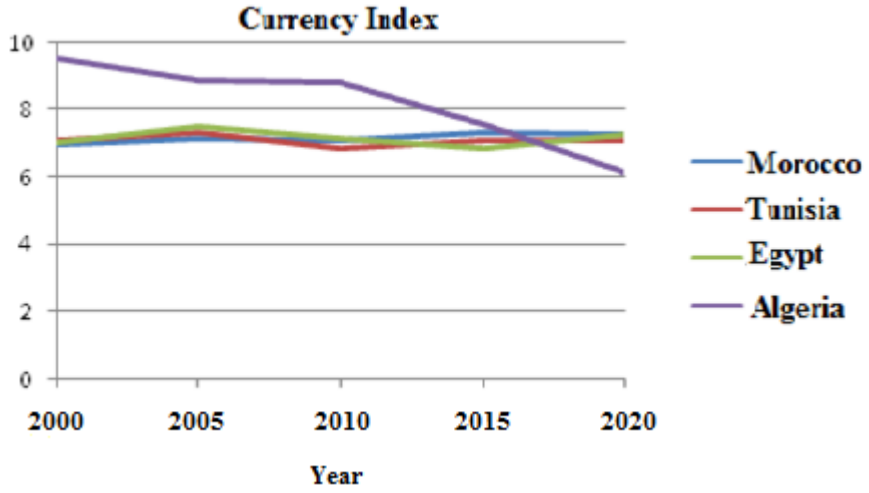
Source: Built by the author (2020) according to Fraser Institute (2020)

Figure 2: Government size index for North African countries from 1995 to 2020



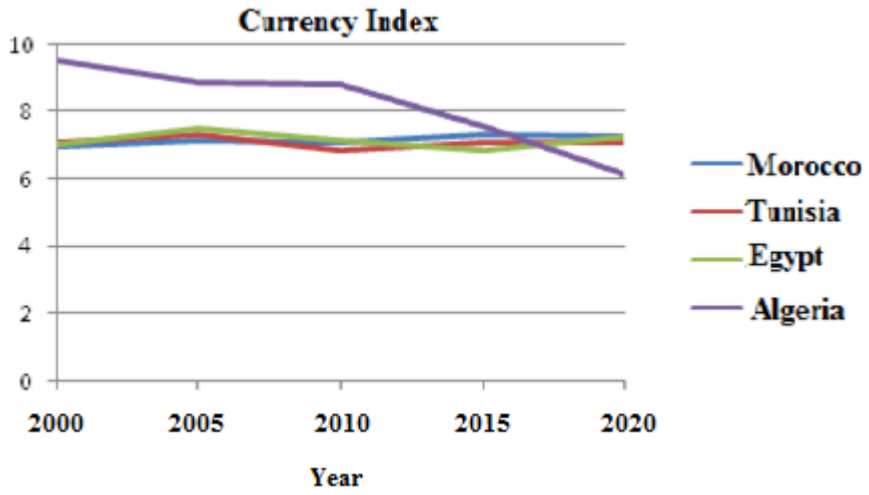
Source: Built by the author (2020) according to Fraser Institute (2020)

Figure 3: Private Property Rights Index for North African countries from 1995 to 2020



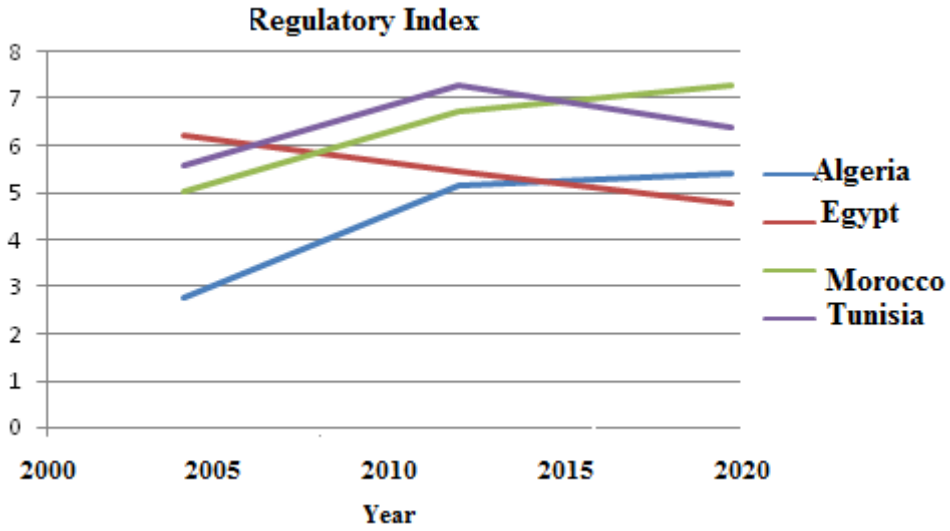
Source: Built by the author (2020) according to Fraser Institute (2020)

Figure 4: Currency Index for North African countries from 2000 to 2020



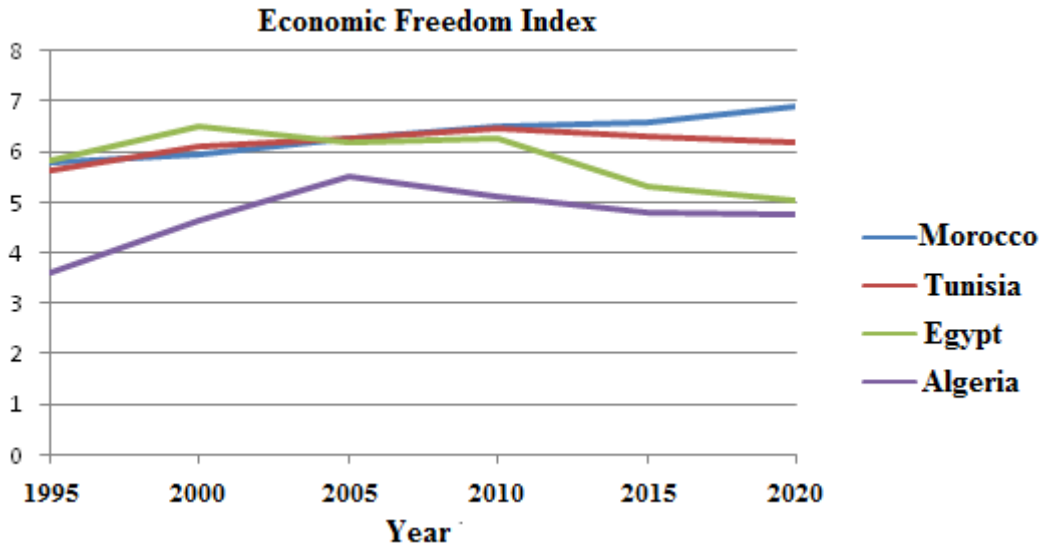
Source: Built by the author (2020) according to Fraser Institute (2018)

Figure 5: Regulatory Index for North African countries from 1995 to 2017



Source: Built by the author (2020) according to Fraser Institute (2020)

Figure 6: Economic freedom index for North African countries from 1995 to 2020



Source: Built by the author (2020) according to Fraser Institute (2020)

Table 1: Hadri LM Test

Series	IT	SG	PP	C	R	EF
Level						
T-Statistical Hadri LM	2.445 (0.006)	7.009 (0.000)	-14.750 (0.307)	17.161 (0.000)	1.905 (0.071)	2.904 (0.000)
First Difference						
T-Statistical Hadri LM	-3.914 (0.046)	-0.411 (0.059)	-1.959 (0.039))	-2.883 (0.000)	-0.694 (0.047)	-1.614 (0.011)

Values in parentheses are probabilities

Source: Built by the author using STATA 15

Table 2: Kao Test

Test	T-Statistical	Probability
Kao		
Modified Dickey-Fuller t	-4.958	(0.000)***
Dickey-Fuller t	-9.752	(0.000)***
Augmented Dickey-Fuller t	-1.950	(0.001)***
Unadjusted Modified Dickey-Fuller t	-15.592	(0.000)***
Unadjusted Dickey-Fuller t	-2.186	(0.000)***

*: significant at 10%; ** significant at 5%; *** significant at 1% and n.s: not significant

Source: Built by the author using STATA 15

Table 3 : validate the results

Test	Breusch-Pagan	Wald	Durbin-Watson
T-Statistical	20.262	72.45	22.37
Probability	0.104	0.000	0.000

Breusch-Pagan represents the serial autocorrelation test of errors, Wald represents the individual heteroscedasticity test and Durbin-Watson represents the autocorrelation test between residues.

Source: Built by the author using STATA 15

Table 4: Estimation table

Series	T-Statistical	Probability
Size of government	0,038	(0.004)***
Private property	0.122	(0.053)*
Regulation	0.191	(0.117) n.s
International trade	0.172	(0.005)***
Currency	0.003	(0.034)**
Test Sargan	1.062	(0.989)

*: significant at 10%; ** significant at 5%; *** significant at 1% and n.s: not significant

Source: Built by the author using STATA 15