The Macro-Economic Determinants of Export Competitiveness of the Tunisian Economy in a Context of Liberalization and Crisis

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ABSTRACT: *The research interested to explain the role of macro-economic determinants and to evaluate the effect of structural factors on the export competitiveness of the Tunisian economy, in a context of liberalization and crisis. In addition to the usual variables affecting export performance of countries such as exchange rates, tariffs and FDI, we try to examine the role of spending on research and development and technological effort in the evolution of Tunisian exports.*

KEYWORDS: *competitiveness, export, liberalization, crisis, price factors, structural factors*

1. INTRODUCTION:

The process of globalization is characterized mainly by the opening of borders and the growth of foreign trade leading to more intensive competition in general and between enterprises in particular. This reflects the race producers and countries to achieve and maintain a competitive advantage to sell more and achieve competitive growth while creating a new spirit of thinking about the debate on competition and competitiveness. The macro-economic competitiveness of a country is related to some indicators: growth, sustainable development and living standards of the people, the distribution of income and employment. While external competitiveness challenges the country's performance in exports. It appears that the overall competitiveness of a country comprises several aspects: social and external economic. In this sense, many authors argue that market share is a sign of competitiveness of producers, ie, competitiveness is the ability to have a high market share. Others see that competitiveness is related to productivity. However, a causal relationship between the two visions in the sense of performance in terms of productivity can lead to improved market share. Also, speaking of business productivity, the attractiveness of the area, widening the market share or improving living standards and well-being, the notion of competitiveness appears large and complex , whose analysis can be done in two vectors: either as factors (indicators of cost and price ...) or according to the results (indicators of market share or export performance, indicators of sustainable development ...) .

However, analysis of the determinants of market share as a reference competitiveness (outside) of the country is based on the specification of price factors and structural factors all pointing to the involvement of exchange rate fluctuations. The studies on industrial competitiveness in developing countries have generally focused on the opening of trade and industrial policies, generally raise the debate the relative merits of export strategies and policies of import substitution and neglect structural factors considered by OECD studies. These structural factors such as skills, technology effort, state institutions and other similar factors vary greatly from one country to another and may have a significant impact on industrial competitiveness. In this research we focus on these factors and their importance in enhancing industrial competitiveness of Tunisia. Thus, in a first section of this work, using economic theory we propose to define competitiveness as its macroeconomic dimension. We attach the following to identify the factors that determine and indicators involved in its measurement. We propose a macro econometric model based on the export function to explain the role of price and non-price factors in the country's competitiveness. This model will be applied to the case of the Tunisian economy.

2. LITERATURE REVIEW: BEYOND PRICE COMPETITIVENESS

The debate on notion of «competitiveness» sulfurs no theoretical consensus. Empirical studies have inspired the use of several variables related to trade mainly for evaluating international performance. Among these indicators, we can mention: the rate of import penetration rates of coverage and the relationship between the prices of exports and imports, or measures the profitability of the company or industry. While the most widely used indicator to assess the performance of the industry of a country on the world market is "the market share of exports '.In classical and neoclassical theory of the international economy, where the economic situation is made under the assumption of perfect competition and the immobility of factors of production, competition takes place in the cost or price.

Production cost consists of capital and labor is the source of competitive advantage in the classical theory of the international economy. Macroeconomic origins of a country's competitiveness can be analyzed by comparing the total unit costs that can take into account not only of unit labor costs, but also inputs and degree of integration of activities (C.Couharde and J.Mazier, 1999).

2.1 Price competitiveness:

Competitiveness due to several factors, the focus is usually and traditionally placed on the cost factor (Lafay, 1976 C.Couharde and J.Mazier 1999), adaptation to changing global demand (Lafay, 1976), traditional sources of expertise include natural resources, investments and macroeconomic work and more dynamic factors such as innovation, technology (Lafay and Herzog, 1991).For M.Dejardin (2006), "the concept of competitiveness in price applied to industrial sectors and regional and national entities led especially to the review and comparisons at these levels more or less aggregated, factor productivity, costs and their developments.

"It is the ability to produce goods and services at lower prices than competitors. However, price competitiveness is related to the cost of production, which DEPOND mainly labor costs and cost of intermediate consumption (raw materials, cost of energy, cost of telecommunications), but also the exchange rate. For some countries the sources of price competitiveness return to a competitive advantage in the workforce such as a very low level of wages (e.g. China has a competitive advantage based on its low labor remuneration) or an abundance of factors of production ... as outlined by the theory of factor endowments. Other factors that are not included in a direct way in the production function, affect the price competitiveness: infrastructure (for which the state has a great responsibility), the exchange rate as it is for the price of export sales for which any depreciation of the domestic currency will lead to improved competitiveness, we are talking about competitive devaluation or when the imported input prices affect the cost of production. The existence of economies of scale, that promotes positive externalities. In addition, any tax measure, commercial, financial or ... macro-economic plan adopted by the government will have a direct or indirect effect on the price competitiveness of the country.

2.1.1 The drive productivity competitiveness:

Paul Krugman (1994) states that we should not talk about competitiveness of a national economy, he sees that the concept of competitiveness is essentially linked to a productivity problem. Similarly, and beyond the thought of Paul Krugman confuses between the two terms, productivity is one of the measures of competitiveness. Thus, the first step is to choose the best combination of factors of production namely capital and labor to make a profit in the long term and to obtain a competitive advantage. Where productivity is a determinant of competitiveness is the cost competitiveness. Productivity is a measure of competitiveness easy to measure and compare across countries. But essentially, and economic theory, productivity is still considered a source or vector competitiveness. It reflects the best combination of production factors namely capital and labor. Thus, the optimization of production factors is to minimize production costs.

Labor productivity is an important industrial company in the manufacturing, direct labor costs represent on average by almost one-third of the cost (P. Guinchard, 1984). Thus, to detect the impact of the productivity benefits of an economy or a branch on price competitiveness, several studies have used the method of comparing productivity levels calculated for the entire industry and industry relating to a sample of countries and they analyzed their evolution over time (P. Guinchard, 1984).

2.2.2 Devaluation is it a source of competitiveness?

At the macro level the exchange rate is an overall indicator of international competitiveness (Thierry Latreille, Aristomène Varoudakis 1997)."The real effective exchange rate is used to summarize the competitive position relative to partner countries. This is usually the weighted a set of bilateral real exchange rate average. "(L.Achy, 2010).The exchange rate is an important determinant of price competitiveness; several empirical studies are interested in specifying the relationship between the exchange rate and external competitiveness (M.Agliatta, C.Baulant and V.Coudert, 1999)."The measure of price competitiveness can be approached in different ways, the index to which it is commonly referred to: the real effective exchange rate" (Femise Report, 2006-2007).Theoretically, the coefficient associated to the real exchange rate has a negative impact on the export. Several countries chose to devalue their currency to stimulate "artificially" their external competitiveness.

A higher exchange rate is unfavorable to competitiveness by raising the price of exports, but it lowers the price of imports. By against a weak exchange rate fosters competitiveness by reducing the price of exported products become more competitive than the products of competitors. The Marshall-Lerner condition must be verified in the sense that the sum of the price elasticity of exports and imports in absolute values is equal to 1 for a positive effect of devaluation on the trade balance. The traditional approach of the international economy also justifies the strategy of competitive devaluation why a country with low productivity or increasing wages excessively, can devalue its national currency by acting on the real exchange rate. This depreciation will have the effect of deteriorating terms of trade in the national economy. Domestic products become more competitive in terms of price compared to foreign products. There has been an improvement in the competitiveness of local businesses and restore the balance of external accounts. But in return, this policy led to a devaluation of the national income in terms of foreign goods and services, declining purchasing power and a loss of national officials.

2.2 New key competitiveness factors: Structural competitiveness

If the classical and neoclassical approach to international trade that goes back to Adam Smith, Ricardo and HOS theory gives priority to cost factors in determining the competitive advantage that promotes exchanges between countries while assuming the assumptions of analysis pure and perfect competition and the immobility of factors of production, and discarding the role of technology transfer, returns to scale and asymmetry of information ...; recent theories of international trade emphasizes the crucial role of non-cost factors as structural say in determining the competitiveness of countries as well as their rates of sustainable growth. Thus, the key to competitiveness does not only lie in a price advantage but also a smart specialization and adequate product differentiation (C.Bismut J.Oliveira and Martins, 1986).Considered as the ability of an economic entity to stand out from the competition, the structural competitiveness is linked to differentiation in the quality of goods and services innovation. It is determined by the allocation of resources of the entity to the growth and improvement of specific factors such as research and development and human capital. With the adaptation of assumptions not perfect market, the emergence of monopolies and oligopolies and the existence of the strategic environment, new theories of international trade on the theory of product life cycle (Vernon) , strategic trade theory, monopolistic competition and increasing returns to scale and network effects reported the effect of non-price factors in the debate competition and competitiveness.

"While cost factors were at the forefront in the past, today it is the macro-economic dynamics, technology, the system of government and ecology that command attention" (K.Ainginger, 2008).Beyond the traditional economic thinking of the perfect competition, the immobility of factors of production, the emergence of monopolies and oligopolies, the existence of economies of scale and the introduction of the taste of consumers in the production function changed the strategy of producers and government and disrupt the economy, which promotes the appearance of new factors of competitiveness with a more dynamic such as innovation, new information technologies, education and training skills (Lafay and Herzog, 1991).For M.Porter "national prosperity is created it is not inherited," it follows that the cross-factors and creating export opportunities are the factors responsible for improving the competitiveness of a nation international scale.

The model of "Diamond" designed by M. Porter postulates four crucial facets competitive strengths and weaknesses of countries and their main areas of activity namely the existence of resources (human, infrastructure), a commercial environment where 'we invest in innovation, local market demand and the presence of industry support. In the same way, and speaking of competitiveness at a regional or national scale, infrastructure, spatial organization of activities, the institutional context and the functioning of markets, both public and private mechanisms contributing to innovation and building human capital, governance and entrepreneurship are the factors responsible and promoting competitiveness. In this sense all economic actors are arrested in the process of competitiveness it is positive and negative externalities between all system components. In addition, the area is no longer neutral, spatial capital is a factor affecting competitiveness, this idea goes beyond the traditional pattern of the international economy in which the two main namely the firm and the region actors are absent. And some work from most often the industrial economy and spatial economics show the existence of territorial instrumental in the construction of the performance of firms. It appears that apart from human capital and physical capital account must be taken of the existence of spatial capital, based on the existence of Marshaling externalities as an engine of growth. However, we should not just say that only resident companies act on the country's competitiveness must be considered of national firms that produce relocated outside and the benefits they bring to the national economy.

2.3 Trade Policy and Competitiveness:

Such protectionist trade or liberalization policy has a direct or indirect effect on the country's competitiveness. Protectionist policies followed by several countries between World War II and 70 years and are intended to protect "infant industries" import substitution gave various effects. In order to protect their infant industries from foreign competition, some countries impose temporary tariffs or import quotas. However the effect of this protectionist policy on the competitiveness of protected industries it's differs, it is depending on the industry if it is or not capital intensive (Krugman, Obstfeld, 2009). For example, if this policy was effective in the case of India and Tunisia who protected their textile industry a long time and she gave a significant effect in terms of exports, it is not the case for Korean automobile industry. Although the effects of the policy of import substitution are questionable in the sense that the remedial objectives have not been achieved in many developing countries, it turned out that the problem of underdevelopment is related to other deeper than "only delay the manufacturer production" (Krugman and Obstfeld, 2009) reasons. An unskilled labor that lacks competence deficiencies in social organization and failures of institutions will be reported as factors responsible for the delay, but that can not be resolved through trade policy. Appropriate economic policies should be adopted. Since 1985, the trade liberalization policies have been adopted by many developing countries; this policy aims to reduce tariffs and removal of quotas giving more open to external competition economies.

Rapid growth of trade for developing countries has been noted as early as 1985 when the structure of trade is still dominated by agricultural and mining products at first, then by manufacturing products. The results are mixed across countries.

These consequences reinforce the idea of Paul Krugman developed in 1994, claiming that only the productivity improvement is a source of competitiveness, because it determines the real per capita income in the medium term and is the standard of living of a nation. Thus, the argument P. krugman represents a first step in the recent work of international trade emphasizing the non-price aspects in the debate on competitiveness.

2.4 Attractiveness, competitiveness and country risk issues and interactions

For J.Mucchielli (2003), "The competitiveness of a country is related to its attractiveness, its ability to attract activities on its soil."The attractively can be defined as the ability to attract new businesses and mobile factors of production namely capital, equipment, and qualifications of a territory (C. Rousseau and B. Mulkay, 2006).This term is often confused with that of competitiveness because both are related to economic performance. But despite that there is a difficulty in establishing the boundary between the two terms; the attractively is considered both an indicator and a factor in competitiveness. Thus, the country takes advantage of all the activities established in the province in terms of value added, employment and trade balance, whether local companies or foreign subsidiaries (Lafay, 1991).Some factors are causing strategies relocation of companies and guide their choice of location. In this context we can mention:

- The market potential: to have more opportunities, a company can establish itself in a country where the demand is higher due to the population size, income level or sensitivity of consumer demand,
- Differentiation of costs: firms seek to minimize production costs. They will be attracted to countries with wage levels and lower taxation,
- Agglomeration effects: the spatial concentration of activities can lead to positive externalities that reside in the exchange and transfer of information and knowledge and the creation of a reservoir of skilled labor and skilled
- Transport infrastructure and developed and sophisticated communication to facilitate the supply of inputs and products and the exchange of information,
- Progress in research and development.
  The development of higher education to provide the labor market with one hand graduate work qualified.

It is necessary to note that factors located above and which are assets of FDI attractiveness, are also determinants of a country's competitiveness factors, where the complementary relationship between attractiveness and competitiveness. The work investigated the effects of FDI on host countries, particularly developing countries lead to different results, and far from being generalized at different times, the nature of the investment, specialization and policies of host countries, they also occur in the form of FDI or subcontracting.

At the macro level, economists expect to lead to an overall positive effect of FDI on growth in developing countries in general. Positive externalities provided through the transfer of technology and learning and innovation systems that may be favorable for local businesses, where they can be considered a factor of structural competitiveness. However we can not say that the impact of FDI on foreign trade will be positive. Furthermore, the relationship between FDI and exports is controversial effects. "It is difficult to determine the

impact of FDI on the foreign trade of the country." (M.Chakroun, 2002).Incoming or outgoing FDI has an adverse effect on the trade balance in the case of the United States (and L.Fontagné M.Pajot, 1999).Thus, to be competitive and attractive to a country at the same time is not always check (JLMucchielli, 2002).Thus, some empirical studies tend to relativize the positive impact of FDI on developing countries, assuming to take stock of the main current controversies.

"The effects of FDI on host countries, particularly developing countries have varying results depending on the nature of the investment, depending on the specialization, according to the policies carried out by the host country and, ultimately, are far from generalizable" (C.Mainguy, 2004).The effects of FDI on the host country affect job growth, the export structure ... etc.

If FDI can promote employment and growth, their impact on local businesses is diverse. The presence of IDE enables technology transfer and learning effects from the introduction of new methods of production, better quality products, which can enhance the competitiveness of local businesses by pushing to modernize, but it can also cause the disappearance of some local businesses that are unable to resist a quick release and intense competition. However, we must not overlook the risk that the country remains dependent on ability to protect these companies. In this regard, if local businesses are not very stable, we can relativize the importance of positive effects traditionally granted to IDE which can often be very volatile especially when it is a form of outsourcing. In the sense that the effects of FDI on exports of the host country shall defer the explanation through examples is more sensible. If FDI has been at the heart of the success of some Asian countries, such as China for example, other countries may have not the same luck, (Mucchielli, 2002). Specialization of activities FDI plays a crucial role here. Competition that may occur with other producers and exporters of the same product puts the expected positive effect on the implementation of foreign investment and limit export growth led by FDI. The difficulty stems from several factors that determine FDI that affect their profitability. In addition to traditional factors that affect the attraction of FDI, there in recent empirical work, a renewal or revival of "country risk" concept. This concept finds its place in the context of globalization, uncertainty and macroeconomic instability (crisis or shock), which may lead to different results to those classics, mainly related to the volatility of FDI flows. Controversial effects may be the case due to an internal or external shock.

-Country-risk:
In the present context it is worth noting the importance of the concept country risk affects exports, FDI. This notion comes from several sources: the crises, terrorism, irreversible environmental degradation, political instability (revolution of 2011).The analysis of this issue discusses the causes and effects of various types of country risk, but also the ability and adaptability of country risks. The empirical works who are interested in this topic are not many, while the impact of risk on the business environment of the host on the existence of FDI countries is significant (F.Boujedra, 2008).We're talking about instability of FDI in developing countries, as evidenced by the statistics made by the UNCTAD (2006) and OECD (2006). The notion of uncertainty and globalization play an important regime change classic game role. And "country risk affects the profitability of companies wishing to expand abroad it means all the uncertainties that are realized by a specific volatility of return on FDI relative to domestic investment" (F.Boujedra, 2008). F. Boujedra says FDI have costs as it brings benefits. The costs are mainly related to the existence of country-risk. "FDI is uncertain when the company operates in a country at risk. An uncertain investment makes irreversible investment and improbable "(F.Boujedra.2008).And irreversibility influences the decision of investment so that investment is delayed in time. "FDI is seen as a means of growth and development for developing countries, it may contribute to good governance in these economies. FDI has advantages and costs. It is thus found that the role and the impact, however, are controversial. For example, the consequences of the global crisis of 2008 and the Tunisian Revolution of 2011 have greatly affected the level and stability of FDI in Tunisia. The problem related in the macro-economic and political instability that affects a lack of confidence of foreign investor's vis-à-vis the Tunisian context in the period after the revolution.

2.5 Technology and R & D expenditures:
"What distinguishes the contemporary those early debates of the past decade, these are the factors considered. While attention is focused on the research sector and the issue of resources devoted to innovation (Foray and Freeman, 1992), it is now the institutions outside the field of science and technology appear in the foreground (Sapir, 2004) "(Amable, 2006).Public spending on R & D is an indicator which measures spending made pure produce new knowledge. Its role in innovation and qualification of human capital will stimulate exports. The indicator of R & D can be considered by the results such as innovation patents or affected

expenses. Studies that have taken this into consideration in the analysis and comparison of export performance required a positive impact of R & D expenditures on exports (E. Ioannidis and P. Schreyer, 1997).

3. METHODOLOGY:

3.1 Axes and research hypotheses

According to the theoretical overview in the previous section, we assume that in addition to traditional factors that determine the international competitiveness of countries that act specifically on price competitiveness, we can introduce other non-price factors known structural and that may have a significant and meaningful effect on competitiveness.

- The exchange rate is a traditional determinant of the price competitiveness of the country (Agliatta, virginia C.Baulant and Coudert, 1999) that economic theory suggests a negative impact of the variability of exchange rates on foreign trade in the sense that a devaluation of the national currency improves the competitive position of the country. - The role of investment: investment relative effort is a macro- economic indicator "capturing some of the mechanisms of non-price competitiveness," over a long period. It plays an important role in the differences between countries in terms of foreign trade (H.Erkel Rousse, 1992), the formation of fixed capital can be used as an indicator of stress in domestic investment. We expect a positive effect on investment and exports.

- The attraction of FDI: the effect of FDI on exports is controversial; it can be positive or negative depending on their activities and their behavior vis-à-vis the host country. - Specialization in production can meet global demand (G.Lafay, 1976) can have a positive effect on exports. • The interest in this work is to emphasize the role of structural factors in international competitiveness. We try to highlight the role of spending on research and development and technological effort in the development of exports. For this we go to check the following assumptions:

- Main hypothesis: Structural factors are determinants of the international competitiveness of export countries (Tunisia) factors.

- The sub-hypotheses:

- Spending on R & D has a positive effect on competitiveness

- The increase in the production of manufacturing high-tech products can have a significant effect on the development of exports.

After you define and explain the role of various factors in determining competitiveness, we are interested in specifying the macroeconomic indicators of competitiveness and measuring instruments for different visions and the work done and its limitations.

3 .2 Different visions in building competitiveness indicators

L. Latruffe (2010) provides two components to measure the competitiveness measures based on trade and measurement based on strategic management. Competitiveness view that trade takes the real exchange rate, parity of purchasing power, through the revealed comparative advantage derived indicators and indices related to exports and imports. While cost- productivity are the factors effectiveness and efficiency involved in the measurement of competitiveness through an evaluation of strategic management.

3.3 Measuring competitiveness according to the results

The competitiveness of a nation is the ability to sustainably improve the living standards of its people and give them a high level of employment and social cohesion (M.Debonneuil and L.Fontagné, 2003). The agenda of the European Union in Lisbon in 2000 put forward the same definition to define competitiveness. Similarly, and according to Karl Aiginger (2003), the competitiveness of a country or region is its ability to ensure the prosperity and increase the standard of living. Benoît Mulkay (2006) states that economic competitiveness is the ability of a country, region or territory to be viable and grow sustainably compared with other countries, regions and territories with similar economic activities.

These definitions consider the notion of competitiveness through a vision of long-term results. CEPII states that the definition and analysis of the competitiveness of a nation or a company by its results, using the global market share as a reference, is more useful.

Industrial competitiveness is to be understood by external performance and international specialization (B.Amable and M.Mouhoud, 1990) (Lafay, 1976, 1991), the different levels of the balance of payment (G.Lafay, 1976).

3.4 Measuring competitiveness by means or factors

Along with the evolution of the term, the index measures of competitiveness are also advanced. Being involved several indicators. According to Benoit Mulkay, we can distinguish direct measures relating to the price or cost competitiveness, the method is to make a comparison between countries or competitive unit costs of production and relative prices. This method may contain some limitations. If the comparison is the cost of production, we may overlook some factors of production and do not observe the growth and sustainable development. The measure of competitiveness in the cost factor uses the total cost of production which takes account of wage and non-wage costs such as intermediate consumption (C.Couharde and J.Mazier, 1999).
Several studies have attempted to identify the determinants of competitiveness associated with the competitive price and the related structural competitiveness. For L.Lachall are two national and international levels.

The first encompasses the natural resource endowments, technology, productivity, product characteristics and economies of scale, regulation and trade policies ... etc. While on the international level we record the exchange rate, the global market conditions, preferences and settings as well as the cost of international transport. These factors are always changing given the non-random nature of the concept of competitiveness. However, to realize the technological potential of the country and the nature of specialization, a simple presentation of competitiveness indicators off costs: the effort in terms of productive investment apprehended through the investment rate, the effort research and development described by the ratio of R & D in general and sectorial level and nature of specialization (and C.Couharde J.Mazier, 1999).

While tracing the progressive role of non-cost factors, other studies (Aboutaib 2004 M.Chakroun 2002) also highlight the effect of FDI, and government spending in determining competitiveness. Some factors are directly related to production processes and productivity and the other to the economic environment. All these factors are internal, that is to say related to country. Other studies introduce the role of world demand addressed to the country in question on the development of exports. The work done by the OECD in the framework of an international comparison of the industrial competitiveness of countries, take into account eight factors: infrastructure R & D, educational profiles of the workforce, the corporate governance the regulation of the labor market, the cost of labor, corporate tax, the energy cost, the cost of telecommunications.

4. EMPIRICAL STUDY: THE TUNISIAN ECONOMY AND COMPETITIVENESS IN THE CONTEXT OF LIBERALIZATION AND CRISIS

The objective of this section is to evaluate the experience of Tunisia's competitiveness and identify strengths and weaknesses. Our job is to analyze and compare some economic and social indicators that can reflect from us competitive and attractive capacity of the country and its integration into the global economy.

4.1 Tunisia: openness, growth and HDI
Tunisia choice or obligation of the opening:

Globalization, liberalization, competition and technological and information revolution are the salient features of the current global economic environment, environment full of changes and challenges that the opening to the outside of national economies, is an indisputable choice for pulling the economy World. The opening of such an economy outside allows for better access to new technologies, expand and diversify export markets, but also exhibit the domestic products to foreign competition. Since 1970 Tunisia has engaged in a dynamic opening to better integrate into the global economy. This policy has led to the accession of Tunisia to the WTO in 1995 and the conclusion of the agreement of a free trade agreement with the European Union.
In addition, membership in the WTO involves certain principles that must be met such as: non-discrimination and prohibition of unfair competition, the removal of barriers to international trade and the substantial reduction of tariffs. In addition to his outstanding efforts in facilitating trade and dismantling of quantitative restrictions on imports, Tunisia has proceed to adapt their national legislation to the various provisions of the WTO entering major changes in the legal texts concerning foreign trade at the end of the meet its commitments and as a developing country status. Include in this sense the law against unfair import practices i.e. dumping and

subsidies, the law on safeguard measures and intellectual property and the protection of rights of the author and the harmonization with the agreement on changes in customs...

The signing of the association agreement with the European Union represents a milestone for the Tunisian economy; the signing of the agreement took place in 1995 for the creation of a free trade zone in 2010. This agreement stipulates the total dismantling of tariffs from 1996 to 2008 and as a result local products are faced with intense competition with foreign ones.

This is a huge challenge that the Tunisian economy must overcome to protect domestic firms and put in the requirements of free trade and be more efficient on the regional and global markets. Furthermore, some strategies are implemented: program upgrade of existing businesses and administrations, incentive mechanisms and support for new businesses and development programs of basic infrastructure for the industrial area, the technology centers. The indicators showed in Table 1, below, shows the effort and the degree of openness of the Tunisian economy from 1997 to 2008. We note that all indicators: cost ratio of export dependency rate, open rate and penetration rate is increasing, with a significant decline between 2002 and 2003.

Table 1: Evolution of key ratios of foreign trade in%:

exports effort	Years	dependence rate	Open rate		penetration rate
29,4	1997	42,1		71,5	41,1
28,9	1998	42,1		71	40,7
28,2	1999	40,8		69	39,9
30	2000	44		74	42,5
33,2	2001	47,6		80,8	45,5
32,6	2002	45,2		77,8	43,3
32,2	2003	43,6		75,8	42
35,2	2004	46		81,2	44,7
36,5	2005	45,8		82,3	45,6
37,6	2006	48,3		85,9	47,2
42,5	2007	53,6		96,1	52,4
47	2008	60,1		107,1	58

Source: BCT, report of the central bank in 2008, in INS, Ministry of Development and International Cooperation and BCT

Despite the unfavorable international economic situation following the financial crisis and global recession, Tunisia was moderate and mitigates the impact of the global crisis.

The observation shows a remarkable decline in economic activity in 2009, and especially a significant decrease in imports and exports as the global recession particularly in the European Union, the first commercial partner of Tunisia. But the possibility of recovery in 2010 reflects the capacity of the Tunisian economy to withstand moderately crises and external shocks.

4.2 Human development indicators in Tunisia:
According to the World Report 2009 Human Development Report published by UNDP, Tunisia is ranked 98th among 182 countries in the HDI. In Magrebin level, Tunisia comes after 2ièmerang Libya, while Algeria and Morocco are respectively 104 and 130 ranks. The Arab level, Tunisia is preceded by some Gulf countries such as Kuwait, 31th, 33th ... Qatar, so it precedes the 107th Syria and Egypt 123ième. And if there is a remarkable effort in Tunisian growth, schooling, literacy, life expectancy and per capita GDP, Tunisia is still placed in the category of medium human development, compared with that of emerging countries china, Mexico, Brazil, the effort is still inadequate.

On the other hand, the high rate of unemployment in Tunisia is likely to have harmful in the future if it will not regulate and control social consequences. The unemployment rate as declared by the INS was 14.7% in

2009 after 13.9% in 2004, while it reached 30% at the youth level.   Unemployment in Tunisia is called structural; it follows a non-matching job seekers who are in the majority of graduates, and job providers that require unskilled labor and cheaper labor. It shows the need for a change in the pattern of growth through innovation and moving towards activities with high added value in knowledge-intensive and technology end to absorb the excess of labor qualified and skilled work.

4.3 Tunisia and the new technologies:
    According to the study by the OECD presented in "African Economic Outlook" Africa, Tunisia has improved its score from other African countries and even North Africa. The score represents the NRI index, which measures the degree of preparation of a country to effectively use information technology and communication, and take full advantage. In addition, the comprehensive report on information technology and communication for 2009-2010, produced by the World Economic Forum in Davos and the European Institute of Business Administration Class Tunisia head Africa and the Maghreb and 39th globally out of 133 countries. Table 2 and the graph below show the significant changes in users of new technologies of information and communication in Tunisia.

Table 2: Indicators of ITC sector

	2002	2003	2004	2005	2006	2007	2008	2009
number of computers per 100 inhabitants	3,43	4,1	4,76	5,66	6,33	7,5	9,62	11,7
number of internet users per 100 inhabitants	5,09	6,35	8,37	9,46	12,71	16,78	26,98	33,38
Telephone lines per 100 inhabitants	17,6	30,9	49,49	68,79	84,47	88,8	94,7	105,2

Source: Compiled by the author based on data from the Ministry of Communication Technology Online

Thus, the ITC sector in Tunisia has become a priority sector and dynamic, it is well developed in recent years, its share of GDP was 10% in 2008 against 2.5% in 2002, with a growth rate 15% in 2009 and 9% of job creation.

4.4 Export performance and sectorial profiles:
    Flows Tunisian foreign trade, are changing from 2006 to 2008. A remarkable exports and imports drop in 2009, explained by the effect of the global recession that followed the global financial and economic crisis. Indeed the evolution of Tunisian trade is influenced by conditions in the European Union, which absorbs nearly 80% of Tunisian exports, as well as weather events such as drought years 2000-2002 affecting agricultural products and increase prices of raw materials such as oil.

    We note that the mechanical and electronic industries and the textile industry, leather apparels and produce more than half of Tunisian exports. Figure 4 shows the remarkable growth of exports of mechanical and electronic industries. Since 2008 they exceed exports in textiles, apparels and leather which had long first export sector in the Tunisian industry. The European Union is the first vector of Tunisian exports. After a remarkable rate of growth in recent years, Tunisian exports to the EU reached 17,028 MD in 2008, they saw a drop in 2009, explained by the economic recession in the EU and the decrease in demand after the global crisis. . The decline in Tunisian exports to the EU in 2009, after a growth rate content, you can attach it to the global crisis and the recession in the EU reflects the level of dependence of the Tunisian economy in terms of exports vis-à-vis Europe.

4.5 FDI in Tunisia attractiveness and impact on overall and sectorial competitiveness
    With the withdrawal of the state, the weight of private investment and FDI in particular in the economy continues to expand while posing positive externalities on the level of activity, employment, technology transfer and the system innovation and the transfer of skills and learning.

4.6 Evolution of investment in Tunisia and sectors
Investments in Tunisia in manufacturing are advanced 1014 MD 2004-1150 MD in 2008, with a growth rate of 3%.In addition the Ministry of Industry and Technology said the decrease 19.8% of the investment in the industry in the first quarter of 2010.

    Investments in Tunisia are spread over several sectors: food, construction materials ... etc. The textile

and clothing sector is still in first place with a rate of 37% of total investments. 2095 companies are active in this sector, which in 1752 exporters, providing 42% of total manufacturing employment. The value of exports of the manufacturing industry reached 18,560 in 2008 against MD 10702 MD in 2004. Besides the textile and clothing sector, which produces 28% of total exports, the Electrical sector, electronics and clothing plays an important role with a share of 23%, followed by chemistry products (19%).

4.7 FDI in Tunisia attractiveness and success factors
Despite the unfavorable international environment and tough competition in attracting FDI, Tunisia continues to be a good host for foreign entrepreneurs, the Ministry of Development and International Cooperation said that FDI annual flows intensified over the last three years 2007 to 2009, FDI Tunisia averaged 2.6 billion dinars per year, against 742 billion dinars during the period 1997-2001 and 495 billion dinars per year during the period from 1992 to 1996. Thus, the stock of FDI is 31 billion dinars in 2010, while achieving a record level for 2009 with a total volume of 2.1 billion Tunisian dinars despite the effects of financial crisis on the international situation. The foreign investment ratio to GDP increased from about 2% in 1996 to over 3.9% in 2009. In addition, statistical data by the Ministry of Development and International Cooperation postulate that more than 3,000 foreign ownership companies operating in Tunisia in 2009. These companies have generated more than 303,000 jobs. In contrast, FDI in 2009 represent 13% of the total investment and 24% of investments made by the private sector, while jobs created by FDI in 2009 represent 24% of job creation at the national level.

Several data and benefits stimulate entrepreneurs to invest and settle in Tunisia. We are talking about institutional strengths, geographic, tax ... etc. According to the World Bank and a study by "Doing Business" in 2010 on a list of 183 countries economies indicators for ease of doing business in such countries, Tunisia has encouraging indicators for investors: The geographic proximity to Europe, the quality of life, infrastructure, improving the business environment, the availability of specialized graduate labor, acceleration of reforms and political stability. And despite these advantages, FDI is still concentrated in low a value-added activity that is based on low labor wages as textiles ... so to think today investment towards activities with high added value. And following the changes that have transformed the Tunisian macro-economic environment following the 2011 revolution, political and social stability necessary for better attract FDI and even the continuity of existing IDE.

4.8 Evaluation of the competitiveness of Tunisia in the Global Competitiveness Index (ICG)
Tunisia is ranked 40th out of 133 countries, according to the latest report on the global Competitiveness 2009-2010, published by the World Economic Forum in Davos with ICG 4.5. It exceeds several countries of the European Union (Portugal, Italy ...).

In 2008-2009 Tunisia was ranked 36th with a score of 4.6 in 2007 to 2008 she was ranked 32nd with the same score. The decline in the ranking is due to the entry of some countries in the ranking with a good score. The graph below shows the evolution of the ICG in the period 1980-2008.

During the period 1998-2000, the global competitiveness index of Tunisia which was below that of countries in the Middle East and North Africa. Since 2000, Tunisia has improved its index in the light precede the MENA countries in 2005. The ICG report published by the Davos is calculated based on 12 factors selected according to three criteria: basic requirement, greater efficiency and innovation and sophistication factors.
Thus, the elements that hinder the achievement of business in Tunisia are: burocratie, access to financing and restrictions in labor regulations with respective percentages of 14.3%, 14.1%, and 11.5%.

5.   OBSERVATIONS:
It appears from the statistical analysis: Tunisia is increasingly integrated into the global economy with the development of its opening rate, the growth of foreign trade and FDI attractiveness. But despite the efforts that we have come to describe, we see several limitations.   First, when it comes to human development, growth, dissemination and use of new technologies ... we can say that today it is no longer necessary to compare Tunisia with the Maghreb countries, African countries or the Arab countries, our study showed that Tunisia is ahead of these countries. In contrast, the comparison must be made with the emerging OECD countries such as Mexico, china for example. While economic performance remains limited: but there has been a persistent structural weakness for the Tunisian economy, insufficient investment rate: in 2004, the investment rate is 13% of GDP, it is insufficient when compared to that in emerging countries strong growth at the rate of 25%. In addition, more effort must be provided to guide investments that are local or foreign to activities with high added value. In addition, with respect to traditional sectors such as textiles and clothing industries, mechanical and electronic, for example, you have to go to the co-contracting instead of just outsourcing. The role of

government is crucial in the sense of creating a legal, tax and social environment favorable, develop infrastructure and encourage entrepreneurs to invest in promising sectors.

6. ECONOMETRIC ESTIMATION: DATA, TESTS AND RESULTS:
Econometric Modeling: Model Description and selection of variables
We propose to study the export competitiveness of Tunisia through an econometric model of an export function. In what follows, we make a description of the proposed model. A descriptive analysis of variables vas made the subject of the 3rd section.
Model specification:
We propose to use the following model:
The initial model equation is written as follows:

Y= α+ β X

Y= α+β1x1+ β2x2+.....+ βnxn

We choose to explain exports, the dependent variable, by the following explanatory or independent variables: the exchange rate, the customs duty on imports, effort investment, foreign direct investment, exports high technology and public spending on R & D. The data cover the period from 1980 to 2011. The choice of the period studied is limited by data availability. Thus the data are collected from the World Bank (world data bank, world development indicator and global development finance).

Our model is:

$$log\,exp = α + β1\log tcer + β2\log ddi + β3\log fbcf + β4\log ide + β5\log eht + β6\log drd + dummy + trend + μ$$

W here:

exp : volume of domestic exports, which reflects the overall level of competitiveness

Tcer: real effective exchange rate

ddi : customs duties on imports

ide : FDI flows

fbcf : the fixed capital formation as an aggregate measure of domestic investment

eht : high-tech exports

drd : State spending in research and development

dummy : variable structural change

α, β1, β2, β3,..., β7 : Parameters to be estimated
Data are collected from the database of the World Bank (WDI and GDF). The study covers the period 1980-2011. In which we cover the entry into force of the Free Trade Agreement between Tunisia and the EU. The period studied is from 1980 to 2011, we must take into account certain events in this period as the agreement of free trade.
The variables are as follows:

Exports of goods and services in constant dollars

Net flows of FDI inflows in current dollars
The high-tech exports as% of manufacturing exports
Spending on R & D as% of GDP - The formation of fixed capital in constant dollars
Customs duties on imports (% of tax revenue)
The real effective exchange rate (2005 = 100)
All data are taken in logarithm. We expect to find a positive effect of investment, customs duty on imports, and spending on R & D and a negative impact of exchange rates.

7. RESULTS AND INTERPRETATION

We make a stationary test ADF, a unit root test Phillips-perron and a cointegration test. Thus we assume that the series are non-stationary, a relationship coeintegration is detected. We introduce a binary dummy variable on the free trade area with the EU, which takes the value 0 before 1998 and one after. We apply a delay (differential) to correct the non-stationary series. We conduct two regressions: the first and the second without trend with trend. The trend is to capture omitted variables in our model belonging to the sphere of economic or scientific. The regression model error correction gives us the following results:

Table 3: Regression results

Variables	Regression sans trend	Regression avec trend
Tcer	-1.192^{***}	-0.984^{***}
Ddi	2.728^{***}	1.555^{***}
Ide	-0.293^{***}	-0.183^{***}
Eht	1.439^{***}	0.815^{***}
Fbcf	1.648^{***}	1.006^{***}
Drd	0.020^{**}	0.017^{***}
dummy	0.797^{***}	0.461^{***}
trend		-0.009^{ns}
constant	-18.19^{ns}	-12.95^{ns}
R-squared $= 0.9574$ Adj R-squared $= 0.9345$		

8. INTERPRETATION:

The results from the regression are all significant. They show that the effect of exchange rates on exports is significantly negative which our theoretical line advanced. The effect of gross fixed capital formation, which represents the effort of domestic investment, and customs duty on imports are positive. The effect of FDI is negative. The flows of FDI inflows in Tunisia are insufficient or unable to improve the export performance of the country. The dummy variable introduced in the model on the structural change that is the free trade agreement with a significantly positive effect on exports. Thus, the liberalization policy adopted by Tunisia has a positive effect on exports. The variables related to structural competitiveness introduced in the model that is high-tech exports and public spending on research and development, have a positive effect on exports which reinforces our expectations. Any increase in public spending on R & D promotes exports. The increase in the share of high-tech exports in total exports has a positive effect on increasing the level of total exports.

9. CONCLUSION:

The Results Obtained In Our Empirical Study Are Consistent With Our Expectation Of The Usual Variables That Explain Competitiveness: The Exchange Rate Has A Negative Effect On Export Performance. Investment Promotes Exports. Structural Variables Introduced Have A Significant Effect. Specialization In Niche Products Has A Beneficial Effect On The Level Of Exports In The Sense That The Country Will Be Able To Better Meet The Global Demand For Increasingly Demanding. In Addition, The Country Has Interest To Devote To Research And Development To Boost Exports. The Idea Is Explained By The Fact That The Promotion Of Innovation And Improve Product Quality Can Promote Exports. While The Effect Of FDI Appears To Be Related To Certain Skin Conditions. Some Volatility May Controvert Traditionally Known

Effects Of FDI On The Trade Balance. However, If The Results Are Significant They Remain Limited To Countries Studied. This Country "Tunisia" That Knows The Political And Economic Upheaval Following The Revolution Of 2011, Provides For The Introduction In The Study, Other Variables Related To Macroeconomic Stability, Directly And Indirectly Affecting Business Performance.

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