

Sustainable Development and Economic Growth: The Case of Tunisia

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Abstract

The aim of this paper is to study the relationship between economic growth, environment and human development which are the fundamental pillars of sustainable development. In an empirical validation, we attempt to test the relation between economic growth based on the main components of sustainable development, taking the case of our country, Tunisia, during the period 1980-2012. The overall findings identify a positive and significant relationship.

Keywords: Economic Growth, Environment, Human Development, Sustainable Development.

1. Introduction

Since the 1970s, industrialized countries have recognized that growth was based on an intensive use of natural resources omitting economic, social and environmental aspects. For some analysts, the model of "industrial development" does not lead to a long-lasting development.

The reasons which are put forward are: the exhaustion of natural resources (raw materials, energy, fossils, etc); the destruction of ecosystems, the biodiversity loss that reduces the resilience of the planet and the climatic change caused by greenhouse emissions of greenhouse gases.

However, the concern about the future is enhanced by the beginning of the growth slowdown, the oil shocks of 1974 and 1981 as well as the serious accidents affecting the environment such as mercury pollution in Minamata in Japan in 1955, oil spill, the Torrey Canyon in the English Channel in 1967 and the emergence of disaster industries such as Chernobyl, Seveso, Bhopal, Exxon Valdez, etc.

From now on, a development process that balances the environmental, economic and social sectors has to be implemented. Indeed, various organizations, such as the World Wide Fund for Nature (WWF), literally, the Worldwide Fund for Nature, Friends of the Earth and other stakeholders from different sectors, have called for the adoption of a more responsible, more effective and more relevant method, called "sustainable development."

It is in this context of research on mediation between economic growth and the main components of sustainable development that this work fits. The question to which we seek to provide some response refers to the characterization of the nature of the relationship between growth and the components of sustainable development.

Our empirical investigation is based on the previous work of Valeria Costantini and Salvatore Monni (2008) in order to test the relation between the economic growth and sustainable development for Tunisia from 1980 to 2012.

2. The conceptual framework of sustainable development

2.1 Definitions

Different definitions of sustainable development were cited in literature.

The concept of sustainable development was defined for the first time in 1987 by the World Commission on Environment and Development (WCED) in the report Brundtland (the name of the president of the commission, Gro Harlem Brundtland). In this report: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*"

Actually, this definition contains two concepts:

- The concept of 'needs', particularly the essential needs of the needy who should be given the highest priority, and
- The idea of the limitations imposed by the state of technology and of our social structure on the environment's capacity to meet the current and future needs.

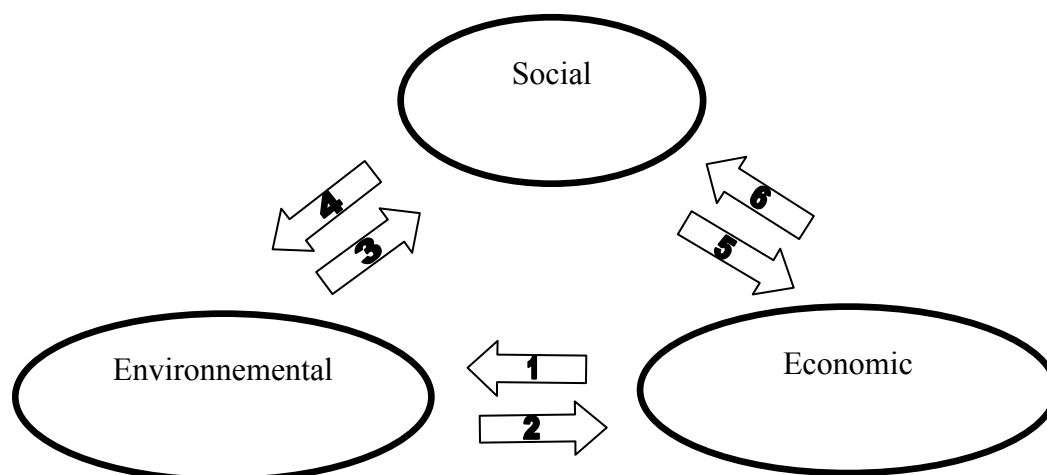
Three aspects essential to sustainable development result from the previous definition. These are:

- The economic aspect is considered here through the concept of need. That is to say that sustainable development must meet everyone's basic needs (in an intergenerational as well as in an intra-generational way (that is universal, by particularly reducing the differences between the south and north);
- The environmental aspect which means the preservation of the natural heritage for future generations ;

- Taking this aspect into account requires the study of the biosphere, its regulatory mechanisms and its ability to accept or reject our human activity ;
- The societal aspect includes equity, intra-generational justice issues (access to health care and education, equality between men and women ...) and intergenerational social responsibility of business and the study of the relationship between people, the company and nature ;

In fact, sustainable development represents a balance between these three components, sustainable development is the consensus between economic, environmental and social aspects. This new vision integrates all components of our society and our environment. This vision can be schematically displayed in the following figure:

Figure 1: The main dimensions of sustainable development



Source: OECD, (2004)

The above graph highlights the following ideas:

1. The effects of economic activity on the environment (for example the use of resources, the discharge of waste).
2. The services provided by the environment to the economy (e.g. natural resources, "well" functions, contributions to economic efficiency and employment).
3. The Services provided by the environment to the society (8) (e.g. access to resources, contributions to health, to living conditions and to working conditions).
4. The effects of social variables on the environment (e.g. demographic changes, consumption patterns, education and information in environmental, institutional and legal frameworks).
5. The effects of social variables on the economy (e.g. structure of the labor force,-and households, education and training, consumption levels, institutional and legal framework).
6. The effects of economic activity on the society (eg, income levels, equity, and employment).

Furthermore, sustainable development is not only an ecological or environmentalist concept, but rather a strong concept that also includes the social economic sphere.

In the same context, Ignacy Sachs, (1978), has considered sustainable development as a development approach aiming at the harmonization of the social and economic objectives as well as the relevant resource management on the ecological level.

In a spirit of solidarity with the future generations, he suggested an approach based on the principle of autonomy, the satisfaction of the basic needs and on a new association between man and his earthly universe. Another qualitative growth form that would be neither zero growth nor negative growth.

Similarly, Pearce (1989) has defined sustainable development as whole set of policies for the next generation to have as much wealth as the present generation.

In addition, Pearce and Walford (1993) have proven that sustainable development is a process in which we do not allow the deterioration of natural resources. In fact, they stressed the popular role of environmental quality in the process of increasing of real income and living standards.

Moreover, Dally (1996) suggested that the value of the concept of sustainable development comes from the realization that the contemporary level of consumption per capita in U.S and Western Europe cannot be generalized for future generations without destroying the ecological resources on which rests the economy itself.

Yet, Pezzy and John (1989) identified more than 60 definitions for sustainable development. They defined sustainability and development in the form of mathematical models. Hence, they indicated that sustainable development requires a wellbeing superior to the minimum extent of environmentally sustainable

growth.

However, Redclift (1987) concluded that sustainable development is nothing but a mere compromise between natural environment and continued economic growth; it is rather a development which recognizes that the sustainability limits have a structural and natural origin.

According to this author, the different perceptions of the environment are socially constructed and carried by groups with various degrees of power and conflicting economic interests.

We may also mention the definition of Rees, (1989), who showed that sustainable development should be considered through cumulative decisions. He added that this has been adopted by several authors, providing the best policy framework for the allocation and management of environmental resources.

Finally, Barbier (1987) showed that the primary objective of sustainable development is to ensure a healthy environment, a prosperous economy and a cohesive society by reducing the exhaustion of natural resources, environmental degradation, cultural disruption and social instability.

2.2 The founding assumptions

In the late 1960s, the work of the «Club of Rome» is cited as a starting point of reference. Indeed, the "Massachusetts Institute of Technology," in a Meadows report entitled "Limits to Growth", challenged the danger of exponential demographic and economic growth in terms of exhaustion of natural resources, over exploitation of ecosystems and pollution. So, the report suggests moving towards a nil growth in countries and limiting the increase in population.

In 1972, the United Nations organized the first international conference in Stockholm on the environment, leading to the creation of the United Nations Environment Programme (UNEP). On this occasion appears the concept of "eco-development" which seeks to reconcile two apparently conflicting approaches, that of development and that of the environment. Also, it helps to challenge the patterns of development in the North and South.

Nevertheless, the concept of eco-development did not persist long as it was officially condemned by "Henry Kissinger" and taken out of the institutional vocabulary at the international conference in Cocoyoc in 1974. The concept of eco-development has been taken back by the Anglo - Saxons who replaced it with the concept of "Sustainable Development".

The latter, translated from English first by "developpement soutenable" then today by "sustainable development", appears for the first time in 1980 in the "World Conservation Strategy", a publication of the International Union for the Conservation of Nature (IUCN).

A few years later, it spreads in the wake of the publication "World Commission on Environment and Development"(WCED) entitled "Our Common Future" (also known as the Brundtland report). The report recognized that it is: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 1992, the United Nations (UN), arranged the second conference in Rio on Environment and Development, also known as the "Earth Summit". 173 country leaders agreed on four main points:

- The Rio Declaration on Environment and Development;
- The Convention on Climate Change;
- The Convention on Biological Diversity;
- The Declaration of Principles on Forests.

Thus, the leaders at Rio also signed a document of proposals called, "Agenda 21". The latter actually determines the merit of the responsibilities incumbent upon each player in the civil society in the implementation of the principles of sustainable development. This program is the result of four separate areas: economic, social, environmental and ethical.

In 1997, the Convention on Climate Change signed in Rio was complemented by the «Kyoto Protocol», which requires industrialized countries to reduce, in 2012, their emissions of greenhouse effects gas of at least 5% on average compared to the level 1990.

In fact, this broad concept of sustainable development is taken up again by the World Trade Organization (WTO), the World Bank and the European Union. Thus what confirmed at the World Summit in Johannesburg in 2002. It is preferred to consider this concept as a means of reconciling growth, equity and environmental protection.

2.3 Economic growth and sustainable development: an empirical approach

The economic literature generally considers that economic growth is a quantitative and economic concept. It is a phenomenon that can be measured in time and space. It is the increase of a country's wealth, measured by Gross Domestic Product(aggregate GDP), while qualitative factors such as education, scientific knowledge, access to natural resources, environmental quality, distribution of wealth or living conditions are all elements that characterize the development. These factors lead to potential economic improvement.

2.3.1 An ambiguous relationship between the environment, economic growth and human development

Developed countries do not stop promoting increased production to counter scarcity, the thing which contributes to improvement or at least maintaining their standard of living. However, developing countries, often backed up by international institutions (the International Monetary Fund, the World Bank), adopt the same attitude to fight mass poverty and emerge from underdevelopment. The growth theory dominates the news. However, it is becoming increasingly clear that the continuation of this global program is not indefinitely achievable, given the limitations imposed by ecosystems.)

2.3.1.1 The negative effects of high economic growth

High growth can lead to the depletion of natural resources: Energy, water, soil. Here, one must distinguish between non renewable resources (petroleum) and renewable ones (air, water). The depletion of non-renewable resources such as oil and coal raises issue of intergenerational equity: the present generation "looting" the world without taking into account the needs of future generations (Hotelling (1931). Renewable resources (for example fish stocks) may recover, but sometimes slowly, not to harm many future generations.

We must be attentive to the ecological foot print (estimated surface of the earth needed to meet our needs that is to say, the average area per capita necessary to produce the resources people consumes and to treat their waste and pollution).

If Western lifestyles spread to the entire world population, this would require between 5 and 6 planets to meet the needs of humanity, which reflects the unsustainable nature of the current growth (Hartwick (1977)).

- High growth generates multiple pollutants (asbestos, oil spills, acid rain, etc.). These pollutants are often cumulative: beyond a threshold, they are not absorbed by the environment.
- High growth may constitute a danger to biodiversity. The disappearance of plant and animal species deprives future generations not only of a natural and symbolic heritage (eg; bears), but also of biological resources that could be useful to them (species used as medicines eg.)
- Given the human and economic consequences of global warming and given the low reversibility of the temperature rise, this is where the main threat to the sustainability of development lies.

Thus, if the means of production (and consumption) in developed countries are challenged today by the scarcity of energy resources and the damage that they cause to the natural, environment and the biosphere, one may wonder if a zero growth rate, could not be a solution to the environmental problem of humanity.

2.3.1.2 Zero economic growth: a solution to the environmental problem of humanity?

Under the theories of growth, the stable condition of an economy is characterized by the fact that the per capita variables are constant over time (characteristic of a steady country), and so are the variables in level.

The stable condition is a special case of a steady state (long-term) of the economy where the growth rate of the product, which is determined by the value of the growth rate of the population, is zero (Arrous,1999).

Under these conditions, a steady state is accompanied by a null growth rate. In fact, it is zero growth. The economic system is reproduced identically, without accumulation of capital per capita. This is what Marx called simple reproduction. An economic stationary state is an unchangeable state, stable or "static".

a) The origins of the stationary state

The first major economists were much concerned about the "stationary state", probably because, since they lived in a society where economic growth was still (24) in its infancy, they feared a return to the old order. They looked at growth fragility more than at its strength, while today the view is inverted: that of a blind force, which weakens the company and its future.

Adam Smith (1776) and David Ricardo (1819) explained economic growth as a result of the accumulation of capital available to workers. However, a conventional shared and a rather pessimistic view of the long term growth is intended to gradually disappear, in a "stationary state".

The reason for this lies in the evolution of the distribution of national income induced by the accumulation of factors. The dynamics of the system can be summarized as follows: capital accumulation increases in demand for workforce. Thus, wages are higher until the adjustment occurs for demographics. A larger number of workers induced a greater demand for grains, which justifies the cultivation of new lands, less productive than the old ones: hence, an increase in the price of grain and therefore that of the land rent as well as the salary corresponding to the minimum subsistence. As a result, wages and rents increase at the expense of the profit which continues to drop to the point where investment stops.

Stopping the accumulation of capital means stopping population growth and, later on, the stabilization of the entire economic system: this is the stationary condition. This hypothesis is dictated by several classical economists, like, Malthus, who gives a further reason for a blockage towards the economic system: the lack of consumer demand and investment because of the concentration of wealth and the lack of opportunities.

Likewise, with Ricardo and Malthus, we feel regret of having made this observation. However, John Stuart Mill (1848) says: "I sincerely hope that posterity will only concentrate on the stationary condition for some time before it is forced by necessity."

Yet, Mill separated human progress from economic growth. He criticized the unlimited development

of agriculture and assigned a target to the industry to reduce working time.

So, political economy, from the outset, is crossed by the contradictions brought about the development of capitalism.

Economists who dared to question the benefits of growth, as John Kenneth Galbraith (1975) did, and the relevance of the GDP indicator, as Bertrand de Jouvenel (1968) did, were rare.

a) The idea of supporters of zero growth in the 1970s

In the 1970s, a challenge to growth appeared for the first time with the concept of "zero growth" to mean the need to consider the ecological limits of the earth. Zero growth is a theory that all economic activities should aim at a state of equilibrium, a steady state.

A mention should be made to the Club of Rome report prepared by a team of Researchers from Massachusetts Institute of Technology led by Dennis Meadows, (1972). Published in France under the title "Limits to Growth", the report asserted the physical limits of the planet and it came out in favor of a comprehensive and stable equilibrium state after the richer countries have stopped their growth and the poor countries have satisfied their basic needs.

Thus, world scenarios, made from a model that covers the economic, demographic and environmental field, indicate that growth of industrial production will ultimately lead to a collapse of income per capita, of food intake and consequently of the global population. This production actually uses more raw materials and natural resources and is accompanied by a growing pollution. The only way to avoid a catastrophic evolution would be to stabilize the population, the industrial output per capita and food share.

Since 1972, technological progress and environmental science have led to revise some of these assumptions and the proposed strategies; the existence of natural limits to growth was confirmed by the risk assessment related to climate change. But the inconsistency of the steady state with the settlement of environmental issues such as waste accumulation or samples of resources is presented in various works.

Several reasons can be put forward. First, the problem of the steady state is the finiteness of the environment not so much in terms of stock but from the point of view of the quality of resources for the operation of the production process.

Second, a process in the steady state cannot do without a continuous flow of energy and material, the stock of capital employed cannot remain constant indefinitely. In fact, the generalization of the law of entropy to material makes it impossible for a system to produce mechanical work indefinitely at a constant rate.

Finally, as nature is not able to reproduce itself identically, it is difficult to envisage that an economic process open to nature can be maintained permanently in a stable condition. Therefore, the constant stationary condition cannot be a solution to the entropic problem raised by economic activities. The disappearance of the material in the economic process makes it impossible to maintain a constant capital stock in time. It should be noted that this is about the denial of major assumptions-approaches on which sustainable development is based. It should be noted that this constitutes the denial of one the major hypothesis on which are based the approaches to sustainable development.

However, these observations do not challenge the development as a phenomenon rooted in non-stationary processes where qualitative changes take place, such as innovations, new productive combinations, new energy sources. Considering the teachings of thermodynamics, development cannot be considered in a context of decline. The steady state then gives way to a state of decline.

2.3.2 From the bio economy to the decrease

The "organic economy" is an economic theory developed mainly by Nicholas Georgescu Roegen using in particular the principle of entropy to analyze economic processes. Nicholas Georgescu -Roegen highlights the contradiction between the second law of thermodynamics and the law of entropy (that is to say the degradation of energy and material resources useful to humanity and economic growth without limits). He personally called for an economic decrease. He associates the economic process not with an intangible value but matter and energy that degrades irreversibly from low entropy to high entropy at different processing. Just like an ice cube having melt in a glass will never turn again into an ice cube, a computer can never go back to the raw material that was used to create it besides, the energy used to build it can no longer be used.

The concept of decay is used to challenge the idea that the economic growth initiated in the industrial revolution could be sustainable partly because of the depletion of natural resources and the environmental, climatic and ecological damage that it generates.

The origin of this concept and the accompanying theories are based on the observation that economic indicators such as GDP do not measure the environmental cost of exploitation of natural resources and do not take into account the finiteness of amounts of non-renewable resources (oil, minerals). This concept has gained some notoriety in the oil crisis context, or in the global warming early 21st the century.

On the economic level, the decrease is very marginal in the current economic theories and is represented and defended by only few economics researchers.

This idea of a radical questioning of the primacy of growth emerged in the early 1970. Decline also

designates anti-productivity movements (ecologists and altermondialists) that propose a political and social project which takes into account the energetic issue.

While the main event of economic growth, in its current form and in rich countries, is the increasing accumulation of the consumer goods by households, the movements about decline, which are in line with the critics of the consumer's society, believe that the continual increase in consumption does not necessarily improve the welfare and better living. They call for a radical change in the production systems of the richest countries through a wise and controlled decrease in the consumption of natural resources believing that it is the only solution to the environmental and social challenges facing humanity.

So, they wish to reduce the ecological footprint of these nations, but also intend to solve, through this very "decline" of the rich countries, the North / South split divide, then reduce inequalities and help the southern countries resolve the phenomena of extreme poverty.

Decrease is a priori neither a political dogma, nor an economic model. Thus, for Paul Aries (2007), "It is neither an ideology nor an additional economic model, but rather a bombshell word which pulverizes the dominant economic thinking."¹

Similarly, Serge Latouche thinks that it is a "happy rhetoric discovery" and prefers the term increase. The word "degrowth" is sometimes supplemented by adjectives: "sustainable or "friendly 'degrowth' "².

The degrowth concept has its theoretical basis in various writers and thinkers of the 20th century. It is not considered the opposite of growth; it is the idea of producing only what is truly useful and finding methods of production consistent with the needs.

Among the fathers of the degrowth, we can find Nicholas Georgescu-Roegen, Jean Baudrillard (1968), Andre Groz (1975) and Ivan Illich (1971), who suggest quite similar ideas to those offered by contemporary economists like Serge Latouche.

In addition, Georgescu-Roegen involves considering the qualitative changes localized in the production process. The concept of irreversibility is fundamental in the analysis of any economic process as it contains the qualitative change of the elements involved in the production, according to the law of entropy.

2.3.2.1 The law of entropy and economy: the contribution of Georgescu-Roegen

The work of Nicholas Georgescu-Roegen is at the origin of the bio-economy, connecting economic sciences and biological sciences. He put forward such laws of thermodynamics and their consequences on the life and economic process. He criticized the excessively mechanistic classical economic approach.

He argued in particular that the thermodynamics and biology are essential torches to illuminate the economic process. He criticized thermodynamics because it shows that natural resources are being irrevocably exhausted, biology because it reveals the real nature of the economic process and he stated that the economic process is but an extension of the biological evolution. Therefore, the most important problems in the economy should be considered from this point of view.

He explained that the decline is a natural consequence of the limitations imposed by nature and demonstrated that economic development cannot proceed without deep restructuring and reorientation of economic thought. The latter must abandon its traditional mechanism to become trans-disciplinary and integrate such thermo dynamic principles that establish a link between techno-economic development, biological evolution, global ecology and cosmology. Indeed, the process of unidirectional industrial economy fits poorly in the cyclic operation of the biosphere.

He particularly emphasized the role of natural resources (energy and material) in the biophysical process of economic development. It must be shown that there can be no question in the world of "sustainable growth" or even "zero growth" or steady state, but that the decline is now inevitable to ensure the long-term survival of mankind in the biosphere of our planet. He criticized the capitalist market economy which he said was unable to hold account of the needs of future generations, or even of poor contemporary population to express a demand. Thus, he showed that no technology will succeed in completely eliminating the entropic aspect.

Entropy can be seen as a measure of the energetic disorder in a system. At the entrance, energy is of low entropy (free energy), these are valuable natural resources. At the exit, energy is of high entropy (related energy-), these are worthless waste.

In a closed or nearly- closed system like the earth, free energy falls irreversibility can be defined as any change preventing the process of returning once for all to its starting point and related energy increases irreversibly. So entropy increases continuously. Free energy is scarce; its main external source is solar energy. Any recycling or reuse of material requires material the use of additional free energy and is therefore not neutral. The main problem of man is that he has access only to the earth free energy (closed system) and to the sun.

¹ Politis on 15 March 2007

² Serge Latouche 2006. "The challenge of decay"

As a result, the entropy of a closed system increases continuously (and irrevocably) to a maximum; that is to say that the usable energy is continuously converted into unusable energy until it disappears completely. He argued that the solution cannot be reached without solar energy but he showed that this must also go through a limitation of comfort.

2.3.2.2 The limits of the thesis of decline

If the word was applied indiscriminately and without limit to all types and to all populations in the world, two essential elements were omitted: demographic trends and human needs. According to Naess, (1973), reducing the world's population is imperative. But the question that arises: how far?

In this context, Latouche, S, (2006), stated that the number of inhabitants was 3 billion in 1960, the date when humanity would have exceeded an ecological footprint of 100%.

Proponents of decay also remain evasive about how far we should make production decrease. However, Latouche, S, (2006), advances the idea of returning to a material production equivalent to that in the 60_s-70_s.

If this is the level reached at that date by the rich countries, this means that poor countries have the right to join them at this level. However, this author refuses the principle of this imitation, which is according to him synonymous with acculturation. Not to mention that it is the unbridled productivity engaged during the Thirty Glorious for which we are paying the price to-day. In addition, if decline globally intervened in rich countries, the deadlocked would be made on the labor instability which occurred during the last thirty years and on the rise of mass poverty.

Finally, although GDP can be characterized as an indicator of well-being, it contains the non-market product (education, health, etc.), vector of a socialization of part of the wealth produced and redistribution, even if it is modest about the value of income. In this framework, some economists consider disconnecting the growth development. On the contrary, getting out of the monetary economy, as some proponents of decline suggest, could only lead to a decline in collective solidarity and a refuge in the assistance of the individual, family or community, while insurance companies would thrive amid a socialization of wealth.¹

3 The relation between economic growth and pillars of sustainable development: An empirical investigation

3.1 Econometric methodology and results

3.1.1 Model overview

According to the Framework of this study, we consider a transformed linear log function Cobb-Douglas of the following production :

$$Y_t = \alpha + \beta X_t + \varepsilon_t$$

Based on the work of Valeria Costantini and Salvatore Monni (2008) to characterize the dynamics of economic growth, we did a study on our country, Tunisia, with temporal data over the period 1980 to 2013.

Thus, we define :

Y_t : is the growth rate of GDP / per capita of Tunisia,

X_t : is the matrix of explanatory variables which are: the opening Commercial (Trade), Foreign Direct Investment, Human development index (HDI), Life expectancy, Literacy rate, the rate of population and natural resources.

ε_t : Residual term.

In addition, we tend to test the relationship linking economic growth based on three essential pillar of sustainable development (economic, social and environmental).

In this research, we show that the economic pillar can be represented by two key variables including trade openness (Trade) and foreign direct investment (FDI). For the environmental pillar, we presented the variable of the natural resources. We have identified the variables of the Human Development Index (HDI), life expectancy, literacy rates and population as key indicators of social pillar.

In this attempt of empirical study, we want to know if there is a correlation between the main pillars of sustainable development (social, economic and environmental) and the rate of economic growth in Tunisia.

3.2 Estimation results and interpretations:

We used the method of Ordinary Least Squares (OLS) to estimate the model. In order to examine the relationship between economic growth (measured by GDP / per capita) and the indicators of sustainable development (we used in this study (7 indicators)), we chose the correlation coefficient "Bravais-Pearson" as shown in the table below:

¹ Article by Jean-Marie Harribey, theories of decline: challenges and limitations, French books "Development and Environment" No. 337, March-April 2007, pp.20-26.

Table 1: Test of correlation

	Trade	FDI	LR	HDI	POP	LE	NR
GDP/Per Capia	0.2159 (0.0435*)	0.2712 (0.0600*)	0.3472 (0.0557*)	0.3469 (0.0559*)	0.3454 (0.0570*)	0.285 (0.1199)	-0.0665 (0.7721)

Note: The value at the top indicates the correlation coefficient between GDP / per capita and the variable considered, and the value in parentheses indicates the probability of critical test of significance of the correlation coefficient.

Through this table, we note the following conclusions:

The OLS results suggest that trade, FDI, LR, HDI and the POP that have significant positive contributions to the rate of economic growth.

First, we note that the trade has a positive impact on the GDP. This implies that this factor induces a positive effect on economic growth. This is explained by the increase in the effects of export with respect to import. Therefore, trade is beneficial in terms of employment for various sectors in Tunisia. This gain is related to the gain of competitiveness provided by the implementation of the Structural Adjustment Programme (SAP) and upgrading of Tunisian enterprises.

This shift towards employment can also be explained by the increased efforts made by the Tunisian government to restructure and upgrade the industrial fabrics.

Second, improving the competitiveness of Tunisian companies and adopting the strategy of promoting exports improved employment in several sectors. The net effect depends on the situation of competitiveness of domestic producers and the country's ability to exploit new opportunities in foreign markets through increased addressed demand and in the local market through changes in habits consumption that can occur following the opening. In addition, we find that the investment has a positive and significant effect reflecting the assumption that our country pays more emphasis on direct investment abroad, since this is one of the main factors of economic growth.

Thus, the Tunisian economy has completely changed in recent years. It operates in an environment where free trade, free movement of capital and goods become the key words and where FDI is more qualified as a new way of financing economic growth. These results imply that the economic integration influences economic growth through its effects on the volume of trade, the pace of economic growth and the productive structure of the economy through adequate transmission channels. In this regard, we have demonstrated the existence of a positive relationship between the growth rate and the economic pillar of sustainable development.

While education, population and Human Development Index (HDI) act positively and significantly on economic growth, this significance is in our opinion explained by the adequacy of the education system to the labor market allowing the development of the human being psychologically and intellectually. Indeed, education is seen as an engine of economic growth and not as a simple engine for social mobility. Thus, a density of high population has a significant effect directly on the long-term development.

This fact is associated with a greater population density at a level of higher human capital and greater adaptability and ingenuity. So we must implement an educational strategy that involve educators, publishers, creators and media programs producers capable of responding to new needs and allowing the emergence of new practices.

Similarly, the Human Development Index (HDI) influences economic growth positively and significantly. This effect is mainly due to the promotion of access to education and the implementation of literacy campaigns together with the conduct of progressive health policies. Moreover, this indicator can qualify strictly economic progress approaches by reviving its social dimensions.

In this regard, the Tunisian government is obliged to strengthen efforts in social fallout of economic dynamism and above all, the public State must seek to establish a sensitive and sustainable gender equality.

However, the coefficient on life expectancy is positive but not significant. This is explained by the expansion of the classes of pensioners which weakens productivity influenced by the decrease in the number of active people following the program Planned Parenthood applied by Tunisia. Ultimately, empirical results help validate the possibility of a positive relationship between human and social development and economic growth.

As for the coefficient associated with the environmental pillar, represented here by the Natural resources, is negative and insignificant. This insignificance is mainly due to the scarcity and fragility of natural resources in Tunisia. Obviously, their use reduces the stock that will be available for future generations. However, it is essential to take into account the critical importance of the resource, the availability of techniques for minimizing fatigue and the possibility of finding alternatives.

Otherwise, one should monitor the rate of exploitation and exhaustion and introduce methods of recycling and economizing so as to ensure that resources do not disappear before we have found suitable substitutes. This would bring about optimistic projections for the future, macroeconomic policies that are too lax, premature entry into new industries and greater tolerance of "rent-seeking". It is in this perspective that comes the "sustainable development», sounding the alarm about the depletion of non-renewable resources which must

not impair the future in any way.

4. Conclusion

Tunisia has translated its good business performance not only in terms of economic growth but also in terms of the well-being of its population. Thus, the positive change was referred to the indicator of Human Development states: our country has recorded the strongest growth in achieving an ideal indicator during the period 1980-2000.

Following the awareness of global environmental problems and the influence production methods on our lives, the concept of sustainable development appeared in the late 1980s. An essential condition for sustainable development is accounting between the economic growth and the environment.

In this regard, a sustainable development strategy opted by our country should be a winning strategy from a triple point of view: economic, social and environmental. A policy referring to sustainable development integrates "social" into the economic and the environment, not by addition but by construction: less over exploitation of any natural resources and better use of human resources, redistribution of activities to optimize the life cycle of products, the role of services related to the environment to strengthen solidarity and social cohesion. In addition, it is a development respectful of natural resources and ecosystems, a support of life on Earth, that ensures economic efficiency, but without losing sight of the social purposes (human and societal) the fight against poverty, against inequality, exclusion and search for equity.

Ultimately, empirical results in this research tend to validate the possibility of a positive relationship between economic growth and the three main pillars of sustainable development (economic, environmental and social). We note that the coefficient of determination is equal to 0.75 %. Therefore, we can conclude that the variability of explanatory variables in our model explains 75 % of the variability in economic growth. Under these conditions, developed countries will be required to help developing countries especially with regard to technology transfer, building governance and institutional capacity. It is mainly for this reason that several international agreements on sustainable development include important and appropriate measures for the transfer to developing countries.

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