


“Measurement of inclusive growth: evidence from Tunisia”

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MEASUREMENT OF INCLUSIVE GROWTH: EVIDENCE FROM TUNISIA

Abstract

In most economies, strategies that promote greater equity and less precariousness have become more than a necessity for reducing the effects of poverty. Thus, the focus is on inclusive growth by policy makers and institutions in charge of development and poverty alleviation.

For Tunisia, there was a broad consensus on the need for structural reforms to promote inclusive economic growth that reduce social inequalities and regional disparities.

This article aims to determine a synthetic indicator of inclusive growth in Tunisia. The method used is the Principal Component Analysis (PCA). The purpose of the latter is to provide weightings that take into account the variability of the data through time. The results found showed that Tunisia's Inclusive Growth Index (IGI) deteriorated during the period from 1980 to 2017, falling from 5.35 to -3.40. The Tunisian government must embark on deep structural reforms to open up channels for a more egalitarian and inclusive society and put the country on a path to more sustainable development.

Keywords

inclusive growth, Tunisia, synthetic indicator, principal
component analysis

JEL Classification

D63, O4, R11

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ОЦІНКА ІНКЛЮЗИВНОГО ЗРОСТАННЯ: ДАНІ ТУНІСУ

Анотація

У більшості країн світу стратегії, які сприяють більшій рівності та меншій нестабільності, стали більше ніж необхідними для зменшення наслідків бідності. Таким чином, увага директивних органів та установ, відповідальних за розвиток та подолання бідності, зосереджується на інклюзивному зростанні.

У Тунісі спостерігається широка згода щодо потреби у структурних реформах для забезпечення інклюзивного економічного зростання, які зменшують соціальну нерівність та регіональні відмінності.

Метою статті є визначення комплексного показника інклюзивного зростання у Тунісі. В якості методу було використано аналіз основних компонентів, метою якого є отримання коефіцієнтів, які враховують зміни у даних з часом. Отримані результати свідчать про зменшення значення Індексу інклюзивного зростання в Тунісі за період з 1980 до 2017 рр. з 5.34 до - 3.40. Уряд Тунісу повинен почати глибокі структурні реформи для відкриття каналів для більш рівноправного та інклюзивного суспільства та спрямувати країну на шлях до більш стійкого розвитку.

Ключові слова

інклюзивне зростання, Туніс, комплексний показник, аналіз
основних компонентів

Класифікація JEL

D63, O4, R11

INTRODUCTION

Recent years have been signaled by a series of economic crises such as the 2008–2009 global financial crisis, the European sovereign debt crisis (2010–2012) and the commodity price corrections (2014–2016). This recession marked the beginning of a period of slow economic growth, coupled with pronounced attention to the more unequal distribution of its gains. But global economic activity resumed, with an expected cyclical recovery in investment, manufacturing, and trade. Global growth has risen from 3.1% in 2016 to 3.5% in 2017. However, these gains remain unevenly distributed across countries and regions, many of which have not yet regained sufficient growth. For a long time and before the revolution, Tunisia had been characterized by a solid growth compared with the African continent with an average annual GDP growth rate of around 5% (1960–2010) but this rate was only 1.5% during the period from 2011 to 2015. This growth has for a long time been higher than the average recorded by MENA countries.

The rise in the standard of living did not allow a balanced and fair development between regions and between men and women. Income inequality in Tunisia as well as in OECD countries and emerging economies is partly due to dysfunctions in the labor market (Hoeller et al., 2012). Regional disparities characterized the Tunisian economy. These disparities were explained by a high level of unemployment among skilled graduates as well as a reduction in productivity as a result of a significant state intervention in the economy and a high level of poverty in some regions. But since the outbreak of the revolution (2011), economic growth has steadily deteriorated. Nevertheless, a fair redistribution of income and the fight against the social exclusion of marginalized populations seem to carry many challenges. A high rate of economic growth does not necessarily lead to an improvement in the standard of living of all citizens and a reduction in poverty.

The inclusive growth approach is necessary for Tunisia to overcome these difficulties, to increase the standard of living of its population, to reduce the level of poverty and to achieve a sustainable development (Berg & Ostry, 2011; Kraay, 2004). Inclusive growth has entered the public sphere both as an economic concept and as a socially-desirable goal.

The objective of this article is to build a synthetic inclusive growth index (SIGI) in Tunisia that can be used to guide public policies and evaluate the performance of these policies. To achieve this, we will present the origins of this concept and present a review of the literature in a first section. A second section has as a subject the presentation of the methodology as well as the different variables used. A final section is concerned with presenting the different results while mentioning the importance of the strategy of inclusive growth in Tunisia as a generator of wealth and jobs in a fair way.

1. THE ORIGINS OF INCLUSIVE GROWTH

In the early 1950s, the economic literature considered that growth favored the rich only (Kanbur, 2000; Kakwani & Pernia, 2000). Indeed, having no capital, neither human nor financial, the poor could receive only a small part of the benefits of growth (thanks to the redistribution in particular): this is the trickle-down theory. Kuznets is certainly one of the first authors to formulate this idea. Already, in the mid-1950s, he argued that inequality and growth have a relationship in the form of an inverted “U” function. Indeed, according to him, inequalities increase initially with the growth process. Then they fall back with economic development. However, far from observing this phenomenon, inequalities continue to persist despite periods of strong economic growth.

The theories of growth have been dominated by the works of Kuznets (1955) and Solow (1956). These studies take into account the existence of a relationship between economic growth, inequality and poverty. These inequalities continue to persist despite the existence of some economic growth which results in the marginalization of individuals. These income inequalities give rise to a situation of instability and social protest movements having

perverse effects on investment. As this was the situation, and since the beginning of the 1990s, debates have begun to find alternatives to inequalities that bring a new perspective to the concept of inclusive growth (Alesina & Perotti, 1994; Alesina & Rodrik, 1994; Deininger & Squire, 1998; White & Anderson, 2001; Ravallion, 2001; Dollar & Kraay, 2002).

This concept is a major objective for most stakeholders. It enables all the segments of society to participate in the achievement of economic growth and at the same time guarantee equal opportunities, access to economic opportunities and job creation. According to Anand and Kanbur (1993b), Bourguignon (2003), Kakwani (1993) and Klasen (2005), growth takes into account the conditions under which the poorest benefit. This approach has been attracting more and more attention (Tandon & Zhuang, 2007; Ali, 2007a, 2007b; Ali & Zhuang, 2007; Rauniyar & Kanbur, 2010; Klasen, 2010, and Felipe, 2010; Ianchovichina et al., 2009; Hakimian, 2013). Historically, inclusive growth has been dealt with using two approaches: a so-called relative approach that seeks to reduce inequalities in favor of the poor. A second approach, called absolute, considers that growth is pro-poor when it ensures a reduction of the poverty rate in absolute terms.

Given the diversity of the actors who use the term inclusive growth, this concept remains unclear and does not have a unanimous definition on the part of the various development actors. The World Bank argued that there is inclusive growth when productivity is improved and employment opportunities are created (Ianchovichina & Lundstrom, 2009; World Bank, 2009). It also pointed out that inclusive growth was focused on an existing analysis of the sources that fueled the strong and sustained growth and the constraints that affected it, not just the group of the poor. According to Gurria et al. (2014), the World Bank takes this approach into account in marking out the pace and pattern of economic growth. According to this approach, a strong economic growth is needed to reduce absolute poverty. Notwithstanding this, for this growth to be sustainable, it must be representative of the sectors and of the country's labor force. As for the Asian Development Bank, it defines inclusive growth as increasing the "social opportunity function" and as including two factors: the "average opportunities" available to the population and the way in which they are distributed among the population (Ali & Son, 2007b). The OECD (2014) defined inclusive growth as "economic growth that creates opportunities for all segments of the population and distributes the dividends of this growing prosperity, in both monetary and non-monetary terms, fairly among the whole society".

The United Nations Development Program (2015) also emphasizes inclusive growth. It defines it by equating both the participative and the redistributive aspect. Growth is inclusive if the entire population participates in the organization of growth and benefits from it equitably. The IMF goes further, in that, inclusive growth must also reduce corruption, improve governance and promote the use of financial instruments by less wealthy households, in addition to respecting the principles of gender equality and sustainable development (Loungani, 2017a, 2017b). When the definition of inclusive growth is more normative than descriptive, it tends to include increased access to essential services (health, education, justice, infrastructure) and reduced economic inequality (OECD, 2011, 2015a, World Bank, 2016a), better jobs and a lower unemployment rate, especially for the youngest (ILO, 2016), as well as the internalization of negative externalities in the measurement of growth (de Mello & Dutz, 2012). For developing countries, additional criteria are added to the definition of inclusive growth: improving institutional capacities for human resource development, overall income growth as well as a less unequal distribution of resources, higher national financial resources and reduced vulnerability to economic shocks (UN, 2011). The lack of consensus on the definition of inclusive growth has led to different measurement methods. Only a few studies have gone so far as to put into practice a definition and a measurement of inclusive growth. Four ways of measuring inclusive growth are highlighted in the literature: unified measurement, dashboard indicators, single-value index, and the analytic framework. Although each method has its merits, the one based on the utilitarian welfare function integrating both the dimensions of growth and equity in a unified framework is the most attractive, the others being too general and likely to be assimilated to measures of inclusive development. In addition, the so-called unified measure requires less data and can easily be used for cross-country comparison. This measure is based on the utilitarian welfare function as introduced by Ali and Son (2007a) and subsequently adapted by Anand et al. (2013).

2. METHODOLOGY OF CONSTRUCTION OF THE INDEX AND DATA

A synthetic index makes it possible to measure the value of a complex quantity defined as the summation of a set of elementary indices. It is an instrument that aggregates all the information contained in a set of variables. As part of this study, we will use the Principal Component Analysis (PCA) method to construct the Synthetic Inclusive Growth Index.

2.1. Principal component analysis

In order to complement the previous theoretical analysis through a statistical approach based on the Principal Component Analysis (PCA) method, the objective of this method is to establish a classification to detect important features in order to build a synthetic indicator of inclusive growth. The latter describes, in a single variable, the common component of the variables that are highly correlated. This method provides weightings that reflect the variability of the data. It relies on empirical weightings resulting from the internal phenomenon of the data.

2.2. Presentation of the variables

To perform this empirical work, a total of 22 variables were used according to different indicators. This is data from the World Bank (WDI) covering the period 1980–2017. These variables include six indicators and each indicator is composed of several variables.

The following table represents all of these variables used.

Table 1. Presentation of the variables

| Indicators | Variables |
|-------------------------------------|---|
| Health indicator | Gross birth rate (per 1000 persons) |
| | The crude death rate (per 1000 persons) |
| | Life expectancy at birth (years) |
| | Child mortality rate |
| | Fertility rate (births per woman) |
| | Population per hospital bed |
| Education Indicator | Literacy rate |
| | Primary level |
| | Secondary level |
| | Number of primary education teachers |
| | Number of secondary education teachers |
| | The pupil / teacher ratio |
| Governance indicator | Tertiary registration stage |
| | Public health expenditure |
| | Public expenditure on education |
| | Military expenditure |
| Environmental indicator | Degree of freedom from corruption |
| Indicator of inequality and poverty | CO2 emission |
| | GINI index |
| | GDP per capita |
| | Annual GDP growth in % |
| Economic indicator | Public debt / GDP |

3. RESULTS AND INTERPRETATIONS

Table 2 summarizes the various descriptive statistics of the variables used (see Appendix).

Table 2. Descriptive statistics

Source: Authors' calculations.

| Variable | Observations | Minimum | Maximum | Average | Standard deviation |
|--|--------------|------------|------------|------------|--------------------|
| Public debt / GDP | 38 | 40,660 | 80,510 | 62,027 | 11,836 |
| GINI index | 38 | 33,140 | 46,600 | 39,658 | 3,937 |
| GDP / capita | 38 | 1,809.000 | 12,037.000 | 6,260.579 | 3,268.453 |
| Annual GDP growth, % | 38 | -1,920 | 7,950 | 3,838 | 2,496 |
| Public expenditure on education | 38 | 4,890 | 6,820 | 6,074 | 0.428 |
| Health expenditure | 38 | 5,138 | 12,284 | 7,351 | 2,077 |
| Military expenditure | 38 | 1,260 | 4,590 | 1,997 | 0.706 |
| Degree of freedom from corruption | 38 | 38.000 | 53.000 | 47,768 | 4,098 |
| Primary level | 38 | 61,308 | 99,634 | 87,293 | 12,726 |
| Secondary level | 38 | 25,165 | 92,506 | 64,668 | 23,236 |
| Tertiary enrollment stage | 38 | 4,980 | 35,180 | 19,459 | 12,252 |
| Number of primary education teachers | 38 | 26,487.000 | 70,577.000 | 53,184.910 | 11,999.245 |
| Number of secondary education teachers | 38 | 13,081.000 | 87,585.000 | 53,738.658 | 26,038.204 |
| Literacy rate | 38 | 71,074 | 97,304 | 85,969 | 9,087 |
| Pupil / teacher ratio | 38 | 9,083 | 20,212 | 16,699 | 2,818 |
| Gross birth rate | 38 | 16,480 | 34,930 | 22,293 | 6,067 |
| Crude death rate | 38 | 5,480 | 8,860 | 6,337 | 0.832 |
| Life expectancy at birth | 38 | 62,020 | 75,730 | 71,276 | 4,072 |
| Child mortality rate | 38 | 11.000 | 69.000 | 32,553 | 17,406 |
| Fertility rate | 38 | 1,980 | 6,190 | 3,013 | 1,333 |
| Population per hospital bed | 38 | 1,700 | 2,857 | 2,045 | 0.268 |
| CO2 emission | 38 | 0.230 | 0.320 | 0.269 | 0.024 |

When we talk about the correlation between the different variables, we refer to a coefficient that serves to identify the intensity of the relationship between the different explanatory variables taken two by two. This correlation coefficient varies between -1 and 1. The correlation is strong between two variables when the coefficient in absolute value is close to 1 and weak when it is close to 0. Similarly, the sign of the coefficient reveals the meaning of correlation.

In Table 3 (see Appendix), we illustrate the correlation matrix between the different explanatory variables.

Table 3. Correlation matrix

| Variables | Pc.Dt./ GDP | G.I. | GDP/ Cap. | Gr. (GDP), % | Exp. Edu | H. Exp. | Mil. Exp. | D. Fr. Corr. | Pri. Lev. | Sec. Lev. | Ter. Enr. St. | Nr. Pr. Ed. Trs. | Nr. Sec. Ed. Trs | Lit. Rt. | P./Tr Rto | G.B.R. | C.D.R. | Lf. Exp. | C.M.R. | F. R. | Pop/ H.Bed | CO2 Emi. |
|---------------------|----------------|--------|--------------|--------------------|-------------|------------|--------------|-----------------|--------------|--------------|---------------------|------------------------|---------------------------|----------|--------------|--------|--------|-------------|--------|-------|---------------|-------------|
| Pc.Dt./ GDP | 1 | | | | | | | | | | | | | | | | | | | | | |
| G.I. | 0.832 | 1 | | | | | | | | | | | | | | | | | | | | |
| GDP/ Cap. | -0.903 | -0.882 | 1 | | | | | | | | | | | | | | | | | | | |
| Gr. (GDP)% | 0.160 | 0.322 | -0.248 | 1 | | | | | | | | | | | | | | | | | | |
| Exp. Edu | -0.624 | -0.475 | 0.584 | -0.009 | 1 | | | | | | | | | | | | | | | | | |
| H. Exp. | 0.555 | 0.465 | -0.535 | -0.049 | -0.882 | 1 | | | | | | | | | | | | | | | | |
| Mil./Exp. | 0.609 | 0.470 | -0.495 | -0.142 | -0.704 | 0.772 | 1 | | | | | | | | | | | | | | | |
| D. Fr. Corr. | 0.700 | 0.729 | -0.820 | 0.347 | -0.199 | 0.080 | 0.125 | 1 | | | | | | | | | | | | | | |
| Pri. Lev. | -0.811 | -0.764 | 0.871 | -0.137 | 0.823 | -0.863 | -0.719 | -0.500 | 1 | | | | | | | | | | | | | |
| Sec. Lev. | -0.897 | -0.804 | 0.943 | -0.168 | 0.749 | -0.745 | -0.664 | -0.616 | 0.968 | 1 | | | | | | | | | | | | |
| Ter. Enr. St. | -0.917 | -0.842 | 0.971 | -0.194 | 0.635 | -0.587 | -0.566 | -0.704 | 0.897 | 0.969 | 1 | | | | | | | | | | | |
| Nr. Pr. Ed. Trs. | -0.722 | -0.725 | 0.803 | -0.126 | 0.828 | -0.895 | -0.702 | -0.472 | 0.956 | 0.886 | 0.784 | 1 | | | | | | | | | | |
| Nr. Sec. Ed. Trs | -0.920 | -0.840 | 0.976 | -0.188 | 0.711 | -0.672 | -0.615 | -0.703 | 0.942 | 0.989 | 0.986 | 0.860 | 1 | | | | | | | | | |
| Lit. Rt. | -0.935 | -0.852 | 0.969 | -0.187 | 0.717 | -0.684 | -0.632 | -0.694 | 0.940 | 0.987 | 0.980 | 0.864 | 0.994 | 1 | | | | | | | | |
| P./Tr Rto | 0.776 | 0.809 | -0.839 | 0.297 | -0.298 | 0.180 | 0.240 | 0.910 | -0.556 | -0.657 | -0.731 | -0.543 | -0.738 | -0.738 | 1 | | | | | | | |
| G.B.R | 0.731 | 0.658 | -0.759 | 0.043 | -0.871 | 0.948 | 0.768 | 0.333 | -0.976 | -0.909 | -0.802 | -0.958 | -0.861 | -0.865 | 0.403 | 1 | | | | | | |
| C.D.R. | 0.424 | 0.401 | -0.393 | -0.026 | -0.829 | 0.958 | 0.685 | -0.004 | -0.755 | -0.599 | -0.412 | -0.839 | -0.522 | -0.541 | 0.119 | 0.856 | 1 | | | | | |
| Lf. Exp. | -0.832 | -0.796 | 0.888 | -0.149 | 0.824 | -0.857 | -0.699 | -0.546 | 0.992 | 0.964 | 0.892 | 0.972 | 0.944 | 0.947 | -0.613 | -0.966 | -0.765 | 1 | | | | |
| C.M.R. | 0.875 | 0.838 | -0.942 | 0.187 | -0.773 | 0.779 | 0.658 | 0.629 | -0.982 | -0.986 | -0.942 | -0.935 | -0.979 | -0.978 | 0.685 | 0.926 | 0.667 | -0.989 | 1 | | | |
| F.R. | 0.745 | 0.712 | -0.767 | 0.096 | -0.871 | 0.934 | 0.785 | 0.383 | -0.962 | -0.892 | -0.778 | -0.975 | -0.852 | -0.862 | 0.481 | 0.977 | 0.877 | -0.970 | 0.930 | 1 | | |
| Pop/H. Bed | -0.034 | -0.241 | 0.080 | -0.143 | -0.398 | 0.397 | 0.279 | -0.399 | -0.210 | -0.161 | -0.045 | -0.131 | -0.067 | -0.057 | -0.406 | 0.303 | 0.328 | -0.148 | 0.103 | 0.216 | 1 | |
| CO2 Emi. | 0.843 | 0.696 | -0.917 | 0.158 | -0.560 | 0.472 | 0.459 | 0.716 | -0.796 | -0.903 | -0.932 | -0.675 | -0.922 | -0.907 | 0.696 | 0.691 | 0.282 | -0.791 | 0.856 | 0.661 | 0.095 | 1 |

The matrix shows a positive relationship between several variables: the GINI index and the ratio of public debt / GDP (0.832), the literacy rate and GDP / capita (0.969), the number of secondary education teachers and secondary level (0.989), life expectancy at birth and primary level (0.992).

Similarly, a negative correlation is associated with several variables: public expenditure on education and annual GDP growth rate (−0.009), public health expenditure and annual GDP growth rate (−0.049), and finally population per bed and the ratio of public debt to GDP (−0.034).

3.1. Choice of axes and analysis of the ‘variables / factors’ correlations

The Kaiser criterion is used for the choice of axes. Two conditions must be respected to choose an axis: the contribution to inertia must be greater than 1 and the cumulative contribution must be greater than 80%.

In our case, we can say that the first axis, corresponding to the first eigenvalue, alone, concentrates 70.626%. The second axis represents a value of 85.972%. It is therefore sufficient to retain these two axes for the analysis; the included information about the others may be considered as residual.

Table 4. Choice of axes

Source: Authors' calculation.

| Variables | Axis 1 | Axis 2 |
|----------------|--------|--------|
| Eigenvalue | 15.538 | 3.376 |
| Variability, % | 70.626 | 15.345 |
| Cumulated, % | 70.626 | 85.972 |

A reading of each of the two selected factors of the correlations with the 22 variables can ensure the determination of their concrete significance. The circle of ‘variables/factors’ correlations is often used to obtain a synthetic and immediate view. This graph corresponds to a projection of the variables initially used on a two-axis plan with two factors. In our case, we could deduce from the graph and Table 6 (see Appendix) that the F1 axis is clearly linked to the child mortality rate, life expectancy at birth, the number of primary school teachers, the number of secondary school teachers, the fertility rate and public health expenditures while the F2 axis is essentially related to the degree of freedom from corruption and the population per hospital bed. These trends are particularly interesting to identify in order to interpret the graph of individuals. These results are justified by the square cosine table of the variables

Table 5. Square cosines of the variables

Source: Authors' calculation.

| Variables | F1 | F2 |
|--|-------|-------|
| Public debt / GDP | 0.800 | 0.060 |
| GINI index | 0.694 | 0.134 |
| GDP /capita | 0.867 | 0.116 |
| Annual GDP growth, % | 0.029 | 0.155 |
| Public expenditure on education | 0.641 | 0.194 |
| Health expenditure | 0.635 | 0.332 |
| Military expenditure | 0.497 | 0.172 |
| Degree of freedom from corruption | 0.379 | 0.516 |
| Primary level | 0.962 | 0.019 |
| Secondary level | 0.969 | 0.002 |
| Tertiary enrollment stage | 0.880 | 0.053 |
| Number of primary education teachers | 0.881 | 0.038 |
| Number of secondary education teachers | 0.954 | 0.024 |

Table 5 (cont.).

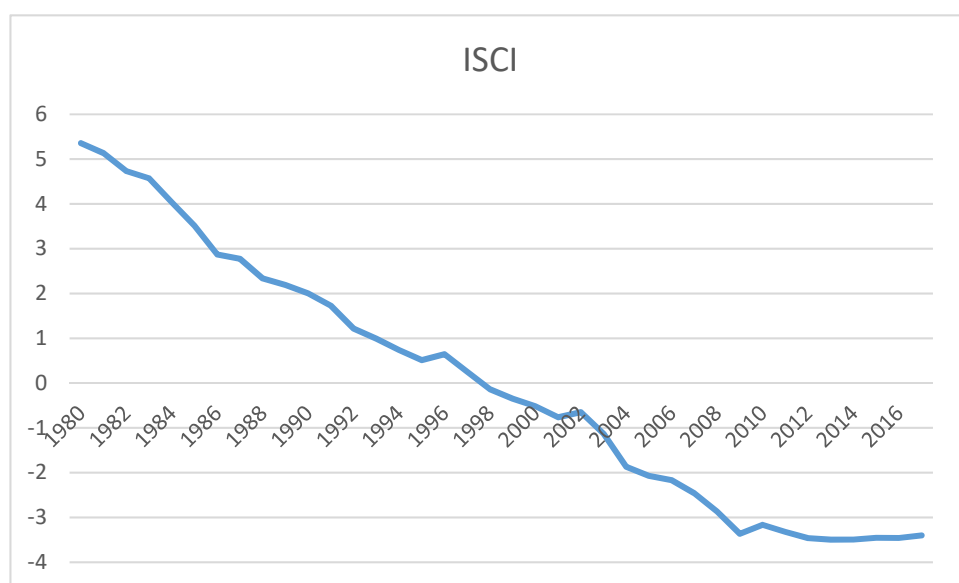
| | | |
|-----------------------------|-------|-------|
| Literacy rate | 0.960 | 0.021 |
| Pupil / teacher ratio | 0.462 | 0.412 |
| Gross birth rate | 0.873 | 0.110 |
| Crude death rate | 0.467 | 0.386 |
| Life expectancy at birth | 0.978 | 0.009 |
| Child mortality rate | 0.991 | 0.001 |
| Fertility rate | 0.885 | 0.080 |
| Population per hospital bed | 0.013 | 0.463 |
| CO2 emission | 0.721 | 0.077 |

- Interpretation of the first factorial axis: importance of the health indicator and the education indicator (70.626%)

The first component expressed on the F1 axis represents approximately 70.626%. This axis demonstrates the importance of the health and education indicators in the growth model that the Tunisian state followed since independence till the 2011 revolution. This model produced fairly good macroeconomic results, which allowed the country to avoid crises. The good results recorded by Tunisia in the fields of health and education led to a significant level of growth.

- Interpretation of the second factorial axis: importance of the indicator of degree of freedom from corruption (15.345%)

This axis represents a lower variance level than the first one. It explains the contribution of the degree of freedom from corruption to the improvement of the level of growth as corruption is one of the institutional barriers to economic growth.



Source: Authors' calculation.

Figure 1. The Synthetic Index of Inclusive Growth in Tunisia

3.2. Calculation and interpretation of the inclusive growth index

In this part, we will try to determine the synthetic index through the use of the first and second axes. This indicator is obtained through the summation of the index of the two axes multiplied by the weight of each axis. Table 5 gives us the results (see Appendix).

Thus, the graph below allows us to interpret the synthetic index of inclusive growth in Tunisia over the period from 1980 up to 2017.

The general appearance of this index shows a downward trend over the study period, reflecting a deterioration of the inclusive growth in Tunisia between 1980 and 2017 (see Table A2 in Appendix). Indeed, between 1980 and 1997, the SIGI is positive but on the wane, which shows that Tunisia managed to achieve a model of economic and social development that favored the development of certain sectors of activity. This development model gradually opened up to foreign trade and foreign direct investment. During this period, economic growth had averaged 5% per year since 1990 and the budget situation was quite solid.

Tunisia also adopted a social policy promoting universality and free education and health, specific benefits for needy families, and maintaining low prices for basic foodstuffs through direct subsidies to producers or indirect ones to consumers. Access to the basic infrastructure components such as drinking water or electricity was also developed. The charges of basic public services were subsidized. These social programs contributed to the reduction of poverty. As a result, most Tunisian households benefited from economic growth, including the poorest, who saw their consumption, grow at a faster pace than the wealthiest segments (World Bank, 2016).

Despite the good economic record, the key social issues and key development issues were resolved, raising the question of the universality and the foundation of the country's growth.

A rise in inequality in income distribution emerged through a high rate of unemployment, especially among young graduates, and a political and economic marginalization, particularly in the central regions of the country, which combined to create a strong feeling of discontent; this justifies the negative sign of the inclusive growth index (-0.139) from the year 1998 on. It can therefore be said that growth was not inclusive, which increased inequality, regional disparities, the increase in the youth unemployment rate, the stagnation of the private sector investment rates, and social exclusion.

Despite all the efforts made and the fruits of economic growth achieved in the 2000s, the employment rate remained low, especially for women: about one third of young people were unemployed and many workers faced precarious working conditions: for example, 50% of young people were in informal jobs (OCDE, 2015b).

Since 2011, it has also been noticed that contraband has developed acutely in some disadvantaged regions, with negative effects on the labor market and school enrollment rates. In addition, youth employment problems have encouraged a significant emigration which has affected more particularly the skilled workers. Unemployment of the latter has also had a clear negative impact on the middle class (Paciello, 2011), and since social welfare is largely based on an insurance system related to employment, a long period of unemployment has increased the risk of poverty.

The rise in the standard of living has not allowed a balanced and fair development between regions and between men and women. Part of the income inequalities in Tunisia stem from dysfunctions in the labor market (Hoeller et al., 2012). They are also the result of the bad distribution of the wealth created in Tunisia. The evolution of the level of income inequalities reflects the effect of the social and economic policies on the fight against social exclusion. At the regional level, however, income inequalities are remarkable. Job creation is particularly slow in some regions. Regional disparities in terms of unemployment and living standards between the coastal regions and the inland regions (north-west, center and southwest) are important. Coastal regions have a relatively better access to public services such as health, education or drinking water. In addition, the majority of the industries and services are located in these more urbanized areas and offer better conditions for private investment such as infrastructure and proximity to markets.

Hence, it is necessary to rethink the regional development policy by taking advantage of the strengths of each region in order to integrate them into the national value chain while ensuring an effective coordination between the state and local authorities.

Overall, the Tunisian growth model has often excluded the most dynamic and well-trained individuals, while at the same time it has failed to help some of the most vulnerable groups in the inland regions to catch up with their standard of living compared with the rest of the population. This situation stems in part from the contradictions between ambitious social policies, particularly in education, and an inability to productively use workers with a good level of training. Nor has the country created the institutions necessary for an equitable distribution of the benefits of growth, which is to a large extent explained by the shortcomings noted in the goods and labor markets, as well as by the weaknesses in the banking system.

4. CONCLUSION AND RECOMMENDATIONS

The main objective of this study is to measure the degree of inclusiveness of growth in Tunisia and to examine the main factors that stimulate it.

The calculation of the inclusive growth indicator in Tunisia was done using the principal component analysis method. The results show that the index of inclusive growth in Tunisia declined during the period from 1980 to 2017. This was largely facilitated by the increase in regional disparities, income inequalities, social exclusion, unemployment and the accumulation of poverty. When faced with this situation, most states have inclusive growth as a primary goal. This growth enables the entire population to participate in the process of wealth creation and to benefit from a growth that has the capacity to benefit the majority of the population and is therefore equitable. On the other hand, we highlight the necessary restrictions adopted by the various public and private economic players to promote inclusive growth and lower inequalities.

Important reforms are essential for Tunisia to emerge from this crisis through the improvement of efficient logistical and technological infrastructures by developing a coordinated national strategy for infrastructure and updating the priorities of infrastructure development. Tunisia's score for the World Bank Logistics Performance Index has fallen from 2.8 to 2.6, and the country has dropped from the 60th to the 118th rank. These infrastructure issues represent a major challenge for the government, especially as it aims to move Tunisia forward in the international value chains.

The recovery in growth requires the revival of investment which faces institutional barriers to the inclusive nature of growth. So, the revival of investment must be a major objective of the government; to boost business investment and promote private initiative, regulatory and administrative constraints must be reduced, including numerous licenses, authorizations and administrative authorizations, pricing constraints and restrictions on competition in certain sectors. These constraints have created rent-seeking opportunities for incumbents and reduce the incentive for these companies to improve the quality of services provided. In the end, these constraints weigh heavily on the well-being of the population and reinforce the inequalities between the individuals employed by the "protected" companies and the others. As a result, future public policies should focus on promoting youth entrepreneurship and improving the business environment to boost private investment as the key to sustainable and inclusive economic growth.

It is now urgent to establish the Independent Constitutional Body on Good Governance and the Fight against Corruption' and to reform the control and audit system in the public sector. The governance of public enterprises needs to be strengthened and their financial performance needs to be significantly improved. This public administration reform must be maintained by maintaining the public sector debt below 70% of GDP, by reducing the cost of subsidies as well as the wage bill in the public sector, and by reforming the pension system.

Fighting corruption is a major issue for the socio-economic development of Tunisia. The country is still facing a problem of corruption, as indicated by its score 42/100 obtained according to Transparency International's 2017

Corruption Perceptions Index. The prevention of and the fight against corruption will have a direct and positive effect on businesses' confidence in the State and will contribute to creating a level playing field for businesses. Tunisia is therefore called upon to speed up the development of legislation, to guarantee the independence of the judiciary system as well as that of the public-sector control bodies and also to promote the role of the courts in deciding on corruption cases. The fight against corruption and good governance are key government objectives that represent priority reform axes for achieving inclusive growth and transparent participatory governance.

Other indicators that can influence the level of economic growth include public debt versus GDP; then the government must commit to preserve the stability of the major balances of the economy through the reduction of the budget deficit levels and the treatment of the problem of indebtedness which has reached levels that weigh heavily on the Tunisian economy. It is crucial to put the budget deficit on a decreasing and sustainable path, which requires an additional adjustment; so it is possible to reduce the fiscal deficit while putting public finances at the service of a stronger and more inclusive growth.

The adoption of an economic policy that succeeds in reducing territorial and social inequalities is the main objective since the widespread impression in Tunisia is that inequalities are shrill and growing.

Thus, it is possible to promote inclusive growth through policies to combat the spatial inequalities in the access to and the quality of basic services, the access to good infrastructures, and more generally by tackling institutional failures which generate unequal "chances". Underutilization of the human capital and the existence of unequal opportunities in Tunisia hinder inclusion and shared prosperity. High inequalities in access to quality education are a challenge for the accumulation of human capital for a large part of the population.

Tunisia has a lot of leeway to improve its productivity growth and employment rates while continuing to fight inequality and poverty through a better use of the accumulated human capital. It must therefore lower the high unemployment rate and increase the employment rate of the population, especially that of women, 60% of whom have a secondary or higher education (a much higher rate than those in the other countries of the MENA region, but the activity and employment rates of these women does not exceed 25% and 20% respectively). For the sake of comparison, 70% of the men have a secondary or higher education; their participation rate is 70% and their employment rate exceeds 60%. Family-friendly policies are needed to improve women's participation in the labor market while helping people to balance work and family life.

To achieve this, the Tunisian authorities will have to implement a set of coherent socio-economic policies in relation not only to the labor market but also to the quality of education as well as the regulations on the goods markets, and also in relation to the business climate and to the tax system. Thus, Tunisia needs to develop an inclusive regional development strategy in which public investment is central. Good governance is essential for these investments to be effective. Decentralization would bring citizens closer to their rulers and foster economic development.

In addition, public works programs can be targeted to help reduce regional infrastructure deficits and move towards a green economy if the projects are in line with the country's sustainable development strategy investing in renewable energy and supporting resource-efficiency solutions in all sectors. The introduction of key structural reforms should boost both foreign investment and more inclusive growth in the country provided the security environment does not deteriorate. The path of investment must be directed towards a more diversified economy, generating skilled jobs and based on high value-added activities. Lastly, the energy, environment, biodiversity and circular economy sectors are booming in many developed countries. Tunisia cannot stay away from this development.

To achieve these objectives, it is therefore important that the state be strong and autonomous and that the reforms to be implemented be sufficiently credible in order to benefit from the support of different partners.

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APPENDIX

Table A1. Contributions of the variables in %

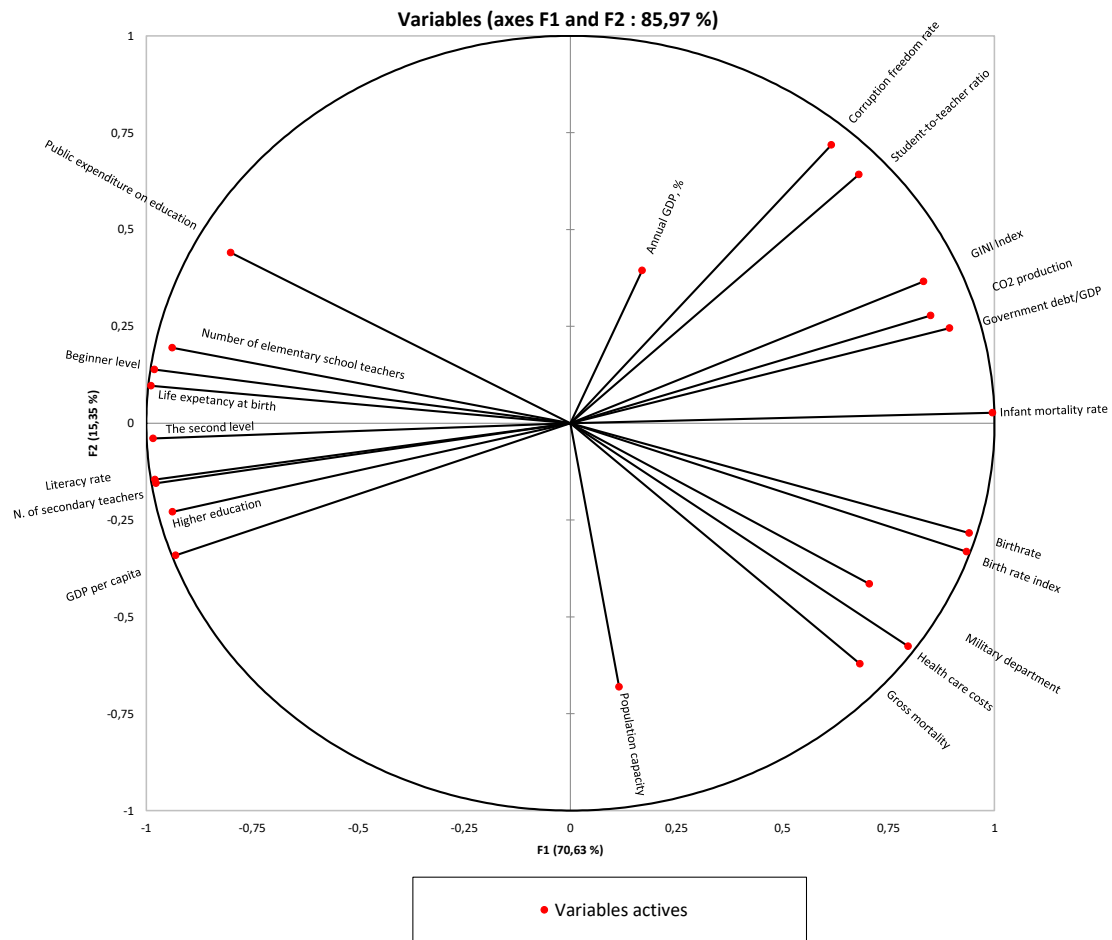
| | F1 | F2 |
|--|-------|-------|
| Public debt / GDP | 0.051 | 0.018 |
| GINI index | 0.045 | 0.040 |
| GDP /capita | 0.056 | 0.034 |
| Annual GDP growth % | 0.002 | 0.046 |
| Public expenditure on education | 0.041 | 0.057 |
| Health expenditure | 0.041 | 0.098 |
| Military expenditure | 0.032 | 0.051 |
| Degree of freedom from corruption | 0.024 | 0.153 |
| Primary level | 0.062 | 0.006 |
| Secondary level | 0.062 | 0.045 |
| Tertiary enrollment stage | 0.057 | 0.016 |
| Number of primary education teachers | 0.057 | 0.011 |
| Number of secondary education teachers | 0.061 | 0.007 |
| Literacy rate | 0.062 | 0.006 |
| Pupil / teacher ratio | 0.030 | 0.122 |
| Gross birth rate | 0.056 | 0.033 |
| Crude death rate | 0.030 | 0.114 |
| Life expectancy at birth | 0.063 | 0.003 |

Table A1 (cont).

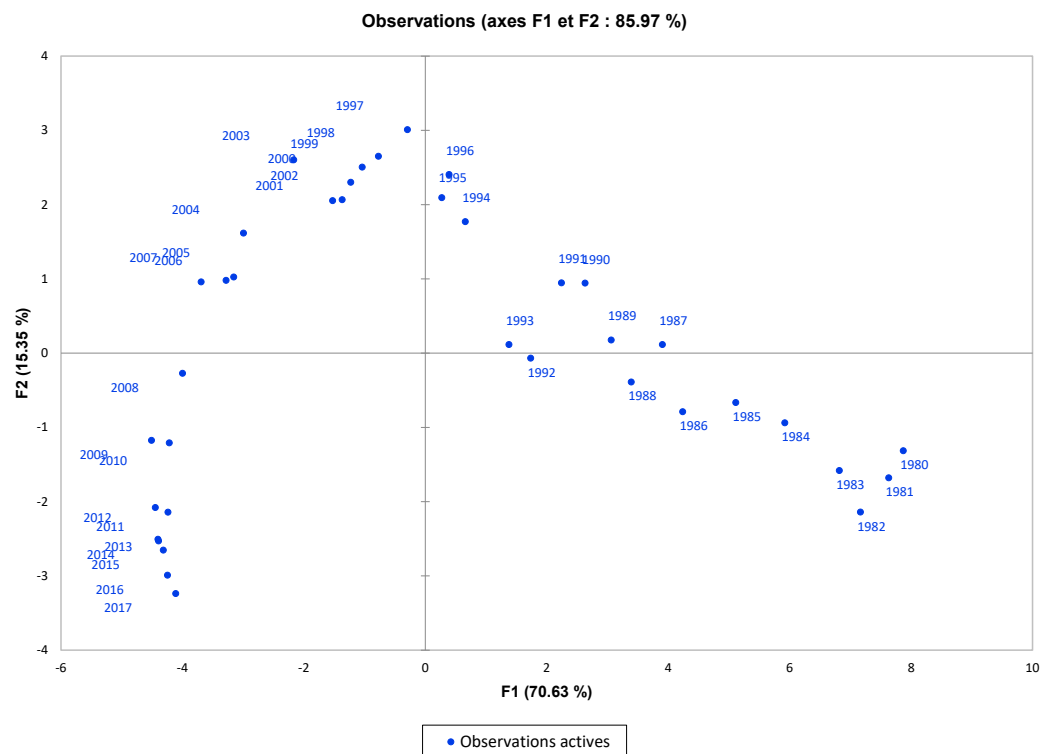
| | | |
|-----------------------------|-------|-------|
| Child mortality rate | 0.064 | 0.000 |
| Fertility rate | 0.057 | 0.024 |
| Population per hospital bed | 0.001 | 0.137 |
| CO2 emission | 0.046 | 0.023 |

Table A2. Evolution of the inclusive growth index in Tunisia

| Year | Inclusive growth index |
|------|------------------------|
| 1980 | 5.35717258 |
| 1981 | 5.13208587 |
| 1982 | 4.73206711 |
| 1983 | 4.57300066 |
| 1984 | 4.0369599 |
| 1985 | 3.5092312 |
| 1986 | 2.87213032 |
| 1987 | 2.77482123 |
| 1988 | 2.33542949 |
| 1989 | 2.18874021 |
| 1990 | 2.00223751 |
| 1991 | 1.72777767 |
| 1992 | 1.21527081 |
| 1993 | 0.9908551 |
| 1994 | 0.73684405 |
| 1995 | 0.51234903 |
| 1996 | 0.64455509 |
| 1997 | 0.253269 |
| 1998 | -0.13923256 |
| 1999 | -0.35041612 |
| 2000 | -0.51504199 |
| 2001 | -0.76339242 |
| 2002 | -0.65027917 |
| 2003 | -1.13130418 |
| 2004 | -1.86782279 |
| 2005 | -2.07178226 |
| 2006 | -2.16802489 |
| 2007 | -2.46115649 |
| 2008 | -2.86606239 |
| 2009 | -3.36489074 |
| 2010 | -3.16322352 |
| 2011 | -3.32215524 |
| 2012 | -3.4602975 |
| 2013 | -3.49517042 |
| 2014 | -3.4914296 |
| 2015 | -3.45474952 |
| 2016 | -3.45782639 |
| 2017 | -3.40053864 |



Source: Calculated by authors'.

Figure A1. Contribution of variables

Source: Calculated by authors'.

Figure A2. Contribution of axes (F1, F2)