

## EFFECTS OF GROWTH AND INEQUALITY ON POVERTY IN TUNISIA

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**Abstract** - *This research seeks to evaluate the effects of growth and inequality on the dynamics of poverty in Tunisia from 1985 to 2005. To achieve this aim, two types of analyses are discussed. First, we proceed with the decomposition of changes in poverty into contribution of growth and a contribution due to the redistribution, according to the decomposition approaches suggested by Datt and Ravallion (1992) and Kakwani (1997). Secondly, the Pro-Poor Growth Index, developed by Kakwani and Pernia (2001), and the Poverty Equivalent Growth Rate, suggested by Kakwani and Son (2002), are applied to assess the degree of pro-poor growth with an emphasis on changes in distribution. The analysis of grouped data generated from surveys on Budget, Consumption and Household Standard of Living, held by the National Institute of Statistics (NIS) shows that the receding of poverty in Tunisia is mainly due to economic growth. However, because of changes in inequality, which came along with the process of growth, the latter was not strictly pro-poor. In fact, the rich benefit proportionally more than the poor from growth.*

**Key Words:** POVERTY, GROWTH, INEQUALITY, PRO-POOR GROWTH, TUNISIA.

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## 1. INTRODUCTION

Is growth enough to reduce poverty? Outstanding facts in the history underlay this interpellation. To illustrate this idea we provide two examples here. The British industrial revolution at the beginning of the 19th century, characterized by an exceptionally fast growth, was accompanied by a strong impoverishment of the population during several decades (Cling et al., 2004). The experience of the 1960s and 1970s showed that a fast economic growth does not necessarily reduce poverty, it may rather cause its worsening (UNDP, 2005).

It is a reconsideration of the neo-classical dogma, that has dominated until a relatively recent date – the beginning of the 1970s –, designing development models focusing on the economic growth and assuming that it would be a sufficient requirement to combat poverty. This reconsideration was consolidated by the various criticisms targeting the structural programs of adjustment (SPA), based on the “Consensus of Washington”, and recommended in order to help countries subject to a development crisis. Indeed, in many developing countries, these programs resulted in the rise of poverty and in the persistence of a debt crisis. Thus, the Institutions of Bretton Woods ended up in abandoning these programs to the benefit of a new approach of development focusing on the fight against poverty<sup>1</sup>.

The 1990s, thus, witnessed a revival of the theory of development in which the debate was ardently centered on a relatively old question, that of the relationship between growth, inequality in redistribution and poverty. Actually, what is old in the economic theory is the discussion about the nature of the relationship between economic growth and inequalities (Kuznets, 1955), but focus on the strategies against poverty resulted in adding the third term (Cling et al., 2004).

On the whole, the contributions, which are numerous in this debate, generally diverge into two theses. The first supports that “growth is good for the poor” regardless of its nature (Dollar and Kraay, 2002). An extreme alternative of this opinion tends to support that economic growth is enough to reduce poverty (Bhalla, 2002 and Sala-i-Martin, 2002). In practice, this agrees with the recommendation to privilege the growth target, in spite of the questions of inequality of distribution (thesis of the trickle down). The second thesis stipulates that the economic growth is not enough to reduce poverty, although it is a necessity. It must be accompanied by the establishment of inequality reduction policies (Burgundian, 2002 and Cling et al., 2004). Accordingly, extended inequalities can incur political and social instabilities leading to the weakening of investment motivations, which ends up in reducing growth in the long-term (Mourji et al., 2006).

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<sup>1</sup> This awakening led to the definition of the development objectives for the Millennium (MD), the first aims at dividing in two the percentage of the population living in a situation of extreme poverty by 2015.

Within the framework of this ambiguous theoretical context and as far as the real weight of economic growth in the combat against poverty is concerned, several technical approaches were used in order to apprehend the process of pro-poor growth. According to Lachaud (2003), a pro-poor growth requires a strategy deliberately biased in favour of the poor, in a way that the benefits obtained by them are more than proportional to those of the rich. A first approach in this sense consists in breaking up the inter-temporal variation of poverty into a share due to the economic growth – effect of growth – and another due to the redistribution of the benefits of growth for the poor – effect of redistribution – (Datt and Ravallion, 1992; Kakwani, 1997; Shorroks, 1999). Subsequently, the literature was extended by series of measurements of the pro-poor growth such as the growth incidence curve (Ravallion and Chen, 2003), the pro-poor growth index (Kakwani and Pernia, 2001), the poverty equivalent growth rate (Kakwani and Son, 2002) and the poverty growth curve (Son, 2004).

This research contributes to extending the debate over the link between economic growth, the inequality of distribution of its outcomes and poverty. With regard to the case of Tunisia, this study joins a series of relatively numerous and diverse<sup>2</sup> previous works. The innovation brought by this contribution consists in the analytical options adopted and the nature of the data used.

In this study, the favourability of the economic growth aspect for the poor will be evaluated, not only in the light of the evolution of the relative proportion of the poor, but also taking into account the evolution of the situation of the poor (poverty gap and severity). Indeed, concern with the evolution of the incidence of poverty tends to focus attention on people just below the poverty line and “to leave aside” those in a poorer situation.

As for the data used, this research proposes the use of methodological choices, which make it possible to circumvent the constraint “of unavailability” and/or “incompleteness” of the microeconomic data on the budget and consumption of households. Taking into account the obstacles, which make access to such information often partial and not covering the entire study period, the empirical investigation will be limited to the grouped information published by the National Institute of Statistics of Tunisia (NIS).

The aims of this study come in two folds. First, it seeks to assess the contributions of economic growth and the evolution of inequalities in the reduction of poverty in Tunisia between the years 1985 and 2005, by distinguishing the underlying periods of adjustments –1985-1995 – and the declared commitment to trade liberalization – 1995-2005. The analytical interest of this distinction is undoubtedly significant taking into account the disparity of the economic achievements, particularly with regard to growth, characterizing these two underlying periods. Then, we borrow from Kakwani and Pernia (2001) their pro-poor growth index and from Kakwani and Son (2002) their poverty equivalent

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<sup>2</sup> For examples: Ayadi and El Agha (2006); Bibi (2005) (2006); Sboui and Benhmid (2006); Ayadi and al. (2004).

growth rate in order to evaluate whether the growth achieved during this period in Tunisia was for the benefit of the poor. Before analyzing empirically these two objectives, this paper will start by examining the achievements of Tunisia against poverty, and by reviewing certain analytical and methodological options.

## **2. POVERTY IN TUNISIA: METHODS OF MEASUREMENT AND EVOLUTIONS**

### **2.1. Methods of measurement**

Since 1980, the NIS has been carrying out a five-year estimation of the poverty line on the bases of data from surveys on Budget, Consumption and Household Standard of Living. The estimated threshold corresponds to a monetary equivalent of the food and non-food needs.

Regarding the food component, it is defined from the minimal requirement in calories as it is recommended by FAO-WHO<sup>3</sup> Joint Committees. This minimum need is supposed to ensure the maintenance and growth of children and the maintenance in adults while providing the increase of energy necessary at least for the essential activity to the existence (Bedoui, 1992).

To convert these caloric needs into monetary expenditure, the NIS is adopting the method of the IBRD<sup>4</sup> which refers to the 20th percentile – the annual expenditure per capita under which live the 20% of the poorest population – as the basis to calculate the price of the applicable minimum caloric requirements. The necessary expenditure to satisfy the average minimum energy requirement is obtained by multiplying this last by the unit cost of a kilo calories revealed by the consumption budget.

As for the non-food component – expenditure of dwelling, clothing, health care, transport and various – , its expenditures are evaluated by retaining their shares in the total expenditure of the population of the 20th percentile as indicated by the consumption survey.

For all realized surveys, the NIS considers two thresholds per area assuming that the consumption model of the communal population differs from that of the rural population.

Until 2005, date of the realization of the last survey on the budget, the consumption and the household standard of living, the NIS made two adjustments in the procedure of setting the poverty line. Indeed, until 1995, the poverty line estimated periodically in Tunisia was just the updating of the threshold of 1980 by the sliding of the price index of household consumption. It was only in 2000 that this estimate made an updating of the two components – food and non-food – by the sliding of the index consumer prices of the food and non-food products. The second adjustment is probably more significant as far as it con-

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<sup>3</sup> Food and Agriculture Organization-World Health Organization.

<sup>4</sup> International Bank for Reconstruction and Development.

cerns the population of reference to the setting of poverty lines in both areas and the caloric basis reference to estimate food component. Indeed, for the 2005 survey, under the impulse of the World Bank recommendations, the NIS uses the same population of reference to evaluate poverty lines in the two areas instead of two distinct populations as it is the case in the former surveys. Furthermore, the monetary evaluation of the food component of the poverty line is no longer based on the minimum essential caloric needs but rather on a level supposed to be “ideal” for the needs per person per day (2213 kilos calories per person /day).

As all the various methods used to estimate the demarcation monetary line between the poor and the non-poor, the one advocated by the NIS, particularly until 2000, remains imperfect and contains fundamentally an element of arbitrariness. In this regard, “the World Bank, which contributed to the establishment of the method adjusting poverty line with the NIS in 1980, has identified some insufficiencies in this method and proposed in 1995 an alternative method of adjusting new thresholds” (UNDP, 2004, p.85). The approach proposed by the World Bank suggests rectifying the procedure of the NIS at two levels. First, the reference group chosen should be the same for rural and urban areas and located around the poverty line as defined by the NIS in 1990. The caloric unit values calculated on this basis show a difference of only 18% between urban and rural areas, against more than 60% for the approach of the NIS (Ayadi and al., 2004). Then, concerning the non-food share, the World Bank proposes to deduct it from an Engel relation estimated econometrically.

**Table 1. Poverty lines by area (NIS/World Bank, 1990)**

	Value Unit (rural = 100)		Food Poverty Line (in TD)		Food Share		Poverty Line (in TD) (rural=100)			
	NIS	WB	NIS	WB	NIS	WB	NIS	WB	NIS	WB
Urban	163	118	150	160	0.54	0.55	278	218	200	118
Rural	100	100	89	134	0.64	0.61	139	185	100	100

Source: Ayadi and al., 2004.

According to this methodological division, while poverty line is twice higher for the urban than for the rural ones according to the NIS, it is just 18% higher according to the World Bank (cf. table 1).

## 2.2. Evolution of poverty in Tunisia

Poverty has largely decreased during the last twenty-five years. The ratio of the poor in the total population – poverty rate – went down from 12.9% in 1980 to 3.8% in 2005. This corresponds to a decrease in the number of the poorest people to less than the half, moving from 823000 in 1980 to 376400 in 2005. “However, a relatively high ratio of people is still above, but near, the poverty line, so that the important achievements of Tunisia in the battle against poverty remain vulnerable to the economic volatility”<sup>5</sup>.

<sup>5</sup> Gharbi (2005).

Concerning the profile of poverty by areas, two observations deserve to be mentioned. First, from 1980 to 2000, period during which the poverty lines are updated by simple sliding of the price index of household consumption, poverty witnessed a much more important decrease in rural areas than in urban ones. The poverty rate went down from 14.1% to 2.9% in rural areas, that is to say a decrease of 11.2 points, whereas in urban area, the improvement was only of 6.9 points, decreasing from 11.8% to 4.9%. The number of rural poor has been divided by 4 during this period, against a reduction of only 25% in urban areas. In 1980, poor people in rural areas represented 52.3% of the total population of the poor, while in 2000, poor people in urban areas hold a share of 74% (cf. table 2). Then, taking into account the adjustments started by the NIS in 2005, the trend has been reversed. In fact, when the poverty rate in urban area has declined dramatically – 3 points – the one in rural area has, for the first time since 1980, been multiplied by 2.5. In 2005, a ratio of 66% of the full number of poor people lived in rural areas.

**Table 2. Evolution of the poverty line and the incidence of poverty by area**

	1975	1980	1985	1990	1995	2000	2005
<b>Poverty line (current dinars)</b>							
Urban area	87	120	190	278	362	428	429-489 <sup>6</sup>
Rural area	43	60	95	139	181	221	378
Whole country	64	91	147	222	292	351	400
<b>Poverty line (1990 prices =100)</b>							
Urban area	272	270	269	278	273,5	276	243-277
Rural area	135	135	134,5	139	137	142,5	214
Whole country	200	205	208	222	220,5	226,5	226,5
<b>Total Population (in thousands)</b>							
Urban area	2 642.0	3 325.0	3 880.5	4 842.0	5 510.2	6 038.5	6 458.3
Rural area	2 909.0	3 044.0	3 274.2	3 302.0	3 491.3	3 559.8	3 447.0
Whole country	5 551.0	6 369.0	7 154.7	8 144.0	9 001.5	9 598.3	9 905.3
<b>Poor Population (in thousands)</b>							
Urban area	700.0	393.0	325.0	354.0	389.0	296.0	128.4
Rural area	523.0	430.0	229.0	190.0	170.0	103.0	248.0
Whole country	1 223.0	823.0	554.0	544.0	559.0	399.0	376.4
<b>Incidence of poverty (in %)</b>							
Urban area	26.5	11.8	8.4	7.3	7.1	4.9	1.9
Rural area	18.0	14.1	7.0	5.8	4.9	2.9	7.1
Whole country	22.0	12.9	7.7	6.7	6.2	4.2	3.8

Source: *Surveys on Budget, Consumption and Household Standard of Living, NIS.*

The change of the poverty profile indicated by the NIS results in 2005 corroborates all reservations made since 1995 by the World Bank with regard to the approach adopted by the NIS and reflects the relevance of the urban-rural dilemma which reigned for about ten years. Indeed, according to the approach

<sup>6</sup> In 2005, for the first time, the NIS defines two poverty lines for urban area: 489 Dinars for the big cities and 429 Dinars for the rest of urban areas.

suggested by the World Bank, poverty rate has always been higher in rural areas, contrary to what the NIS concluded until 2000 (cf. table 3). In addition, this approach indicates that the number of the poor declined in both areas and that the ratio of the poor in rural area compared to the full number in Tunisia fluctuate between 65% and 82% between 1980 and 2000 (Ayadi and al., 2004).

**Table 3. Evolution of the poverty incidence in Tunisia according to the approach of the WB**

	1980	1985	1990	1995	2000
Whole	20.1	9.6	6.7	8.1	4.1
Urban	7.7	4.0	3.0	3.2	1.7
Rural	30.1	17.2	12.7	15.8	8.3

Source: Ayadi and al., 2004.

These achievements in poverty reduction represent the outcome of a long battle. Since the independence in 1956, the development strategies adopted by the planners in Tunisia have given a main interest to the improvement of the living conditions and the poverty relief. The social sectors usually receive more than half of the State budget. The public expenditure on education and training, interference in the social domain, support to farmers and rural areas, public health and social security continue to represent about fifth of GDP and were affected neither by the difficulties of the economic situation nor by the structural adjustment programs (ANB-BIA, 2003). In this context, several programs and various organizations contribute to fight against poverty. The most important actions in this field are the programs' aims in the: i) social help and assistance; ii) employment support and creation of income sources; iii) improving conditions and living environment; iv) advocacy and social integration.

### 3. ECONOMIC GROWTH, POVERTY AND INEQUALITIES IN TUNISIA

Changes in the incidence of poverty are obviously strongly linked to economic conditions and performances of the country. Here, we will carry out a descriptive analysis of this relationship for two sub-periods appointed by the study<sup>7</sup>.

1985-1995: This period is characterized by the establishment, in the mid-1986, of the program of structural adjustment and stabilization which continued until 1993. Although it joins the effects of adjustments succeeding a phase of economic imbalances – 1st half of the 1980s – and the repercussions of the dryness between 1990 and 1995, this period witnessed a relatively measured slowdown of the growth. Indeed, overall, the average annual growth rate of the real GDP is of 3.5% for this period, against 3.7% during the first half of the 1980s. Specifically, this slowdown is relatively more obvious between 1985 and 1990, when the average annual growth rate is 3%, than in the period between 1990 and 1995, when this rate reaches 3.9%. At the same time, the GDP per capita

<sup>7</sup> The evolution of poverty is examined here in reference to the results of the NIS.

increased only by 0.3% in the period 1985 to 1990 compared with 1.9% from 1990 to 1995.

Despite this overall fragile economic context, the incidence of poverty has continued its downward trend. The poverty rate for the whole country has declined by 1.5 points from 7.7% in 1985 to 6.2% in 1995. The situation has further improved in the rural areas where the poverty rate fell by 2.1 points against 1.2 points in the urban areas.

1995-2005: This period corresponds to a launching phase of the deliberated process of trade liberalization and economic integration. In 1995, Tunisia signed with the European Union an agreement of association relating to the creation of a free exchange zone in a twelve-year period. The dismantling of the customs duties started even in 1996, before the coming into effect of the association agreement, March 1<sup>st</sup>, 1998. During this phase, the growth has accelerated at the highest rhythm since the end of the 1970s, that is to say 5.5% on average per year. Similarly, the GDP per capita has gone up at the highest rate ever since more than two decades, 3.9% on average per year. However, the average increase is higher between 1995 and 2000 than the one between 2000 and 2005.

An examination of the evolution of poverty during this period suggests the two following observations. First, from 1995 to 2000, poverty has decreased at the fastest rhythm since 1985 and has been characterized by a stronger incidence in urban area than in rural one. Second, poverty has become a rural phenomenon in 2005. The poverty rate evaluated in 2005 in the rural areas exceeds the one observed in 1985. This rate increased by 4.2 points between 2000 and 2005, from 2.9% to 7.1%, while that in the urban areas decreased from 4.9% to 1.9%.

As the evaluation of poverty is an approach based on the expenditure and not on the incomes, the analysis of the evolution of the expenditure could bring lighting on the evolution of poverty in relation to the income distribution. The calculations shown in table 4 highlight the three following observations.

Firstly, from an investigation to another, the average Expenditure per Person and per Year (EPY)<sup>8</sup> at constant prices presents generally an increase. EPY witnessed a reduction in rural area only in the period between 1990 and 1995. In this period, the EPY decreased by 4.6%, a rate of annual average decrease of 0.9%. The dryness is undoubtedly the plausible explanation of this phenomenon of impoverishment in the rural areas.

Secondly, taking into account the economic performances of the period of trade liberalization (1995-2005), which are strongly considerable in comparison with the results of the period of the adjustments (1985-1995), EPY has increased, during the first period, at a rate significantly higher than that of the second period. EPY has increased by 41.2% between 1995 and 2005, with an

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<sup>8</sup> The values of GDP are those published by the surveys on budget and household consumption, deflated by the price index for household consumption (1990=100).



average rate of annual increase of 3.5%, against an increase of 9.5% between 1985 and 1995, at the annual average rate of 0.9%.

**Table 4. Evolution of the GDP, GDP/capita and the Average Expenditure per Person and per Year**

	Average Growth Rate of GDP at the prices of 1990 (in %)	Average Growth Rate of GDP/Capita (in %)	Increase of GDP at prices of 1990 (in %)	Rates of Average Annual Increase of GDP (in %)
<b>1985-1990</b>				
Whole	3,0	0.29	7.5	1.45
Urban	-	-	1.6	0.32
Rural	-	-	10.6	2.03
<b>1990-1995</b>				
Whole	3.9	1.96	1.9	0.37
Urban	-	-	2.6	0.51
Rural	-	-	-4.6	-0.93
<b>1985-1995</b>				
Whole	3.45	1.13	9.52	0.91
Urban	-	-	4.30	0.42
Rural	-	-	5.52	0.54
<b>1995-2000</b>				
Whole	5.6	4.24	17.4	3.25
Urban	-	-	13.2	2.50
Rural	-	-	26.7	4.87
<b>2000-2005</b>				
Whole	5.4	3.45	20.3	3.76
Urban	-	-	18.9	3.51
Rural	-	-	18	3.37
<b>1995-2005</b>				
Whole	5.5	3.85	41.17	3.51
Urban	-	-	34.55	3.01
Rural	-	-	49.73	4.12

Source: author's calculations based on data from the NIS.

Thirdly, as a whole, rural areas have benefited more than the urban ones from this increase in EPY. During the period of the adjustments, despite the decrease during the first half of the 1990s, EPY in rural areas shows an increase of 5.5% against 4.3% in urban ones. This gap widens during the period of trade liberalization. The average of annual growth rate of EPY in rural areas is 4.1% against 3% in urban areas.

Regarding inequalities, an overview of the mass concentration degree of spending, measured by the Gini index is itself a good estimate of the concentration of the incomes. Three major observations emerge from table 5.

First of all, the national situation concerning inequality is relatively stable. For all the period of the study, the Gini index is slightly higher than 0.4, indicating a slight concentration of the expenditure. Next, the concentration degree of the expenditure at the national level is higher than in both urban and rural areas. This can be due to the inter-surroundings gaps that are added to

those intra-surroundings. Finally, table 5 shows a cyclical evolution of the concentration of the expenditure at the national level. However, the observed inequality in each urban and rural area always does not evolve in accordance with the national tendency. Indeed, during the period of trade liberalization, inequality has increased at the same time in urban and rural areas at the time when it has decreased nationally. However, although inequality has decreased overall in both areas and at the national level during the period of the adjustments, we note that this evolution is contrasted between the two five-year periods of this period. Indeed, the downward trend is confirmed at the levels of both areas as well as at the national level during the first five-year period, whereas during the second, the inequality worsened in urban areas as well as at the national level at the time when it is overall stable in rural areas.

**Table 5. Evolution of Gini index by area**

Milieu	1980	1985	1990	1995	2000	2005
Urban	0,396	0,411	0,374	0,389	0,391	0,395
Rural	0,375	0,364	0,354	0,353	0,358	0,369
Whole	0,430	0,434	0,401	0,417	0,409	0,414

Source: *Surveys on the budget, the consumption and the household standard of living, INS.*

#### 4. ANALYTICAL AND METHODOLOGICAL OPTIONS

##### 4.1. Poverty Indexes

Although the literature devoted to the measurement and the decomposition of poverty – significant during the last two decades – proposes several approaches that could be sufficient to the problem of aggregation of poverty, we retain in this study the indexes developed by Foster, Greer and Thorbecke (FGT)<sup>9</sup> in 1984. In practice, three measurements of poverty are retained: head-count ratio, poverty gap and severity.

The Headcount Ratio, noted H [H= FGT (0)], denotes the share of the population living in a state of poverty, i.e. that for which consumption or income is below the poverty line (z).

<sup>9</sup> By the virtue of their proprieties – dividable in sub-groups of population and additives – these indices are the most used (Lachaud, 1996). Indexes FGT have the following general form:

$$P_{\alpha} = FGT(\alpha) = \frac{1}{n} \sum_{i=1}^q \left( \frac{g_i}{z} \right)^{\alpha}$$

where:

$\alpha$  = parameter reflecting the degree of aversion to poverty, it measures the importance given to the poorest individuals;

n = total number of individuals in the population (poor and non-poor);

q = number of poor individuals;

z = value of the poverty line;

$g_i$  = “deficit of income” of individual i, defined as being the difference between the poverty line and the income of this individual ( $g_i = z - y_i$ ).

The Poverty Gap Ratio, noted PG [PG = FGT (1)], is also called the Intensity of poverty. It corresponds to the average distance which separates the members of a population from the poverty line, when a null distance is assigned to non-poor people. This measurement gives a possibility to evaluate the amount of resources which would be necessary to eradicate poverty by transfers of incomes ensuring to each poor one just the threshold.

As for the Severity of poverty [FGT (2)], also called gravity of poverty, it corresponds to a weighted average of the poverty gaps – expressed in proportion to the poverty line – in which the weights are the proportional poverty gaps themselves (Ravallion, 1996). The use of the squared poverty gap tends to privilege people in extreme poverty. Contrary to the measurement of the intensity of poverty, measuring its gravity is sensitive to the income distribution among the poor.

The calculation of a measure P of the FGT class requires the assessment of the Lorenz curve (L)<sup>10</sup> and the knowledge of the poverty line and the average distribution. Formally, P is written:

$$P = P(z/\mu, L)$$

where, z always denotes the value of the poverty line and  $\mu$  is the average of the distribution of expenditures (or incomes).

#### 4.2. Measuring of poverty sensitivity to the growth and to the inequality

An approach measuring, separately, the pure effect of growth and that of the redistribution of the incomes – inequality effect – was the work of Kakwani (1993). The latter proposes a method consisting in deriving the poverty elasticity compared to the mean income – or expenditure – and to the inequality. This elasticity is measured from the Lorenz curve and allows the estimation of poverty variations inherent to changes in income and the Gini index<sup>11</sup>.

Assuming that the poverty measure is function of the poverty line, of the mean income – or expenditure – and of the inequality of the incomes apprehended by the Lorenz curve, Kakwani shows that, for a given poverty line, the variation of poverty corresponds to the sum of two effects: i) the effect of growth when the income distribution does not vary – growth effect; ii) the effect of the redistribution of income when the aggregate income remains unchanged – inequality effect.

Insofar as the variation of poverty is explained by growth and inequality of redistribution, Kakwani defines a marginal proportional rate of substitution

<sup>10</sup> The Lorenz curve relates the cumulative population and that of the incomes (expenditure) per capita.

<sup>11</sup> For example, the elasticity of the poverty incidence compared to the mean income – expenditure – indicates the percentage of the poor who cross the poverty line following a rise in the mean income – expenditure – of 1% and by maintaining the distribution of income unchanged. This elasticity is negative insofar as it is generally supposed that the economic growth contributes to the reduction of poverty.

between these two factors. This rate indicates the percentage increase necessary in the mean income – expenditure – so that poverty does not change subsequently to a variation of 1% in the Gini index. It can be calculated for all the poverty indexes<sup>12</sup>.

### 4.3. Decomposition of poverty

Among the attempts of decomposition variations in poverty, those of Datt and Ravallion (1992), on the one hand, and of Kakwani (1997), on the other hand, seem to be the most rigorous (Lachaud, 1996).

Datt and Ravallion (1992) assume that the change in poverty is the sum of three components: i) a growth component that indicates the variation of the poverty which would have been observed because of a variation of the mean income – expenditure – associated with a constancy of the redistribution – variation of the mean income with the unchanged Lorenz curve; ii) a redistributive component that indicates the variation of poverty which would have been observed because of a variation of redistribution whereas the mean income – expenditure – remains unchanged – change in the Lorenz curve to constant mean income; iii) a residual that captures the interaction between the effects of growth and those of redistribution<sup>13</sup>.

This decomposition can also be applied over several periods – more than two dates. Datt and Ravallion show that by using the same reference date for the decomposition, the effects of growth and redistribution between the initial and final dates correspond, respectively, to the sum of the set of the growth effects and the set of the redistribution effects calculated over the under-periods between the initial date and the final date.

The main limit of this approach is that, in some cases, the residual can be very large and even more important than the redistribution effect. According to Kakwani (1997), by supposing that the total variation of poverty is explained only by the changes in the mean income and in redistribution, it becomes difficult to find an explanation to an important value of the residue. Kakwani (1997) then proposes to eliminate the residual term [R (t, t+n, r)] retained in the decomposition of Datt and Ravallion (1992).

Thus, the total variation in poverty between the dates t and t+n is the sum of the average growth and inequality effects<sup>14</sup>. The growth effect is the average

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<sup>12</sup> According to the formula: 
$$TMPS = \frac{\delta\mu}{\delta G} \frac{G}{\mu} = -\frac{\varepsilon_{\theta}}{\eta_{\theta}}$$

<sup>13</sup> The variation of poverty between the dates t and t+n can be broken up as follows:

$$P_{t+n} - P_t = \underbrace{G(t, t+n, r)}_{\text{Growth Contribution}} + \underbrace{D(t, t+n, r)}_{\text{Contribution of redistribution}} + \underbrace{R(t, t+n, r)}_{\text{Residue}}$$

where r is a reference date compared to which the decomposition of the poverty variation is carried out.

<sup>14</sup>  $P_{t+n} - P_t = \hat{G}(t, t+n) + \hat{D}(t, t+n)$

of two effects<sup>15</sup>: i) the effect of the growth when the initial distribution of incomes or expenditures – initial Lorenz curve initial – is kept unchanged; ii) the effect of growth when the final distribution of incomes or expenditures – final Lorenz curve finale – is kept constant. The inequality effect is also the average of two effects which are determined in the same manner as for the growth effect.

#### 4.4. Measurements of the pro-poor growth

The main mission of these measurements is to quantify the degree to which the poor benefited from economic growth. Several definitions of the concept of pro-poor growth have been proposed in the literature. Most often, we refer to one of the two among them. The first displays that growth will be pro-poor when the growth rate of the poor people income is higher than that of the non-poor individuals (White and Anderson, 2000, Klasen, 2003). It is thus interested in the changes in the income distribution following a growth in the economy. The second indicates that growth will be classified as pro-poor if it reduces the incidence of poverty in absolute term (Ravallion and Chen, 2003, Kraay, 2004). This definition is less restrictive than the first since it focuses on changes in the poverty index following a growth without worrying about changes in the income distribution. Among those two definitions, some authors, such as Osmani (2005), retain a version which suggests considering the growth as pro-poor when it reduces poverty and inequality at the same time.

The second definition seems to be too broad in the sense that, in most cases, the growth reduces poverty which leads to consider most real cases of economic growth in the world as pro-poor (Zepeda, 2004). Taking into account this limit, our study goes rather on the side of the first definition. Thus, measures of pro-poor growth which will be analyzed are those insisting on changes in the income distribution. The *pro-poor growth index*, suggested by Kakwani and Pernia (2001), and the *poverty equivalent growth rate*, developed by Kakwani and Son (2002), are the backdrop of it.

These two measures are built within the framework of an approach based on the elasticity of poverty. Indeed, it is essential to determine the total elasticity of poverty, that is to say the variation of poverty related to changes in mean expenditure. This one is decomposed into a growth-elasticity of poverty with unchanged inequality and an inequality-elasticity of poverty with real mean income – expenditure – unchanged. To do this, the decomposition developed by Kakwani (2000) is generally the reference. In what follows, the broad outlines of this approach will be presented.

The total proportional change of poverty between two dates (1 and 2) is given by:

$$P_{12} = P_2 - P_1 = Ln[P(z, \mu_2, L_2)] - Ln[P(z, \mu_1, L_1)]$$

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<sup>15</sup>  $\hat{G}(t, t+n) = \frac{1}{2} [P(z, \mu_{t+n}, L_t) - P(z, \mu_t, L_t) + P(z, \mu_{t+n}, L_{t+n}) - P(z, \mu_t, L_{t+n})]$

The pure growth effect ( $G_{12}$ ) is defined as the proportional change in poverty due to a variation of the mean income – expenditure – when the inequality is maintained unchanged. Similarly, the pure inequality effect ( $I_{12}$ ) corresponds to the proportional change in poverty following a modification of the distribution – shifting of the Lorenz curve –, by maintaining the mean income – expenditure – constant. Under the decomposition of Kakwani (2000), these two effects are estimated in the following way:

$$G_{12} = \frac{1}{2} \{ (\ln[P(z, \mu_2, L_1)] - \ln[P(z, \mu_1, L_1)]) + (\ln[P(z, \mu_2, L_2)] - \ln[P(z, \mu_1, L_2)]) \}$$

and

$$I_{12} = \frac{1}{2} \{ (\ln[P(z, \mu_1, L_2)] - \ln[P(z, \mu_1, L_1)]) + (\ln[P(z, \mu_2, L_2)] - \ln[P(z, \mu_2, L_1)]) \}$$

Thus, the total proportional change of poverty is written:  $P_{12} = G_{12} + I_{12}$ . Assuming that the growth rate ( $g_{12}$ ) – expressed in percentage – between the two dates is positive, the total elasticity of poverty – percentage variation in poverty following an increase in the mean income – expenditure of 1% is approximated by:

$$\eta = \frac{P_{12}}{g_{12}}$$

This one is the sum of growth elasticity ( $\eta_g$ ) and inequality elasticity ( $\eta_i$ ) of poverty:  $\eta = \eta_g + \eta_i$

with: 
$$\eta_g = \frac{G_{12}}{g_{12}} \quad \text{and} \quad \eta_i = \frac{I_{12}}{g_{12}}$$

The income effect ( $\eta_g$ ) is generally negative as it is supposed that a positive growth leads to a decrease of poverty when the income distribution is maintained unchanged. Whereas the inequality effect ( $\eta_i$ ) can be either of positive sign or negative. When it is of negative sign, this means that the growth has led to a change in income distribution at the profit of the poor, reducing poverty unequivocally. However, when the sign of this effect is positive, this means that a change in the distribution has taken place in favour of the rich or that the rich have benefited from the growth, proportionally, more than the poor.

In this context, Kakwani and Pernia (2001) define the *pro-poor growth index*, given by:

$$\phi = \frac{\eta}{\eta_g}$$

Leading to the following consequences: in the presence of a negative inequality effect ( $\eta_i < 0$ ),  $\phi$  will be superior to the unit, indicating that the poor benefit from the growth, proportionally, more than the non-poor. In this case, growth is said to be *strictly pro-poor*. However, if  $\phi < 0$ , this means that growth is *anti-poor* and leads to an increase in poverty. The case where  $0 < \phi < 1$ , corresponds to a situation where the decrease in poverty, through the increase in the mean income – expenditure –, is attenuated by the effect of the inequality ( $\eta_i > 0$ ). This situation is known as *not strictly pro-poor*, generally characterized by “*trickle-down growth*”.

Concerning *poverty equivalent growth rate*, it is defined as the growth rate ( $g_{12}^*$ ) which would generate the same level of poverty reduction as the real rate observed ( $g_{12}$ ), in the presence of a growth process unaccompanied by any inequality change – all individuals obtain the same proportional benefit of growth (Lachaud, 2003). This rate is calculated according to the following formula:

$$g_{12}^* = \phi g_{12}$$

If growth was neutral towards the income – expenditure – distribution, the growth rate ( $g_{12}^*$ ) would generate a reduction in poverty measured by ( $\eta_g g_{12}^*$ ) which should be identical to the total proportional reduction of poverty ( $\eta g_{12}$ ).

In this context, growth will be pro-poor (pro-rich) if  $g_{12}^*$  is superior (inferior) to  $g_{12}$ . If  $0 < g_{12}^* < g_{12}$ , the growth is accompanied by an increase in inequalities but poverty decreases. The extent of the reduction of poverty is an increasing monotonous function of  $g_{12}^*$  – the greater  $g_{12}^*$  is the more poverty decreases between the two dates (Boccanfuso and Ménard, 2009).

## 5. DECOMPOSITION OF POVERTY IN TUNISIA

### 5.1. Elasticity of poverty to the growth and to the inequality

To derive elasticity of poverty in relation with the mean expenditure and with the inequality, we use the static approach of Kakwani (1993). This elasticity is measured from the Lorenz curve and allows the estimation of poverty variations due to changes in mean expenditure and those in the expenditure distribution.

We use in this research the data of the Tunisian National Institute of Statistics (NIS) related to surveys on budget, consumption and household standard

of living realized between 1985 and 2005<sup>16</sup>. Moreover, all the estimates are carried out using the application “POVCAL” which is conceived by the World Bank as being adapted to surmount the obstacles related to the nature of the available data and particularly the fact that they are grouped.

Table 6 below presents the results of applying the static approach of Kakwani (1993). It displays the indexes of poverty of FGT class [H= FGT (0), PG = FGT (1) and FGT (2)], elasticity of these indexes compared to the variations of the mean expenditure – unchanged redistribution –, and of the Gini index – constant mean expenditure – and the marginal proportional rate of substitution between the mean expenditure and its concentration measured by the Gini index. Four observations deserve to be noted down in this regard.

Firstly, although they are overall different from those published by the NIS, in term of size, the results which are obtained for the FGT class measurements, particularly the poverty headcount ratio (H), confirm the continuing trend of poverty decrease in Tunisia. The only time where poverty did not decrease and remained relatively stable took place between 1990 and 1995. This result is not consistent with the statistics published by the NIS which indicates a slight decrease in poverty during this period – the poverty headcount ratio shifted from 6.7% in 1990 to 6.2% in 1995. Nevertheless, the approach of the World Bank notes the increase in poverty during this period – the poverty headcount ratio increased from 6.7% in 1990 to 8.1% in 1995. Taking into account the economic conjuncture relating to that period, characterized by the association of the dryness to the continuation of the adjustments, the stability or the increase in incidence in poverty seems irrefutable.

Secondly, for all measurements of poverty – incidence, gap and severity – the absolute sizes of poverty elasticity compared to the mean expenditure and to the inequality of the expenditure are higher than the unit during all the studied period – 1985-2005. Hence, on the one hand, poverty should decrease more rapidly than the growth of the mean expenditure when the inequality is unchanged. On the other hand, any increase in inequality, all things being equal, would lead to more than proportional worsening of poverty. However, it is important to note that poverty is relatively more sensitive to the highlighting of the inequalities than to the economic growth – indicated by the variation of the mean expenditure. Consequently, poverty can be accentuated even in period of good economic performance when the inequality is not attenuated.

Thirdly, for all the studied period, the elasticity of poverty to the economic growth and to the inequality of the redistribution increases with the coefficient of aversion to poverty ( $\alpha$ ). In other words, the elasticity of poverty is increasing with its measurement sensitivity to the transfers of income among the poor<sup>17</sup>. One of the significances of this result is that the economic growth can

<sup>16</sup> Since independence and until 2005, eight surveys were conducted: 1967, 1975, 1980, 1985, 1990, 1995, 2000 and 2005.

<sup>17</sup> For all years,  $|\mathcal{E}_\theta|_{FGT2} > |\mathcal{E}_\theta|_{PG} > |\mathcal{E}_\theta|_H$  and  $(\eta_\theta)_{FGT2} > (\eta_\theta)_{PG} > (\eta_\theta)_H$ .



rapidly improve the situation of the poorest people when it is not accompanied by a rise in the inequality in redistribution.

**Table 6. Elasticity of decomposable indexes of poverty to growth and inequality (Whole Country)**

Year	Poverty indices	Measure	$\eta_{\theta}$	$\varepsilon_{\theta}$	MPRS
1985	H	9,850	-3,800	8,377	2,204
	PG	1,277	-6,712	17,998	2,681
	FGT2	0,220	-9,607	27,582	2,871
1990	H	9,645	-3,186	7,090	2,225
	PG	1,523	-5,332	15,091	2,830
	FGT2	0,321	-7,479	23,094	3,088
1995	H	9,796	-3,405	7,860	2,308
	PG	1,423	-5,883	16,887	2,870
	FGT2	0,275	-8,349	25,887	3,101
2000	H	5,530	-4,752	13,242	2,787
	PG	0,583	-12,202	27,405	2,246
	FGT2	0,082	-12,51	41,572	3,323
2005	H	4,082	-4,800	17,040	3,550
	PG	0,449	-8,095	33,286	4,112
	FGT2	0,068	-11,229	48,962	4,360

$\eta_{\theta}$  = Elasticity of poverty measure to changes in average spending.

$\varepsilon_{\theta}$  = Elasticity of poverty measure to changes in Gini index.

MPRS = Elasticity of poverty measure to changes in average spending between the mean expenditure and the inequality of the expenditure, it is equal to the ratio between the elasticity of the Gini index and the elasticity of the mean expenditure, preceded by a minus sign.

Source: author's calculations based on NIS data.

Fourthly, knowing that the marginal proportional rate substitution (MPRS) between the growth and the inequality indicates the increase rate in the mean expenditure needed to counterbalance the increase in the Gini index by 1%, in order to maintain poverty unchanged, growth is more effective when this rate is lower. Table 6 shows that, for all years studied, every highlighting of the inequalities should be counterbalanced by an increase more than proportional in incomes (MPRS > 1), in order to maintain poverty invariable. Furthermore, this compensation is more important when one is concerned with the situation of the poor. Indeed, an increase in the Gini index by 1% is neutralized with a growth in the mean expenditure ranging from 2.2% to 4.36% when one focuses on the poverty headcount ratio. These rates become ranging from 2.87% to 4.36% when the interest is focused on the poverty severity. Subsequently, certain levels of economic growth accompanied by more inequality in redistribution could be enough to decrease the poverty headcount ratio but not enough to improve the situation of the poorest. It is the case when the economic growth is sufficient to allow the closest ones to poverty line to exceed it. Such a result invites to distinguish between the policies aiming at reducing the number of the poor and those seeking to improve the situation of the poorest. Similarly, the relative cost

of inequality in terms of incomes growth is higher during the period of trade liberalization. For example, in 2005, an increase of 1% of the Gini index requires an increase in the mean income – expenditure – of 3.55%, 4.11% and 4.36%, in order to maintain, respectively, the headcount ratio, the poverty gap and severity unchanged. These proportions are only of 2.2%, 2.68% and 2.87% in 1985.

## 5.2. Contributions of growth and inequality in the dynamics of poverty

It is now a question of explaining “the decline” of poverty in Tunisia by decomposing its variation, according to the dynamic methods described previously – Datt and Ravallion (1992) and Kakwani (1997) – into a growth effect and an inequality effect. The results of this decomposition are presented in table 7.

**Table 7. Decomposition of poverty evolution at the national level**

Period	Total Variation*	Datt and Ravallion Approach			Kakwani Approach	
		<i>C.G*</i>	<i>C.D*</i>	<i>R*</i>	<i>C.G*</i>	<i>C.D*</i>
		<i>Headcount ratio H</i>				
1985-1990	-0.205	-0.246	2.95	-2.909	-1.700	1.495
1990-1995	0.151	-0.771	1.008	-0.086	-0.814	0.965
1985-1995	-0.054	-1.182	1.027	0.101	-1.131	1.077
1995-2000	-4.266	-4.244	-0.463	0.441	-4.023	-0.242
2000-2005	-1.448	-4.395	2.538	0.409	-4.190	2.742
1995-2005	-5.714	-9.234	1.690	1.830	-8.319	2.605
		<i>Poverty gap PG</i>				
1985-1990	0.246	-0.056	1.143	-0.841	-0.476	0.722
1990-1995	-0.100	-0.199	0.121	-0.022	-0.210	0.110
1985-1995	0.146	-0.259	0.427	-0.022	-0.270	0.416
1995-2000	-0.840	-0.904	0.025	0.039	-0.884	0.044
2000-2005	-0.134	-0.553	0.810	-0.391	-0.748	0.614
1995-2005	-0.974	-1.416	1.029	-0.586	-1.709	0.735
		<i>Severity of poverty FGT2</i>				
1985-1990	0.101	-0.014	0.390	-0.275	-0.151	0.252
1990-1995	-0.046	-0.057	0.016	-0.005	-0.059	0.013
1985-1995	0.055	-0.061	0.135	-0.019	-0.070	0.125
1995-2000	-0.193	-0.210	0.025	-0.007	-0.214	0.021
2000-2005	-0.014	-0.081	0.243	-0.176	-0.169	0.155
1995-2005	-0.207	-0.274	0.427	-0.359	-0.454	0.247

\* in points of percentage, *C.G\** = contribution of growth ; *C.D\** = contribution of distribution ; *R\** = residue.

Source: author's calculations based on NIS data.

Before analyzing these results, it should be noted that the decline of poverty, in its three dimensions, is unequivocal during the period of trade liberalization – 1995-2005. Indeed, during this period, the incidence of poverty decreased by 5.71 points against only 0.05 points between 1985 and 1995. However, while

the poverty gap and severity have declined, respectively, by 0.97 and 0.21 points during the first period, these dimensions have increased, respectively, by 0.15 and 0.06 points during the period of the adjustments. That means that the proportion of poor has decreased while at the same time, the situation of the poor has been deteriorated further, during the period of the adjustments.

Concerning the contributions of growth and inequality to the variation of poverty in Tunisia, the results certify the obvious importance of the increase in incomes – apprehended by expenditure – in reducing poverty. Whatever the approach of the decomposition, growth has always contributed to reduce poverty in all its dimensions. However, the change in the concentration of the income – expenditure – distribution has often contributed to the worsening of poverty. It was only in the 1995–2000 period that the distribution of expenditures has contributed to reduce poverty and that was perceptible only at the level of the poverty headcount ratio. Moreover, whenever the inequality effect has prevailed over the growth effect, this has resulted in the increase of the poverty measurement. However, the significance of the residue in the decomposition according to Datt and Ravallion approach means that the increase in the mean expenditure per person and the changes in the distribution of the expenditures has fluctuated giving rise to an interaction effect. This effect, for example, has always been involved in reducing the severity of poverty.

## 6. MEASURING PRO-POOR GROWTH IN TUNISIA

To measure the pro-poor growth in Tunisia, we use the *pro-poor growth index* (Kakwani and Pernia, 2001) and the *poverty equivalent growth rate* (Kakwani and Son, 2002) which are based on a design of the pro-poor growth insisting on the changes in the distribution. Table 8 presents the results obtained.

First of all, the opposite signs of the growth effects and inequality in the explanation of the total elasticity of poverty show that the decrease of poverty in Tunisia could have been more important if the achievements of growth had been accompanied by a redistribution targeting the poorest. The control of the inequality could be a way to reduce poverty in periods of weak economic performances. However, the positivity of the inequality elasticity sign – variation of poverty due to the variation of the inequality when the mean expenditure in real value is unchanged – during all the analyzed period means that, proportionally, the non-poor benefit from the outcomes of the growth more than the poor. So the growth was not strictly pro-poor in Tunisia.

Besides, the comments related to the degree of “pro-poor growth” in Tunisia invite to pay attention again to the distinction between the two sub-periods: that of the adjustments – 1985-1995 – and that of trade liberalization – 1995-2005. Regarding the first sub-period, the results obtained show that growth was slightly pro-poor from the point of view of poverty incidence ( $0 < \phi < 1$ ). However, it has been anti-poor in comparison with the situation of the poor, approximated by the poverty gap and severity ( $\phi < 0$ ). In other words, between 1985 and 1995, the increase in the mean expenditure generated

mechanically the reduction of the proportion of the poor in the total population by allowing a number of people to exceed the poverty line, but, at the same time, was accompanied by a redistribution which is detrimental to the situation of the poorest. Indeed, a growth of the mean expenditure at a rate of 0.18% would have given the same decrease of the headcount ratio as the real rate of 3.25%<sup>18</sup>, if growth had not been accompanied by any change in inequality during this period. Moreover, the worsening of poverty, in terms of gap ratio and severity, recorded during this period, is equivalent to that which would be generated by a decline in the mean expenditure of 1.78% and 2.52%, respectively for the gap and severity, under conditions of invariability of inequality.

**Table 8. Effects of growth and inequality on poverty at the national level**

	<i>Total Poverty Elasticity</i>	<i>Explained by</i>		<i>Pro-poor growth index</i>	<i>Poverty equivalent growth rate</i>
		<i>Effect due to Growth</i>	<i>Effect due to inequality</i>		
<b>1985-1995</b>					
<i>Headcount (H)</i>	-0.002	-0.036	0.034	0.055	0.179
<i>Poverty Gap (PG)</i>	0.034	-0.062	0.096	-0.548	-1.781
<i>Severity (FGT2)</i>	0.069	-0.089	0.158	-0.775	-2.519
<b>1995-2005</b>					
<i>Headcount (H)</i>	-0.023	-0.052	0.029	0.442	16.588
<i>Poverty Gap (PG)</i>	-0.030	-0.094	0.064	0.319	11.972
<i>Severity (FGT2)</i>	-0.037	-0.136	0.099	0.272	10.208

Source: author's calculations based on NIS data.

The situation is slightly better from 1995 to 2005. Indeed, the value of the pro-poor growth index for all poverty measures is between 0 and 1. That means that while redistribution is in favour of the non-poor, the increase in the mean expenditure (37.53%) was enough to reduce poverty in all its dimensions. However, the values of poverty equivalent growth rate show that these achievements could have been reached with a largely lower growth if the inequality had been unchanged. More accurately, the levels of headcount ratio, gap ratio and severity of poverty estimated for this period are equivalent to those which would be obtained if the growth of the mean expenditure is only, respectively, of 16.59%, 11.97% and 10.21% and provided that each person maintains his relative share in the fruits of growth unchanged. Thus, while being slightly pro-poor in terms of all poverty measures, the change in inequality having accompanied the growth during the period of trade liberalization was more perceptible on the situation of the poorest<sup>19</sup>.

Finally, as a matter of fact, under the poverty headcount ratio, growth was weakly pro-poor from 1985 to 2005. However, it is even anti-poor from 1985 to 1995 in terms of poverty gap and severity. It is so because the positive impact of growth has been more than compensated by the harmful effects of the in-

<sup>18</sup> The average expenditure per person and per year used in estimating poverty measures have been deflated by the reports of the poverty lines. Thus, we obtain an increase of 3.25% between 1985 and 1995 against a rate of 37.53% between 1995 and 2005.

<sup>19</sup> The pro-poor growth index decrease with the degree of aversion to poverty.

crease in inequalities. This kind of situation is often described as impoverishing growth (Bhagwati, 1988). As for the period between 1995 and 2005, it is in conformity with the predictions of the thesis of the “Trickle-Down”, which dominated the economic thought of development during the 1950’s and the 1960’s. Indeed, if poverty, in all its dimensions, decreased it is not due to redistribution in favour of the poor but rather as a consequence of vertical transfers from rich people towards the poor ones channelled in flows of expenditure of the first.

## 7. CONCLUSION

The main results of this study could be grouped into three conclusions. First of all, taking into account the approach adopted by the NIS to apprehend poverty in Tunisia, particularly characterized by the constancy of the poverty line in real terms until 2000, it becomes obvious to note a decline of poverty in the presence of a sustainable growth. However, by addressing the situation of the poor in addition to their number, the achievements of Tunisia in its battle against poverty are to be nuanced. Indeed, on the whole, the Tunisian performances in growth were sufficient to enable poor people closest to the poverty line to cross it<sup>20</sup>. On the contrary, changes in inequality that have accompanied the process of growth have alleviated its effect at the level of the poverty gap and severity so that, in certain cases, the situation of the poor has even worsened<sup>21</sup>. In this regard, the decomposition of the variation of poverty has shown that the most significant declines in poverty have occurred when the growth was relatively consistent, particularly between 1995 and 2005. However, if the growth effect carries it largely on the inequality effect in terms of the poverty incidence, this gap erodes when we pay more attention to the poorest.

Secondly, the measures of the degree of the pro-poor growth have concluded that changes in inequality that have accompanied the process of growth have never been in favour of the poor. On the contrary, the rich have, proportionately, benefited more from the outcomes of growth than the poor. Thus growth has never been strictly pro-poor in Tunisia. Nevertheless, it was always slightly pro-poor from the angle of the poverty incidence, and even anti-poor in term of poverty gap and severity of poverty in certain cases.

Thirdly, under the multidimensionality of poverty, the policies to fight against this phenomenon in Tunisia would gain more than the only purpose of the growth by bringing an interest to the redistribution of its outcomes. Moreover, the high elasticity of all measures from poverty to inequality provides to the economic policy with an effective instrument to fight poverty which Tunisia has obviously not well used.

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<sup>20</sup> The growth has not been sufficient to reduce the proportion of the poor only between 1990 and 1995.

<sup>21</sup> On the whole, the poverty gap and the severity of poverty have increased, respectively, of 0,146 and 0,055 points between 1985 and 1995.

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### **LES EFFETS DE LA CROISSANCE ET DES INÉGALITÉS SUR LA CROISSANCE EN TUNISIE**

**Résumé** - Cette recherche propose d'évaluer les effets de la croissance et de l'inégalité sur la dynamique de la pauvreté en Tunisie au cours de la période allant de 1985 à 2005. Pour ce faire, deux types d'analyse sont mis en œuvre. D'abord, on procède à la décomposition de la variation de la pauvreté en une contribution de croissance et une contribution due à la redistribution, conformément aux approches de décomposition proposées par Datt et Ravallion (1992) et Kakwani (1997). Ensuite, l'indice de croissance pro-pauvre, développé par Kakwani et Pernia (2001), et le taux de croissance équivalent à la pauvreté, proposé par Kakwani et Son (2002), sont appliqués en vue d'évaluer le degré de la croissance pro-pauvre dans une optique insistant sur les changements dans la redistribution. L'exploitation des données groupées des enquêtes sur le budget, la consommation et le niveau de vie des ménages, réalisées par l'Institut National de la Statistique, montre que le recul de la pauvreté en Tunisie est lié principalement à la croissance économique. Pourtant, à cause de l'évolution des inégalités qui a accompagné la croissance, celle-ci n'a pas été strictement pro-pauvre. En effet, les riches ont bénéficié relativement plus que les pauvres des fruits de la croissance.

**Mots-clés:** PAUVRETÉ, CROISSANCE, INÉGALITÉ, CROISSANCE PRO-PAUVRE, TUNISIE.