

Growth Rates vs Income Growth Curves: A Step towards the Measurement of Societal Progress

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Overall growth rates mean different things to different people. Hence, they can easily misrepresent what happens to living standards and “quality of life”. This paper focuses on patterns and interrelationships between the size and the distribution of the dividends of growth, not on summary coefficients. The analysis is based on Income-Growth-Curves, which allow to re-connect the macro with the micro perspective and, hence, to plot “distributive vistas” which uncover not just how sustained growth was, but also the distribution of its dividends; and, consequently, to judge progress against a broader analytical approach centered on “quality” and “whose growth”. [JEL Classification: O15; D31; C81; I32]

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I tassi di crescita aggregati adoperati per valutare la performance economica nascondono risultati considerevolmente diversi per le famiglie e gli individui. Conseguentemente, essi possono occultare cambiamenti in termini di standards e/o qualità della vita. L'analisi proposta si basa sulle “curve della crescita del reddito”, che permettono di “ricongiungere” le prospettive macro e micro e di tracciare dettagliati panorami distributivi valutando le interrelazioni tra crescita e distribuzione dei suoi “dividendi”. Si analizza, inoltre, come si “forma” o “dipana” la curva dei tassi di crescita man mano che si sommano i redditi delle famiglie, cominciando dalle più povere sino a quelle più ricche.

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1. - Introduction

Looking at aggregate income statistics is not enough to gauge the “*quality of growth*”. Additional indicators and variables have to be brought in and weighed up. In particular, a choice has to be made as to what progress may be understood to mean, in multidimensional frameworks and analytical perspectives; and how and at what level of aggregation, growth should actually be appraised, when the focus is not on *quantity* or just its sheer size, but on “*quality*”. Simple collections of GDP growth data, paired with overall inequality and poverty indices are not enough. Much more is required to judge quality.

From the growth-distribution literature, determining the “quality of growth” does not stand out as a new issue. Indeed, it is a subject and a challenge, which has always been with us; though differently perceived and mulled over. What is currently new is that, since the late 1900s, Poverty-Growth-Inequality or PGI studies, taxonomies and policies have increasingly moved into the limelight and forefront of socio-economic research and policy debates. Besides, and for the first time, growth, inequality and poverty are no longer being gazed at as separate topics. They have become part and parcel of the same problem and have, thus, been explicitly re-connected and linked together, with the help of analytical “triangles” and/or multidimensional frameworks (*e.g.* 3 and 4 E’s and sustainable) that have properties and imply, on the one hand, the recognition that the three PGI goals are, though different, all important and key for socio-economic and human progress. And, on the other hand, that there are obvious interrelationships, priorities, trade-offs and, hence, costs and benefits (actual and foregone) and allied complementarities or conflicts within them; as well as different means and ways, skills, opportunities, patterns and potential for combining economic growth with acceptable inequalities, levels of well being and fairness. Visibly, all these need to be further investigated, supported with “new” data and methodologies, and weighed up.

While opening new vistas, PGI analyses have hitherto proven inadequate to:

- unveil the complex PGI intricacies and vital distributive policy issues, which for long have remained hidden behind aggregates, *i.e.* “faceless” figures and income statistics;

and, in particular,

- grasp the impact of the myriad of forces or socio-economic and political factors, including policies, which eventually contribute to shape and reshape overall distributive vistas; and affect human well-being, in fashions which to a great extent have, as yet, not been sufficiently “mastered”¹.

Under the circumstances, what PGI aggregates or triangles (as conventionally gauged by GDP growth rates, overall indices of inequality and poverty counts) have fallen short to unveil, is exactly what governments need to know to execute and evaluate policies that permit to support and steer growth at the national level with, not only some reasonable “guarantee of success”, but also along paths which may be deemed “distributionally-correct” and indeed sustainable². Obviously, this requires much more than simply tagging averages or other aggregate gauges, which do not allow to gaze at the “*faces*”; that is at the circumstances and, indeed, the needs and “capabilities” of the human beings who are parading all along statistical density curves. Achieving the former, without accomplishing the latter, it has already been proved not to be enough.

PGI studies and allied developments in pro-poor analysis have manifestly opened up new vistas and opportunities. They have not only signaled a momentous landmark, but also meant a change of gear fuelled by an ever richer availability of not only income, but also associated information on an array of socio-economic traits which, eventually, have made it possible to:

- *profile* growth with the help of new methodologies, at both the national and small area/group levels and, henceforth, establish not just how buoyant aggregate growth was, but also how its dividends were distributed among different groups of individuals and families (*e.g.* grouped into deciles, percentiles and so on);

¹ See ATKINSON A.B (1997) and ROBERTI P. (2005).

² See ROBERTI P. (2005).

- mull over growth profiles and *appraise pro-poor growth* or, to put it in other words, give a “*human face*”, albeit hazy, to economic growth and its distinctive features and patterns, possibly cross-classified according to characteristics, needs, endowments and so on.

Notwithstanding the progress, the snags with most distributive and poverty studies are that they continue to be based on:

- *macro and micro systems of statistics*, which are at different stages of advancement, coherence and sophistication; and, basically, remain de-linked and come from heterogeneous sources, *i.e.* the national accounts, in which the focus is on national (mainly) factor/personal income aggregates; surveys on the distribution of personal income (mostly after taxes and benefits), in which the limelight is on the size distribution of personal/households income before and after taxes, transfers and other benefits; and other sources, *e.g.* surveys, archives, on a variety of social aspects, analytical frameworks and notions, *e.g.* functionality and capability;

- *assessment/reporting/analytical frameworks and indicators* which, all in all, are disconnected and, as yet, “shaped” around heterogeneous or insufficiently structured monitoring and accounting frames; and, thus, do not allow the twin assessment of a country’s growth with equity performance or cannot be tailored to support policy analysis and evaluation;

- *purpose-built statistics and indicators* which, time and again, have tended to prove custom-tailored and too summative with, hence, undesirable properties and snags of various types allied to methodological ambiguities and drawbacks, such as not allowing decomposition or tailoring at the appropriate analytical/policy level, *e.g.* support small areas/groups level breakdowns and analyses.

Accordingly, the focus of this paper is not on just the pace of growth but, and in particular, on the “quality of growth” and how its dividends are distributed across different groups, from poorest to richest. The paper consists of five sections. Section 2 is about the many *facets and meaning* of economic growth. It bears on

recent developments in the literature on the “evaluation” of economic growth, not on the assessment of its mere size or changes in its pace alone.

Section 3(a) describes the methodology used in the empirical analysis. Its limelight is on *profiling the distribution of the dividends of economic growth across income groups*, with a view to expose differences in “quality” which are invariably observable all along income curves or, in Pen’s language³, parades at a moment in time and over time.

The empirical analysis for Italy which is presented in Section 3(b) covers the years from 1995 to 2006. As already hinted, it is based on income growth curves which, notably, allow to map “full distributive growth patterns”, that is to portray not just the intensity of growth, but also its different “shapes”, *i.e.* how the latter may cumulate from bottom to top income families and individuals. Visibly, income growth curves open up unprecedented new vistas. In particular, they provide a means to associate overall (disposable) income growth and performance with changes in poverty and inequality, and how the latter may be mirrored by the former.

Section 4 is about some of the crucial issues and statistical challenges that crop up when the limelight of the analysis shifts away from aggregate growth and performance to the “quality of growth”, which is what eventually counts and needs to be tackled. While making out a strong case for growth profiling — that is *X-raying and looking inside* existing income statistics, in order to squeeze much greater value out of aggregates — this study ponders not only the potential, but also the fragilities allied to existing methodologies, data and indicators. These may range from access to survey design, quality, robustness and sheer data availability hitches that, evidently, may become a problem and hamper pro-poor growth analyses, whenever the perspective shifts from the national/overall to the much finer small groups/areas level. Unsurprisingly, and given the current state-of-the-art improvements are vital across the board.

³ See PEN J. (1971).

In the concluding section, while reiterating the need for “boosting” and supporting, in particular, robust small/targeted groups or areas “mapping”, a strong case is made for developing better tools, methods and statistics for the “qualitative” analysis of growth which, eventually, is what socio-economic policy is about. The literature on the latter has burgeoned since the 1990s. Yet, the challenge of gazing “quality” through the “looking glass of growth” and, hence, of providing robust backing to socio-economic policymaking, cannot be won until attention is switched away from aggregate distributions, indicators and parades to the very “faces” of the individuals and families hidden behind income parades (*e.g.* developing custom-tailored small areas/groups indicators that have a meaning). Except for incomes, the latter remain all too often characterized by a substantial degree of heterogeneity in terms of circumstances, needs and so on.

Undoubtedly, overcoming vital hitches such as the above, represents a key challenge for statistics and the social sciences at large. So far, these aspects have visibly been underrated in the analysis of the quality of growth. On tackling issues such as the above, also hinges our capacity to develop indicators which are robust and suitably tailored, that is made to “fit purpose” (*i.e.* no longer centred on whole populations and large groups, but on target groups, sub-groups, small areas and so on) and customized to support policies and evaluate impact.

The PGI analysis in this paper, is expected to permit a further step ahead towards meeting the challenge of “gazing quality through the looking glass of growth” and, hence, backing sounder distributive policymaking.

2. - From Sheer Growth to “Pro-Poor” and to “Quality of Growth”

Economic growth is a fundamental objective of economic policy. Growth alone, however, is not enough. Growth can take many forms, such as being balanced or unbalanced; sustained or sluggish; favour all or only specific groups, workers and areas.

Growth can mean, and normally it does mean, quite different things to different people, such as making only a few or many better-off or, indeed, worse-off. In practice, behind any aggregate rate of growth are invariably hidden very different distributive vistas for the rich, the middle classes and the poor. Averages, we know, simply hide these vistas and often lead to ignore information which is vital for assessing living standards, progress and “good” policymaking.

As it is by now clear, GDP growth rates, whether sustained or sluggish, are not necessarily a good proxy for human development and, indeed, well-being, social cohesion and so on. *Per se*, they do not convey any information as to how the dividends of growth are distributed among different segments of the population (or areas); or whether well-being has actually increased in the unison or else. For instance, assuming that growth and distribution eventually move in the same direction and that the former is a good proxy of the latter can no longer be mulled over as a “conviction” or a “tenet”⁴ as indeed it was the case with the Kuznets’ “inverted U curve” hypothesis of economic development. It is just an hypothesis and a possibility which has to be proven.

With time, and especially since the late 1990s, the quality of growth has increasingly come to be judged on the basis of more sophisticated principles and empirical evidence. Nowadays, aggregate national accounts statistics are paired with information coming from a host of purpose-built indicators, based on statistics of various types (*e.g.* quantiles), coefficients of inequality, dispersion and concentration; poverty and other criteria to which, in the course of time, have been imposed principles and properties deemed necessary to overcome ambiguities and associated hitches of different kinds (*e.g.* full *vs.* partial; absolute *vs.* relative etc. criteria and approaches - see *Appendix*). Eventually, however, the disconnect between aggregate national accounts and personal income micro data has led to “twin” information from diverse sources and arrays of summary statistics when, instead, policymakers and scholars need homogeneous, highly detailed,

⁴ KUZNETS S. (1966).

coherent and relevant information on what, eventually, is “behind” (or “underneath”) aggregate figures. This implies statistics for small areas/groups and, increasingly, individual microdata consistent with national accounts principles and definitions; as well as a host of additional socio-economic information, covering several aspects of human life (*e.g.* Titmuss’ *command-over-resources-over-time* and Sen’s *capabilities*⁵), which eventually allow to reflect more than just welfare, *i.e.* quality of life and other aspects deemed fundamental for policy purposes (*e.g.* functioning).

Since statistics on the latter are neither available on a “systemic” basis, nor easily reconcilable with the system of national accounts, *ad hoc* surveys and data have so far been used to add on and complement the information needed to assess the “quality of growth” with, however, obvious drawbacks and limitations associated with heterogeneities of various types (*e.g.* source, sample size, level of aggregation and so on).

Directly or indirectly, recent developments in “pro-poor growth” have aimed at re-linking macro and micro distributive analyses (and, hence, incomes with circumstances) with a view to, specifically, document and/or foster not just any type of growth, but rather patterns of growth that favour the poor more than the non poor; or have the potential to bring around significant reductions in poverty and deprivation in specific areas or groups; or, another approach, that positively foster individuals’ capability and functionality; or contrast deprivation and so on⁶.

Along with these developments, this paper suggests that in order to judge the “quality of growth”, the perspectives of economic and pro-poor growth should be widened and integrated with a view to grasp the final or, better, combined specific outcome(s), which ensue(s) out of existing market and non-market production and distributive/redistributive systems which are shaped by the flows of factor incomes that ensue out of production and take into account the influence of governments (by means of taxes and transfers) on them. Unlike GDP rates, which permit to

⁵ TITMUSS R.M. (1962); SEN A.K. (1985).

⁶ WAGLE U.R. (2004), OECD (2001) and UNITED NATIONS (2000).

monitor only what happens at the aggregate production or allocation levels, personal incomes flows joined with information on circumstances, traits and so on, have the advantage that they permit to focus on, in Titmuss's words, the *foundations of command*.

Presently, the indicators which are routinely used to judge the "quality" of growth hide all this. They do not permit to get "clear" and, even worse, "complete pictures" which allow to see what happens to wellbeing and equality, as a result of economic growth and government policies and regulations. As it can be gathered from Table 1, the growth puzzles which can be composed invariably appear too aggregate, fragmented and blurred and, hence, difficult to put together. The stories that aggregates permit to tell are seldom obvious, or easy to grasp. In particular, outcomes appear difficult to pigeonhole and disentangle (*i.e.* due to markets? policies? socio-economic changes?) or, indeed, classify and generalize, as hinted by the criteria and, in particular, value judgements of what eventually constitutes a just distribution of the dividends of growth⁷.

Developing, decomposing and grouping aggregate indicators (*e.g.* those in Table 1) has been the foremost way to tackle distributive policy issues. Fleshing out properties and criteria has been another complementary approach. Marrying different dimensions and relying on multidimensional, *e.g.* PGI curves, has marked another stage along the road. Definitely, these advances appear to have high potential, in particular when indicators can suitably be "tailored", and "profiling" is feasible.

Table 1 below, shows four of the most popular indicators employed in the analysis of the "quality of growth". As hinted by the table, and explained later on in greater length, drawing conclusions from one or other type of aggregate indicator, or even collections of them, entails the risk of reading "empirical stories" which may appear comparable even when, in effect they may be hazy, ambiguous and, even worse, contradictory, fragile if not indistinguishable.

⁷ RAVALLION M. (2004*b*).

TABLE 1

TRENDS IN GDP, HOUSEHOLD INCOME, INEQUALITY
AND POVERTY, ITALY 1995-2006

Years	GDP (Growth rate %)	Household income (Growth rate %)	Inequality (Gini coefficient)	Poverty rate
1995-1998	7.7	4.0	From 0.362 to 0.374	From 10.6 to 11.0
1998-2000	5.0	-0.6	From 0.374 to 0.360	From 11.0 to 12.3
2000-2002	0.8	0.2	From 0.360 to 0.359	From 12.3 to 11.0
2002-2004	1.7	1.3	From 0.359 to 0.353	From 11.0 to 11.7
2004-2006	2.0	2.7	From 0.353 to 0.349	From 11.7 to 11.1

Source: ISTAT, National Accounts and Bank of Italy, Survey of Household Income and Wealth, various years.

A novel approach, which involves “looking inside” aggregate growth, overall inequality and poverty rates is described below.

3. - Pro-Poor Growth in Italy During 1995-2006

Since the mid 1990s, growth in Italy was, generally, fairly sustained until the year 2000 and, then, sluggish or quite moderate, with GDP growth rates ranging from just over 7 percent, to close to zero in 2000-2002. Total household disposable income roughly mirrored this pattern with the sole exception of 2000⁸, when household income declined slightly.

During the same period, aggregate indicators of inequality and poverty suggest that:

- Inequality increased between 1995 and 1998, up from 0.36 to 0.37; and fell, afterwards, to just about 0.35⁹;
- Poverty grew from 10.6 percent in 1995 to just over 11.0

⁸ Possibly due to peculiar problems encountered with the evaluation of financial capital in that year. See BANK OF ITALY, Supplementi al *Bollettino Statistico*, «Survey on Household Income and Wealth year 2000», pages 9-10.

⁹ As measured by the Gini coefficient.

percent in 1997 and 12.0 percent in 2000; and, then, moved up and down within a 12.0 and 11.0 percent band¹⁰.

How to put together and interpret the “signals” from each of these three PGI dimensions, in circumstances in which they have clearly not moved in consonance, it is neither obvious nor evident.

Adding them up or putting them somehow together, to infer change and trends, has for long proven baffling for social scientists who, from simple empirical tenets (*e.g.* the Kuznets inverted U-curve) have developed increasingly sophisticated methods, criteria and principles for the assessment of the “quality of growth”(see *Appendix*); as well as supported their studies with increasingly robust and much more detailed (*e.g.* small areas/groups levels) empirical evidence. Thanks to these advances and, in particular, the development of new analytical frameworks and methodologies it has become possible, as witnessed by the empirical analysis which follows, to:

(i) carry out “integrated” and “robust” empirical investigations in the three-dimensional P-G-I space;

(ii) put together many more pieces of the distributive puzzles and, thus, direct the limelight on families and persons, with their circumstances, resources and so on; not simply on incomes and faceless income units;

(iii) look *inside* or *behind* overall growth rates and, paraphrasing the title of a famous book, investigate *for whom* “*the bell of growth*” tolls.

Accordingly, the analysis on pro-poor growth in Italy which follows, is shaped on the so called “partial approach”¹¹ and rests, specifically, on the methodology proposed by Son¹² which, notably, is based on stochastic dominance (namely second-order dominance conditions).

As hinted, the distributive puzzle which has been put together and studied, covers the period 1995-2006.

¹⁰ That is percent of families with income below the official poverty line.

¹¹ See *APPENDIX*.

¹² The pro-poor growth measure proposed by SON H. (2003) is categorised as partial because it is primarily determined by stochastic dominance curves.

a) *The Methodology*

The methodology used in this paper stems from the Generalised Lorenz Curve (GLC) which notably shows, on the x -axis, the cumulative percent frequencies of the population and, on the y -axis, the cumulative mean income, *i.e.*

$$(1) \quad \text{GLC} = \frac{\sum y_i}{P} = \mu L\left(\frac{i}{p}\right)$$

Where:

μ is the mean disposable income for all households;

$L\left(\frac{i}{p}\right)$ is the Lorenz curve, which shows the share of total income received by the bottom $\frac{i}{p}$ share of the population, when households are arranged in ascending order of their income ($i = 1 \dots n$, is the position of each household along the income distribution and P is the total number of households of the distribution);

$\sum y_i$ is the cumulated income up to the i^{th} household.

By substituting $\frac{i}{p}$ with p (notably ranging from 0 to 100), the relationship between the Generalised Lorenz Curve and the Lorenz curve can be rewritten as follows¹³:

$$(2) \quad L(p) = \frac{\mu_p P}{\mu}$$

in which the share of income of the p percentile of the population is expressed as a function of μ_p and μ , that is the disposable income of the bottom p percent of the households ordered according to the size of their income, and the mean disposable income of all households. Taking logarithms and then first differences, equation (2) can be rewritten as follows:

¹³ In more details, we can also written as $L(p) = \frac{1}{\mu} \times \frac{\sum y_i}{i} \times \frac{i}{P}$.

$$(3) \quad \text{Ln}(\mu_p) = \text{Ln}(\mu L(p)) - \text{Ln}(p)$$

$$(4) \quad g(p) = \Delta \text{Ln}(\mu L(p))$$

where $g(p) = \Delta \text{Ln}(\mu_p)$ is the growth rate of the mean income of the bottom p percent of the household population. Equation (4) can also be written as:

$$(5) \quad g(p) = \bar{g} + \Delta \text{Ln}(L(p))$$

where \bar{g} is the growth rate of the aggregate mean income: when $p = 100$, $\Delta \text{Ln}(L(p))$ equals zero and, consequently, $g(p) = \bar{g}$.

It follows from equation (5) that if:

— $g(p) > 0$ for all p , the mean income increases for all p or groups up to $p=100$ and, according to the Atkinson (1987) theorem on the relationship between the second order dominance and poverty reduction, growth reduces poverty between two periods;

— $0 < \bar{g} < g(p)$ for all $p < 100$, growth reduces poverty and is also pro-poor, since the entire Lorenz curve shifts upward; instead

— $0 < g(p) < \bar{g}$ for all $p < 100$, growth reduces poverty but increases inequality (growth is against the poor). In this case $\Delta \text{Ln}(L(p)) < 0$ for all p , that is the Lorenz curve shifts downward.

b) The Empirical Analysis

The empirical analysis for Italy, which follows, is based on data from the *Survey on Household Income and Wealth* published by the Bank of Italy since 1965¹⁴. Due to a number of heterogeneities and kindred problems, the time period covered in this study is shorter. It spans just over ten years, *e.g.* from 1995 to 2006¹⁵.

¹⁴ The data are based on a representative sample of about 8,000 households (24,000 individuals). During the period under consideration, the response ratio has ranged between about 60 and 35 percent.

¹⁵ The data are yearly until 1984, afterwards then they become available every two years, with a period of three years between the 1995 and the 1998.

During these years, total household mean income¹⁶ grew at rates ranging from between 0.2 and 4 percent (see Table 2), with the sole exception of 1998-2000, when it declined (-0.6 percent). In three out of the five sub-periods, growth rates were close to or lower than 1 percent, or negative.

Unremittingly, quantiles shares (see Table 3) have been held to be “enough” to map trends in living standards, poverty and inequality. On this ground, they have been used to judge growth and characterize it as being pro-poor or not. The decile breakdowns of the growth rate and the income growth curves for Italy, shown in Graph 1 and Table 2, witness that there are other ways to “look at the data” and to “listen to the stories they can tell”, which can serve to describe change much better than income shares (which, basically, entail a re-scaling of deciles average incomes on the overall average figure and, hence, on a significantly smaller scale).

This inference is substantiated by the five “*growth-cum-distribution deciles’ puzzles*” or by the income growth curves for Italy portrayed in Graph 1, which suggest sizeable disparities in the distribution of the overall growth dividends across families ranked on the basis of their incomes, from poorest to richest.

Similarly, in studying (aggregate) economic performance, *within* national aggregate income inequalities have been patently overlooked, as if distributive traits were just a collateral of economic growth or involved a completely different set issues (*e.g.* fairness). The burgeoning PGI literature and empirical evidence, has shown that they are not. Alike, the analysis for Italy presented in this study has confirmed that overall growth rates are neither a good proxy, nor even likely to hint at the sizeable disparities hidden behind aggregates. As shown by Graph 1 and Tables 2, not only different patterns tend to actually emerge “from behind” aggregate growth rates, but their “shapes” or profile can actually be quite unstable and unpredictable over time, *e.g.* as hinted by the curves and breakdowns of the growth rates for each of the

¹⁶ In this study we refer to annual net disposable incomes, which have not been made “equivalent”, since the emphasis of the analysis is on the distribution of income, not on welfare.

five periods and different deciles, which subsume aggregate growth records ranging from sustained to average, low and negative.

The income growth curves in Graph 1 and underlying income growth rates for the various cumulated upper deciles groupings (see Table 2) also confirm, quite vividly, that “averages” consistently tend to “twist the evidence” and, indeed, hide much more than they actually show. Eventually, they can screen distributive differences across deciles, which may easily range from minor, as *e.g.* in 2004-06 (from 2.7 to 4.0 percent); to large or very large, as *e.g.* in 1995-98 (from -8.0 to 4.0) and in 2002-04 (from 0.8 to 11.6).

In particular, and as vividly hinted by the shapes of the income growth curves in Graph 1:

- 1995-1998: ranks best when the focus is on aggregate or national mean income growth (+4% during the three years). When, instead, the limelight is on the poorest families (*i.e.* with incomes falling in the bottom 10th and 20th quantiles) 1995-98 appears unmistakably as the worst, since mean incomes at these deciles' partitions felt dramatically in real terms (-8% and just over -2.1, respectively). On the whole, the growth curve for this period is unambiguously *pro-rich*, as clearly hinted by growth rates which attain levels as high as 3 and 4 percent at the 90th and 100th percentile point, respectively. This trend is mirrored by both an increase in the Gini coefficient (up from 0.36 to 0.37) and in the poverty rate (up from 10.6 to 11.0). Unquestionably, then, though growth was sustained, it was certainly not pro-poor.

- 1998-2004: shows significant variations. On the whole, economic growth was sluggish and troublesome, as it can be gathered from aggregate growth rates ranging from between -0.6 and 1.3 percent. Nonetheless, low income households and, in particular, those with the lowest incomes groups experienced average rates of growth varying by between 7.6 and 11.6 percent which, invariably, were by far greater than those for most of the upper income quantiles. Hence, even though aggregate growth was negative or quite moderate during 1998-2000, 2000-2002 and 2002-2004, poorest and lower income households appear to have been

GRAPH 1

HOUSEHOLD REAL DISPOSABLE INCOME GROWTH CURVES,
ITALY 1995-2006 (%)

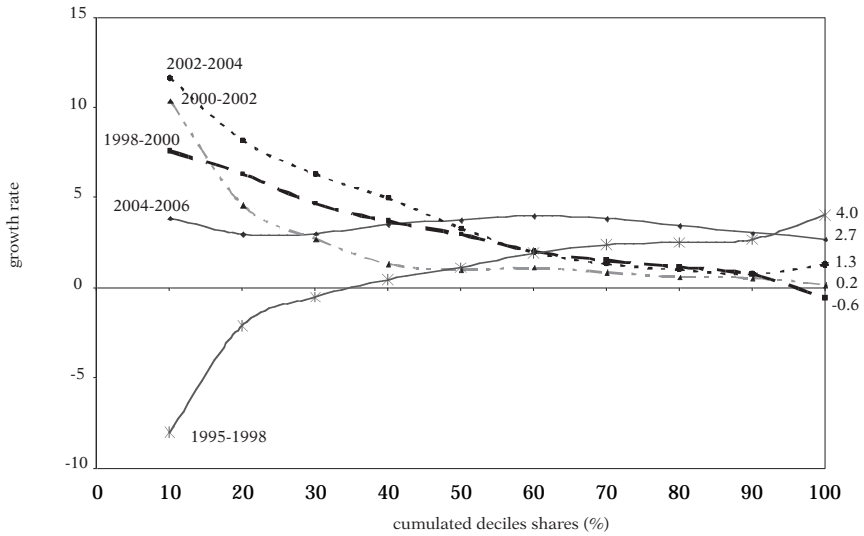


TABLE 2

CUMULATED GROWTH RATES OF THE MEAN REAL
DISPOSABLE INCOME AT THE DIFFERENT DECILES
THRESHOLDS, ITALY 1995-2006 (%)

	1995/1998	1998/2000	2000/2002	2002/2004	2004/2006
10	-8.0	7.6	10.4	11.6	3.9
20	-2.1	6.3	4.6	8.2	3.0
30	-0.5	4.7	2.7	6.3	3.0
40	0.4	3.7	1.3	5.0	3.5
50	1.1	3.0	1.0	3.3	3.7
60	1.9	2.0	1.1	2.0	4.0
70	2.4	1.5	0.9	1.3	3.8
80	2.5	1.2	0.6	1.0	3.5
90	2.7	0.7	0.6	0.8	3.0
100	4.0	-0.6	0.2	1.3	2.7

“quite well” sheltered. This is clearly hinted by the sloping down income growth curves, which imply growth paths which were not only unambiguously pro-poor¹⁷, but also at record high and low levels for poorest and richest households, respectively.

- 2004-2006: aggregate growth was significantly higher than in any of the other periods studied. The shape of the growth curve in this period is practically “flat” or, better, slightly bell shaped, with bottom and middle income households — that is with incomes below the bottom 10th percentile point and within the 50th to 70th percentiles bands — faring relatively better than most of the other groups. Households with incomes within the second and third (*i.e.* with incomes ranging from € 11,000 to 19,000) and ninth and tenth (over € 50,000) deciles appear, instead, to have fared slightly worse, with the latter coping worst of all.

Invariably, then, the *uniform* and *flat panoramas* which aggregate growth rates convey are seldom, if at all, there. They can, thus, hardly be reckoned to be “representative” or, indeed, informative and, hence, suitable to back judgements on the “quality of growth”, *e.g.* has growth being pro-poor? good for all? and so on. Unquestionably, then, it is vital that judgements on the “quality of growth” are borne out by the right empirical evidence, before *robust* answers can be given to fundamental distributive questions which, otherwise, would remain hidden inside or just imagined.

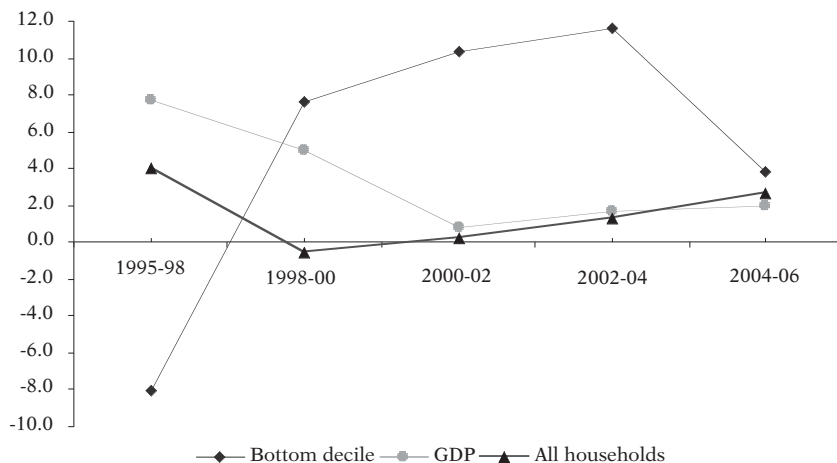
Likewise, the assumption that aggregate (or average) income growth rates are a good proxy for what happens to the living standards of the population at large, cannot be uphold nor generalized. Indeed, this assumption has repeatedly been proved to be flawed and untenable, in many instances.

In the circumstances, income growth curves can play a much better role and have a much greater and obvious potential for advancing in the study of the “*quality of growth*”. As hinted by the empirical evidence shown in Graph 2 — which plots growth rates

¹⁷ The judgement is based on a *relative* pro-poor criterion which simply implies that the poor get proportionally more than the non-poor. It does not necessarily satisfy *absolute* criteria of pro-poor growth, which instead refer to the absolute benefit received by the poor.

GRAPH 2

GDP, TOTAL HOUSEHOLDS AND BOTTOM DECILE
DISPOSABLE INCOME REAL GROWTH, ITALY 1995-2006 (%)



for both GDP and average household income (total and bottom decile) during the same period — aggregates such as GDP and total household incomes appear to have moved in synchrony (though not necessarily with the same intensity), hence, suggesting similar messages, when the focus is on the average person or family. When, instead, the limelight is on specific groups, *e.g.* the bottom decile, the picture looks quite different. Barely little or no synchrony is detectable, *e.g.* the bottom decile is an outlier, except in 2004-2006. Graph 2 visibly hints that in 1995-1998 and 1998-2000 growth was highest and lowest depending on which indicator is used, *i.e.* GDP and total households or, instead, the income of the bottom decile. Manifestly, then, it is not always permissible to uphold that what is good for the country as a whole, is surely good for everybody else and, in particular, lower income groups. As it happens, Italian data show that not necessarily the latter share growth when growth is sustained. Indeed, and for a great deal of families and individuals the opposite may frequently occur. As it happens, then the conclusions hinted by the overall growth

rates for Italy are not necessarily borne out by the deciles breakdown.

Empirical results such as the above, albeit for one country only and for a short period of time, confirm and help to remember that major distributive differences are most often the norm, rather than an exception. Consequently, in judging the “*quality*” of growth, it is fundamental to picture distributive features in.

4. - Challenges, Analytical Drawbacks and Issues

Income growth curves (IGC) profiling is about shedding light and unveiling the conspicuous differences hidden behind aggregates, *i.e.* overall growth rates and kindred synthetic indicators on which attention continues to be overwhelmingly focused. IGC profiling is also about:

- putting together puzzles of growth;
- unveiling the patterns and heterogeneities that exist and are scattered all along, inside and across income growth curves;
- mapping, tailoring and exploring the full potential of income statistics to better suit purpose.

Assuming and showing “sameness”, when heterogeneities are quite considerable, is obviously a serious shortcoming, particularly when the statistical information required for policy purposes needs to be “finely tailored” on specific target groups or problems — such as when income defined circumstances are legislated for better targeting and cost-effective implementation.

The income curves, presented in this paper, have definitively proven their potential, in particular, as a means to overcome the problems raised by aggregates. They have permitted to portray “how growth cumulates”, as well as to look inside the latter and grasp, *e.g.* how the dividends of growth are distributed across income groups (gross and after taxes, transfers and in-kind benefits); which households (categorized according to more than one criterion, *e.g.* income, circumstances, endowments and so on) gain or lose more; and, in a nutshell, on *whose growth*.

Eventually, they have demonstrated that progress and retrenchment can be gauged on grounds of both “quantity” and “quality”; that the drivers behind the former or the latter are not necessarily the same; and that there is room for manoeuvring, and scope for implementing policies which allow not just “to sail” but, and above all, “to steer” the course and get where it is exactly deemed desirable to get.

In this perspective, the empirical analysis has permitted to definitely move a step forward in the study of distributive changes and put in the spotlight the following three issues:

(i) **“better data use”** – as it can be gathered by simply looking at deciles income shares (cfr. Table 3) and income growth curves (cfr. Graph 1). Unquestionably, the latter “tell” us much more than the former which, instead, “shrink differences”; dampen down change; and, tend to show substantial stability over time, even when significant change actually takes place “underneath”. Moreover, if and when change is shown, it is most often only after the comma, if not the second decimal. Nonetheless, quantiles and summary indicators continue to be employed and, indeed, preferred in studying income distributions across countries and over time. In contrast, income growth curves permit to finely profile growth patterns and distributive trends. They are quite suggestive and allow to show disparities across deciles and, even more so, finer and more homogeneous groupings.

(ii) Taking into account and analysing the influence of **“changes in structures and composition”** over time — as when income relativities stay the same, but the composition or the weights of the different income units change (some of which may be spurious and associated to survey methodologies, *e.g.* sampling, errors, non-responses, etc., especially in the bottom and top income deciles);

(iii) **Switching away from “faceless” income units**, to bring into the limelight income units classified according to criteria which *mean something* and *permit to identify or, better, see faces*, as it is both needed and appropriate for “informed” and cost-effective policymaking purposes. In a nutshell, plotting income growth curves for “quality of growth evaluations” requires more

TABLE 3

INCOME SHARES BY DECILES, ITALY 1995-2006 (%)

Deciles	1995	1998	2000	2002	2004	2006
1	2.2	2.0	2.1	2.3	2.6	2.6
2	3.9	3.8	4.0	4.1	4.3	4.3
3	5.2	5.0	5.2	5.2	5.3	5.4
4	6.3	6.2	6.4	6.3	6.4	6.5
5	7.5	7.4	7.6	7.6	7.4	7.6
6	8.9	8.9	8.9	9.0	8.8	8.9
7	10.6	10.6	10.7	10.6	10.4	10.5
8	12.8	12.7	12.8	12.7	12.5	12.4
9	15.9	15.7	15.7	15.7	15.5	15.3
10	26.6	27.5	26.6	26.3	26.6	26.4

than just simple access to micro data. Specifically, it needs small groups/area methodological support, which has already been proved to be essential to make it possible to draw robust¹⁸ and *tailored* growth curves, distributive profiles and maps *à la carte*¹⁹, as well as support microsimulations and policy evaluations.

The income data which are presently available from the Bank of Italy are not (as all income data drawn from survey samples) and have not been designed to be robust at the small area/group level. Hence, they do not necessarily allow small group tailoring/profiling which is desirable for robust PGI studies. Presently, problems of robustness with current data are a clear hazard for many existing surveys. Increasingly, however, incredible “new frontiers methodologies and vistas” have opened up for much more robust distributive policy analysis.

Graphs 3 and 4 show as close as one can get to “small areas/groups” data with existing Bank of Italy information²⁰. More

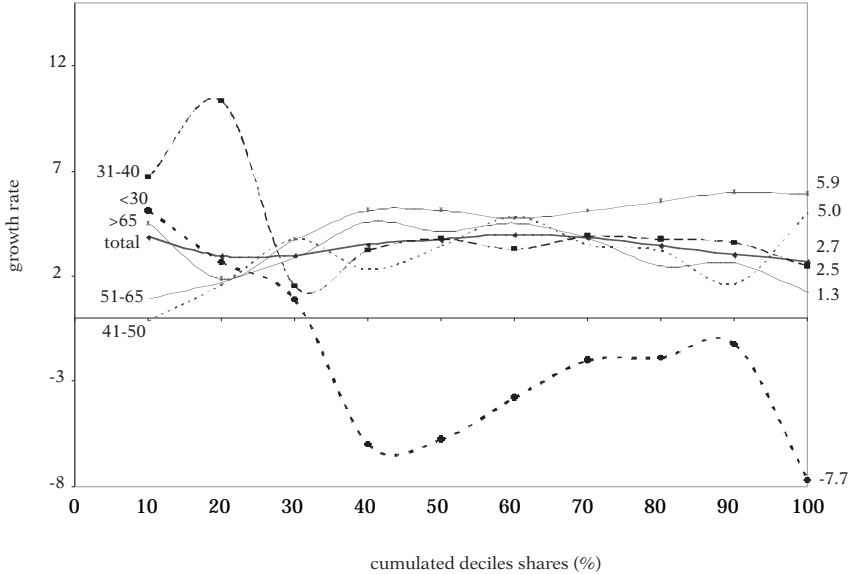
¹⁸ HULLIGER B. - SCHOCH T. (2008).

¹⁹ RAO J.N.K. (2003).

²⁰ It has to be noted that data by income deciles, at this level of aggregation, are routinely published by the Bank of Italy, *op. cit.* Tav. C1, p. 61 of the 2006 publication.

GRAPH 3

INCOME GROWTH CURVES: ALL HOUSEHOLDS
AND BY AGE GROUP, ITALY 2004-2006 (%)

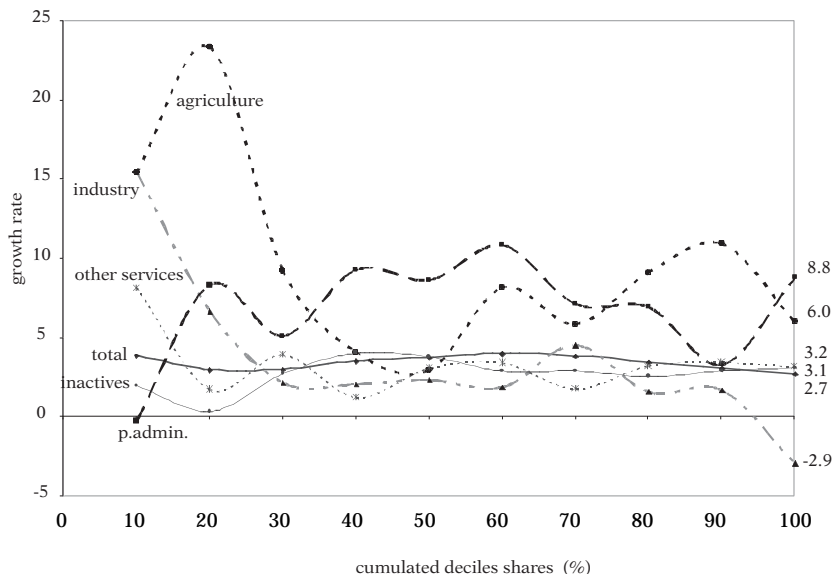


precisely, the curves that are portrayed give an inkling or a “taste” of a “first step towards small groups/areas” profiling, stretched to the very border of the robustness of the available information.

In a nutshell, Graphs 3 and 4 bear out the snags and risks associated with both aggregate and disaggregate indicators, especially when policies have to be targeted or selective, and information is not full. For macro economic policy, where an impressive national accounts theoretical framework and national accounts system of statistics have developed in consonance, the challenges and the answers have basically appeared obvious and systematically met. At the micro level there is, as yet, no such a thing as a theoretical framework nor statistical information system. Where to strike the balance and decide on the statistical information which is necessary for policy purposes is thus not obvious.

GRAPH 4

INCOME GROWTH CURVES: ALL HOUSEHOLDS
AND BY ECONOMIC SECTOR, ITALY 2004-2006 (%)



With this limitations, Graphs 3 and 4 hint at the “fragility” of aggregates. Looking at them, as it has often been the case, does not appear to be the way, let alone the best way. As always, there is substantial variations (and noise) across different indicators and across groups. Getting better and greater intelligence out of the data is desirable and, certainly, necessary. Income growth curves, when adequately tailored, have clearly opened unprecedented new vistas. They now need, as Graphs 3 and 4 call for, to be supported by a robust and systematized *social accounts* or *social information frameworks*. It is hoped that this paper has succeeded in making a strong and convincing case in this direction.

5. - Conclusions

PGI analyses have already permitted to open up new vistas for distributive policies. As yet, however, their potential has not been fully exploited to support policies. In particular, behind PGI aggregates continue to remain hidden what, exactly, governments need to know to master and execute successful and cost-effective pro-poor policies.

It is conspicuous that even the most recently developed poverty growth curves, and allied pro-poor growth rates, have been drawn with in mind aggregate vistas, *i.e.* faceless quantiles and so on, as if the latter were the only reference and, indeed, the best dimension to choose. Yet, policies, especially social policies, are always implemented with in mind specific groups in specific circumstances, that is individuals and families with a “face”, that can be distinguished according to their circumstances — not anonymous quantiles or other generic reference.

At present, existing macro and distributive pictures, are not only delinked, but also observed with different glasses and, interestingly enough, with a manifest “fatal attraction” for national aggregates and large groups data and indicators.

In this paper, data from the *Survey on Household Income and Wealth of the Bank of Italy*, have been used to construct household income growth curves (IGC), which, notably, have permitted to judge, not only how sustained growth was but, and above all, how its dividends were distributed and, even more important, whether growth was or was not *pro-poor*.

Eventually, the income growth curves which have been drawn have allowed to unfold and portray whole and new scenarios, as well to analyze and characterize distributive patterns of growth which, as yet, have invariably, remained hidden behind overall growth rates.

What each (IGC) curve shows is unique. It constitutes crucial “intelligence”, which is indispensable to judge socio-economic performance and, even more important, to support economic management and good public policy. In effect, given overall growth rates, income growth curves permit to evaluate, by just

looking at the IGC profiles, the “quality” of growth that they imply. Bearing on the quality of the data, income growth curves can evidently be tailored on income groups, as well as individuals and families in different circumstances. As it can be gathered, tailoring income growth curves to specific groups is a clear challenge for both statistics and policymaking.

However, as the analysis shift from quantiles pictures to finer groups and cross-classifications the robustness of the estimates invariably worsen. This has implications which require to be watched for statistical quality, since most of the survey data which are being collected are expected to deliver “aggregates” and support large group/area statistics and indicators. Making the data robust for small area/groups estimates is, evidently, a clear priority. Since the required methodological knowledge exists, the only problem is to plan and put this type of activity at the very top of the agenda of both the research community and national statistical offices.

In a nutshell, the main conclusions of this paper is that income growth curves have both potential and prospects. They have been applied to study distributive trends at the aggregate national level. This is fine, but not enough. It is only a first step.

Indeed the income growth curves portrayed in this study look like Christopher Columbus maps: rough and not detailed enough. If and when supported by better and more reliable statistics, in particular, at the small areas/groups and neighbourhood levels, they can be expected to open new and unprecedented vistas and, in particular, to make it possible to draw highly detailed “satellite type maps”, which can be tailored *à la carte* and, hence, used to support policymaking much more effectively than it has been the case so far.

APPENDIX***Pro-poor Growth Criteria and Classification***

Leaving aside Sen's *et al.* multidimensional human/capability space and analytical perspective – which notably raises formidable analytical, measurement and data problems – and focusing on economic performance, income growth and distribution only, the literature on pro-poor growth (which has its roots in the “redistribution with growth” literature²¹), bears basically on the following four aspects or criteria, that is:

(1) The *stringency of the criteria used to judge growth, i.e.* the use of weak vs. strong definitions in assessing whether growth is greater than zero and:

- reduces poverty, no matter how this happens and how much the poor gain or lose (which would include *e.g.* trickling down, no matter how this is defined);
- the absolute gains of the poor are larger than the average gains or, an even stronger condition, of the rich.

(2) The *approach and criteria used to judge growth, i.e.* based on absolute vs. relative criteria and, specifically, whether the poor gain (positive income growth) the same or more than the non-poor, in either absolute or relative terms and, hence, their gains are greater or increase by the same amount or rate than the non-poor. This leads to distinguish among three situations which can be pigeonholed as:

- *weak absolute*, where the limelight is on whether income growth for the poor is, simply, positive (also referred to as trickling down criterion);

²¹ See KUZNETS S. (1966) and CHENERY H. - AHLUWALIA M.S. - BELL C.L.G. - DULOY J.H. - JOLLY R. (1974) which can be regarded as the inception of the whole debate on pro-poor growth as well as a culmination of the critique of the trickling-down hypothesis.

- *strong absolute*, where growth is still gauged in absolute terms, but this time the requirements is that the poor should gain more than the rich with, therefore, a fall in inequality;

- *relative*, where the limelight is on whether growth favour the poor proportionally more than the rich and thus reduces relative inequality, *i.e.* the growth rate of the poor exceeds the average income growth rate or, a more stringent condition, the growth rate of the rich.

(3) The *underlying scientific backing*, *i.e.* the specification of (a) poverty line(s) and/or properties and kindred criteria, that is:

- “*partial approach*”²² which is based on dominance conditions and does not require the specification of a poverty line(s) or standard(s). It envisages judgements which stand on general analytical criteria, *i.e.* conditions, and which are valid no matter the poverty line(s). Indeed, the latter may not even necessarily exist, *e.g.* as when pro-pooriness is judged on grounds of first-order stochastic dominance (FOD)²³ or stochastic dominance curves conditions²⁴;

- “*full approach*”, which entails the specification of a poverty line (or lines) and, hence, judgements based on a rate or an index which permits to reach robust or conclusive results.²⁵ Along with the criteria put forward under (2) above, the *full approach* can additionally be distinguished in *relative* and *absolute*, depending on whether the focus is on (i) the gains of the poor and whether they get proportionally more than the non poor with, hence, reductions in both poverty and inequality; or (ii) receive absolute benefits which are equal or greater than the non poor.

²² Put forward by, among others, by RAVALLION - CHEN (2003); and by SON H. (2004).

²³ FOD in poverty measurement is defined as follows: if the cumulative density function for distribution $A(F_A)$ is everywhere at least as high as that for distribution $B(F_B)$ for all poverty lines, distribution B *first-order-dominates* distribution A. FOD gives a condition for ranking two income distributions when their poverty incidence curves do not cross. More formally, $B \text{ FOD } A \Leftrightarrow \text{Poverty}(A) > \text{Poverty}(B)$ for all poverty measure, for any monotonic transformation and for all poverty lines (SON H., 2004).

²⁴ SON H. (2003).

²⁵ Put forward by, among others, KAKWANI N. - PERNIA E. (2000); McCULLOCH N. - BAULCH B. (2000); KAKWANI N. - SON H. (2008).

Either approaches have advantages and disadvantages. The main advantage of the *partial approach* is that it permits to reach conclusions which, whenever dominance conditions are met, are valid for any poverty line or measure. If, however, the dominance conditions are not met, it is not possible to infer whether growth has been pro-poor or not. Among its drawbacks, the main is associated to the irrelevance of the magnitude or degree of pro-poorness, which does not make it possible to gauge and judge how much a growth process can be said to be more or less pro poor than another²⁶.

On the other hand, the *full approach* invariably permits to get conclusive results as to whether growth has been pro-poor or not, since it is always possible to get complete rankings of different growth processes, on the basis of a rate or an index, not a curve. However, with the full approach, is always necessary to define a poverty line, which inevitably requires value judgments.

(4) *The satisfaction of axioms, e.g. monotonicity*, which captures a direct linkage with poverty reduction and takes into account not only growth but also how its benefits are shared across the population. The monotonicity axiom implies that the magnitude of poverty reduction should be a monotonically increasing function of the pro-poor growth rate²⁷. Growth alone is a necessary²⁸, but not sufficient condition for poverty reduction. Under the basic requirement of the monotonic relation, the pro-poor growth measure provides a necessary and sufficient condition for the reduction of poverty.

²⁶ SON H. (2004).

²⁷ KAKWANI N. - SON H. (2008)

²⁸ In some situation growth may not be a necessary condition. Even a zero or a negative growth can reduce poverty provided there is a sufficient redistribution of income in favour of the poor.

BIBLIOGRAPHY

- ATKINSON A.B., «On the Measurement of Poverty», *Econometrica*, July, Vol. 55, no. 4, 1987, pages 749-764.
- - —, «Measurement of Trends in Poverty and the Income Distribution», Cambridge, *DAE, Working Papers*, no. 9712, 1997.
- AUSTIN N., «Trends in Income Inequality, Volatility and Mobility Risk, via Intertemporal Variability Decomposition», *Iriss, Working Paper Series*, no. 10, November 2008.
- BOURGUIGNON F., *The Poverty-Growth-Inequality Triangle*, Washington D.C., Paper presented at the Indian council for research on International Economic Relations, New Delhi, The World Bank, 2004.
- BRANDOLINI A., «La disuguaglianza di reddito in Italia nell'ultimo decennio», *Stato e Mercato*, no. 74, 2005, pages 207-230.
- CHENERY H. - AHLUWALIA M.S. - BELL C.L.G. - DULOY J.H. - JOLLY R., *Redistribution with Growth*, Oxford, Oxford University Press, 1974.
- DONNISON D., *The Politics of Poverty*, Martin Robertson, Oxford, 1982.
- ESSAMA-NSSAH B., «A Unified Framework for Pro-Poor Growth Analysis», Washington D.C., World Bank, *Policy Research, Working Paper*, 2004.
- FIELD G.S., *Poverty, Inequality and Development*, London, Cambridge University Press, 1980.
- GLAZER N., *The Limits of Social Policy*, Cambridge, Massachusetts, Harvard University Press, 1988.
- HULLIGER B. - SCHOCH T., «Robustification of the Quintile Share Ratio», in AMELI, (*Advanced Methodology for European Laeken Indicators*), project of the Social Sciences and Humanities Programm of EU-FP7, 2008.
- KAKWANI N. - KHANDKER S. - SON H., «Pro-Poor Growth: Concepts and Measurement with Country Case Studies», International Poverty Centre, *Working Paper*, no. 1, 2004.
- KAKWANI N. - PERNIA E., «What is Pro-Poor Growth?», *Asian Development Review*, vol. 16 (1), 2000, pages 1-22.
- KAKWANI N. - SON H., «Poverty Equivalent Growth Rate», *Review of Income and Wealth*, vol. 54, 2008, pages 643-655.
- KRAVIS I.B., «On the Assessment of Income Distribution: a Comment on the Secretariat Paper in OECD», Paris, OECD, *Education, Inequality and Life Chances*, vol. 1, 1975.
- KUZNETS S., «National Incomes», in *Encyclopedia of the Social Sciences*, London, MacMillan, 1933, reprinted in FELLNER W. - HALEY B. (eds.), *Reading in the Theory of Income Distribution*, 1946, pages 3-43.
- - —, *Modern Economic Growth*, New Haven Yale University Press, 1966.
- MCCULLOCH N. - BAULCH B., «Tracking Pro-poor Growth», Sussex, *ID21 Insights*, no. 31, Institute of Development Studies, 2000.
- OECD, *Rising to the Global Challenge: Partnership for Reducing World Poverty*, Paris Statement by the DAC High Level Meeting, 25-26 April, Organisation for Economic Co-operation and Development, 2001.
- PEN J., *Income Distribution*, London, The Penguin Press, 1971.
- RAO J.N.K., *Small Area Estimation*, New Jersey, Wiley Series in Survey Methodologies, 2003.

- RAVALLION M., «Pro-Poor Growth: a Primer», World Bank, *Policy Research, Working Paper*, no. 3242, 2004a.
- - —, «Competing Concepts of Inequality in the Globalization Debate», World Bank, *Policy Research, Working Paper*, no. 3243, 2004b.
- RAVALLION M. - DATT G., «Growth and Redistribution Components of Changes in Poverty: A Decomposition with Application to Brazil and India», *Journal of Development Economics*, vol. 38, 1992, pages 275-295.
- RAVALLION M. - CHEN S., «Measuring Pro-Poor Growth», *Economics Letters*, vol. 78 (1), 2003, pages 93-99.
- ROBERTI P., «If Governments are Really Serious about Sustainable Growth, Why do they not put "Human Beings" back into the Limelight of Growth?», *Quaderni di Ricerche*, 40 anni di attività dell'Ente Einaudi (1965-2005), pages 249-282, 2005.
- SEN A.K., *Commodities and Capabilities*, Amsterdam, North-Holland, 1985.
- SON H. «A Note on Pro-Poor Growth», Washington D.C., World Bank, *Working Paper Processed*, 2003.
- - —, «A Note on Pro-Poor Growth», *Economics Letters*, vol. 82, 2004, pages 307-314.
- TITMUS R.M., *Income Distribution and Social Change*, London, Allen & Unwin, 1962.
- UNITED NATIONS, *A Better World for All*, New York, 2000.
- WAGLE U.R., *A Multidimensional Approach to Poverty: Economic Well-being, Capability, and Social Inclusion in the City of Kathmandu (Nepal)*, Boston, PhD thesis, University of Massachusetts, 2004.