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Stylized Facts and the Role of Macroeconomic Policy

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November 2008 ▪ Geneva

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Functional Distribution of Income, Inequality and the Incidence of Poverty: Stylized Facts and the Role of Macroeconomic Policy

by
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for the
United Nations Research Institute for Development
report on *Poverty Reduction and Policy Regimes*

Abstract

Using two high-quality and homogeneous datasets we find evidence of a strong, persistent and international link between functional and personal income distribution. Both the wage share and inequality in the manufacturing sector exhibit a turning point around the early 1980s (or 90s for some countries); in a panel of 25 countries, the labor share fell or remained constant in 23 cases and inequality rose or remained constant in 18 countries. Both patterns are observed simultaneously in 17 (possibly 19) countries. In addition we find the pattern of poverty to be closely related to that of inequality: countries with larger redistributive systems tend to be more equal and tend to have lower poverty rates. What caused such an international pattern in poverty, personal and functional distributions of income? We find evidence of an important role for economic considerations, as expected. But the simultaneous timing and the strong, downwards convergence of European labor shares during the early stages of the European construction both imply that other factors are at play. We suggest that the structural changes in institutions and economic policies since the start of the 1980s explain most of the international pattern observed. Our findings confirm those of a major OECD (2008) research program on inequality and poverty, while extending it on the impact of functional distribution and stressing the importance of macroeconomic policies.

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[1] The author is visiting lecturer at the Department of Economics at the University of Texas at Austin and researcher at the University of Texas Inequality Project (UTIP). The paper benefitted from the comments of James Galbraith and Alain Parguez. All errors or omissions remain my responsibility. Prepared for the UNRISD.

I. Introduction

The *functional* income distribution makes the distinction between the shares of types of income used for different spending purposes, while the *personal* distribution of income is a measure of inequality of a specific type of income. The former is an indicator of how much of labor income there is to share, while the latter indicates how equally labor income is distributed among individuals. Both are related to the same measure, income, and both are a measurement of the "distribution" of that income. The initial intuition underlying this paper takes the form of a question: could the personal and functional distribution of income be related, as (Serrano 2007) suggests? As such this question can be addressed from a theoretical or an empirical way. But interestingly enough, the two distributions have almost never been related to each other, whether in the empirical or theoretical literature. There are two reasons to this.

First, most of the work on functional and personal distributions of income has long suffered from a lack of empirical evidence (data) due to important measurement difficulties. Although there remain some difficulties, those limitations have been dramatically reduced thanks to the recently availability of high-quality datasets. Yet for a long time research has focused on a theoretical approach. The second problem is that important controversies, among this body of theoretical research, have hindered any reconciliation between functional and personal distributions of income. Inequality is still widely regarded as a microeconomic phenomenon, mostly explained by personal characteristics, while the issue of factor shares is intrinsically a macroeconomic phenomenon. In these pages we will present the state of economic theory but, using two new datasets, we are stressing the teachings of empirical evidence.

The rest of the paper is organized as follows: section two focuses on the functional distributional of income and presents the economic theories, the empirical evidence and the relative importance of the factors affecting the wage share. Section three presents the theories and empirical evidence for the personal distribution of income (inequality). Section four presents a short note on with poverty and redistributive policies while section five concludes.

II. The functional distribution of income: theories and measurements
1. Economic theories: two views
a. Definitions

The functional distribution of income makes the distinction between the shares that different types of income represent in total income. Although several other decompositions may be interesting, the most common distinction is between the labor share and the capital share[2]. In the rest of this paper we will use the labor share as our preferred measure, unless otherwise noted. The capital share can immediately be derived as one minus the labor share, since

$$\frac{W}{Y} + \frac{\Pi}{Y} = 1 \tag{1}$$

where W/Y and Π/Y represent the labor and capital shares. A useful decomposition of the labor share of income is

$$\frac{W}{Y} = \frac{w.N}{P.Q} = \frac{w}{P} / \frac{Q}{N} = w_R / A_L \tag{2}$$

where W is the wage bill, Y is national income (value added), w the nominal (average) wage, N the level of employment, P the price level, Q is output and the ratios w/P and Q/N are the real wage w_R and labor productivity A_L, respectively. Equivalently in rates of change:

$$\left(\frac{\dot{W}}{Y}\right) \simeq \dot{w}_R - \dot{A}_L \tag{3}$$

Equation (3) states that the labor share of income goes up when real wages outpace labor productivity. Conversely when labor productivity gains are not passed on to workers, the wage share goes down and the capital share goes up. The labor share is also sometimes referred to as the real unit labor cost (the unit labor cost being w/A_L); similarly the cost of doing business goes up when real wages outpace workers' productivity.

Note that the decomposition above is a useful one but not the only possible one; in particular the labor share does not uniquely depend on real wages and productivity. Other factors may affect the labor share indirectly, through an influence on real wages or on productivity. More importantly the simple line dividing labor and capital income is not only related to labor. It is indeed possible have unchanged

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[2] In the following we will refer to the labor and capital shares, as compared to the older terminology of wage and profit shares. The change is not without consequences; in particular the concepts of "labor and capital" are broader than their "wages and profits" counterparts. Labor shares usually measures compensation which includes benefits, pensions and the labor part of self-employment income, while the capital share covers interest, rent, any business payments and the capital share of self-employment income.

conditions on the labor market and to observe a fall in the labor share simply because the profit share is going up. Thus, the labor share of income is also related to profits –a feature quite commonly overlooked.

Since the relative shares definition involves macroeconomic aggregates, most economists would consider the functional distribution of income as a *macro*economic indicator. It is no surprise to find that most of the literature in the topic is macroeconomic in nature, and is inherited from the times when economic science was still called political economy. Every major school of thought has developed its own theory of income distribution. Thus the term "income distribution" has become generic yet despite this, it still embodies major controversies. Providing an exhaustive survey of the literature is nearly impossible without simplifying the exposition and make undue justice to the economic models. To fix ideas we will only attempt at summarizing what could be considered as the major contributions.

It may be useful to introduce the literature on the functional distribution of income by introducing a dichotomy between the classical and non classical approaches ("two views", Kregel 1971). However such distinction may be too simplistic (Giovannoni 2006), mostly for two reasons: (1) both the classical and the "non classical" are sometimes overlapping, as opposed to presenting a clear-cut distinction and (2) it is especially difficult to find common ground between heterodox theories, except maybe for their rejection of neoclassical economics. As a result it may be more useful to adopt a chronological exposition of how the various theories of functional income distribution come to –and then attempt at finding a common thread.

b. Classical theories

From a historical perspective, the earliest form of functional income distribution theory –in its most formalized and advanced form– is to be found in the works of David Ricardo. In the first paragraph of the preface to his magisterial work, Ricardo (1817) spells out the main scope of his inquiry as "*To determine the laws which regulate this distribution* [between rent, profit and wages]*, is the principal problem in Political Economy*". The whole "*produce of the earth*", Ricardo states, is divided by paying rent first, following the principle of decreasing marginal productivity (here, of land). The most productive acres of land are put in use first, says Ricardo, so that through time only less productive acres remain –and the best acres are the priciest.

The distribution between the remaining wages and profits is then made. Contrary to his marginalist followers Ricardo does not apply the concept of decreasing marginal productivity to labor and capital. Instead Ricardo proposes a reformulation of his friend Malthus's principle of population: workers will multiply so much, says Ricardo, as to make the wage bill grow faster than profits. As a result the share of profit is bound to decrease in time, leading ultimately to a situation Ricardo called the stationary state: with profits being squeezed out of the system, capitalists would have no incentives to expand their activity and economic growth will come to an end.

Ricardo's insight came to be challenged at the end of the 19th century. The position of the new economic school, only later to be called the marginalist or neoclassical school, is best summarized by two quotes. Stanley Jevons, one of the main proponents of the new school in Europe, explains the scope of his new approach in the following way: *"The conclusion to which I am ever more clearly coming is that the only hope of attaining a true system of Economics is to fling aside, once and for ever, the mazy and preposterous assumptions of the Ricardian School. Our English Economists have been living in a fool's paradise. The truth is with the French School, and the sooner we recognize this fact, the better it will be for the world"* (Jevons 1871). On the other side of the Atlantic, John Bates Clark, the founder of the American branch of neoclassical economics and "*a central figure in the emergence of the marginal productivity analysis of distribution*" (Baumol 1985), states the conclusion of the approach as "*It is the purpose of this work to show that the distribution of income to society is controlled by a natural law, and that this law, if it worked without friction, would give to every agent of production the amount of wealth which that agent creates"* (Clark 1899).

The marginalist revolution was born on the basis to escape a "mazy" political economy by replacing it with a more sophisticated economic science, characterized by the sound mathematics. Ricardo's decreasing marginal productivity principle was generalized; all factors of production now had the same (diminishing returns) property and could be put under the umbrella of a unique production function (Bohm-Bawerk 1890, 1895 and Wicksell 1893, 1901). The most famous of those production functions is that proposed by Cobb and Douglas (1928), $Y = AL^{\alpha}K^{\beta}$, for which one verifies that the labor share W/Y is indeed the parameter α, which is assumed to be constant[3]. The constancy of the labor share implies that workers are being paid real wages set at the level of their own labor productivity, as equations (2) and (3) imply.

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[3] The labor share will only be constant if we have constant economies of scale, if there are decreasing marginal factor productivities, and if the system is overall perfectly competitive, i.e. if there are no frictions in Clark's "natural law". The Euler theorem provides the mathematical proof for such assertions.

Three major points stem from the analysis presented thus far. The first conclusion of the marginalist school is that everybody will be paid according to his/her contribution to the production process. To some extent modern economics is still under the influence of such conclusion. This is certainly a major –and reassuring– epilogue: John Bates Clark was right. But what this implied is that the question of inequality was in itself a non-issue: first because it was embodied in a larger theory, that of functional income distribution, and second because such system was characterized by an intrinsic fairness. Much of the literature on inequality as we know it today was indeed not born at that time, only much later.

The second (and implied) conclusion is that the relative factor shares are constant through time. As such this conclusion may appear quite striking; Solow himself expressed "skepticisms" about it (Solow 1958). In particular, wouldn't technological improvements and productivity affect the relative shares? Ricardo had already foreseen the way out of the stationary state: improvements in productivity or technology (but he did not develop the idea further in connection with income distribution). Several cases for productivity improvements have been proposed. Harrod-neutral technological change is an improvement affecting only labor productivity; Solow-neutral technological progress affects only the productivity of capital while Hicks-neutral technological progress affects both factors (Giovannoni 2006). Corry (1966) attempts at summarizing the effects of technological change on the relative shares of income in the neoclassical framework. His conclusions are that the inclusion of technological progress are certainly a welcome development, but that this did not lead to a major leap forward in economic research: *"I have argued that the basic models […] can be made to fit the broad facts of history. But suppose the facts had been different, would we have rejected the models? I think not. These models are really better described as frameworks for handling the relative share problem and only make specific predictions with added restrictions. Thus, what I have called the neoclassical approach does not in general predict the course of relative shares. […] The state of economic knowledge does not enable us to predict the direction of impact of innovation on relative shares"*.