Structural change of production and consumption: a micro to macro approach to economic growth and income distribution

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Extended abstract

The paper aims to investigate the relation between structural change in the organisation and composition of production, changes in the distribution of earnings, and the evolution of consumption patterns, as affecting patterns of economic growth across countries. Although these dynamics are strongly linked, few contributions have systematically investigated their co–evolution, both in theoretical and applied literature. Even more so, the analysis of the micro-to-macro mechanisms behind these processes has been greatly overlooked by both mainstream and non–mainstream literature.

The ambition of this work is to provide (agent–based) micro–foundation to the link between structural change and economic growth by accounting for firm–level organisational and technological changes, the impact of these latter on the structure of earning and income of workers–consumers and the

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effects of these on consumption patterns. We propose a model which articulates the links between innovation and production on the supply side and the endogenous evolution of income distribution and consumption 'needs' on the demand side. We let these links interact to identify via numerical simulation different scenarios of changes in the production composition of economies and aggregate growth as emerging properties of micro–dynamics of innovation, skills and functional composition of employment, income distribution and consumption patterns.

This work aims therefore to add to the literature on growth and income distribution in three main respects. First, we model an explicit relation between technological change and the organisation of production in determining the distribution of income (via earnings and profits share). Second, we suggest and model an explanation of the relation between technological change, growth and income distribution (via demand), which goes beyond a simple skill bias effect. Third, from a methodological point of view, we provide an open simulation model well suited to derive normative implications through policy experiments.

Following existing Schumpeterian growth models we consider economies composed of a consumers sector and a capital sector. Unlike the existing literature, we take into consideration the whole set of innovation strategies for a firm: process, product and organisational innovation. Such extension allows to endogenising a number of mechanisms that are shown to be responsible for the skewed (Pareto) distribution of incomes (e.g. economics of superstars, profits sharing, and supply of skilled labour).

Changes in the production processes are modelled as investment in different capital vintages. Firms belonging to the final and capital good sectors make use of unskilled, skilled and engineering labour force, with differentiated wages and consumption preferences. By changing vintage, firms' strategies alter the capital/labour composition of their technology, affecting the composition of the labour market and the income distribution in the consumers market. Aggregate demand is therefore a result of the micro–dynamics of consumption patterns, which in turn depend on the skill composition of employment and income distribution dynamics.

Product changes are seen as a bi–univocal relation between changes in consumers preferences and consumption possibilities on the one hand, and firms' technological competition to acquire oligopolistic shares of the market on the other hand. Products are defined as a vector of characteristics which satisfy one or more consumers' needs, in line with the Lancasterian and post-Lancasterian approaches to consumer theory.

Organisational changes affect the relative economic importance of executives by altering firms' governance structure, therefore inducing changes in the income distribution and consumption behaviour.

Results obtained via numerical simulations of the model identify different scenarios of structural change and growth as a result of micro–dynamics of innovation, production, skill composition of employment, income distribution and consumption patterns. Further, by endogenising the role of income distribution we are able to provide a valuable tool to extend the use of the model and derive normative implications through policy experiments.

The model thus provides new insights on the long–lasting debate on the relation between income distribution and growth patterns, disentangling the contribution of structural change.