DIVISION OF LABOR AND ECONOMIC GROWTH: FROM ADAM SMITH TO ENDOGENOUS GROWTH THEORY

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The aim of the paper is to put in historical perspective the recent models of endogenous growth based on division of labor, i.e. the models based on a multiplicity of intermediate goods, taken as representing the degree of specialization in an economy. The basic question is: has the idea that growth depends on division of labor been completely exploited?

We analyze the contributions of Adam Smith, Alfred Marshall, Allyn Young and Nicholas Kaldor. It will be argued that: (i) there exist important elements in such authors, as regards their conception of economic growth based on division of labor, which permit to identify a certain line of thought based on those elements and, (ii) such line of thought is still providing insights to be developed, insights which have not received a completely exhaustive treatment by modern growth theory. Namely we refer to elements such as: the idea of growth as a process involving an increasing complexity of the economic system; the role attached to demand; the nature of the growth process as a path dependent, cumulative process, and the related issue of the tendency towards an equilibrium. Let us summarize the main aspects we highlight in the works of the mentioned authors to motivate these claims.

For Adam Smith the process of division of labor plays a pivotal role for what concerns technological progress and capital accumulation. As such, capital accumulation is not related to a mere replication of existing productive activities, but is inextricably linked to qualitative changes. When it is based on division of labor, growth appears as a cumulative process: further division of labor is permitted by capital accumulation and cannot proceed unless some previous stage of division of labor has been reached. This process entails the definition of competition as a dynamic process in which capitalists, in order to exploit the ever-present possibilities of division of labor, are continuously introducing product and process innovations. In this sense, the coexistence of increasing returns and competition can be admitted. In short, when Smith analyzes a growing economy, he has in mind an economy moving from a simple to a more complex structure.

From the several passages Alfred Marshall dedicated to division of labor and increasing returns in the *Principles*, we focus on the relevance attached to the concept of “organic growth”, in particular for the study of the industries operating under increasing returns, as contrasted to the “statical method”, and to the particular view of the life cycle of firms, which conceptualized firms in an industry as the trees in a forest. Such view constitutes a relevant element of originality of the Marshallian dynamics, which has received only scant attention in terms of formal models (Newman and Wolfe, RES, 1961), and is important since it represents one of the reasons Marshall put forward to justify the possible coexistence of increasing returns and competition. A related issue is the stress put by Marshall on organization, whose importance is connected to the increasing degree of complexity that accompanies the process of division of labor (two keywords in this context are “differentiation” and “integration”). It will be argued that, as claimed by Loasby: “much of what is in Marshall is far more clearly revealed if we approach him from Adam Smith rather than from modern microeconomics”.

Allyn Young's celebrated paper on increasing returns is re-evaluated for at least two reasons: first because it represented a substantial advance with respect to Adam Smith, second because it is often quoted as the predecessor of the modern endogenous growth model based on specialization. In fact, even though Young emphasized the process of division of labor among productive units, including those producing intermediate goods, he advocated a disequilibrium approach to the study of endogenous growth, which contrasts with modern growth based on equilibrium. The type of disequilibrium Young had in mind was related to the presence of a constant, internally generated, tendency to change. In other words, Young explained the origin of increasing returns with the extent of the market interpreted as a network of interdependent productive units, a network constantly changing in terms of the number of units and of the linkages constituting it. Reciprocal demands among productive units are key elements for generating the "chain reaction" that produces economic growth.

Finally Nicholas Kaldor, building on Smith and Young, emphasized how increasing returns generated by division of labor makes economic growth path-dependent process. He embedded this claim in a more general criticism of neoclassical theory advocating, for instance, also a relevant role for aggregate demand in the growth process.

The modern approach is analyzed with particular reference to Romer (1987, AER). This model's assumptions and results are evaluated with respect to the following aspects: i) the tendency towards equilibrium and the role of external economies; ii) the role played by the extent of the market; iii) the issue of fixed costs.

We conclude that the modern growth model based on division of labor, although constituting an important advance, still leaves open some directions for research. Other recent models based on network externalities and local interactions may provide useful elements for complementary formalizations.