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A neo-Kaldorian approach to structural economic dynamics☆

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ABSTRACT

Although the structural economic dynamic approach provides a simultaneous consideration of demand and supply sides of economic growth, it does not fully take into account the possible role played by demand in the generation of technical progress. From a neo-Kaldorian perspective, this paper seeks to establish the concepts of demand and productivity regimes in an open version of the pure labour Pasinettian model. In order to derive the demand regime, a disaggregated version of the static Harrod foreign multiplier is derived, while the productivity regime is built in terms of disaggregated Kaldor–Verdoorn laws. The upshot is a multi-sectoral growth model of structural change and cumulative causation, in which an open version of the Pasinettian model to foreign trade may be obtained as a particular case. Furthermore, we show that the evolution of demand patterns, while being affected by differential rates of productivity growth in different sectors of the economy, also play an important role in establishing the pace of technical progress.

1. Introduction

While structural change and economic growth register as interrelated processes, the mainstream assigns a key role to issues such as technical progress and capital accumulation, relegating changes in structure to a secondary position in explaining economic growth. The traditional Neoclassical approach, with its emphasis on the supply side, and originally built in terms of one or two sector models (see e.g. Solow, 1956; Swan, 1956; Uzawa, 1961) cannot take into account the possible links between growth and changes in the structure of an economy.[1] According to this view, structural change is simply a by-product of the growth in per capita gross domestic product (GDP) (see McCombie, 2006; McMillan and Rodrik, 2011).

This can be sharply contrasted with the post-Keynesian view, where structural change is central to economic development. Different approaches have taken into account the connections between growth and change in this tradition, with particular emphasis on the role played by demand, even in the long-run (see e.g. Pasinetti, 1981, 1993[2]; Setterfield, 2010; Thirlwall, 2013; Ocampo et al., 2009). Within this tradition, the structural economic dynamic

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[1] See the introductory chapter of Arena and Porta (2012) for a survey on the state of the art of the literature on structural change after the renewal of interest by the mainstream.

[2] According to these views, structural change registers not just as by-product of growth, as claimed by the mainstream, but rather plays a central role in spurring growth. The migration of the labour force from diminishing returns activities to increasing return activities may be one of the outcomes of fundamental structural changes that allow developing economies to grow so quickly (see McMillan and Rodrik, 2011).

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(SED) view is distinguishable by its simultaneous consideration of supply and demand in a multi-sectoral framework (see Baranzini and Scazzieri, 1990); in particular, the interaction between the evolving patterns of demand and technical progress is responsible for dynamics of output, prices and structural transformation of economies in different stages of the development process. In this regard, Pasinetti's emphasis upon demand composition offers a significant qualitative improvement vis-a-vis traditional, aggregated models, which fail to adequately consider the composition of consumption demand, and thus conceal changes in structure.

Although the SED approach provides a sophisticated treatment of structural change, some authors such as Gualerzi (2012) and Araujo (2013) have pointed to the necessity of a more inclusive treatment of the demand side to provide a full characterisation or even endogenisation of technical progress and structural change.[3] In this article we intend to fill that gap by building a bridge between the SED formulation and the neo-Kaldorian theory[4] of cumulative causation. With the approach carried out here, in which technical change is endogenized, we intend to show that a disaggregated assessment of the static Harrod foreign multiplier allows us to alleviate the somewhat passive notion that demand plays in the SED approach. To accomplish this task, we conceptualise the notion of a demand regime, a well-known concept from the neo-Kaldorian literature (see e.g. Setterfield and Cornwall, 2002) by using a multi-sectoral version of the Harrod foreign trade multiplier that is based on an extended version of Pasinetti's pure labour model.[5] Here we use the analysis of Trigg and Lee (2005) as a crucial step to establish the links with the neo-Kaldorian literature. But we have to extend their analysis to an economy with foreign trade, since the neo-Kaldorian view assigns to exports a key role in autonomous aggregate demand. According to that view, the dynamism of the export sector may give rise to virtuous cycles of economic growth, not only through its effect on aggregate demand but also due to dynamic economies of scale[6] that accrue from an increase in output.

Hence, the first contribution of this paper is the derivation of the multi-sectoral static Harrod multiplier by extending the Pasinettian model. This derivation allows us to derive a proper demand regime for the model. The sectoral productivity regime departs from Araujo (2013), where sectoral Kaldor–Verdoorn's laws were introduced in Pasinetti's model. With this analysis, we are able to introduce the concepts of growth regimes (see Blecker, 2010) in the SED approach, which also allows us to afford a connection between many of the arguments that underpin the importance of the endogenous concept of economic growth.

The second contribution of the paper is to show that an open version of the Pasinettian model to foreign trade, advanced by Araujo and Teixeira (2004), may be seen as a particular case of the multi-sectoral version of the Harrod foreign trade multiplier derived here, the former being equal to the latter when the condition of full employment of the labour force is satisfied.[7] As a consequence, it is shown that the multi-sectoral version of the Harrod foreign trade multiplier generates different levels of production and employment, only one of which will be the full employment level that corresponds to the Pasinettian solution.

In order to emphasise this point, we carry out the formulation of a sectoral demand regime both in terms of the Harrod foreign trade multiplier and in terms of the Pasinettian equilibrium sectoral output. The first analysis is developed under the rubric of the Sectoral Demand Regime (SDR) while the latter is referred as the structural economic dynamic regime (SEDR). Notwithstanding the neo-Kaldorian emphasis on the role of effective demand in interacting with productivity in a cumulative sense, the derivation of the SEDR also allows us to take into account the role of demand in generating technical change. Moreover, it brings out that the neo-Kaldorian analysis may also reap benefits from a disaggregated refinement of its basic framework. Even departing from a somewhat narrower view of cumulative causation which emphasizes only the sectoral aspect of dynamic increasing returns of scale – we arrive at a macroeconomic notion, in which technical change in one sector spurs productivity in other sectors through its effect on per capita income growth (see Young, 1928). Central to this development is the concept of Engel's law, according to which an evolving pattern of consumption arises when per capita income grows.

This article is structured as follows. In the next section we present the foundations for a theory of demand-growth relationship. Section 3 derives the multi-sectoral multiplier for an open version of the pure labour Pasinettian model. In Section 4 the demand and productivity regimes are modelled in the Pasinettian framework along with the design of a SEDR. Section 5 concludes.

[3] Pasinetti (1993, p. 69) himself acknowledges the importance of considering a better treatment of the demand side when questioning the origins of technological progress. According to him: "[t]his means that any investigation into technical progress must necessarily imply some hypothesis on the evolution of consumers' preferences as income increases. Not to make such an hypothesis, and to pretend to discuss technical progress without considering the evolution of demand, would make it impossible to evaluate the very relevance of technical progress and would render the investigation itself meaningless."

[4] There have been some developments of the neo-Kaldorian tradition related to models of balance of payments-constrained growth (BPCG). Araujo and Lima (2007) and Araujo (2013), for instance, have derived versions of the balance of payment constrained growth model. Growth performance is explained by considering how the evolution of patterns of consumption can drive the external sector, with consequences for the overall economy.

[5] Trigg and Lee (2005) have shown that it is possible to derive a simple multiplier relationship from multi-sectoral foundations in the original version of the Pasinetti model, meaning that a scalar multiplier can legitimately be applied to a multi-sectoral economy.

[6] Cornwall and Cornwall (2002, p. 206) highlighted these mechanisms by considering that the contribution of the external sector to productivity growth is twofold: first it allows the larger scale production methods to improve productivity; second it encourages the adoption of the best available productivity-enhancing technologies.

[7] This registers as a well-known result in the SED framework, and one of the main outcomes of the Pasinettian analysis is that in general it is not fulfilled, meaning that unemployment is the most probable outcome of structural change.