Kaldor after Sraffa

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Abstract: Kaldor led the postKeynesian school in an attempt to project Keynes' principle of effective demand into the long run, the realm of growth theories. This paper examines Kaldor's major contributions to growth, technical change, distribution and money, in order to integrate them into the surplus approach. An approach that combines the classical-Sraffian theory of value and distribution with the Keynesian-postKeynesian theory of output and money. An approach that considers capitalism as a demand- constrained system, both in the short run and in the long run, without neglecting the limits derived from the supply side.

Keywords: Surplus approach; principle of effective demand; growth and distribution; supermultiplier; Sraffa; Kaldor

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INTRODUCTION

The lives and intellectual activity of Nicholas Kaldor (1908-1986) and Piero Sraffa (1898-1983) present many similarities and, surprisingly, mutual ignorance. Both worked at the University of Cambridge for more than 30 years. Both were the bastions of the resistance against the marginalist revolution in microeconomics and the Grand Neoclassical Synthesis in macroeconomics. Yet, the communication between them was minimal[1].

The different personal tempers and different styles of research may explain the lack of communication between them. The mind of Nicholas Kaldor was a boiler in continuous ebullition. His works fill eight volumes, apart from several books in a variety of subjects (N. Kaldor, 1960-80). Regarding Sraffa, we can apply Aquinas' dictum "Beware of the person of one book", a sentence that involves an appreciation of the minds with few but coherent and powerful ideas.

In my opinion, both types of analysis may be made compatible and used to build the so called, "surplus approach", an approach that tries to

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integrate the classical-Sraffian theory of value of distribution with the Keynesian-postKeynesian theory of output and money. Luigi Pasinetti is, probably, the safest bridge between the two shores (Pasinetti, 1979; 1981), while Garegnani and his disciples demarcate the research agenda (Garegnani, 1978-79 and 1983; Eatwell and Milgate, 1983).

The first part of the synthesis emphasizes the ability of a viable economic system to generate a surplus that will be distributed among wages and profits and allocated between consumption and investment according to the expenditure patterns of each social group. The structure of production (described by an input-output table) and the technological frontiers of distribution and growth open the economic textbooks with a classical inspiration (Pasinetti, 1979; Kurz and Salvadori, 1995). The second part of the synthesis is based on the Keynesian principle of effective demand. Post-Keynesian economists apply it to the long run by substituting "levels" by "shares in income" and "rates of growth". Kaldor was a pioneer of this project. The hallmark of his contribution is the effort to endogenize the key variables that, both in classical and Keynesian economics, were taken as data. The expressions "endogenous growth", "endogenous distribution", "endogenous technical change" and "endogenous money" are recurrent in Kaldor's works.

The paper is structured in the following sections. In Section 2 we analyse the coherence and significance of the Kaldorian theory of distribution related to growth (N. Kaldor, 1955-56). Section 3 deals with the proposed relationship between growth and labour-saving technical progress (N. Kaldor, 1957). Section 4 focuses on the divergent regional development due to increasing returns to scale and the on-going cumulative processes (N. Kaldor, 1978, 1981). Section 5 introduces credit-money that is supposed to be endogenous, i.e. to adapt to the needs of production whose level depends on expected demand (N. Kaldor, 1958 and 1970). Section 6 studies methodological differences (N. Kaldor, 1972) . Section 7 concludes.

GROWTH AND DISTRIBUTION

"According to the Preface of Ricardo's Principles, the discovery of the laws which regulate distribute shares is the principal problem of Political Economy".

This is the opening sentence of Kaldor (1955-6) paper. A few paragraphs below he adds:

"Ricardo's theory was based on two separate principles which we may term the 'marginal principle' and the 'surplus principle' respectively. The

'marginal principle saves to explain the shares of rent, and the 'surplus principle' the division of the residue between wages and profits" (pp. 83-84)

The clarity of such statements was not expected in any economist of the time, except for Sraffa, who in 1951 started the publication of the Works and Correspondence of David Ricardo (P. Sraffa and M. Dobb, 1951-1973). Kaldor rightly considered the neoclassical revolution of the last third of the 19th century as an undue generalization of the marginal approach. Ricardo's reference to the marginal principle derives from the natural scarcity of the most productive lands. It applied just to agriculture and only in a distant future, when the growth of population forced farmers to use very poor plots of land[2]. The peculiarity of the neoclassical revolution is that it extended the marginal principle to all the factors, to all the industries and to the entire temporal horizon (short, medium and long period).

Sraffa started to deploy the internal inconsistencies of the Marshallian theory of value and distribution in *The laws of return under competition* (Sraffa, 1926). In *Production of commodities by means of commodities*, he provided a more general criticism to marginalism and founded the Cambridge (UK) position on the controversies of capital (Sraffa, 1960). They showed that the neoclassical model becomes overdetermined when we introduce "capital goods", i.e. goods are simultaneously produced commodities and a factor of production (Garegnani, 1990)[3].

In the thirties, critical economists criticized the neoclassical requirements of perfect competition and built models of imperfect competition and oligopoly power leading to mark-up prices (Kalecki, 1971). The young Kaldor contributed to this debate but in his 1955-56 paper, he confessed his dissatisfaction. How is the mark-up determined? Neoclassical economists could refer to the elasticity of demand, while heterodox economists lack a clear support for the mark-up, he concluded.

It was at this moment (1955-56) that Kaldor introduced his novel theory of distribution. Entrepreneurs increase their mark-up when they decide to accelerate the expansion of the firm. If technology remains constant, an increase in the mark-up and the rate of profit is bound to depress the real wage. Kaldor labelled this theory of distribution as "Keynesian" because demand determines supply, and investment determines savings. His proposal conveys a break not only with neoclassical economics but also with classical political economy where the direction of causality runs from the rate of profit to the rate of growth. In Kaldor, it is the acceleration of the rate of growth which causes a redistribution of income and an increase in savings.

Behind this scheme, we find an investment function based on the acceleration principle: investment depends mostly on the difference between the desired stock of capital (that depends on the expected growth of demand) and the actual stock. To warrant financial sustainability, savings should rise *pari passu* with investment. This result is warranted if income is redistributed in favour of capital and the propensity to save out of profits is clearly above the propensity of workers (Pasinetti, 1974).

Kaldor's approach to distribution was eventually discredited even among postKeynesian economists. How can we explain that the real wage and the share of wages fall in a boom period to allow an increase in profits? Kaleckian economists introduced another variable to explain this result: the rate of capacity utilization. Overutilization of capacity in a boom period allows a parallel increase in the real wage and the rate of profits (Lavoie, 2010). In my opinion, this is a short run adjustment inappropriate for a long-period theory of growth. Firms cannot be permanently out of equilibrium![4].

A group of Sraffian economists has developed a theory to explain the validity of the Keynesian principle of effective demand both in the short run and in the long run, both to determine the level of output in year *t* and the rate of growth through time (Serrano, 1995; Bortis, 1997; Cesaratto, Serrano and Stirati, 2003; Dejuán, 2005). The engine of the system is the "autonomous trend", i.e. the expected rate of growth of proper autonomous demand. It does not include the induced consumption captured by the multiplier and the expansionary investment captured by the acceleration principle, which tries to adapt the productive capacity of the firm to the expected growth of demand. An expansion of the expected rate of growth of permanent autonomous demand (say exports, modernization investment or residential investment) implies a higher rate of growth of productive investment of the expansionary type. The multiplier ensures that output will grow until it generates a level of savings equal to productive investment plus proper autonomous demand. Contrary to Harrod's simile of the knife edge (Harrod, 1939), the supermultiplier is a stable and stabilizing mechanism. According to Dejuán (2016) stability only requires that firms separate permanent and transitory increases in expected demand. The rate of growth implicit in the supermultiplier rises only when entrepreneurs expect a *permanent* acceleration of the rate of growth of demand[5].

Serrano labelled this supermultiplier as "Sraffian". The term needs an explanation since Sraffa has no specific theory of output and does not mention the multiplier. The label simply means that the supermultiplier allows an increase in the growth of output and the shares of investment and savings.

There is no need of a change in distribution, that Sraffa takes as given (at least, one distributive variable).

GROWTH AND ENDOGENOUS TECHNICAL PROGRESS.

The theory of economic growth belongs to the long run, a horizon where technical change cannot be treated as exogenous and fixed. This is the first novelty of Kaldor's 1957 paper. He introduced it in an original way that became known as "Kaldor's stylized facts of economic growth". Probably, this is his most quoted of Kaldor's ideas, both by heterodox and orthodox economists. The "stylized facts" refer to the common traits of growing economies in advanced capitalism (more concretely, in the second half of the 20th century). They can be summarized in the following statements.

(1) An increasing capital/labour ratio, the degree of mechanization, so to speak ($\Omega = K/L$).

(2) An increasing productivity of labour ($\pi = Y/L$).

(3) A rising real wage (w) that absorbs most of the increases in productivity. Since the bulk of wages is devoted to consumption, we can expect a parallel rise in the propensity to consume.

From the preceding facts, one can derive other important conclusions.

(5) The "capital/output" ratio ($v = K/Y$) becomes constant since both the numerator and the denominator increase *pari passu.*

(6) Constancy of factor distribution. The rate of profits ($r = R/K$) and the ratio "profits/wages" also remain constant.

These results convey a pattern of *labour saving technical change.* For Harrod, the constancy of distribution and of the capital/output ratio was a methodological device to compare the types of technical change: labour saving or capital saving (Harrod, 1948). Kaldor concluded that the first one is the prevailing pattern in advanced capitalism[6].

The most striking feature of the Kaldor's model of growth is the assumption of full employment. It contradicts Keynes' conclusion about the possibility of macroeconomic equilibrium at less than full employment. Also the Sraffian rejection of a downward sloping demand for labour, that was necessary to ensure the recovery of full employment via a fall in the real wage (Garegnani, 1978-79, 1983; Garegnani and Palumbo, 1998; Stirati, 2016).

One can try to justify Kaldor's full-employment assumption by his interest in showing that the Keynesian principle of effective demand (investment determines savings) holds also in the long run, even in the full

employment situation that characterized the aftermath of the Second World War. Yet, in the 1957 paper, it is clear that Kaldor assumes explicitly that full employment is a necessary hypothesis in an economy growing along a steady path. He even admitted that movements in relative prices and distribution contributed to restore full employment in the long run. The only consolation that remains, is that, in his later papers, Kaldor rejected the full-employment hypothesis (N. Kaldor 1971, 1978 and 1989). The message of the last paper fits perfectly with the supermultiplier version of macroeconomic dynamics.

> "The core of Keynesian theory can be summed up in two propositions. The firs is that in a capitalist economy the level of production in general is not determined by the availability of resources but by effective demand which determines *how much* of potential resources are effectively utilised" (N. Kaldor, 1989, p. 153).

The second proposition is explained in the next two pages. (1) Output adjust to demand, more concretely, it is a multiple of autonomous demand that includes productive investment. (2) According to the acceleration principle, productive investment depends on the expected growth of autonomous demand. (3) In the long-period equilibrium of an export-led economy, proper autonomous demand can be identified with exports that should pay for imports, while the multiplier coincides with the inverse of the import propensity (this is Harrod's trade multiplier) (Harrod, 1948) [7].

INCREASING RETURNS TO SCALE AND CUMULATIVE PROCESSES OF GROWTH.

Kaldor made important contributions to both pure economic theory and applied economics. His 1957 paper on growth was later completed with different books and papers on regional development in order to explain the divergent economic performance of countries and regions (N. Kaldor, 1966 and 1981). His conference in the Scottish Economy Society (1970) sketched a model of regional development with the following ingredients (N. Kaldor (1972) offers a summary).

(1) *Different status of economic sectors according to the evolution of their costs with the scale of production.* This was the legacy of Allyn Young, Kaldor's supervisor at the London School of Economics (Young, 1928). Agriculture, mining and most of the industries in the primary sector exhibit increasing costs in the marginal units of production, as David Ricardo suggested. On the

contrary, most of the manufactures exhibit increasing returns to scale. Following Adam Smith's intuition, Young and Kaldor concluded that the extension of the markets, favours the division of labour, the main source of productivity gains.

(2) Export-driven growth. Industries producing goods for the rest of the world also deserve particular attention since exports are a key element of the autonomous demand. Export-led countries will benefit from the domestic increases in productivity when the price elasticity of exports is important; and from the international increases in income, when the income elasticity of exports is important. These advantages are not a gift from the heavens, but the result of a prolonged effort of the firms.

"The growth of a country's exports should itself be considered as the outcome of the efforts of its producers to seek out potential markets and to adapt their product structure accordingly. Basically in a growing world economy the growth of exports is mainly to be explained by the income elasticity of foreign countries for a country's products; but it is a matter of the innovative ability and adaptative capacity of its manufacturers whether this income elasticity will tend to be relatively large or small" (Kaldor 1981, p. 603).

(3) The supermultiplier. Starting from Harrod's foreign trade multiplier and from Hicks supermultiplier, Kaldor derived an elementary supermultiplier model where the growth of exports dragged the induced consumption of households and the induced investment of firms (see footnote 7, above).

(4) Cumulative processes of growth. Following Myrdal (1971 [1957]), Kaldor warned about the virtuous and vicious circles of growth in a Keynesian model where adjustments generally occur via quantities, instead of prices. An increase in income in the rest of the world rises the exports of a country specialized in goods with a high-income elasticity. The supermultiplier ensures that aggregate demand, output and income will grow at the autonomous trend. The industries that enjoy increasing returns to scale will gain a competitive advantage that pushes exports up. The process repeats again and again.

(5) Balance of Payments constraint. The preceding statements suggest an increasing gap between regions. In real life, we observe divergence but not an explosive one. Which forces check the

centrifugal forces? Dixon, Thirlwall and McCombie suggest that the main check comes from the balance of payments (BOP) constraint (Dixon and Thirlwall, 1975; Thirlwall, 1979; McCombie and Thirlwall, 1994). In principle, a country that grows faster than the rest of the world, is bound to experience a trade deficit which, no country will be willing to finance. Countries whose exports exhibit high price elasticity and income elasticity are an exception but not a permanent one. After a point, the deficit countries will be unable to pay for their imports and to return the loans that financed their imports.

Kaldor's development model explains quite well the uneven development of the world regions in the 20th century[8]. The BOP constraint fits quite well in the surplus approach that cannot ignore the limits of demand-led growth. Our only proviso derives from the definition of the forces that are at the bottom of the process. Are we dealing with increasing returns to scale or with proper technical change related to the advances in knowledge? In section 6 we will defend the second alternative.

GROWTH AND ENDOGENOUS MONEY

The first analysis of money by Kaldor took place in the context of the Radcliffe Report (*Report of the Committee on the Working of the Monetary System*) (N. Kaldor, 1958). Kaldor took a position against the monetarism school, led by Milton Friedman that was gaining ground in the policy arena. He made it clear that the Central Bank (CB) was unable to control the quantity of money since its velocity of circulation was not constant, as claimed by monetarists. When the notes printed by the CB are not sufficient to meet up with the needs of the economy, banks introduce money substitutes that increase the velocity of circulation of the official money. If the legal money introduced through open market operations is excessive, banks will hoard it, which implies a fall in its velocity of circulation. Vernengo and Rochon (2001) considers that Kahn and Robinson's position at the time of the Radcliffe committee was closer to nowadays postKeynesian hypothesis of "endogenous money" (Robinson, 1956). This position is well summarized in Moore dictum: "Money is credit driven and demand determined" (Moore, 1988). Kaldor acknowledged some years later that in modern economies, the bulk of money derives from credit and that banks adapts it to the needs of the economy (N. Kaldor, 1970).

How is the endogenous money related to the supermultiplier theory of growth? According to Cesaratto (2017), Graziani's distinction between initial

and final finance helps for this purpose (Graziani, 1989). In the circuit approach, initial finance refers to the granting of loans to finance the production of goods and services (at least wages). Final finance refers to the allocation of the savings produced in the process of production among the elements of autonomous demand. Productive investment, to put an example, can be funded with the retained profits of firms (business savings) or with the profits distributed to capitalists who buy the equity issued by the expanding firms.

The post-Keynesian theory of endogenous money projects into an exogenous theory of the interest rate and a cost-push theory of inflation (exemplified by the Phillips's curve). In the neoclassical "loanable funds" theory, the interest rate is the equilibrating mechanism between the demand for and the supply of funds in the capital markets. In the *General Theory* the interest rate is the equilibrating mechanism between the demand for money or liquidity preference (L) and the supply of money (M). For Kaldor and postKeynesian economists the interest rate is a monetary phenomenon in the sense that its main determinant is the official rate set by the CB in their credits to banks. This allows them to depict a horizontal LM schedule. At the official interest rate, plus a constant mark-up, banks are willing and able to grant the credit demanded by creditworthiness borrowers. Credit is proportional to nominal output. It raises with the real output and the price level. Not in the other way round, as the quantity theory of money claims.

Does Sraffian economics has something to say about endogenous money, exogenous interest rate and cost-push inflation? Panico, Pinto and Puchet (2012) and Panico et al. (2012) show the advantages of treating banks as vertically integrated sectors (VIS). This hypothesis allows us to link the amount of interest payments charged by banks with their value added. In equilibrium, these payments are enough to pay for the normal wages and profits in the banks' VIS. This implies that interest rate per each euro lent has to cover the passive rate (close to the official rate fixed by the CB), plus the ordinary mark-up that covers the normal costs of production, plus a second mark-up that covers the particular risks of the borrower or the country.

The idea of credit endogeneity also requires some remarks. In my opinion, it is a condition for the sustainability of the financial system. We can even consider it, as the usual behaviour of the banking system. Yet, such outcome cannot be warranted. Being banks autonomous in the search of profits, they can expand credit permanently above the needs of production. I understand that, no matter how low is the interest rate, firms

would not borrow to finance production or investment if they do not expect demand for the new products at the prevailing prices of production. Households, however, can accept a loan to finance durable consumption or residential investment, provided the credit conditions are improved. Banks find easier to encourage speculative borrowers. The capital gains may be so important, that even an increase in the interest rate associated with the risk premium, will not discourage speculative borrowers.

According to Richard Werner, the condition of sustainable credit expansion is that the rate of growth of loans is equal to or below the rate of growth of nominal GDP (Werner, 1993, 2005 and 2015). A permanent gap means that a part of the credit deviates to fund non-output transactions, usually with a speculative bias. The result is asset inflation leading to bubbles in the residential market and the capital stock market. The postKeynesian claim that output inflation is a cost-push phenomenon is compatible with the conclusion that asset-inflation is related to an overexpansion of credit. (Dejuán, 2019; Dejuán and McCombie, 2018).

Credit is debt, and debt has a deflationary impact on demand. This occurs from the first moment, although it is in the recession where the impact becomes visible and feeds back on the debt. An acceleration of credit above the GDP for a long period, raises the indebtedness ratio and the debt service ratio. After a point, borrowers will be obliged to raise the saving propensity in order to comply with the debt service obligations. This implies a fall in the propensity to consume and the (super)multiplier. The equilibrium income corresponding to a given level of autonomous demand will fall. The autonomous demand funded with bank credit will also shrink. The fall in income implies a higher indebtedness ratio. The process feeds back and may cause a financial crash and economic recession as big as the one experienced after 2007.

The last boom and bust confirms the financial fragility of capitalism (Minsky, 1982 and 1986) and the speculative bias of advanced capitalism that was more emphasized by Keynes than by the postKeynesian economists:

 "Speculators may do no harm as bubbles on a steady stream of enterprise. But the position is serious when enterprise becomes a bubble on a whirlpool of speculation. When the capital development of a country becomes a by-product of the activities of a casino, the job is likely to be ill done". (Keynes, 1936, ch. 12)

Kaldor's permanent focus on speculation should be reflected in the surplus approach.

METHODOLOGICAL REMARKS

Methodological approaches explain important the differences between Kaldorian and Sraffian approaches to economics. The first one is the difference between logical equilibrium and historical equilibrium. At the beginning of his career, Kaldor contributed to the trend topic of the 1930's: the business cycle (Nicholas Kaldor, 1940). Certainly, this topic falls into the realm of short-period economics and historical time. Today level of prices and output depends on yesterday results that do not define a permanent equilibrium. During his entire career, Kaldor was also interested in regional development, an interest that required to consider regional specialization and other particular traits of each region/country (N. Kaldor, 1966). Historical equilibrium seems, once more, the appropriate methodology. Regarding prices, Kaldor showed a particular interest for commodities like gold, copper or oil; also for non-produced assets like land and equity. (N. Kaldor, 1939 and 1981). He was right to conclude that their prices depend on the interaction between the current flow of demand and a stock of resources that could be managed by trade dealers, with a clear speculative bias.

Sraffian economists, on the contrary, are basically concerned with the long-period equilibrium of produced commodities which represent the bulk of economic activity. They search for the gravity centres that attract, at any moment, the market prices, quite unpredictible. They conclude that competition forces firms to adjust prices to the cost of production that includes a normal rate of profit. Changes in technology and the real wage imply a movement of the prices of production and the rate of profit towards their new normal levels. Garegnani's discussion with Robinson sets the advantages of dealing with logical-equilibrium instead of historical-equilibrium in the formulation of a long period theory of prices and distribution (Garegnani, 1978-79). Regarding the theory of output and growth, the conclusion is not so evident. The supporters of the supermultiplier claim that output in t is a multiple of permanent autonomous demand, while the growth of output tends to adjust to the expected permanent growth of autonomous demand. The tendency to this equilibrium will be only at work, however, if these expectations endure long enough. The problem is that the exogenous data change faster than technology, and the direction of the movements is more unpredictable.

The confidence in the actual force of competition is the corner stone of the issue at stake, as recognized explicitly by Kaldor (1972). Most of postKeynesian economists consider that oligopoly, instead of competition, should be considered as the default setting in the study of prices and output

in advanced capitalism. Sraffian economists prefer to consider competition as the default setting in the development of a long period theory of prices and output. It should not be identified, however, with the neoclassical concept of "perfect competition"[9]. Competition does not require infinite agents with infinitesimal market power. It only requires the freedom to invest in the industries that promise a higher rate of profit. Monopolies are the exception rather than the rule. Oligopolies should be analysed under the lens of competition if they are forced to innovate in order to introduce new goods and cheaper technologies and to adjust prices to the new costs. A tree is known by their fruits!

Kaldor (1972) also contends that the presence of increasing returns to scale in manufacture led him to reject the premise of competition and the methodology of equilibrium economics. In our opinion, the ideas by Adam Smith and Allyn Young, that led Kaldor to his conclusion (as we saw in section 4) should be treated as particular types of technical change, instead of a contradiction to the hypothesis of constant returns to scale.[10] Learning by doing is certainly a source of productivity gains, but they would happen also when the scale of production remains constant. Even when the new capital goods are not meant to modernize capacity, any machine embodies technical advances that push labour productivity up. This is Verdoorn's law, a law well known by Kaldor. Note, that the law holds good even when the machine for replacement does not increase production.

Applying the Sraffian method to the very long-run, we can derive the prices of production and the potential rate of growth assuming a given productivity of labour at *t* that increases at an exogenous rhythm. There is no need to assume increasing returns to scale in order to explain productivity advances. Increasing returns, when they exist, should be considered an exception.

CONCLUSIONS: KALDOR IN THE SURPLUS APPROACH

This paper has analysed Kaldor's contributions to the theories of distribution, growth, technical change and money. His main purpose was to extrapolate Keynes's principle of effective demand to the long run, the natural realm of growth theories. My contribution has been to redefine Kaldor's ideas in order to integrate them into the "surplus approach", a synthesis of the Keynes-PostKeynesian theory of output and money and the classical-Sraffian theory of value and distribution. The kernel of such a synthesis could be a multiplier-accelerator model – the supermultiplier model, for short.

The independent variable of this model is the expected autonomous

demand at t and the expected rate of growth of permanent autonomous demand. Autonomous demand includes the durable consumption and residential investment of households usually financed with loans, the modernization investment of firms, real public expenditure and exports. Any increase in these categories is compounded by the multiplier of induced consumption and the accelerator of expansionary investment. Kaldor has the merit to emphasize the pre-eminence of the expected rate of growth of demand and its impact on investment via the accelerator principle. He was wrong, however, in concluding that distribution was bound to change in order to generate the required savings that ensure the sustainability of the system. The supermultiplier theory explains that an increase in the autonomous trend conveys an increase in the share of investment in income, which generates an equivalent amount of savings.

In the previous analysis, technology appears as a datum. Of course, it has economic determinants that may lead to an endogenous path of growth and technical progress as Kaldor suggested in his stylized facts. The ordinary vehicles of technical progress are the investment in R+D and the modernization investment that aims at transforming the existing capacity. Yet, as Verdoorn and Kaldor pointed out, the expansionary investment computed by the accelerator principle also helps to improve the productivity of labour since any machine usually adds a small improvement. At its turn, such improvements will spur modernization investment and therefore, income, and expansionary investment. This virtuous circle, is even more apparent in export-led economies specialized in the production of high price-elasticity and high income-elasticity commodities. Kaldor rightly pointed out that the productive structure of an economy matters in the historical development of a region.

Production involves time and requires some credit to advance the costs of production (at least, wages). In Graziani's parlance, this is called "initial finance"; it refers to the funding of production. Kaldor was one of the pioneers of the endogenous theory of credit-money. It states that, in advanced economies, the bulk of money is identified with the deposits that stem from credit, while credit adapts to the need of the economy. The condition for financial sustainability, points Werner, is that the rate of expansion of credit is equal to or below than the rate of growth of nominal GDP. A persistent positive gap between these two rates means that a part of credit is devoted to non-output transactions, as the purchase of land and financial assets, usually with a speculative bias. Historically, this has been the prelude of the financial crashes leading to major economic recessions.

Kaldor enriches the surplus approach in these areas, frequently absent the classical political economy. Sraffa clarifies the classical theory of value and distribution and brings to light the limits to demand-led economies derived from the supply side. In general, post-Keynesian economists try to water down the supply restrictions of demand-led growth. Anything that questions the paradox of costs and/or the paradox of thrift becomes suspicious. Yet these limits exist in real life and should be taken into account by any school, especially those emphasizing that capitalism is a demand-led system. Inflation barriers and the balance of payment constraint are other limits derived from the supply side.

Methodological differences abound and should be reconciled. Kaldor, Robinson and most of postKeynesian economists refer to the long run as a succession of short run historical equilibria. The long period method of Sraffian economists (Garegnani and Eatwell in particular) does not refer to the historical equilibria but to a logical one. Prices tend to gravitate around their natural positions under the pressure of competition, even if today they may be out of equilibrium. For Kalecki, Kaldor and most of postKeynesian economists, oligopoly is the default state in advanced capitalist economies. For Sraffians, competition is the default state. The fact that a handful of big firms dominate an industry may alter the forms of competition. Nevertheless, if these firms are obliged to innovate, to reduce costs and to adjust prices to the new costs, they continue under the discipline of competition.

ACKNOWLEDGMENTS

NOTES

1   I have found only one quote by Kaldor to Sraffa in p. 1241 of N. Kaldor (1972).

2   Ricardo acknowledged that this fate might be delayed by productivity increases, as actually has happened (Ricardo, 1817). See also Ricardo's essay *Protection to Agriculture*.

3   The capital controversies involve other problems: reswitching, inverse capital deepening, circular reasoning.

4   From a Sraffian standpoint, Ciccone (2000) and Palumbo and Trezzini (2003) accept that the average degree of utilisation of productive capacity may diverge from the normal degree. Without denying this result, we claim that even in a boom period, firms try to re-establish normal capacity utilisation through investment.

5   We are not assuming perfect foresight of firms, just a prudent behaviour. The

unexpected increases in demand are met by increasing the rate of capacity utilization. If overutilization endures long enough, firms adjust the desired level of capacity. Such adjustment has the usual multiplier effects on final consumption; not the accelerating effects on investment. Only when overutilization persists despite the capacity adjustment, firms suspect that there is a permanent "acceleration" of demand that requires to raise the expected rate of growth implicit in the supermultiplier.

6   Shaikh (1991) claims that point (1) is the key one, as Marx advanced. The thrust to maximize profits and to control the performance of labour, encourages firms to replace labour by capital. The problem with Marx is that he assumed that an increase in the degree of mechanization $(\Omega = K/L)$ implied an increase in the intensity of capital $(v=K/Y)$, which justified the law of the falling rate of profit. Kaldor proved that a higher Ω is compatible with a constant v if the increase in the productivity of labour makes up for the increasing mechanization.

7   Harrod's trade multiplier $(1/m)$ is a special case of Hicks's supermultiplier $(1/(1-c'-h))$ (Hicks, 1950). Suppose that aggregate demand consists of induced consumption, productive investment and exports. Their shares in income are, respectively, c, h, x. The share of domestic consumption is: $c'=c-m$ where m is the import propensity that, in the long run, should be equal to the export share: $m=x$. In this export-led economy, Hick's supermultiplier becomes $1/(1-c'-h)$, where $1-c'-h = x = m$.

8   They imply a step forward to the neoclassical models (Solow, 1956) that expected a regional convergence, due to the decreasing returns to substitution between factors (the productivity of capital decreases when the firms adds more labourers per unit of capital). To explain the increasing divergence in some regions during long periods, the second generation of neoclassical growth models introduced factors of production without decreasing returns to substitution: human capital, the institutional set-up, etc. (Romer, 1986). Kaldor was well aware of the importance of these factors although he did not need them to explain endogenous growth.

9   See the three entrances on "Competition" in *The New Palgrave. A Dictionary of Economics*, 1987, v. I, pp. 531-540, signed, respectively, by G. Stigler (neoclassical "perfect competition"), P. McNulty (Austrian "potential competition") and J. Eatwell (Classical-Marxian competition).

10   An example to clarify the issue at stake. Suppose in year *t* the demand for cars amounts to 100 physical units produced by 10 firms of a similar size. If there is a technological improvement and the firm with the optimal size is able to produce 20 cars per year, the market will be able to host only 5 firms. If, due to the lower price and the increases in *per capita* income, the aggregate demand rises to 200 units, the 10 original firms will continue in the car market. In our opinion, this result does not reflect increasing returns to scale (which imply a constant capital/labour ratio) but a proper technical change derived from the

introduction of a more efficient equipment that saves labour.

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