The theory of output in the Modern Classical Approach: main principles and controversial issues

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Abstract
An approach to the theory of output and growth which combines the classical theory of value and distribution with Keynes’s principle of effective demand has been originated from the theoretical contribution of Piero Sraffa. The paper addresses the main lines of this ‘Classical-Keynesian’ approach. It also expounds the main questions that animate the debate within the approach.

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1. Introduction

Although Piero Sraffa never dealt with the theory of output and growth, this constitutes a relevant field of analysis in the literature that originates from his work. This paper describes the main lines of the ‘Classical-Keynesian’ approach to output determination, which combines the classical theory of value and distribution with Keynes’s principle of effective demand, applied to the long-period tendencies of the system. We aim to specify what characteristics of the classical theory of value and
distribution make it a consistent basis for a theory of demand-led growth. We also intend to expound the main questions that animate the debate within the approach. These regard the way to study the long-run relationship between capacity and output and the specification of the investment function. We will address the matters of controversy and illustrate our own position, which may be summarized as stressing the path-dependent nature of the growth process.

The paper is structured as follows. Section 2 recalls the contradiction between the neoclassical theory of output and the principle of effective demand; section 3 reviews the implications of the critique to the neoclassical conception of capital – prompted by Sraffa’s analysis – for the critique to the tendency to full employment; section 4 summarizes the Classical theory of value and distribution and its open character as regards the theory of output. The main features of the Classical-Keynesian approach are sketched in section 5. Section 6 and 7 are devoted to the controversial issue of capacity adjustment and to some related questions regarding the analysis of investment and the other components of aggregate demand.

Section 8 addresses the policy implications of the Classical-Keynesian approach. Section 9 concludes.

2. Keynes’s principle of effective demand and the neoclassical theory of distribution

The connections between Sraffa’s work and the theory of output have been highlighted by Garegnani (1978-9). As is known, Keynes conceived his own theory of output, aimed to show the tendency of the system to equilibria with underutilization of labor and equipment, as wholly alternative to the dominant theory. This necessarily implied a critique of the neoclassical adjustment mechanism – based on the flexibility of the rate of interest – entailing the spontaneous adjustment of investments to full-employment savings.

Keynes both identified in output variations an alternative adjustment mechanism between investment and saving, and criticized the neoclassical mechanism by putting forward a monetary theory of the rate of interest. In relying on the potential inflexibility of the rate of interest, and on the volatility of the marginal efficiency of capital, Keynes could regard the adjustment mechanisms of neoclassical theory as inoperative and did not deem a deeper critique to the neoclassical theory of value and distribution as necessary.¹

However, the tendency to full employment is a necessary implication of that theory. It is inbuilt in the very mechanisms which determine simultaneously prices, distribution, produced and exchanged

¹ He did not deny, in fact, the validity of the demand curves for factors of production on which the neoclassical equilibrating mechanisms rest.
quantities of goods and demands of factors, on the basis of given technical conditions, consumer
tastes and factor endowments. Decreasing demand curves based on factor substitution, and the
assumption of flexibility in the factor rates of remuneration in response to any divergence between
demand and supply, are the basic tools that ensure the tendency to full utilization of resources.

These two theoretical elements are also crucial when monetary variables are taken into account
and the tendency to full employment is considered from the point of view of aggregate demand
tending to adjust to aggregate supply: such adjustment would occur through changes in the interest
rate bringing investment to equality with full-employment saving.

The saving-investment market is thus the center of Keynes’s critical attention. In the neoclassical
representation, a crucial role is played by the demand for investment, which derives its form and its
elasticity to the interest rate from the neoclassical demand for capital (Garegnani, 1978). The
decreasing shape of the function is what ensures effectiveness of the adjusting mechanism based on
interest flexibility.

Keynes’s partial acceptance of traditional theory – which shows especially in his analysis of
investment2 – may have contributed positively, according to Garegnani (1979, p. 77-8), to his
statement of the innovative part of his theory, by rendering a more complete critique of neoclassical
theory unnecessary. However, as a consequence, two very different theories are simultaneously
present in Keynes’s analysis: the theory of effective demand, implying the potential plurality of
equilibrium outputs, and the neoclassical theory of distribution, implying the definition of full
employment as the only long-period equilibrium. This gave rise to an ‘inherently unstable
compromise’ (Garegnani, 1979, p.77) and left the way open to the reduction of the principle of
effective demand merely to the explanation of short-period phenomena of depression, as in the
neoclassical synthesis.

3. Capital and the critique to the neoclassical adjustment mechanisms

Sraffa’s (1960, § 48) analysis of the dependence of prices on changes in distribution paved the
way for a critique of the neoclassical conception of capital. The structure of neoclassical theories
requires in fact that the rate of profit, conceived as the rate of remuneration of capital, is determined,
symmetrically and simultaneously with the other distributive variables, by equilibrium between its
demand and supply. The set of heterogeneous capital goods used in production is then regarded as a

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2 Keynes’s theory of investment is in fact made up of a mixture of neoclassical elements – the demand schedule for
investment based on the marginal theory of capital – and innovative ones – his acknowledgment of the crucial role of
institutional and conventional factors.
single homogeneous factor measured in value.

The dependence of relative prices on distribution, however, makes it impossible to conceive capital as a homogeneous single factor: neither the available quantity of capital is measurable independently of prices and distribution, nor, as the so-called ‘capital controversy’ (see Harcourt, 1972, for a reconstruction) has shown, is it possible to derive the univocal function relating the demand for capital to the rate of interest which is proper to neoclassical theory.³

This deprives the alleged tendency to full employment of resources of its ultimate theoretical basis. Reinforcing Keynes’s critique, no systematic tendency of investment to adjust to full-employment saving may be postulated, not only for the possible inflexibility of the rate of interest, but for the very absence of any systematic relationship between investment and the interest rate.

Thus the Keynesian principle of effective demand may be reaffirmed and made into the basis of a theory of long-run output and growth.

4. The Classical ‘core’ and the theory of output

The Classical approach to value and distribution represents, according to Garegnani (1978-9), a more solid foundation for the Keynesian theory of effective demand.

Classical analysis is based on the concept of social surplus, defined as the part of social production that exceeds what is necessary to reintegrate means of production and means of subsistence. The distribution of such social surplus depends on arbitrary and socially determined rules deriving from power relations. A crucial feature of classical analysis is the separation of determination of prices and determination of quantities in different stages.

Outputs are given in the so-called ‘core’ of classical analysis, where relative prices and the residual distributive variable are determined (Garegnani, 1984). The classical theory of value is then ‘open’ with respect to the theory of output; compatible, in principle, either with a theory of output implying the tendency to full employment or with a theory conceiving unemployment and/or underutilization of capacity as normal phenomena. It is endowed in this regard with a 'degree of freedom' with respect to marginalist theory, which is instead characterized by a necessary connection between output and distribution.

The existence of this degree of freedom shows in the different analyses of output offered by different authors sharing the surplus approach. Many of them – and especially Ricardo – believe in Say’s Law, due to the lack of a clear distinction between decisions to save and decisions to invest. However, this is by no means a necessary implication of the basic principles of the surplus theories

³ For the critique to the Walrasian variety of general equilibrium, see Garegnani (1990).
of value, as other analyses (especially Marx’s) show. Nor does any classical economist envisage mechanisms automatically ensuring full employment of labor, due to the absence in their analyses of neoclassical factor substitution (Garegnani, 1984; Mongiovi, 1990).4

The separate determination of prices and quantities has relevant methodological implications (Garegnani, 1984). The core is in fact the limited analytical field in which strictly deductive relations may be established on the basis of the given variables – the technical conditions, the levels of outputs, and a distributive variable – and the rule of competition (uniformity of the rate of profit). The givens of the core should be considered as 'intermediate' data, i.e. as variables which are exogenous only with respect to the specific problem studied in that part of the theory.

The determinants of output levels, or the forces determining accumulation and technical progress, are thus not excluded from the sphere of economic analysis but studied separately. The classical economists conceived them as determined by plural and complex forces, of different intensity and even directions according to different historical contexts and the different prevailing formal and informal institutions. Being different in nature, outside-of-the-core relations must be studied with a different method of analysis. The simple and general quantitative relations that govern, inside the core, the relations between relative prices and the rate of profit, are replaced, outside the core, by complex ‘systems of influences’, with multiple interrelations and a strong role for specific historical circumstances.

The relevance of this methodological attitude for the theory of growth in the modern classical approach will be addressed below.

5. The Classical-Keynesian approach to growth: main analytical propositions

5.1. Long-period elasticity of output

The Classical-Keynesian approach to growth is essentially based on the recognition of the elasticity with which output responds, in the long no less than in the short period, to changes in aggregate demand. Such elasticity, which is at the core of Keynes’s contribution, in the short period is related to the varying utilization of installed capacity, while in the long period is further increased by the possibility of creating new resources, or destroying the existing ones, at different possible

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4 Ricardo does even explicitly recognize that unemployment of labor may emerge as a persistent phenomenon. Moreover, the very mechanism that in his analysis ensures convergence between labor demand and labor supply over secular periods entails endogeneity of labor supply to demand changes, a principle which is alien to neoclassical analysis. In Marx’s analysis both lack of a necessary tendency towards full employment and endogeneity in resource formation are recognized as essential. On the endogeneity of resources in the Classical-Keynesian approach, see section 5.1.
speeds.

This process of demand-induced creation/destruction of resources rests crucially on the elasticity with which plants may be used according to the requirements of demand (Ciccone, 2011, p. 77-8) and on the circumstance that both overutilization and underutilization are technically possible even for protracted periods.

The evolution of capacity with respect to demand is in fact governed by the notion of ‘normal’ utilization, defined as the average ratio between output and full capacity output which entrepreneurs expect to realize on newly installed capacity – thus being an economic and not technical magnitude.

Following Ciccone (1986), who in turn founds on Steindl’s classical analysis of the issue, it is plausible to assume that firms install an amount of fixed capital that is commensurate to the peak levels of demand, due to the fluctuations they expect to face. This implies that average expected (i.e., normal) utilization will be less than full, so that production is potentially very elastic to changes in demand.5

A tendency of aggregate demand to be high for a protracted period would cause a prolonged overutilization of existing capacity. This will eventually induce firms to create new capacity or accelerate its creation. Symmetrically, a protracted underutilization of capacity will induce firms not to completely reintegrate the worn-out capacity, letting part of it disappear.

This process of creation or destruction of resources has enormous potentialities: a single-period underutilization does not only imply the immediate loss of output with respect to installed capacity, but also the loss of the output that could have been produced in case new capacity had been created in response to higher utilization and then normally used (Garegnani, 1992).

Also labour supply shows high elasticity, given sufficient time, to changes in demand for labour, through changes in the labor-force participation rate, migration flows, and transfers between low-productivity and high-productivity sectors within the economy (Kaldor, 1985).6

Over long periods, it is generally unlikely to observe phenomena of underutilization of labor or fixed capital in which very large percentages of existing resources are left idle. Unused resources tend in fact to shrink and progressively disappear, though slowly. This may contribute to generate the ‘optical illusion’ (Garegnani and Palumbo, 1998) which has induced many authors – and some prominent Keynesians among them7 – to believe that the margins for output expansion in response to

5 Commenting on Kurz (1986), who maintains that normal utilization must coincide with the cost-minimizing technique, Ciccone (1987) notices that the existence of systematic spare capacity does not contrast with profit maximization, if the latter is interpreted as including a long-run ‘strategic’ element, according to which firms try to avoid losing market shares in favor of competitors.
6 In recognizing such phenomena, Kaldor was led to abandon his earlier full-employment hypothesis and elaborate a demand-led explanation of growth. See Palumbo (2009).
7 Reference is to the so-called ‘Cambridge theory of distribution’ (Kaldor, 1955-6, Robinson, 1962).
changes in demand are narrower in the long period, while the very endogenous creation of resources makes them actually wider.

5.2. What is Classical in the Classical-Keynesian approach?

The specificity of the Classical-Keynesian approach to the analysis of growth, with respect to other Keynesian theories of growth, is the reference to the classical theory of value and distribution. This implies that the approach inherits the separation between analysis of accumulation and analysis of distribution that is proper to classical economics. Uni-directional, general and necessary relationships between accumulation and normal distribution — as for example those envisaged by the Cambridge theory of distribution or by marginalist theories — are excluded.

This does not amount to excluding, however, the possibility of mutual interrelations, of multiple and even contrasting influences between the forces determining distribution and those determining growth. A phase of rapid accumulation may in fact positively affect the bargaining power of workers and thus favor high wages; but it may also have the effect of depressing real wages, for example if it relies on the fast expansion of trade with lower-wage areas. The connection between accumulation and distribution cannot be represented by any univocal relationship because it appears to be made of multiple influences, liable to change according to the historical circumstances.

Another legacy of classical political economy is the conflict view of distribution, as expressed by the long-run inverse relationship between real wage and the rate of profit. Conflict, and the way it is ruled, brings about different distribution structures, which may prove more or less favorable to growth and affect differently the different sectors of the economy. These effects are part of the complex mutual interrelations between accumulation and distribution.8

A further characteristic of Classical political economy that proves relevant for the analysis of growth is, in our opinion, the above-mentioned distinction between core and out-of-the-core relations. Belonging to the category of relations that lie outside the core, the study of the determinants of output and accumulation cannot be addressed with the same kind of abstract deductive reasoning that is used to study the relationship between distribution and relative prices, but rather with the ‘historical’ method described above. Thus, institutional and political factors contribute to shape economic relations and represent the ultimate determinants of economic magnitudes, rather than being mere disturbances or imperfections as is implicit in the neoclassical framework.

Summing up, the Classical-Keynesian approach describes growth as a process characterized by

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8 This sets the Classical-Keynesian approach apart from those Kaleckian models of the ‘stagnationist’ variety (Rowthorn, 1981; Amadeo, 1986) which share the recognition of the fundamental role of demand in the growth process but admit the possibility of a direct (instead of inverse) relationship between the real wage and the rate of profit. Such a result is however based on an unjustified identification between the actual and the realized rate of profit (Vianello, 1989).
long-run output elasticity, endogeneity of resource formation with respect to demand, conflict view of distribution and separation (with reciprocal and changing influences) between accumulation and distribution. The basic implication of the approach is that no automatic mechanisms guarantee that a market economy automatically tends to full employment.

6. An open question in the Classical-Keynesian approach: capacity adjustment and the role of fully adjusted positions

The acknowledgement of the endogenous creation/destruction of resources in response to changes in demand is the center of the Classical-Keynesian approach. A difference has however emerged, among the authors sharing the approach, about the analytical tool to be used in the study of growth. Two different strands of analysis may be identified, the first one assuming that growth has to be studied through ‘fully adjusted situations’ (the definition is in Vianello, 1985), i.e., positions of the economy characterized by complete adjustment between demand and capacity; the second one denying that such positions have to play any relevant role and advocating instead a conception of growth as a path-dependent process. In the following, we will try to describe the two different strands and to dwell on the reasons for which, although recognizing that the debate is still open, we regard the latter as the most promising way of analyzing growth.

6.1. The issue of adjustment.

In the earliest elaborations in the Classical-Keynesian approach (Garegnani, 1962; Eatwell, 1979), it was generally assumed that the long-run positions of the system had to be characterized by full adjustment between demand (output) and capacity, as well as by normal prices and the normal rate of profit. This notion of ‘normal’ output (Eatwell, 1979) as entailing full adjustment seemed to automatically derive from the very definition of normal prices as those corresponding to dominant techniques and implying normal utilization of capacity. In those same analyses, investment was usually assumed to consist of two different components, an autonomous one and an induced one (Garegnani, 1962, Eatwell, 1979, Vianello, 1985), thus identifying two different sources of growth: aggregate demand and innovation.\(^9\)

Within the approach, the debate on capacity adjustment started with Ciccone (1986) and Garegnani (1992), both showing the potential incompatibility between the full adjustment hypothesis and the

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\(^9\) As has been shown in subsequent analysis (Serrano, 1995), this conception of investment as partly autonomous is contradictory with the full-adjustment hypothesis. See below, section 7.1.
independence of investment from saving – an essential proposition of any theory of demand-led growth. In the words of Garegnani (1992, p. 58), “the possibility that investment should generate the corresponding amount of savings through changes in aggregate productive capacity (…) is inconsistent with the assumption of an economy working over time at the desired level of capacity utilization, even only on an average taken over booms and slumps”. Garegnani notes that for normal utilization to be actually realized, either constantly or on average, investments must match (either constantly or on average) capacity savings that, given distribution, are determined by the propensity to save and the existing productive capacity.\(^{10}\) Thus investment would depend entirely on these two circumstances.

Ciccone (1986) focuses on the fluctuations that usually characterize any growth process. By defining ‘normal’ capacity utilization as the average expected utilization based on expected fluctuations, he shows the possibility that the average long-run degree of capacity utilization is different from normal. However, this does not imply that normal prices and the uniform rate of profit, which are defined with reference to the dominant techniques and thus to normal capacity utilization, lose their role in the analysis. On the contrary, the normal rate of profit is crucial for investors’ decisions since it is what they expect on newly installed capacity, which implies that gravitation towards long-period prices does not require simultaneous gravitation of the effective utilization of capacity around its ‘normal’ level.

6.2. Criticism of the steady-state hypothesis

The discussion on the adjustment issue originates from a fundamental methodological question, namely the incompatibility between a theory of demand-led growth and the study of long-run tendencies by means of steady-state models. Along a steady-state growth path, all relevant variables grow at a constant and uniform rate, which implies a continuous balanced growth of demand and capacity with normal utilization occurring continuously. Steady-state models necessarily exclude by construction the very elasticity of output to changes in demand that makes it possible for demand to drive the growth process. Vianello (1985), Garegnani (1992) and Ciccone (1986) note how the steady-state hypothesis, in a non-marginalist context, gives rise to the unwarranted assumption, proper to some Keynesian authors (notably, those proposing the Cambridge theory of distribution), of long-run rigidity of output with respect to demand. The latter assumption leads them to postulate a one-directional relationship between accumulation and distribution that actually holds only in that artificial situation. Steady-growth paths can be considered neither as actually realized positions nor

\(^{10}\) For the role of autonomous expenditure in making the capacity saving ratio depend also on demand, see section 6.3. below.
as centers of gravitation of actual growth paths.11

6.3. The supermultiplier models. The crucial role of autonomous demand.

Although there are various subsequent analyses in the Classical-Keynesian approach that retain the full adjustment hypothesis (see for example Eatwell, 2012)12, we will here devote particular attention to the ‘supermultiplier’ models, since much work and debate has focused on them. The ‘Sraffian supermultiplier’ has been originally proposed by Bortis (1984, 1997) and Serrano (1995)13, subsequently followed by other authors (Dejuan, 2005, 2013; Cesaratto, Serrano and Stirati, 2003; Freitas and Dweck, 2013). It represents the relationship between the level of autonomous demand and output in the hypothesis that investment is entirely induced and such as to fully adjust capacity to output. The notion of ‘autonomous demand’, identified with ‘unproductive’ (i.e., non-capacity-creating) expenditure, is crucial. Output is in fact determined, under these hypotheses, by the multiplicative process both of autonomous demand and induced investment, and thus turns out to be proportional to autonomous demand, while the rate of output growth is equal to the rate of growth of autonomous demand. It follows that the capacity-saving ratio, to which the investment ratio must adjust, also depends on the ratio between autonomous demand and output, which makes it potentially endogenous to demand14.

Freitas and Serrano (2015) clarified recently that the supermultiplier is not to be interpreted as a steady-state model.15 Rather, it represents the relationship between output and autonomous demand holding in ‘fully adjusted situations’. Notwithstanding the erratic and fluctuating path of actual demand, the supermultiplier theory suggests that output growth is determined by the rate of autonomous demand, which in turn is influenced by the capacity-saving ratio. This highlights the role of autonomous demand in shaping output growth, emphasizing the importance of understanding how demand influences economic activity.

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11 Also Kaleckian models of growth, as is known, retain the steady-state assumption while attributing a determining role to demand (Rowthorn, 1981; Amadeo, 1986; Dutt, 1990). The contradiction was apparently resolved (in the initial versions of the model) by stating that the system may persistently realize different-from-normal utilization. However, this implies the absence of any correction of non-normal utilization on the part of entrepreneurs – an assumption quite at variance with the equilibrium nature of steady-growth paths (Committeri, 1986; Park, 1997). For discussion of possible adjustment mechanisms – based on adjustment of normal to actual utilization – in successive versions of the Kaleckian model, see Lavoie (2014). For a general critical discussion of Kaleckian models of growth, see Cesaratto (2015).

12 Other authors in the approach adopt the full adjustment hypothesis, but subject to various qualifications, so that their analyses can be actually considered halfway between the two strands described here. In Park (1997, 2012), for example, we find the full-adjustment hypothesis but also endogenous determination of normal utilization based on the average utilization realized in the past. Aspromourgos (2014) adopts the full-adjustment hypothesis only in a specific (and admittedly highly simplified) steady-state model aimed at showing the possible convergence to full-adjustment positions, puts forward various reasons to regard full adjustment as problematic.

13 The Supermultiplier was originally proposed by Hicks (1950). While Bortis (1984) has been the first to propose its use in a Classical-Keynesian context, its fortune is mainly due to Serrano (1995), who coined the term “Sraffian supermultiplier”.

14 By highlighting the role of autonomous demand, the Sraffian supermultiplier shows that the conclusions of the Cambridge theory of distribution would be unwarranted even for an economy proceeding along a fully-adjusted path.

15 As noted by Trezzini (1995, 1998), if the supermultiplier were interpreted as depicting a steady-state growth path, the independence of demand would only be apparent, since autonomous demand would grow at a warranted rate entirely determined by supply conditions.
growth, fully-adjusted positions are relevant according to the supermultiplier authors because they represent the effective (if slow) tendency of capacity to adjust to demand. The analysis of convergence of the adjustment mechanism becomes crucial in this line of thought. We will consider this question later, after describing briefly the second strand of analysis within the Classical-Keynesian approach.

6.4. The flexible-utilization approach

Other authors in the approach (Trezzini, 1995, 1998, 2013; Ciccone, 2011; Vianello, 1989; Ciampanini and Vianello, 2000; Smith, 2012, 2013; Parrinello, 2014; Palumbo and Trezzini, 2003; Palumbo, 2015), either elaborating on the above-quoted analyses of Garegnani (1992) and Ciccone (1986), or through independent routes, have developed a second line of thought that rejects the use of fully-adjusted positions in the analysis of growth.

The basic idea is that, although capacity is installed on the basis of expected demand, once it comes into existence, actual demand is independent of it. Keynes’s analysis and the critique to neoclassical theory imply the non-existence of mechanisms ensuring that actual demand is such as to allow normal utilization of installed capacity.

Even if, following an independent increase (decrease) in demand that produces misalignment between capacity and demand, capacity should adjust over time so as to become again perfectly adequate to produce long-period output with normal utilization finally prevailing again in the whole system, we would anyway observe over- (under-) utilization of capacity over the whole adjustment period. Such non-normal utilization is the very expression of the tendency of productive capacity to depend on the evolution of aggregate demand (Garegnani, 1992; Trezzini, 1995; Park, 1997).

A first question thus arises as regards the analytical role of fully adjusted positions, and it has to do with the fact that they cannot represent the average trend that actual economies follow. A second, strictly related, question, is that the very attainment of full adjustment is in practice a highly unlikely occurrence. There are in fact several reasons, apart from wrong expectations, to assume that capacity neither reacts instantly nor adjusts fully if demand changes during the life of fixed capital. In the first place, the elasticity in the use of fixed capital (Ciccone, 1986, 2011) implies that firms only correct over- or under-utilization which is perceived as systematic and not transitory, i.e. after a period of average actual utilization different from normal (Palumbo and Trezzini, 2003; Hein, Lavoie and van Treeck, 2011, 2012). Being normal utilization the average expected utilization over fluctuations, it

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16 Even if Vianello (1985) assumed the system to converge to fully adjusted positions after phases of over- or underutilization caused by independent changes in demand, he did not consider normal utilization as representing the average condition of the economy and regarded the fully-adjusted relations as misleading in the interpretation of actual phenomena. Vianello (1989, p. 187-8) explicitly admits a change of view with respect to his previous analysis.

17 Cesaratto (2015) labels the flexible-utilization approach as the “First Sraffian Position”.

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may even happen that a recorded ex-post over- (under-) utilization does not induce any change in capacity if the latter proves adequate to accommodate the peaks of production. In the second place, due to their durability, existing plants may continue to be used even when, due to technical change, they are not required in the new dominant techniques and do not give rise to normal profits.\textsuperscript{18} In the third place, the very process of adjustment of capacity implies new flows of demand, which may operate against adjustment (Trezzini, 2013; White, 2006). Finally, the high elasticity in the use of fixed capital may even imply a whole range of ‘acceptable’ degrees of utilization instead of a single ‘normal’ degree (Dutt, 1990; Hein, Lavoie and van Treeck, 2011; Parrinello, 2014).

In order to assume that the economy reverts to a state of complete adjustment between capacity and demand, it would be necessary to suppose – quite unrealistically – that autonomous expenditure grows for a virtually unlimited period at a constant rate and entrepreneurs form their expectations not on the basis of the demand facing the individual firm but on the evolution of the autonomous components of aggregate demand (Trezzini, 1998; White, 2006).\textsuperscript{19} Technical progress, moreover, should occur in forms that do not perturb the possibility of adjustment.

The flexible-utilization authors conclude that the tendency of capacity to adjust to demand, though always at work, never realizes in full and consequently fully-adjusted situations are not relevant for studying reality.\textsuperscript{20} As seen above (section 6.1), full adjustment between capacity and output is not a necessary characteristic of long-period positions. Normal prices prevail in the system because normal utilization is expected on the flow of newly installed capacity: due to the durability of fixed capital, adjustment of the whole stock of capital is likely never attained, but this does not prevent prices from gravitating towards their normal values (Ciampalini and Vianello, 2000).

Growth should thus be studied, according to the flexible-utilization approach, by using long-period positions characterized by normal prices and normal distribution, and adjustment of output levels to sectoral demands—and of total output to aggregate demand—with this latter adjustment not necessarily implying full adjustment of the whole capacity.

6.5. Fully-adjusted positions vs path-dependent processes

The supermultiplier authors, especially in recent contributions, accept many of the previous arguments as regards both the length and complexity of the adjustment process and the possibility of defining long-period positions regardless of the full adjustment hypothesis. Freitas and Serrano (2015,\textsuperscript{18} The ‘dominant’ techniques, associated with newly installed capacity, are the most efficient among the sufficiently widespread ones (Vianello, 1989, p. 173). They generally co-exist with both newer and older techniques. The latter employ fixed capital that is not currently reproduced.\textsuperscript{19} See section 6.6 for a discussion of the adjustment mechanism in both varieties of the approach.\textsuperscript{20} This however does not amount to maintaining that capacity and demand may follow divergent paths or that a non-normal degree of utilization may persist unchanged in time. See section 6.6 below.\textsuperscript{20}
p. 2), for example, propose two different versions of their model: a long-period one, in which the actual degree of capacity utilization is endogenous, and a fully-adjusted version, which is explicitly meant to study “the slower process (…) which makes the levels of capacity output to adjust to the levels of demand”.

They thus retain an analytical role for fully-adjusted positions despite the fact that such positions cannot describe the actual situation of the economy even in a long-period context. They seem implicitly to admit that the trend described by actual magnitudes cannot but be characterized by a degree of utilization different from normal.

The supermultiplier models, although not explicitly, seem to assume that fully-adjusted positions play in the analysis of quantities the same role that normal prices play in the classical analysis of value and distribution. They would be ‘attractors’ of actual quantities in the same sense as normal prices represent the centers of gravitation of actual prices.

The analyses based on the supermultiplier share with other Keynesian models of growth the idea that the phenomena characterizing growth may be represented through definite quantitative relationships between variables.

On the contrary, the flexible-utilization authors advocate for the analysis of quantities produced a different method from the one used in the analysis of prices and distribution; and regard this difference as a direct application of the above-described methodological characteristics of classical analysis. The determinants of output, growth and accumulation belong to the outside-of-the-core relations (see section 5.2) and thus should not be studied by means of definite and general relationships between variables (see also Mongiovi, 2011).

While the determinants of normal prices may be seen as independent of the process of gravitation and as relatively persistent, there is no theoretical reason to assume, on the contrary, that the rate of growth of autonomous demand persists unchanged during the whole process of slow adjustment of capacity to demand, a process which appears to be much longer and more complex than the adjustment of prices. The flows of investment required for adjustment are likely to affect aggregate demand itself, thus complicating the capacity-demand adjustment. Although the tendency of adjustment to demand is recognized as a fundamental force, it is admitted that investment decisions may be subject to a plurality of influences, with potentially open results (see below, section 7.1). Thus, according to the flexible-utilization authors, no unique cause or unidirectional force drives the evolution of capacity in the long period.

As a fundamental implication of this methodological approach, growth is conceived by these authors as a path-dependent process. It is in fact impossible to assume that over time the system follows pre-ordained trajectories. The absence of any mechanism ensuring full utilization of resources
implies the impossibility of knowing in advance the level and composition of output of next period, which will affect the way in which resources grow from that moment on. At each point in time, not a single path of growth but a plurality of possible paths opens up. The way the system develops in any period determines the set of possibilities for the following period. Cyclical fluctuations are not determined by separate causes, but are rather an essential part of the growth process itself (Mongiovi and Ruhl, 1993; Trezzini, 2013), because it is precisely with the intensity and frequency of booms and slumps that the trend of actual growth materializes and influences the potential path.

A ‘historical’ method of analysis (Smith, 2012, 2013) allows taking into account the possibility that the relations between variables change in intensity and even direction according to the specific historical circumstances; while not only the use of steady-state models but also of formal models in general should be avoided in the analysis of growth (Mongiovi, 2011). Formal models are not in fact flexible enough to represent the plurality of contradictory influences on growth, nor their context-sensitivity. They may serve the purpose of exemplifying particular phenomena studied in isolation, but cannot represent the general form of the relationships between variables that prevail in reality.

6.6. On the convergence of the adjustment mechanism

A fundamental issue within the Classical-Keynesian approach (as, in general, within demand-led growth theories) is the existence of a mechanism that ensures over time some sort of (at least rough) balance between the growth of demand and the growth of capacity, so as not to produce, as a consequence of the autonomy of demand, an ever-widening gap between output and capacity. Strictly connected to this is the question of the so-called Harrod instability, which, according to most demand-led growth models, is generated during the process of adjustment. The two strands of thought in the approach give different answers to these problems, which, in a way, remain open questions in both of them.

The supermultiplier authors have recently proposed (Freitas and Serrano, 2015) an adjustment mechanism that implies a slow convergence of capacity to demand, on the hypothesis that investment neither reacts strongly to the divergence between actual utilization and desired utilization nor tries to correct instantaneously such divergence. The whole mechanism relies on specific assumptions – such as an unlimited constancy of the rate of growth of autonomous demand over time and a low sensitivity of investment to under- or over-utilization – which seem to be an ex-post rationalization of formal properties required for convergence. Moreover, the relation between theoretical fully-adjusted positions and the actual trend of the economy has still to be clarified in this strand of thought.

The problem of convergence of capacity to demand and the connected issue of Harrod instability are also crucial for the flexible-utilization approach. Since the latter recognizes the possibility that
output and capacity may grow for substantial periods at different average rates, the necessity follows of identifying theoretical mechanisms that explain why increasing or decreasing degrees of utilization do not generate Harrod instability. In other words, decreasing (increasing) utilization of capacity must at some point be corrected and revert into the opposite.

Historical description is analytically relevant, in this approach, because it both provides criteria for periodization of the different growth phases and exposes some sort of regularities that may support theoretical analysis (Smith, 2012, 2013; Trezzini, 2013; Ciccone, 1986). Historically, the various changes of phase are marked by structural, institutional or technological changes. At such moments, existing capacity is likely to become more rapidly unsuitable, from the qualitative point of view, to the current quality of demand and output, which is likely to produce abrupt changes in the rate of technical obsolescence (see the hints in Garegnani, 1992, p. 53). Such changes seem in principle frequent and relevant enough to make the system get rid occasionally of superabundant capacity and avoid Harrodian instability. These insights are however still to be developed.

We may thus provisionally conclude that the two strands of thought within the Classical-Keynesian approach are still open as regards some fundamental questions. The process of clarification may also imply, in the future, further convergence between the two.

7. Capacity adjustment and the study of the components of demand

The two different approaches to the question of capacity adjustment also give rise to a different analytical treatment of investment and the other components of demand.

7.1. On the determinants of investment

As already noted, the acknowledgement of the endogenous creation/destruction of resources in response to changes in demand is the center of the Classical-Keynesian approach. This obviously implies that the expansion of aggregate demand is one of the main determinants of the level of investment.

The supermultiplier authors assume that the tendency of capacity to adjust to demand is efficient enough for the system to converge in time to fully-adjusted positions. This implies that capacity-creating investment has to be regarded as entirely induced, and not subject to other influences that would impair the possibility of adjustment. This also implies a particular way of treating the introduction of technical innovations through investment. To the extent to which technological investment has a capacity-creating effect, in fact, an amount of induced investment would be made
redundant. In other words, these authors assume that technological investment crowds out an amount of induced investment that would have generated the same capacity (Cesaratto, Serrano and Stirati, 2003). The volume of investment would thus depend exclusively on the capacity-adjustment mechanism, while its physical forms would be influenced by the availability of new products or new techniques.

The flexible-utilization authors argue instead that capacity adjustment is not only slow but also frequently hindered by contrasting forces, such as volatility of final demand components, wrong expectations, effects of the flows of adjusting investment on the entrepreneurs’ expectations. As seen above, full adjustment is neither likely attained nor is a necessary feature of long-period positions. In this different view, we may consider the existence of product and process innovation as an independent influence on investment, so that technological investment would not automatically crowd out entirely a corresponding amount of induced investment. This implies that technological investment may represent an additional source of demand, while at the same time introducing in the system some capacity that only in part substitutes for pre-existing capacity (or capacity that would have been created anyway).

This also implies that technical innovations may have a role in determining the pace of accumulation, something that has been stressed by many historians and economists in the analysis of historical processes of accumulation.21

Thus for the flexible-utilization authors, investment is influenced by a plurality of factors: not only the expected evolution of demand and the under- or overutilization of existing capacity (taking into account the slow reaction of firms to such discrepancies), but also institutional and political factors (such as the working of financial markets, the forms of Government intervention and regulation, labor market institutions, Government expenditure and the infrastructure policy) matter, in addition to the independent influence which may be exerted by technical progress.22

7.2. On the notion of autonomous demand

The flexible-utilization approach also entails, in our view, that the analysis of growth processes cannot be effectively carried on by assuming an exogenously given rate of growth of ‘autonomous’ demand – let alone ‘real’ autonomous demand23 – as we find instead in most analyses stating a crucial role of demand in the growth process.24

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21 Some of the theoretical analyses which stress the role of technical innovation, as for example the theory of the great surges of development (Freeman and Louçã, 2001; Perez, 2002), seem to be compatible with the Classical-Keynesian approach, both for the non-neoclassical features and the relevance of socio-institutional factors in the two approaches.

22 On the complexity of factors influencing investment, see also Bonifati (2011) and Mongiovi (2011).

23 On the crucial role of monetary factors, see Mongiovi and Rühl (1993).

24 The hypothesis of an exogenous rate of growth of autonomous demand is to be found not only in supermultiplier
A first reason has to do with the above-described intrinsic irregularity of the growth process: the way and the timing in which any surge of demand takes place (and so the pressure it implies on capacity) is crucial in assessing its effects on capacity and on the whole system. This kind of information would be lost if taking an average rate of growth over some period as the magnitude on which growth depends.25

As a second reason, the notion of autonomous demand should be requalified in long-period analysis. In the short-period, ‘autonomous demand’ is the part of aggregate demand that does not depend on current income and thus determines the latter. Exports and government expenditure are independent of current income since they depend, lato sensu, on the economy’s level of development and institutional features, which can be taken as given in the short run, but not in the long run. While some parts of each component of demand may at times play the role of being independent of the current level of activity, it would be incorrect to label a whole component as autonomous.26

Exports, for example, depend on the evolution of international demand, on the characteristics of the international payment system and trade regulation, but also on domestic supply factors and specific policies (which may be related to the level of production) that determine competitiveness of national productions. Government expenditure depends, inter alia, on policy choices that may be closely influenced by the level of activity. Some independent changes in the propensity to consume may also, at times, play the role of growth drivers, as may happen with the introduction of new products of mass consumption. The same may apply to technological investments, as maintained before.

The complex interaction between demand factors, supply factors, institutional and historical phenomena that drives growth cannot be effectively represented through the hypothesis of an exogenously given rate of growth of a component of aggregate demand.

In this direction, Garegnani and Trezzini (2010) and Trezzini (2011), study the role in the growth process of what is generally called “autonomous consumption”. The evolution of aggregate consumption is seen as influenced by the process of habit formation with the continuous acquisition of increasing standards of consumption as growth takes place; due to asymmetry of the propensities to consume in the different phases of the cycle, this constitutes a possible source of endogenous growth.27

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25 See the critical remarks by Park (2012) on the possibility of taking a constant rate of accumulation as given, being growth in reality ‘a tortuous process of ups and downs’.

26 Aspromourgos (2013) also raises doubts on the possibility of regarding any component of demand as wholly autonomous in the long period, given the “inter-temporal budget constraints” of each sector.

27 Garegnani and Trezzini (2010) and Trezzini (2011) make use of numerical examples based on very simple quantitative
8. The implications for economic policy

Despite the above-described analytical differences, the two strands of the Classical-Keynesian approach share however the following basic conclusions: 1) the fundamental role of demand in economic growth; 2) the reference to the classical theory of value and distribution; 3) the independence between accumulation and distribution (the absence of a clear-cut and unidirectional relationship between them); 4) the endogenous creation/destruction of resources in reaction to changes in production.

The irregular nature of the growth process, stressed by the flexible-utilization authors, is recognized also by the supermultiplier authors. Especially in empirical analyses, in fact, the supermultiplier is often defined as both ‘flexible’ during the adjustment process and liable to change from period to period (see for example Freitas and Dweck, 2013; Girardi and Pariboni, 2015). The role of historical and political factors is also recognized by both strands of analysis: these are direct determinants of growth according to flexible-utilization authors, while their essential role in supermultiplier models shows especially through their influence on the rate of growth of autonomous demand.

We will now focus on the policy implications of the approach, which derive from the basic tenet that no mechanisms whatsoever ensure the full employment of labor and the full utilization of resources and from the socially-determined nature of income distribution. This calls into question the very theoretical roots of the economic policy that arises from dominant theories (Garegnani, 2007), i.e. the principle of Pareto optimality of market economies according to which the smooth functioning of demand-and-supply forces leads to efficient results.

Such optimality principle is based on the neoclassical tendency of actual output to potential output, and implies the scarcity of the means available to reach the social ends. This generates the trade-offs which dominate traditional policy analyses: the trade-off between consumption and accumulation, that between public and private expenditure, that between investment and any other component of aggregate demand. In a full-employment theoretical context, any increase in private or public consumption necessarily reduces actual savings and thus actual investments, which implies reduction relations between variables. Such exemplifications, however, are admittedly incapable of representing either the actual evolution of the system or any sort of equilibrium position. They have the specific purpose of isolating a particular phenomenon and showing its potential impact, while knowing that such an influence will be combined, in reality, with a plurality of other influences. In this sense, numerical exemplifications have an extremely more limited purpose than growth models.
in the pace of growth of capacity, potential and actual output.

Those trade-offs dominate the policy debates over the presence of the state in the economy, welfare systems, public deficit and debt. The optimality principle also dominates the debate on foreign trade: any policy which increases openness to trade is prejudicially regarded as desirable, while industrial policies that aim to foster or protect specific sectors are seen as distortionary.

The Classical-Keynesian rejection of the tendency to full employment and the recognition of the elasticity of production and capacity with respect to aggregate demand deprives such trade-offs of their theoretical bases. It also implies that the ‘normal positions’ the economy tends to realize are regarded as non-optimal. The configurations spontaneously reached by the economy are determined by the interests, choices and actions of the various groups of the society, institutional arrangements, historical and contingent factors. As such, they cannot be conceived as necessarily more desirable, from a social point of view, than any other configuration that may be created by policy measures.

The scope for public policies thus becomes wide.

This conception also legitimizes industrial policies aimed at fostering specific sectors or productions, stimulating innovation, encouraging the production of particular goods (or banning others).  

Moreover, public intervention, be it made of trade policies, industrial policies, redistribution, measures to re-design welfare institutions, and so on, necessarily affects (directly or indirectly) relative prices of commodities. Contrary to neoclassical analyses, classical political economy does not need the category of ‘market failures’ to justify state intervention. Prices may be altered without compromising any optimal allocation of resources and without interfering with any ‘natural’ forces supposedly determining the optimal equilibrium.

The same is true for the distribution of income spontaneously reached by market forces, which is not endowed, in the Classical-Keynesian approach, with characteristics of ‘naturalness’, nor is associated with output and social welfare maximization. Any possible distribution arrangements different from that automatically reached by the market would be in principle economically sustainable. Economic policy could, then, either accommodate the distribution arrangement achieved by the market, or contrast it and pursue a different one (Aspromourgos, 2013).

This implies the awareness that policy decisions generally favor some groups and damage others and the virtual impossibility of defining any sort of ‘collective’ interest.

A last point derives from the unpredictability of the evolution of future demand due to the plurality and irregularity of factors that may influence the growth path. This leaves a limited room for

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28 Ginzburg (2014) defines the mix of demand policies and industrial policies as ‘structural Keynesianism’. 
econometric forecasts and projections: while the direction of the influence of policy measures is likely ascertainable, accurate prediction of their quantitative effects is almost impossible. This leaves no room to the illusion that policies will affect the economy in a well-defined way, since the result will actually depend on the circumstances in which they are implemented.

No measure of economic policy can thus be presented as desirable or necessary from an ‘objective’ point of view.

9. Conclusion

The approach to value and distribution proper to the classical economists and revived by Sraffa proves to be a solid foundation for the theory of long-run output based on recognition of the fundamental role of effective demand in the growth process. This is due, as recalled in section 4, to its substantial ‘openness’ with regard to output determination, as implied in the characteristic separation in classical analysis between determination of prices and determination of outputs. As Kurz (2012, p. 308) notes, “[i]t is ironic to see that the classical approach, coherently developed, actually undermines Say’s law – the law for which Keynes had thought he could put classical analysis to one side”.

The characteristics of classical analysis – the separation of the analysis in different stages and the use of different methods to address the determination of the different variables – may prove extremely fruitful for the analysis of growth. The ‘historical’ method of classical economists is apt to take into account the complexity of the object of analysis: the plurality of forces affecting growth, the essential role of social and political factors, the multiple and sometimes contrasting interrelations among variables. If such type of analysis deprives economic policy of clear-cut prescriptions and simple recipes, at the same time it offers the possibility of regarding economic outcomes as potentially open and strongly influenced by deliberate social choices.

References


Eatwell, J. (1979), Theories of Value, Output and Employment, Thames papers in political economy, London.


Freeman, C., Louça, F. (2001), As Time Goes By. From the Industrial Revolutions to the Information Revolution, Oxford University Press.


Garegnani, P. (1992), “Some Notes for an Analysis of Accumulation”, in Beyond the steady-state (eds
J. Halevi, D. Laibman, E. Nell), Basingstoke & London: Macmillan.


