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Neo-Kaleckian and Sraffian controversies on accumulation theory

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Abstract - With some exceptions, non-orthodox economists share the 'Keynesian Hypothesis' of the independence of investment from capacity-savings, in the long-run no less than the short-run. This hypothesis marks an essential point of difference from neo-classical theory. Keynes showed that within the limits of the existing capacity utilisation, it is investment that determines savings. The correct way to extend this conclusion to the long run is the object of the present paper. In particular, it provides an assessment of the controversy on demand-led growth theory that has taken place since the mid-1980s between *neo-Kaleckian* and *Sraffian* authors, particularly those closer to the late Piero Garegnani's 'surplus approach'. For the sake of the argument the Sraffian front is divided between a *first* and a *second Sraffian position* (the second defined as *Sraffian supermultiplier approach).* Although I argue that the second approach is the most promising, the dissention should not be over-emphasised, so will also often generically refer to Sraffian authors.

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Introduction*

Most non-orthodox economists share the 'Keynesian Hypothesis' (*KH* hereafter), as Kaldor called it, of the independence of investment from capacity-savings - those forthcoming from a normally utilised productive capacity - in the long-run no less than the short-run (Garegnani 1992, p. 47). Not all of them, because some sustain the *KH* only for the short-run, a position similar to that held by wet mainstream 'neo-Keynesian' economists.[1] Keynes showed that within the limits of the existing capacity utilisation, it is investment that determines savings. The outcomes of the capital theory controversy have reinforced such conclusion (Garegnani 1983). The correct way to extend The *KH* to the long run is the object of the present paper. In particular, it intends to assess the controversies on demand-led growth theory that have taken place since the mid-1980s between *neo-Kaleckian* (*NK* hereafter) and some *Sraffian* authors close to the late Garegnani's 'surplus approach'. Without overstressing the discord, I will distinguish between a *first* and a *second Sraffian position* (the former mainly sustained by *some* of the Sraffian economists at the Third University of Rome and the second, better defined as *Sraffian supermultiplier approach*, particularly supported by a group of Sraffians at the Federal University of Rio de Janeiro; hereafter the two positions are defined as the *FSP* and *SM* approach, respectively*)*. The debate begun in 1995 (see Trezzini 1995; Serrano 1995).[2] The reader may be tempted to regard Garegnani (1992) as an inspiring source for the *FSP* and Garegnani (2013 [1962]) as one main reference for *SM* scholars; this is a simplification, however, both because both contributions are largely a common background for all Sraffians, and since it suggests a discontinuity in Garegnani's thought that, had he had more time, he might have clarified.[3] The question is, anyway, to go forward making the best of Garegnani's contributions.

It is generally recognised that modern growth theory begun with Harrod's model. As known, the early ways of dealing with the instability problems inherent in this model were based either on the neoclassical factors' substitution mechanisms or by assuming an endogenously determined income distribution as done by the *Cambridge Equation* (*CE* hereafter) tradition (**section 2**). Both ways were later rejected by *NK* and Sraffian economists engendering, however, an intense controversy (**sections 3 and 4**). Noticeably, they all took investment as the independent variable.

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[1] Cesaratto (2006a, 2006b) critically examines the 'classical' *saving-led* growth model by Foley and Michl in the context of the debate on pension reforms.

[2] The paper does not therefore pay justice to other Sraffian authors that wrote on accumulation, e.g., Heinz Kurz, Man-Seop Park and Graham White.

[3] Garegnani devoted most of his time to capital theory and to the clarification of the Classical surplus approach, leaving him with less for accumulation theory.

This hypothesis is rejected by *SM* scholars that take the long-term pattern of the *autonomous components* of aggregate demand (AD) as the independent variable (**section 5**). Their thesis has been later criticised, without much motivation in my opinion, by the *FSP supporters*. The driving role of the autonomous components of AD sustained by credit creation may be associated with financial crises, as it will be noted in the final part of the paper where the potential convergence with other heterodox schools will be suggested.

The paper begins by reviving two antecedents that suggested that investment should not be taken as the independent variable in order to avoid Harrod's conundrums (**section 1**).

1. Long-term expectations and the external markets

1.1. Eatwell on Keynes and Harrod

John Eatwell (1983; 2012, p. 10; Eatwell and Milgate, 2011, p. xxii) advanced some useful propositions that set the stage for the discussion of the following pages.

α) Keynes' notion of effective demand is the macroeconomic counterpart of Adam Smith's notion of effectual demand: the demand that is accruing when the product (a single commodity or aggregate output) is offered at normal prices, those associated to a normal profit rate and to a normal degree of capacity utilisation, given the real wage rate and the social conditions of production (Eatwell 1983, p. 281).

β) Capacity utilisation varies over the trade cycle; there is, however, a *tendency* to adjust capacity to the level of long-period effective demand (ibidem).

γ) The process of adjustment of capacity to demand brings about some complications: 'Demand has been supposed to be the independent variable, yet the process of adjustment of sectoral capacity to demand must involve changes in investment, ... At the aggregate level, this difficulty is manifest in the instability of Harrod's warranted rate of growth. … The origin of the problem is that on the one hand investment is assumed to be the independent variable, whilst on the other hand variation … of investment is the mechanism by which capacity is adjusted to demand' (ibid, p. 282). [4]

[4] Shaikh (2009, pp. 478-9) claims that Harrod's model is stable. He presents two arguments: (a) Supposing the economy is growing at the warranted rate $g_w = s/v_n$ (standard notation) if the accumulation rate decided by capitalists g_k rises above g_w, firms will retain more profits (otherwise distributed and consumed), so s rises and $g_w^{'} = g_k$. This position reminds of Ricardo's interpretation of Say's Law in which he 'identified decisions to save with decisions to invest' (Garegnani 1983, p. 27), although it also retains the flavour of the *KH* since the decisions to save adjust to the decisions to invest and not the other way round. Be as it may, note that not necessarily a larger share of retained profits assures the adequacy of capacity savings to a larger amount of investment, if *distributed* profits were already all or in large part already saved. Symmetrically, we are far to be sure that a fall of g_k and an ensuing larger share of distributed profits necessarily leads

ε) "The solution may be found in Keynes's own analysis of long-period employment; it is *not* investment which is the independent variable, it is the 'state of long term expectations'" (ibidem, italics by Eatwell).

The list proposes an orderly way to approach the question of economic growth and suggests the key of what has gone wrong in much of the discussion, that is that "it is *not* investment which is the independent variable, it is the 'state of long term expectations.'" The determination of 'long term expectations' and, most importantly, the way they are revised when the economic circumstances vary, is however left by Eatwell in the air ('The stability of expectations derives from the stability of the institutional environment' [ibidem]).

1.2. Kalecki on Tugan-Say-Harrod and Luxemburg's external markets

To my knowledge, it has not yet been noticed that Michal Kalecki's (1967) masterpiece paper is a contribution on how to overcome the problems with Harrod. The argument of the paper is well known. Tugan-Baranowski shows that, in principle, a capitalist system can grow in equilibrium as far as capitalists employ all their savings to build new capital goods. This shows a distinctive characteristic of capitalism, a system in which the aim of production is not the satisfaction of human needs, but it can well be the production of means of production useful to produce further means of production. A tacit pact could, in principle, be stipulated amongst capitalist in order that the entire social surplus, if not consumed, is invested so that all production is sold. The problem with this view is that we cannot expect capitalists to blindly or deliberately follow Say's Law, since 'capitalists do many things as a class but they certainly do not invest as a class. And if that *were* the case they might do it just in the way prescribed by Tugan-Baranowski' (1967, p. 152, italics in the original). Rosa Luxemburg, on the other hand, correctly perceived the difficulty of capitalists to absorb the social surplus through their own consumption and investment. Therefore the necessity of 'external markets', external to the capitalist income circuit, to absorb the surplus production. Typically these markets are financed by the capitalist system itself through the

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to a higher propensity to consume, if distributed profits are all or in large part saved. For a similar critique to other Post-Keynesian authors cf. Palumbo (2011, fn. 16). She argues that the above mechanism would work 'only if the amount of total consumption could be freely expanded or contracted at will by firms'. (b) Alternatively Shaikh (ibid, p. 465) assumes that capitalists know g_w: 'not credible' according to Hein et al. (2011b, p. 608). Dumenil e Levy (I rely on the useful survey Hein et al. (2011b, pp. 598-602, 609) recur to the *deus ex machina* of monetary policy as the stabilising force. Whenever $g_k > g_w$ a tighter labour market would lead the monetary authorities to bring the economy back to g_w. But this implies that they regard a stable g_w as associated to some unacceptable notion of natural rate of unemployment (or of full employment). Skott seems also close to a similar view (ibid, p. 609).

financial system (1934, pp. 15 fn. §, 18-9; 1967, p. 153). Kalecki includes in these markets net exports to the peripheral countries and government spending (cf. also Kalecki 1934).[5] We may usefully add consumers' credit. In the first place, Kalecki's paper is relevant for relating the Classical surplus approach to the theory of capitalist accumulation.[6] Secondly, a numerical example used by Kalecki to illustrate the difficulties with Tugan is implicitly intended to show the troubles of Harrod's model (see also Kalecki 1970 [1993], p. 112).

Kalecki assumes an economy in which consumption and investment are the only components of AD. The gross accumulation rate is equal to 7% at which capacity is fully utilised. If output and aggregate demand also grow at 7%, 'full utilisation of equipment continues and the problem of effective demand does not seem to arise' (1967, p. 149). But, he asks himself: "why should capitalists continue to invest at a level of 7 per cent of capital? Simply because the process has been going for some time, this investment has been 'justified' and the capitalists …do not hesitate to continue their game" (1967, p. 149). Indeed, he argues, if capitalists for whatever reason decide to accumulate at (gross) rate of only 6%, without increasing correspondingly their consumption, '[t]he problem of effective demand makes then immediately its appearance… There arises thus a problem of overproduction… [that] affects in turn adversely the investment decisions of capitalists' (1967, pp. 149-50). Somebody might argue that 'this is a typical crisis which will be followed by a period of prosperity …There is, however, nothing to substantiate this argument. After a breakdown of the moving equilibrium no trace of the 4 or 3 per cent annual long-run increase was left in the economy. The economy may as well settle to a state of simple reproduction with cyclical fluctuations around it' (1967, p. 150). Kalecki suggests that a Tugan-Harrod model is sustainable only as long as capitalists invest 'as a class' all profits they do not consume, an untenable supposition.

To get out from Tugan-Harrod's knife edge problem, and to explain why capitalism does not settle in a stationary state, Kalecki recommends that external markets are taken into account as the ultimate explanation of investment. Most of the critical growth literature has so far neglected this opportunity.[7] Thus, both Eatwell and Kalecki suggest that investment should *not* be taken as the

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[5] Kalecki seems to neglect that exports may have an expansionary effect independently of the 'leakages' due to imports (Serrano 2008, pp. 13-4): think of the expansionary effect of a balanced budget fiscal multiplier, that Kalecki actually acknowledged, e.g. 1967, p. 154 (contrary to Serrano's criticism, 2008, pp. 11-2).

[6] For the modern recovery of the surplus approach see Sraffa (1960) and Garegnani (1984).

[7] The exception seems Garegnani (1962 [2013])'s Svimez Report, only partially published as 1983b (and few pages in 1992). In the unpublished part (ibid, pp. 89-105), Garegnani takes 'final demand' as the independent variable. In his view, long-term expectations are the result of a persistent final-demand-led growth rate of the economy (ibid, p. 95). Final demand would include private and

independent variable in growth theory. Notably, at least in the paper under examination, Kalecki does *not* suggest the idea that the economy might stabilise along a growth path characterised by a below-normal capacity utilisation rate, as the *NK*s will later do.

In the 1950's two approaches departed from Harrod's model: Solow's neoclassical growth theory and the Post-Keynesian Cambridge tradition. The former is neglected here having been undermined by the results of the capital theory controversy (Cesaratto 1999, 2010; Cesaratto and Serrano 2002). The Cambridge tradition of Kaldor and Joan Robinson has been the dominant non-neoclassical approach until the 1980s. Later criticised both by neo-Kaleckian and Sraffian authors, it faded away, but it is still a good premise to the subsequent quarrels.

2. The Cambridge equation and its critics

2.1. The Cambridge equation

Defining g_K as the accumulation rate, s_c the capitalists' *marginal* propensity to save (workers' propensity to save is set to zero throughout this paper), and r_n the profit rate, the main message of the *CE*:

$$g_w = s_c r_n \qquad (1)$$

is in the idea that the warranted growth rate of the economy g_w is determined by the rate of accumulation g_K decided by the entrepreneurs; this would determine the long period (or normal) income distribution that thus becomes endogenous and subordinated to the rate of accumulation.[8]

From an empirical point of view, the association of higher growth rates to a change of income distribution in favour of profits is not particularly robust. If anything, real wages would tend to rise during periods of faster accumulation and of higher labour demand and workers' bargaining power (e.g. Garegnani 1992, p. 63). They would instead tend to fall during downswings when the 'industrial reserve army' increases. Not surprisingly, both neo-Kaleckian and Sraffian authors criticise the *CE* approach. In short, they both single out the capacity of capitalism to accommodate an upsurge of capital accumulation by resorting to a fuller rate of utilisation of productive capacity through the action of the multiplier, without the necessity of changes in income distribution. [9]

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government consumption expenditures, net exports and autonomous investment related to technical innovation (by default, the rest of gross investment is induced by the accelerator mechanism). Garegnani does not clearly exclude induced consumption from final demand; indeed only autonomous (financed out of consumers' credit) private consumption should be included (see below section 5.1.1). The inclusion of autonomous investment is also questionable (see below section 5.2).

[8] For the sake of symmetry with a term we shall use below dealing with the *NK* models, we may say that according to the CE tradition, a change in g_K leads to a 'new normal' profit rate r_{nn}.

[9] It should also be acknowledged that the *CE* is a demand-led growth model in a very limited sense (cf. Kalecki 1970 [1993], pp. 11-2). Although capitalists decide the rate of growth of the capital

Rowthorn (1981) has been particularly influential among the former group of economists; Garegnani (1992) among the second

2.2. The neo-Kaleckian criticism

The underutilisation of capacity is explained by Rowthorn (1981, p. 1) by recalling the idea in the work of both Kalecki and Steindl of a 'monopolistic economy which is operating well below full capacity' (for Kalecki's seminal view cf. e.g. 1970 1993], pp. 112, 117). In such an economy, 'prices are relatively inflexible and firms respond to change in demand by varying the amount they produce. When demand is depressed firms respond by reducing the amount they produce, whilst keeping their prices constant. This reduction in output has no effect on real wage rates, but it does reduce both the level of capacity utilization and the rate of profit' (ibid.). Symmetrically, in the case of an investment upsurge, 'there is no need to reduce real wages, and the extra profits required to stimulate investment can be generated simply by increasing output and bringing idle capacity into use' (ibid.). What is more, a fuller capacity utilisation may accommodate higher 'total profits … despite the fact that real wages have increased' (ibid.).

2.3. The Sraffian criticism

2.3.1. The degree of capacity utilisation

Sraffian authors distinguish between full and normal degrees of capacity utilisation. The normal degree of capacity utilisation is related to the expected normal or average effective (or effectual) demand and output when capacity is originally installed. The main reason why entrepreneurs install additional capacity over average expected output is to be able to meet sudden peaks of demand and not let unsatisfied customers to turn to competitors (e.g. Ciccone 1986, p. 27).[10]

A normal degree of capacity utilisation is an essential feature of the Sraffian *theory of normal prices and distribution*. *FSP* economists are, however, sceptical about a *theory of accumulation* that implies that, on average over significant stretches of time, overall capacity is normally utilised or 'fully adjusted' to effective demand (Vianello 1985; Ciccone 1986, p. 24). How to reconcile the two stances? Assume that in one industry effectual demand - the demand of the commodity at its normal price - rises, so that the market price p_m is larger than the normal price p_n.

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stock independently of capacity savings, the adjustment of capacity savings does not take place through the variability of output and in the longer run of capacity with respect to AD, but through a change in income distribution that adapts the composition of AD to a given level of capacity.

[10] Normal utilization is 'the average rate of utilization that entrepreneurs expect for newly installed equipment, as a result of fluctuations of demand, and therefore in output, relative to capacity. Strictly in connection with this notion of normal utilization, the desired dimension of capacity [is] conceived of as adjusted to the peaks of demand that entrepreneurs expect to profitably meet with it' (Ciccone, p. 1987, p. 97). Cf. also Garegnani (1992, pp. 55-6); Shaikh (2009, p. 459).

Competition would lead firms in the industry to raise the degree of capacity utilisation to meet the higher effectual demand thus re-establishing p_n. As Ciccone (2011, p. 77) explains: the adjustment of p_m to p_n would take place at an actual degree of capacity utilisation u_a which is different from the normal degree u_n, so that also the actual profit rate r_a would be different from the normal one r_n. In the meanwhile the process of adjustment of capacity to the new level of effectual demand would take place and the rate of profit that firms *expect* on the newly installed equipment is the *normal* rate of profits. So Sraffian economists may conclude that not only through capital mobility (Ciampalini and Vianello 2000, p. 373), but also through variation of u, the gravitation of p_m to p_n is quite a rapid and effective process, while the normal rate of profits (and related u_n) is that prevailing 'at the margin', as a guide the investment decisions of firms. The effective (micro) gravitation of prices and distribution towards the long period positions would thus be less demanding and faster than the (macro) full adjustment of aggregate capacity which is more likely to be frustrated by subsequent changes of long-run AD. As Ciccone (1986, p. 25) puts it, full-adjustment would happen only in a period that is longer than the long-period itself. *SM* Sraffians do not object that price gravitation is faster than capacity adjustment, although they defend the utility of studying 'normal accumulation paths'.

2.3.2. Garegnani's interpretations of the Cambridge equation

Garegnani distinguished various meanings of the *CE*. According to the first (equivalent to equation (1)), this is written as:

$$g_k = s_c r_n \qquad (1.1)$$

in which g_k 'the rate of accumulation, is treated as an independent variable' implying 'that the incentive to invest underlying g will determine the real wage and the normal rate of profits' (Garegnani 1992, p. 54). Although Garegnani considers legitimately coherent with the *KH* to take g_k as given, this would be inconsistent with the Classical distribution theory. According to the latter, the real wage level is not mechanically linked to accumulation and, if anything, would vary in relation to the growth rate in a direction opposite to that predicted by the *CE* (ibid, p. 63). In his opinion, the variability in the degree of utilisation of capacity in the short run, and the variability in the level of installed capacity in the long run render consistent the *KH* with 'the real wage and the normal rate of profit left to be determined by other circumstances – in particular, by the circumstances envisaged in the classical theories' (ibid). In other words, as an alternative to the *CE* approach in which changes in the exogenous growth rate are accommodated by a change in normal income distribution, Garegnani (1992, p. 62-63) - similarly to the *NK*s and with the consent of all Sraffians – argue therefore that 'the margins of unutilized capacity which are normal in a capitalist system make it plausible to think that, in the long period, even more than in the Keynesian short

period, autonomous changes in the incentive to invest will usually generate the corresponding amount of savings through changes in output rather than through changes in the real wage rate and normal rate of profits'.

Alternatively, given the normal profit and wage rates, the CE can be written as:

$$g^* = s_c r_n \qquad (1.2)$$

In which g^* should be interpreted as 'the ratio of saving to capital' associated to a given normal profit rate profit rate and to a normal degree of capacity utilisation, rather that as a 'rate of accumulation' (Garegnani 1992. 54). Indeed, given r_n, if g^* is interpreted as a rate of growth 'the path of future capital accumulation would be completely determined' (Garegnani 1992, p. 58) inconsistently with the *KH*. Equation (1.2) would thus be better interpreted as an accounting identity.

Finally, if instead g is considered as the actual accumulation rate (Garegnani 1992, pp. 54; 60-62) the *CE* would represent a relation between the *latter* (g_a) and, having not reasons to believe that at this rate capacity is normally utilised, the *actual* (or *ex post*) profit rate r_a, the one actually obtained on the installed equipment:

$$g_a = s_c r_a \qquad (1.3)$$

For Garegnani, of course, an actual profit rate different from normal is perfectly consistent with the prevalence of a normal profit rate 'at the margin', that expected, as illustrated in the previous section, on the newly installed equipment and which is uniquely determined once w_n and the technical conditions of production are given (see also Ciccone 1986, pp. 33-35). The oscillations in the incentive to invest would affect the realised growth rate of the economy g_a that would thus 'be taken as a measure of the incentive to invest' (Garegnani 1992, p. 57).[11] Once productive capacity has adjusted to the new 'incentive to invest', Garegnani argues that 'the rate of accumulation *will necessarily be back* to the ratio of capacity savings' (ibid, my italics). This entails that the long run 'trend of investment', although may oscillate, is due to return to the one suggested by equation (1.2) that, however, is dismissed as a (warranted) growth rate and merely defined as the 'ratio of capacity saving' corresponding to a normal degree of capacity utilisation. Moreover, no proof of this 'return' is provided.

[11] In Garegnani (1992) final demand (see above fn. 7) is not mentioned, and investment is governed by a vague 'incentive to invest' (e.g. ibid, p. 48). The changes in the 'incentive to invest' are not explained by a change in the expected growth path of 'final demand' – as alluded in Garegnani (1962) – but by an indefinite change in the 'trend of investment' (Garegnani 1992, p. 57) measured, ex post, by changes in g_a.

This approach leaves some puzzles opened for Sraffian economists. Garegnani (1992) accepts the Harrodian framework (Eatwell 2012, p. 9). He seems therefore trapped between, on the one hand, the Scylla of the *CE*, consistent with the *KH*, but inconsistent with Classical distribution theory, the empirical evidence and a truly demand-led approach; and, on the other, the Charybdis of Harrod's model, consistent with 'exogenous distribution', but inconsistent with the *KH* and unstable. Taking advantage of a reasonable scepticism about steady state analysis, Garegnani (1992, pp. 58-9) indicates a third way, suggesting that normal accumulation paths characterised by a normal degree of capacity utilisation are not representative of the capitalist economies, and therefore not a useful object of analysis.[12] Garegnani does not, of course, ignore 'the tendency of entrepreneurs to adjust capacity to output' (ibid, p. 59), while the general prevalence of an *actual profit rate* on existing capacity different from the normal one is seen as consistent with the prevalence of a *normal profit rate* 'at the margin', on the newly installed equipment, as seen in § 2.3.1. The verbal nature of the stability argument is not helpful, however, even to authors like the present that are not fond of models, and given the instability of the Harrodian context adopted by Garegnani it is unlikely that the proof can be provided.

Overstretching Garegnani's own views, *FSP* exponents (e.g. Palumbo and Trezzini, 2003, p. 112; Trezzini 1998, p. 57, 2011, pp. 138-40), possibly deceived by the fact that in a normal accumulation path capacity savings are necessarily equal to investment, seem to slip into the conclusion that *any* steady state *necessarily* contradicts the *KH*. They forget that in a steady state path, so to speak, all cats are grey and we cannot clearly identify the causal saving-investment nexus, and national accounts identities should not be confused with causal relations.[13] As seen, Garegnani does not deny that the steady state advocated by the *CE* is consistent with the *KH*. So the question is not that all steady states are necessarily inconsistent with the *KH*, but that the specific

[12] Garegnani's argument is that if we consider two regimes with different rates of growth of AD, then even if entrepreneurs had perfect foresight, the degree of capacity utilisation over the period that contemplates both regimes and the transition period would not be normal (see also Palumbo and Trezzini, 2003, pp. 115-6). This is a deceiving argument. Applied to Solow's model would lead us to conclude that neoclassical growth theory does not study normal growth paths since variations, say, of parameters lead to different normal paths. Garegnani (1976, p. 138 (2)) also interprets the adoption of the steady state method by neoclassical economists as a way to deal with the measurement of capital, what may have added to his scepticism; the question, nonetheless, does not regard the heterodox field.

[13] It can be easily shown that all growth theories (with the exception of the *SM*), including the neoclassical, *CE* and *NK* in equilibrium respect the Harrodian warranted growth equation although they postulate different causalities between saving and investment (see the companion WP).

CE steady state is inconsistent with Classical distribution theory (Garegnani 1992, p. 59; see also Trezzini 1995, pp. 36-7).[14]

3. The first-generation neo-Keleckian models and the Sraffian criticism

3.1. The canonical first-generation neo-Kaleckian model

Although well-known, in order to help the reader to focus our criticism, let us introduce a standard first-generation *NK* model (Lavoie 2006, p. 114) still widely used in the debate.[15]

The model consists of three equations:

$$g_s = s_c r_a \qquad (2)$$

$$g_i = \alpha + \beta(u_a - u_n) \qquad (3)$$

$$r_a = \frac{\pi}{v_n} u_a \qquad (4)$$

Equation (2), the saving equation, expresses the rate of growth permitted by capacity saving as a function of the saving rate – for simplicity profits are the only source of savings - and of the *actual* profit rate. Equation (3) expresses the rate of growth of the capital stock as a function both of the long term growth α of sales expected by firms and of the gap between actual and normal capacity utilisation under the hypothesis that 'each firms strives to return to normal capacity utilisation' (Lavoie 2006, p. 115). Equation (4) states that the *actual* profit rate is a function of the actual rate of capacity utilisation, given the profit share π and the desired or normal capital

[14] In a footnote, Garegnani (1992, fn. 30) considers a possible adjustment of the economy to a change in the accumulation rate decided by capitalists that may remind the one examined above in fn. 4, in which the share of retained profits would vary along investment decisions: "We may also note here that if s_c were to change in the same direction with the rate of accumulation – owing, for example, to the tendency of firms to retain a higher proportion of profits in periods when, one year with another, the average rate of accumulation is high – changes in the rate of accumulation occurring with constant 'normal' distribution will affect to a correspondingly smaller extent the degree of utilisation of capacity and hence the ex-post rate of profits as compared to the 'normal' rate." In other words, as long as a larger proportion of retained profits leads to a higher s_c, r_a would converge to r_n, and not the other way round as in the *CE*. As seen in fn. 4, this is not a convincing argument, and indeed Garegnani does not present it as a full stability argument (as Shaikh did). Yet, it may perhaps indicate that, in principle, Garegnani was not closed to stability arguments respectful of Classical distribution theory

[15] The model refers to the seminal contributions by Rowthorn (1981) and more particularly to that by Amadeo (1986). Vernengo (2011) argues that 'Kaleckian' is a misnomer since these models rather derive from Harrod (and from Joan Robinson, but this is less correct).

coefficient v_n.[16] (Equation [4] is drawn as the profit curve (PC) in the bottom part of fig. 1). In the model, the unknowns are g, r_a and u_a.

By substituting equation (4) in (2), we get:

$$g_s = \frac{s_c \pi}{v_n} u_a \qquad (5).$$

Equations (5) and (3) can be drawn, respectively indicated as g_s and g_i, in the space *g*-*u*, as shown in the top part of fig. 1. The long run goods market equilibrium is where $g_s = g_i$,[17] that is where, equating equations (5) and (3):

$$u_a = \frac{\alpha - \beta u_n}{s_c \pi / v_n - \beta}. \qquad (6)$$

Equation (6) shows that u_a is the variable that adjusts the growth of capacity saving to that of the capital stock. In drawing fig. 1 I supposed, for the sake of the argument, that the initial equilibrium A is an Harrodian equilibrium in which the equipment is normally utilised (so $g_w = g_i^0 = \alpha$).[18]

On this basis, the *NK* authors extend the Keynesian *paradox of thrift* to a dynamic setting. Suppose (Lavoie 2006, pp. 114-9) that a rise in real wages causes a fall of the profit share π. This causes a rightward rotation of both g_s and *PC* curves of figure 1 respectively. At the initial growth rate $g_i^0 = \alpha$, the higher demand for consumption goods determines a higher degree of capacity utilisation u_a^0 (point B). At the constant growth rate α, the new rate of utilization u_a^0 would need to be such that the realized rate would still be r_n, because with no change in the saving rate, the equation $g_w = s_c r_a$ needs to hold, and hence there would be no change in the realized rate of profit. In practice, the higher rate of extraction of profits out of a given capital stock precisely compensate the fall in the profit share, so that the resulting *actual* profit rate is equal to the initial one. The

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[16] Equation [4] is easily obtained from the definition of (actual) profit rate: $r_a = P/K = \frac{P/Y_f}{K/Y_f \; Y_a/Y_a} = \frac{P/Y_a}{K/Y_f} Y_a/Y_f = \frac{\pi}{v_n} u_a$.

[17] As in all macroeconomic models the long run goods markets equilibrium is where the rate of growth of the capital stock is equal to the rate of growth of capacity saving. The *KH* implies, of course, that outside equilibrium it is the latter that adjusts to the former.

[18] In point A $u_a = u_n$ and normalising normal capacity utilisation ($u_n = 1$), equation (6) boils down to $\alpha = s/v_n$. Being back to Harrod, point A violates the *KH* since α cannot be exogenously determined.

higher u_a leads then to a higher growth rate of investment - the investment function becomes $g_i^1 = \alpha + \beta(u_a^0 - u_n)$ - and to an even higher rate of utilisation until a new equilibrium is reached in correspondence to u_a^1 (point C). At u_a^1 the realised profit rate is higher than the initial one. The paradox of thrift would be proved, in a growth context, since a lower saving rate leads to a higher growth rate.[19]

Given this framework, these authors speak also of a 'paradox of costs': 'A higher real wage, and therefore higher costs of production, leads to a higher long-period [actual] profit rate. In other words, a *reduction* in the gross costing margin of each individual firm ultimately leads to a *higher* [realised] profit rate for the economy as a whole' (ibid, p. 117, original italics, my squared parentheses). The possibility of *wage-led* growth superficially looks in sharp contrast not only with the 'Cambridge' inverse relation between real wages and growth rates, but also with the Classical economists' inverse relation between real wages and the *normal* profit rate.

3.2. What is actual is normal: the 'new normal'©

Suppose we are in point C of fig. 1. From eq. (6) we get: $\frac{s_c\pi}{v_n/u_a^1} = \alpha + \beta(u_a^0 - u_n)$. Suppose that capitalists consider the degree of capacity utilization corresponding to C as the 'new normal', that is $u_a^1 = u_{nn}$. We might next redefine the denominator on the right-hand side as the 'new normal' capital coefficient $v_{nn} = \frac{v_n}{u_a^1} = \frac{v_n}{u_{nn}}$,[20] and obtain a warranted growth rate equal to $g_W = \frac{s_c\pi}{v_{nn}} = \alpha + \beta(u_a^0 - u_n)$ or, given that $s = s_c\pi$, $g_W = \frac{s}{v_{nn}} = \alpha + \beta(u_a^0 - u_n)$. The growth rate is determined by the 'animal spirits' α plus an endless attempt by the entrepreneurs to recover the 'old normal' utilisation rate u_n, attempt that becomes, however, a stable component of the growth rate that might usefully re-defined $\alpha^1 = \alpha + \beta(u_a^0 - u_n)$ so that $g_W = \alpha^1$. This redefinition of the

[19] Incidentally, the empirical evidence (e.g. Cesaratto 2010, pp. 4-8 for a quick glance) predominantly suggests a *positive* relation between the rate of growth and the saving rate (*S/X = I/X)*. This is embarrassing for the standard Solowian model (ibid) and, more importantly for the present paper, it seems somehow to go against the *NK*s attempt to demonstrate the thrift paradox in a growth context. The puzzle is solved once the autonomous components of AD are introduced with the ensuing distinction between the marginal (*s*) and the average (*S/X*) propensities to save. It will be shown in § 5 below that while a lower *s* has a positive *level* effect on output, a higher growth rate is necessarily associated to a higher *S/X*.

[20] Note that $v_{nn} = v_a$ since $v_{nn} = \frac{v_n}{u_a} = \frac{K/Y_n}{Y_a/Y_n} = K/Y_a$. Similarly, Shaikh (2009, p. 475) defines v_{nn} as a 'desired-as-situational' capacity utilisation rate.

investment function is suggested by Hein et al. (2008, p. 7; repeated in 2011a, p. 6, and 2011b, p. 592):

> ‘‘what this really means in terms of our little Kaleckian model is that the parameter α gets shifted as long as the actual and normal rates of capacity utilization are unequal:
>
> $\Delta\alpha = \theta(u_a - u_n)$, $\quad \theta > 0$
>
> The reason for this is that in equation [3] the α parameter can be interpreted as the assessed trend growth rate of sales, or as the expected secular rate of growth of the economy. When the actual rate of utilization is consistently higher than the normal rate ($u_a > u_n$), this implies that the growth rate of the economy is consistently above the assessed secular growth rate of sales ($g_a > \alpha$). Thus, as long as entrepreneurs react to this in an adaptive way, they should eventually make a new, higher, assessment of the trend growth rate of sales, thus making use of a larger α parameter in the investment function.’[21]

There are serious consistency problems here, however. As noted before, the initial equilibrium A of fig. 1 is a Harrodian equilibrium, i.e. α is the only growth rate consistent with a normal capacity utilisation (‘normal growth’). So to abandon the concept of normal growth is essential for the *NK* to sustain the *KH*. But, we see now that they cannot abandon it completely in order to show the thrift paradox, what entails going to point C. The equilibrium in C, however, will only be lasting if u_a^1 is taken - for some reasons[22] - as the ‘new normal’ rate of capacity utilisation

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[21] Hein et al. write this – as we shall shortly see – to illustrate the allegations of instability moved to the *NK* model. However, what they really aim to is sustain the possibility of a long run equilibrium in point C in which the readjustment $\beta(u_a^0 - u_n)$ is embodied in a ‘new normal’ expected growth rate α^1 with a ‘new normal’ degree of capacity utilisation $u_a^1 = u_{nn}$.

[22] Some rationalisations of the endogenity of u_n are in Hein et al (2011a, pp. 10-20); see also Lavoie (1995; 2003) and for a good summary: Hein *et al* 2008, pp. 32-8).

(a) To begin with, Hein et al. (2011b, pp. 7-8 and section 4) quote approvingly the notion of ‘provisional equilibrium’ (when $u_a \neq u_n$) by Chick and Caserta (and Dutt): ‘Hence … firms may be quite content to run their production capacity at rates of utilization that are within an acceptable range of the normal rate of utilization. Under this interpretation, the normal rate of capacity utilization is more a conventional norm than a strict target.’ They also recall arguments by Park, J.Robinson and Koutsoyiannis (ibid, pp. 16-7) according to which ‘managers are *satisficers*, rather than maximizers’. These arguments simply forget that the tendency to a normal degree of capacity utilisation (and to a normal profit rate) takes place ‘at the margin’ on new gross investment (while a quasi rent is yield on the existing capital stock). This is the traditional method shared both by Marx and Marshall (Cesaratto 1995).

u_{nn}. But then, why should capitalist want to recover the old u_n? The problem is that if they don't, the term $\beta(u_a^0 - u_n)$ would disappear from the investment function and the economy return to point B, with the consequence that the 'thrift paradox' is not demonstrated. So the *NK*s economists must at the same time maintain that while in C capitalists redefine a 'new normal' utilisation rate $u_a^1 = u_{nn}$, at the same time they still want to fill the gap $(u_a^0 - u_n)$. On the other hand, if capitalists do not consider $u_a^1 = u_{nn}$ the economy will be led to points D, E etc, as we shall shortly see. And finally, why does the economy just not stop in B, if *NK*s believe that any new prevailing degree of capacity utilisation is taken by capitalists as the 'new normal'?

Before developing the argument, let us provide an economic explanation of the *NK* contortions. These are due to the fact that wages are an *induced* component of AD, and as such they *cannot* be the *primum movens* of growth. By creating a never adjusted discrepancy between u_a and u_n, however, a rise of real wages may affect growth; but the weakness of the trick is patent (compare this result with the effect of a rise of real wages in the *SM* context below in 5.1.4).

3.3. The stability issue

Hein et al. (2008; 2011a; 2011b; see also Lavoie 2003) are aware of the problems and note that once the term $\beta(u_a - u_n)$ is introduced in the investment function (3) this brings back the Harrodian instability problems. As seen in the former quotation, Hein at al. argue that once the adjustment is allowed for 'the parameter α gets shifted as long as the actual and normal rates of capacity utilization are unequal: $\Delta\alpha = \theta(u_a - u_n)$.' The quotation thus continues:

> '… This is illustrated with the help of Figure [1]. Once the economy achieves a long-run solution with a higher than normal rate of utilization, say at $u_a^0 > u_n$, (after a decrease in the

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(b) A second argument that: 'if goals are not met the firm readjusts downwards its aspiration levels', is simply 'not credible'. On *new investment* firms expect u_n, unless they deliberately make wrong investment decisions to perpetuate $u_a \neq u_n$!

(c) The further argument that 'the long-run endogeneity of the utilization rate helps to reconcile the conflicting claims of capitalists and workers.' (ibid, p. 16) is discussed in section 4.

(d) Cardoso and Crespo (2012) convincingly criticise the 'curious' proposal by other *NK*s (Lima and Carvalho, and Blecker are quoted) 'who proposed the insertion of compensating unproductive expenditures in order to balance the disproportions between the installed productive capacity and the aggregate demand. In this way, they guarantee that the rate of capacity utilization does not explode' (ibid, p. 9). There would be, of course, 'no plausible economic justification for any unproductive expenditure… to grow at the exact degree which guarantee that aggregate demand will be modified at the same rate of the installed capacity'. Moreover with 'this treatment these expenditures can no longer be considered as real autonomous expenditures, since in fact they become endogenous in the model' (ibid, p. 10). We may thus safely conclude that the *NK*s have not persuasive arguments to prove the endogeneity of u_n (see also Skott 2012: 13, 16).

> propensity to save …), the constant in the investment function moves up …, thus pushing further up the rate of capacity utilization to u_a^1 and u_a^2, with accumulation achieving the rates g_1 and g_2, and so on. Thus, according to some of its critics, the Kaleckian model gives a false idea of what is really going on in the economy, because the equilibrium described by the Kaleckian model (point [C]) will not be sustainable and will not last'.

Figure 1 elaborates Hein et al's (2011a, fig. 5; 2011b: fig. 3) own presentation of the instability dynamics. The economy starts from point A where $g_s^0 = g_i^0$ and $g_i^0 = \alpha$. As before, for the sake of the argument, we assume that in A u_n and r_n prevail (what is to say that a Harrodian warranted rate rules there). After a decrease in the propensity to save the g_s functions shifts downwards and the economy provisionally goes to B. In B the higher demand for wage-goods is satisfied by a higher u_a, while the accumulation rate is still $g_i^0 = \alpha$. Supposing that capitalists try to restore u_n, the economy moves along a new investment function $\mathrm{g}_\mathrm{i}^1 = \alpha + \beta(u_a^0 - u_n)$ to reach point C. Following Hein et al.'s suggestion that 'entrepreneurs … make a new, higher, assessment of the trend growth rate of sales, thus making use of a larger α parameter in the investment function', the new investment function becomes $\mathrm{g}_\mathrm{i}^2 = \alpha^1 + \beta(u_a^1 - u_a^0)$, where $\alpha^1 = \alpha + \beta(u_a^0 - u_n)$, and a new provisional equilibrium is reached in D. There, though, a new investment function $\mathrm{g}_\mathrm{i}^3 = \alpha^2 + \beta(u_a^2 - u_a^1)$ prevails, where $\alpha^2 = \alpha^1 + \beta(u_a^1 - u_a^0)$, and so on and so forth. Note that $\mathrm{g}_\mathrm{i}^\mathrm{t} = \alpha^{t-1} + \beta(u_a^{t-1} - u_n)$.

As said, the *NK*s would like to locate their 'new normal' growth path in C (see, e.g. fig. 5.2 in Lavoie 2006). But, as seen, if entrepreneurs adopt the rule $u_a^0 = u_{nn}$, that is entrepreneurs take as 'new normal' whatever the rate of capacity utilisation happens to be, not only one would beg the question of why they have not taken u_a^0 (corresponding to point B) as the 'new normal', that is $u_a^0 = u_{nn}$; but, as seen in the previous section, if $u_a^1 = u_{nn}$ then the adjustment term $\beta(u_a^0 - u_n)$ would disappear from the investment function and the economy returns to point B. If the economy stops in B, then, a fall in the saving propensity would have no effect on the growth rate, that is, the thrift paradox would not have been proved in the dynamic context. On the other hand, if capitalists do not assume $u_a^1 = u_{nn}$ and we let them to adjust capacity to restore the 'old normal' u_n, there is no reason why they should stop in C, or D etc. [23]

[23] Ciampalini and Vianello (2000, p. 383; C&V hereafter) move a parallel critique looking at capitalists' behaviour from the point of view of the profit rate. Suppose for instance that the economy settles in C of fig. 1. In the NK's view the *realised* profit rate, e.g. r_a^1 , is that expected on

In summation, admittedly, once adjustment of capacity is allowed, the Harrodian instability does reappear (the economy would move to C, D, etc). A first ad hockery (to avoid instability) is to take the actual degree of capacity utilisation as the "new normal". A second ad hockery (to show the thrift paradox) is to assume, without justification, that entrepreneurs select u_a^1 (point C) and not u_a^0 (point B) as the new normal. The reasons of the NK wriggles have been suggested in the box above.

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new investment, as if entrepreneurs never realize that this higher *realized* profit rate depends on the current overutilization of capacity. This description of the behaviour of investors, according to C&V, would remind of a Faustian behaviour: "The thesis the according to which the expected profit rate is governed by the realised profit rate presupposes …that every time that existing capacity is over or underutilised – and a profit rate higher or, respectively, lower, than the normal one is therefore obtained – investors would expect that the productive capacity they project to endow themselves will also result over or underutilised. But to attribute to investors such an expectation is to …consider them as victims of an irremediable interior discord, which induces them to project a certain productive capacity and, at the same time, not consider it adequate to their wishes. '*Two souls, alas! reside within my breast; And each withdraws from and repels its brother.'*" (C&V 2000, p. 383, my translation; see also Vianello 1989, p. 165 and 180; Garegnani, 1992, p. 56; Committeri 1986, pp.174; and section 4 below).

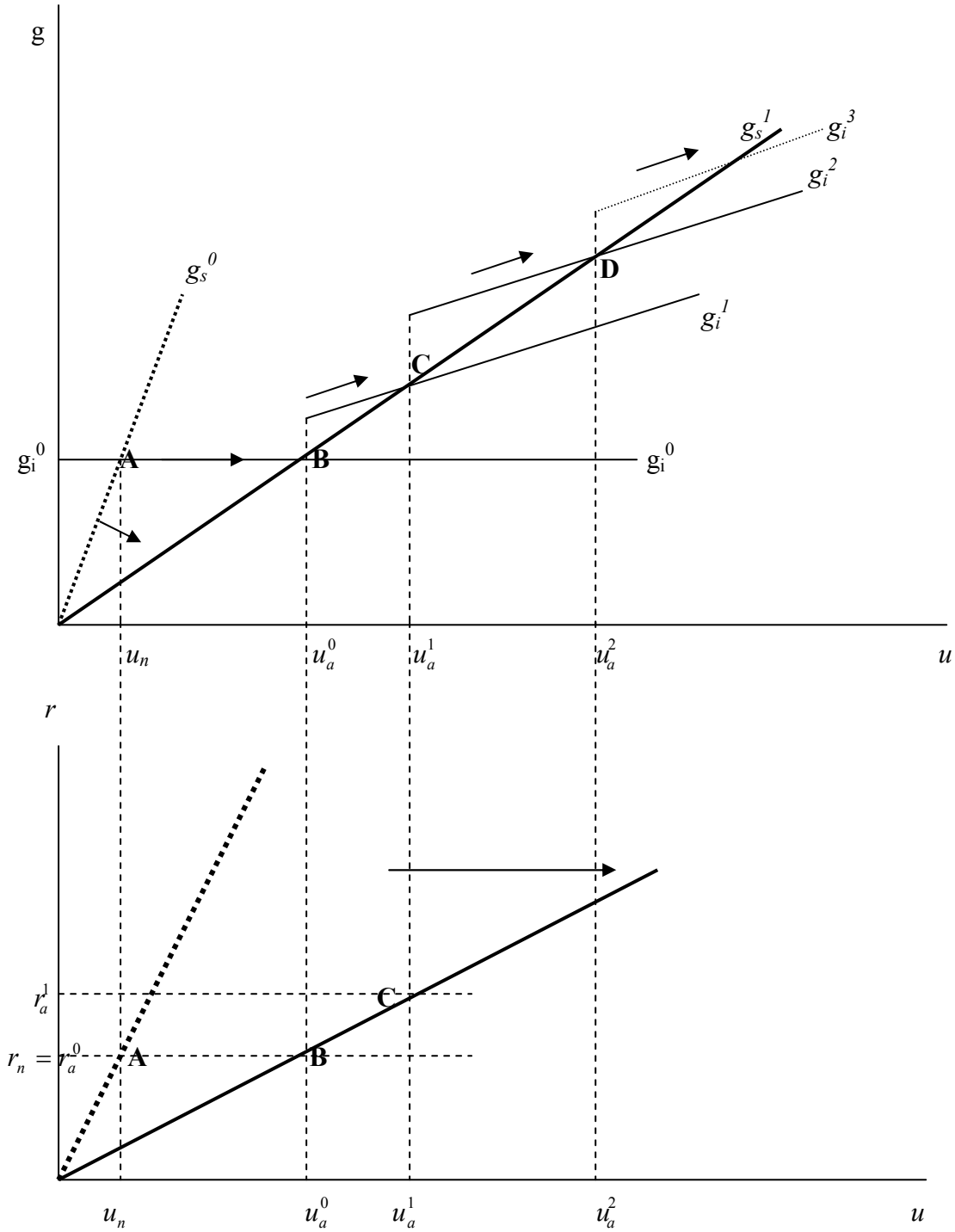

Figure 1

3.4. The inconsistent trinity

As seen above, there is a *prima facie* convergence between the *NK* and *FSP* critique of the *CE*. This junction is, however, reached through two different routes: via steady-states models

without normal capacity utilisation by the *NK* authors; or by the *FSP* supporters by rejecting steady state analysis. Echoing earlier criticism (e.g. by Auerbach and Skott 1988 and Committeri 1986, p. 170 and passim), Trezzini (2011, pp. 134-35) deems the first position as unsustainable since the adoption of the steady state method would lead to an inconsistent association of a *given* actual growth rate with a *systematic*, persistent degree under- or over-utilisation of capacity. According to the *FSP* authors once the straitjackets of steady state analysis are given up, a long run average utilization different from normal far from being inconsistent with long run analysis, would be a manifestation of the independence of investment from capacity saving (Trezzini 2011, p. 138; see also Palumbo and Trezzini 2003, pp. 113-14).

In summation, we may draw the inconsistency growth triangle (figure 2) defined by the three corners:

(i) the *KH* of an investment level (growth) independent from an exogenously given capacity saving level (growth), (ii) the Classical (or in general exogenously given) income distribution and (iii) a long-run normal degree of capacity utilisation.

To solve the inconsistency, the various approaches examined so far discard, respectively: angle (ii) according the *CE* supporters; and angle (iii) according to both *NK*s - who heroically retains steady state analysis - and to the *FSP* (and Garegnani 1992) who, however, more consistently gave up the investigation of normal accumulation paths. We shall see below that a 'fourth way' is taken by the Sraffian *SM* scholar by discarding the Harrodian context that is beneath the trilemma.[24]

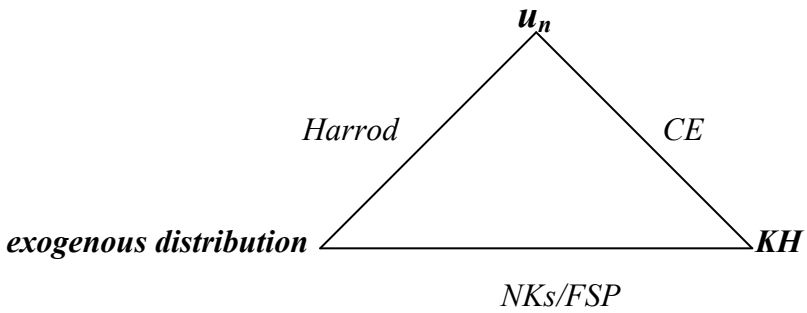

Figure 2 – The inconsistent triangle

[24] Kregel (1980) reports that in the discussion with Harrod on the warranted rate equation Keynes, characteristically, muted position repeatedly: 'Keynes first applauds (...), then redefines (...), then admits he has misunderstood (...), and finally rejects (...) the concept of a warranted rate of growth' (ibid, p. 103 (11)). Keynes' positions remind those of the *NKs* ('temporary warranted rate', ibid, pp. 108-9), of Eatwell (ibid, pp. 108-9), possibly Garegnani-Kalecki's scepticism about normal paths (ibid, p. 112), and even of others who rely on the variability of *s* (ibid, pp. 111-12).

4. Accumulation and the profit rate

Sraffians closer to the 'surplus approach' tend to share the idea that gross investment is determined by expected effective demand. Variations of the normal rate of profit, as such, have no direct and mechanic influence on gross investment, as often argued by post-Keynesian authors of various persuasions.[25] As such, variations of r_n only concern the sphere of income distribution. The latter can in turn influence investment decisions:

(i) by affecting expected effective demand: a higher/lower r_n might, for instance, negatively /positively affect consumption demand if this is affected by lower(higher real wages; or

(ii) by being connected to the relative bargaining power of the working class and to the necessity for the ruling class to discipline it by regulating the labour reserve army; but this is generally done by using fiscal, monetary and exchange rate policies and not as a coordinated decisions of capitalists to regulate the accumulation rate.

Therefore, a rise of r_n, as such, for no reason would positively affect investment. Likewise, a lower r_n will, in general, leave gross investment unaffected as long as capitalists fear to bequeath market shares to competitors: each capitalist is *homo homini lupus* with respect to her classmates.[26] **(***Ça va sans* dire that a rise/fall of r_a above/below r_n will just signal that u_a is above/below u_n. In both cases gross investment will vary in order to readjust the degree of capacity utilisation and normal profitability - while the long trend of investment is still set by demand for products associated to normal profitability).

Sraffian authors also reject the idea that a higher normal (or realised) profit rate might positively affect investment through the higher internal availability of funds. Garegnani (1962, p. 91 fn. 1) observes that it is investment that, in the short run, through a fuller utilisation of capacity and, in the long-run, through the creation of new capacity, determines saving (that includes retained

[25] I refer to Sraffian authors such as Serrano (2006, pp. 13-4) and Petri (1994, p. 149). Other Sraffian economists, e.g. Vianello, to which Lavoie (1995, pp. 796-7) refers, present slightly, but still significantly different opinions (see below).

[26] As Serrano (2006, p. 14) suggests: "although politically entrepreneurs prefer higher profit margins and normal profit rates, capitalists do not 'invest as a class' but according to the existing investment opportunities and the pressure of competition. Their investment decisions are not an inverse function of the level of the normal rate of profits but a positive function of the size of the market. In the long run the size of lucrative investment opportunities depends on the level and rate of growth of effective demand- the demand of those who can pay normal prices (that price that allow firms to obtain the normal rate of profits, which defines the minimum accepted standard of profitability). If effective demand is expanding, whether normal profit margins and rates happen to be 'high' or 'low', competition and the search for maximum profits impel the firms collectively to expand productive investment"

profits) and not the other way round. In addition, Ciampalini and Vianello (2000, p. 391, my translation, C&V hereafter), point out that: 'the availability of internal financial resources can well enable … to undertake an investment that presents a sufficient enticement, but does not certainly force to undertake one without attraction'.

In the light of section 3, much confusion is also made by *NK* authors with regard to the relation between actual and normal profit rates. In this connection, the *NK's* cooperative interpretation of the 'golden age' of capitalism as a wage-led regime (section 3.1) is rejected by Garegnani (Cavalieri et al. 2004). In his opinion, the profit rate relevant for capitalists is not the *ex post*, realised one, but the *ex ante*, normal one, that they expect on the newly installed equipment. A rise of the real wage rate, given the techniques in use, cannot but lead to a fall in the normal profit rate. It is then possible that, in certain historical circumstances, capitalists accept such a fall without resorting to economic policies aimed at widening the industrial reserve army, but in these circumstances we should rather talk of a *compromise* between clashing interests rather than of *coincidence* of interests. For comparison, in influential contributions Marglin and Bhaduri (Marglin and Bhaduri 1990; Bhaduri and Marglin 1990, M&B henceforth) are similarly critical of the cooperative vision of capitalism purported by the *NK* literature, but this is done by postulating a possible negative influence of the (normal) profit rate on investment: 'it is by no means certain or even especially likely to be the case that an increase in the rate of capacity utilisation will induce additional investment when the profit rate is held constant. The reason is a simple one: if the rate of capacity utilisation increases while the rate of profit remains constant, it *must* be the case that the profit margin and share fall.' (M&B 1990, p. 168, emphasis by the authors).[27] But, as Serrano points out: 'Here the confusion comes from the 'neo-Marxists' (see Marglin & Schor, 1990) which mechanically try to associate the squeeze in profit margins to a reduction in pace of investment by arbitrarily assuming that investment is a direct function of the level of the profit share. The fact that lower profit margins lead to lower normal rates of profit does not imply that the most lucrative option in this situation will be a reduction of investment and the size of productive capacity. The adequate size of productive capacity does not depend on the level of the normal rate of profit but on

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[27] Writing equation (12) as $\bar{r}_a = \frac{\pi}{v_n} u_a$, a higher u_a entails a lower π, as M&B argue in the preceding quotation. Given that by definition $r_n = \Pi / K = \frac{\Pi / X_n}{K / X_n} = \pi / v_n$ (where Π is the absolute amount of profits), a fall of π also cause a lower r_n. M&B seem to share with the rest of the *NK* literature the rejection of the notion of normal degree of capacity utilisation (whether defined in free or not fully-free competition). Therefore, with the concept of normal profitability, a terse explanation of investment as induced by effective (effectual) demand is lost replaced by a paraphernalia of investment regimes.

the size of the demand of those who can pay the prices that guarantee that the minimum normal profitability requirement is met, irrespectively if this normal rate is high or low'. (2006, p. 13(18))

Some ambiguities in his criticism to those he calls 'underconsumists' we find in Vianello. He argues that the *NK*s miss the fact that 'expected profitability is hindered by the wage rise, even if current profitability is not. …Producers…. know very well that their profits are bolstered by the overutilization of productive capacity. And since they are not planning to keep productive capacity perpetually overutilised, they must expect profitability to fall …below [the previous normal profit rate]' (Vianello (1989, pp. 182-83). So, although Kaleckian authors 'see very well the role that a rise of the wage has in sustaining aggregate demand, and with it the amount of profits and the realised profit rate', they miss that the result is 'a fall of the normal profit rate – and hence, ceteris paribus, of the profit rate expected by the investors' (C&V 2000, p. 367, my translation). Therefore, *according to the historical circumstances*, 'a wage rise may provoke in some cases a crisis and in other an increase in the demand and production of consumption goods' (ibid, p. 395).[28] In this regard Vianello refers to Marx's criticism of the 'underconsumists' (Vianello 1989, p. 183): 'That a rise in real wages had an unmistakably beneficial impact on the economy was a basic tenant of the old underconsumists, to which Marx countered that a rise in real wages was indeed a remedy for overproduction, but not a painless one. For it caused the general [normal] rate of profits to fall, thus paving the way for a different kind of crisis.' C&V (2000, p. 382) also quotes Marx who argued that 'accumulation slackens in consequence of the rise in the price of labour, because the stimulus of gain is blunted.' (Marx 1967, p. 580). The fall of the accumulation rate, according to Marx, will, however, heal its disease by determining a fall of wages and the re-establishment of the profitability reputed normal by capitalists. Overproduction would therefore be temporary phenomena for 'it is characteristic of the crises to abolish their own cause by reducing the productive capacity installed' (Vianello 1989, pp. 170-71).[29] We believe that crises aimed at re-establishing some *status quo ante*

[28] Discussing an important historical episode in which monetary policy was used in the early 1960s to determine a fall of the rate of accumulation in order to re-create an industrial reserve army in the North-West of Italy where the 'economic miracle' brought about full employment and rising real wages, Vianello (1975) interprets the fall of investment determined both by deflationary policy and by an autonomous fall. He is careful in arguing that it is difficult to decompose between the two, and that 'the minimum profit rate capitalists regard as acceptable reflects the bargaining power of the social classes' (ibid, p. 129; my translation). However, given this minimum level, he firmly argues that 'its fall determines a fall of investment' (ibid).

[29] Mainly referring to Steindl, Ciampalini and Vianello (2000, p. 370) and Serrano (1995a, pp. 111-20) discuss if a relevant difference between the Kaleckian tradition and Sraffian authors has to do with their respective views of competition. They both point out that price and distribution determination in a context of monopolistic or oligopolistic conditions is perfectly consistent with classical price theory, which for sake of generality is set assuming free competition, as long as prices are determined on the basis of production cost. The attribution of persistent overcapacity to

in income distribution, however, should not be taken not a sign of a *direct* negative influence of a lower profit rate on gross investment – this depends on effective demand at whatever normal profit rate and capitalist do not fine tune the accumulation rate as a class -, but rather as a manifestation of deliberate policy intervention. We might put it this way: if real wages rise and the normal profit rate falls, capitalists would of course be disappointed and wish the restoration of the former profit rate. This task is likely left to the economic policies of pro-capitalists states since,[30] from the point of view of each capitalist, the decision to reduce investment and to let forthcoming demand unsatisfied (even at a lower r_n) would entail the risk of opening a market opportunity to competitors. For this reason, although a fall in the normal profit rate may affect the general policy stance and, *therefore*, investment, this does not involve a general inverse association between r_n and the pace of accumulation in the *sphere of investment decisions*. When we deal with accumulation theory it is better to regard investment as determined by expected effective demand at the given normal profit rate, whatever it is, leaving the effects on accumulation due to changes in income distribution and policy stance to a different analytical stage.

5. Growing with autonomous components of aggregate demand

5.1. The supermultiplier[31]

5.1.1. The surprising neglect of autonomous demand

The question with Harrod is the 'strict uniqueness' and instability of the warranted growth rate, and its traditional policy content. By 'strict uniqueness' I intend that the variables that appear in the (unique) warranted rate are necessarily inconsistent with an independent determination of long-run AD. Ruling out the endogenous change in normal income distribution envisaged by the Cambridge economists, in the equally unsatisfactory *NK* and *FSP* approaches the variability of the degree of capacity utilisation becomes the adjusting variable. If we could show the existence of a variety (actually an infinity) of normal or warranted demand-led growth rates, we would have taken

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non-competitive conditions does indeed add a spurious element to their demand-based analysis of growth. It is the structural weakness of effective demand in capitalism, due to the unequal income distribution, rather than the non-competitive conditions, the cause of overcapacity to which we should refer to when we deal with accumulation theory. By contrast, the overcapacity we find in the oligopolistic competition *a la* Sylos Labini is, so to speak, a 'normal' overcapacity, that we would find even if AD were 'adequate'.

[30] For instance, the "independence" of Central Banks is nothing else than an assignment to a "super-partes" institution to be the watch-dog of wage-discipline. The most striking example is the Bundesbank (Cesaratto and Stirati, 2011, pp.73-5).

[31] Among the other proponents of the supermultiplier we must also recall Bortis (1997), Dejuan (2005; 2010) and Kaldor (see Serrano 1995a, pp. 82-3). The relation with the original Hicks's *SM* is discussed by Serrano (1995a, pp. 79-81).

a significant step forward to overcome the Harrodian 'strict uniqueness', the *NK* odd steady states and the *FSP* abandonment of normal accumulation paths. This I define as the *existence* problem.

Serrano approaches this question noting the surprising neglect of the autonomous/non-capacity creating components of AD (*Z*) in the post-Keynesian (and post-Kaleckian) literature.[32] These components are defined as those that (a) do not depend on produced or expected income (as induced consumption and induced investment, respectively) and (b) do not create capacity. The absence is even more surprising if we recall the role that government spending plays in Keynes's theory (e.g. 1936, p. 129) and 'external markets' in Kalecki (1934, 1967) reviewed in paragraph 1.2.[33] Serrano (1995a, p. 97) points out that, indeed, in all 'Post-Keynesian theories of growth, the long-period version of the principle of effective demand is seen as being essentially a proposition about investment … investment is the key independent variable.' Investment are often explained evoking the 'animal spirits' or Schumpeterian competition. Leaving aside the vagueness of such explanations,[34] the conceptualisation of investment as *autonomous* appears inconsistent with its *induced* nature, as the adjusting force of capacity to demand. Also Eatwell warned of not taking investment as the independent variable and to anchor the model to long-term expectations.

The way out proposed by Serrano consists of three steps: (i) consider investment as fully induced:

$$I = v_n g^e X_n \qquad (7)$$

where X_n is the normal level of output and g^e is the expected rate of growth of effective demand (or Eatwell's long-term expectations); (ii) take into account the autonomous/non-capacity creating components of AD (*Z*); and (iii) anchor the formation of long-term demand expectations (g^e) to the growth rate (g_z) of those components (the idea is that this anchor permits a progressive adjustment of expectations to g_z; see below § 5.3).

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[32] As known, Harrod allowed for the presence of autonomous demand, but this does not seem to play an autonomous role in the determination of accumulation (Serrano 1995a, p. 67 fn. 37).

[33] I do not believe that the minor slip by Kalecki pointed out in fn. 5 would diminish the nature of the 'external markets' as an anticipation of Serrano's autonomous demand; otherwise, *a fortiori*, we should also exclude Garegnani's 'final demand' (see above fn. 7) that Serrano (2001, fn. ii) suggests as close to his autonomous demand.

[34] For the discouraging persistency of such a pre-analytical concept in the post-Keynesian literature see Dow and Dow (2011, p. 18). By contrast, Dennis Robertson (1915, p. 9) and Garegnani (1983b, p. 140) dismiss in similar terms a treatment of expectations based on mere psychological factors in favour of one based on real economic circumstances. The Schumpeterian views are criticised in Cesaratto (1996).

5.1.2. Assumptions and preliminaries

Serrano (1995a, p. 18-24) simplifies the economy following a Kaleckian inspiration, and in particular to the dictum that 'capitalists earn what they spend while workers spend what they earn'. The simplifications are not essential to the model, but are aimed to emphasize the distinctive traits of a capitalistic economy.[35]

Look at capitalists first. Serrano assumes, along the models reviewed above, that workers do not save while capitalists save all their earnings, so the marginal propensities to save of capitalists is $s_c = 1$. The overall *marginal* propensity to save is then $s = s_c\pi = \pi$, where $\pi = P/X_n$ is the profit share on normal output X_n. A marginal propensity $s_c = 1$ does not imply that capitalists do not consume: at the beginning of the period considered (*ante factum*), they consume all they wish (e.g. financed by overdraft credit facilities, see Lavoie 2006, p. 61).[36] Capitalists' spending is thus constituted by Z, the autonomous consumption decisions, and by their investment decisions, induced *during the period* by expected demand according to the accelerator principle (equation [7]). Although at the end of the period (*post factum*) capitalists do not spend all their accrued profits, not all their earnings consist of saving since part are offset by their autonomous consumption Z, which is dissaving.

Look now at workers. To simplify they do not have access to credit and strictly spend what they get, so that the economy's marginal propensity to consume is equal to the wage-bill share on income wl (given that capitalists have a *marginal* propensity to consume equal to 0), where w is the given real wage, l is the labour input coefficient $l = N/X_n$..[37]

Given the wage bill W, profits are equal to $P = X_n - W = Z + I$, and saving to $S = s_cP - Z = P - Z = I$. Or, recalling that $s = s_c\, P/X_n$, saving is equal to $S = -Z + sX_n$,[38] we get:

$$\frac{S}{X_n} = s - \frac{Z}{X_n} \qquad (8).$$

Equation (8) expresses the *average* propensity to save of the economy as the difference between the *marginal* propensity to save (profit share) and the share autonomous consumption on output (share of dissaving). As Serrano (1995a, p. 126) explains: 'whenever we take into

[35] To be fair, also the *CE* and the *NK* model share this Kaleckian feature.

[36] Neither Serrano nor this paper model the financial sector. One further and promising step of the *SM* approach will be to integrate it with the literature on endogenous money and with some results of Modern Monetary Theory.

[37] Serrano (1995a, p. 25) thus avoids any reference to a Keynesian 'psychological law' governing consumption (Keynes 1936, p. 96).

[38] Compare this expression to the textbook saving function $S = -Ca + sY$ where Ca is autonomous consumption; these expressions clarify the nature of Ca as 'dissaving'.

consideration the presence of autonomous expenditures, as we do in our Sraffian supermultiplier, there simply cannot be any univocal and direct relation between the distribution of income and the share of savings in the economy, even if all saving comes from profits'.

5.1.3. Income determination and limits of demand-led growth

AD is defined as $AD = Z + I + C$, or $AD = Z + v_n g^e X + wlX_n$ and, following the principle of effective demand, $X_n = AD$. From this, the 'Sraffian' *SM* determination of output can be derived:

$$X_n = \frac{1}{(1-wl) - v_n g_z} Z \qquad (9)$$

In equation (9) we are provisionally assuming that firms form their growth expectations and investment decisions on the basis of a known rate of growth of Z: $g^e = g_z$. Equation (9) suggests that 'external markets' Z govern the rate of growth of AD and output, and that capitalists 'earn what they spend', as shown by writing it as: $\pi X_n = \overline{Z} + v_n g^e X$. This approach looks more faithful to a Kaleckian inspiration than the *NKs* models.

Equation (9) provides economically meaningful solutions if (Serrano 1995a, p. 24; 1995b, p. 80; Dejuan 2005, p. 240):

$$wl + v_n g_z < 1 \qquad (10)$$

and

$$Z > 0. \qquad (11)$$

Serrano offers a double interpretation of these conditions. To begin with, he observes that if the equality sign prevailed, then the only equilibrium rate would be $g^e = s/v_n$, and we were back to Harrod's model (and Say's Law) since space would not be left for the autonomous components of AD – that should be then set to zero $Z = 0$**.** In other words, if $wl + v_n g_z = 1$, this means that the overall marginal propensity to spend is equal to one and this 'is exactly what we mean by Say's Law' (Serrano 1995a, p. 37) Of course, if the overall marginal propensity to spend is lower than one, the level of the autonomous components must be positive, as set by equation (11).

Rewriting the condition (10) as $g^e < s/v_n$ Serrano envisages a further limit to demand-led growth: g_z (and g^e) cannot be 'too high', otherwise the share of induced investment will also be 'too high' and we breach 'the upper limit of feasible rates of demand-led capacity growth' (Serrano 1995a, p. 40; De-Juan 2005, p. 240). To see this, note that from the investment function (7) we get $I / X_n = v_n g^e$. That is, comparing two normal paths, the one with a *higher* g_z (and g^e) requires not just a higher rate of growth of investment (g_k), but also a *higher* share of investment on present

normal output: 'given the capital-output ratio, a higher rate of growth of capacity will necessarily require that a higher share of *current* level capacity output be dedicated to capacity-generating investment.' (Serrano 1995a, p. 32; 37and ff; 1995b, pp. 81-4). As observed (fn. 19), a positive relation between the rate of growth and the investment share *I/X* is an almost widely recognised 'stylised fact' of economic growth. This does not imply that higher growth requires a fall in consumption, re-proposing the Samuelsonian choice between butter and guns (Serrano 1995a, pp. 129-34). In the new normal path, capacity X_n has rose enough to accommodate both the larger *share* of induced investment required by the higher g_z and a larger absolute level of both induced and autonomous consumption.[39]

5.1.4. Investment and saving shares

Note that from the investment function we get $I / X_n = v_n g^e$. That is, comparing two normal paths, the one with a *higher* g_z (and g^e) requires not just a higher accumulation rate (g_k), but also a *higher* share of investment on present normal output: 'given the capital-output ratio, a higher rate of growth of capacity will necessarily require that a higher share of *current* level capacity output be dedicated to capacity-generating investment.' (Serrano 1995a, p. 32; 37and ff; 1995b, pp. 81-4). A positive relation between the rate of growth and the investment share *I/X* is also an almost widely recognised 'stylised fact' of economic growth.

In the *SM* context, it can be shown that, given the *exogenous* levels of Z, g_z, s and v_n, a level of X *exists* such that $\frac{S}{X_n} = \frac{I}{X_n}$ and the economy grows along a normal path $g_w = g_z$. This would represent a step forward with respect to the inflexible Harrodian context in which the given s and v_n determine a *strictly unique* warranted path. By taking into account the autonomous components of AD, *a range of normal growth paths* is in principle feasible each one defined, given s and v_n, for certain levels of Z and g_z. Observe that the autonomous components (which in general include government spending and exports) are also amenable to 'demand-side' policy decisions to stimulate

[39] Serrano allows both to a short period adjustment of capacity savings to higher investment through a higher degree of capacity utilisation, and once the maximum capacity has been reached, to a *CE* style adjustment: "Note, however, that what the maximum rate of growth says is that capacity output cannot grow faster than that rate if the degree of utilization is to be kept at its 'planned' or normal level. That means that both actual output and also capacity can grow a bit faster at least for a while, to the extent that there are always planned margins of spare capacity. For very high rates of growth of demand such that neither capacity nor output can respond fast enough the result will be demand inflation and 'forced saving' in a way similar to the Cambridge theory of distribution." (1995a, p. 44 fn. 28; cf. also Garegnani (1983, pp. 61-2).

investment, limited in all investment-driven models that have to rely on 'supply- side' policies of doubtful effectiveness.

The presence of the autonomous components of AD entails a distinction between the marginal and the average propensity to save (equation [8]). Serrano's idea is precisely that through the work of the *SM*, the level and growth of *Z* will generate a level of output capacity such that the *average* propensity to save $\frac{S}{X_n}$ is able to accommodate any level of induced investment at a normal degree of capacity utilization. Note first that, given that in equilibrium $S = I$, and recalling that $(\pi X_n =)\ sX_n = Z + I$, equation (8) can also be re-expressed as: $\frac{S}{sX_n} = \frac{I}{I+Z}$, that is

$\frac{S}{X_n} = \frac{I}{I+Z}s$, or

$$\frac{S}{X_n} = s_P s \qquad (12)$$

Equation (12) expresses the average propensity to save as a function of s and of s_P, what Serrano defines as the 'fraction', the share of profits which is invested (ibid, p. 126). Let us now derive the *SM*'s warranted growth rate.

5.1.5. Serrano's warranted rate

In line with previous models, we have a three equations system:

$$S = sX_n - Z \qquad (13)$$

$$I = v_n g^e X_n \qquad (14)$$

$$S = I \qquad (15)$$

Substituting equations (13) and (14) in (15) and assuming that $g^e = g_z$ we get: $g_z X_n = \frac{sX_n - Z}{v_n}$, or

$$g_z = \frac{s - Z/X_n}{v_n} \qquad (16).$$

Taking advantage of equation (12), equation (16) can be equivalently expressed as:

$$g_z = s_p \frac{s}{v_n} \qquad (17).$$

The normal path that assures the dynamic saving-investment equilibrium can finally be written as:

$$g_w = \frac{S/X_n}{v_n} \qquad (18).$$

Equation (18) shows that the variations in S/X_n accommodate g_w to the variations of g_z (the normal rate adjusts to the actual, Serrano 1995a, pp. 124-9).[40] Let us consider the economics behind this adjustment.

Looking at this through the lenses of equation (16), if g_z rise, given s, then Z/X_n must fall. This is so because along a normal growth path investment must anticipate demand growth: equipment must be there when demand rises so to assure a normal capacity utilisation. So if g_z rises, in the new normal path the ratio I/X_n must be larger (as already noted above) and the ratio Z/X_n lower (for a given s). [41] Since the share of consumption on normal output is constant – it is indeed equal to the wage share which is also constant: $W/X_n = wl$ – then in the new steady state by necessity the higher share I/X_n is accommodated by a lower Z/X_n. This is possible since in any period along a normal growth path, for the same given level of Z, a (say) higher expected g_z (compared to a lower g_z) is associated to a higher level of normal output X_n – not surprisingly since a higher g_z implies higher current investment - such that it generates a share of capacity savings S/ X_n adequate to the higher level of investment required by the higher g_z.

Similarly, equation (17) suggests that a higher g_z, given s, implies a higher $s_p = I/(I + Z)$, that is that in the new normal path a larger share of profits is invested. The idea is again that a higher g_z g_z (compared to a lower g_z) for a given Z, implies higher current I, X_n and level of profits. Therefore the fraction of profits invested (and *post factum* saved) can therefore rise.[42] We see here that we cannot know the actual share of saving on income only by looking at the marginal propensity to save (equal here to the profit share), since the former depends in turn on the share of profits which is invested and this depends on the expected rate of growth (Serrano 1995a, p. 126).

Summing up in Serrano's own words, equations (16) and (17) 'shows that the operation of the supermultiplier will always generate the required share of [capacity saving], not by changing [in the long run] the degree of utilisation but by changing the level of investment and normal output by more than consumption (inclusive of autonomous expenditure) and therefore through changes in the ratio between the (endogenous) average and (the given) marginal propensity to save… The idea that

[40] By comparison, according to the *NKs* the actual rate becomes the 'new normal'.

[41] Equation (18) can be directly obtained from equation (9). This is helpful because it shows that the adjustment of investment to a higher g_z takes place through the work of the *SM*.

[42] In a nice example Serrano (1995a, pp. 131-2) compare two economies that at a certain point in time have the same level of autonomous/non-capacity generating expenditure. Assume, however, that one economy is stagnating with no net investment while the other is on a normal path led by a positive growth rate of autonomous demand g_z. It is plain that the second economy will have a larger 'fraction' s_p. Suppose $Z = 100$, $s = 0.5$, $v_n = 2$, and $g_z = 0.05$. Then $X = 250$ and $s_p = 0.2$. If $g_z = 0.02$, then $X = 217$ and $s_p = 0.08$.

such an adjustment was impossible is not a general result and depends entirely on the fact that if there are no autonomous expenditures then, as we have seen, it is simply impossible, irrespectively of how much the level of investment changes, to change the ratio between investment and output which is given uniquely by the marginal propensity to save' (1995a, p. 59; see also Dejuan 2005, pp. 241-42). [43]

Note that, differently from the *CE*, here the profit share (equal to the marginal propensity to save) and the normal profit rate have not to change when g_z changes, nor, in the new normal path, has the degree of capacity utilisation to be different from normal as argued by the *NKs*. Respectfully of Garegnani's insight, the variable that in the fully adjusted position accommodates capacity saving to the level of investment required by the growth of *Z* decided by capitalists is the adjustment of productive capacity: this is assured by the working of the supermultiplier.

A comparison with the *NK* wage-led growth is also timely here. In the *SM* framework, an increase in real wages, and the consequent lower profit share and marginal propensity to save, have a positive *level* effects, but not the *growth effects* alleged, with unconvincing arguments, by the *NK* model (Serrano 1995a, pp. 134-7). The lower marginal propensity to save *(1 – wl)* will increase the value of the *SM* in equation (9) and thus the level of induced consumption investment leading to a higher long-period level of productive capacity. There might therefore be a temporary faster growth, but once capacity has adjusted to the new higher level of effective demand entailed by the stronger *SM*, the economy will return to the former normal growth rate determined by the growth rate of autonomous expenditure.[44]

What said so far has to do with an *existence question*, but it still leaves open the *question of stability*, that is what happen during the transition from one normal path to another: are we sure that

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[43] Serrano seems to acknowledge that he is discussing an *existence* problem when he argues that through the supermultiplier 'we have shown how the existence of a definite level of capacity output determined by effective demand requires two conditions, namely: a) that the economy's marginal propensity to spend be lower than one; and b) that there is a positive level of autonomous expenditures that is both independent from income (output) and does not generate capacity' (1995a, p. 75).

[44] A comparison to the opposite results of Solow's model might help: in the latter a higher marginal propensity to save *s* has a temporary positive *growth effects*, but *level effects* only in the long run According to the *NK* wage-led growth a rise of real wages (a lower *s*) lifts up the actual degree of capacity utilization u_a and, given the investment function $g_i = \alpha + \alpha' (u_a - u_n)$, the rate of growth (so a growth effect). This sequence depends, as said, on an endless and never completed attempt by the capitalists to re-establish u_n. This is not plausible: the term $\alpha'(u_a - u_n)$ in the investment function is a short-period term, not a long-term one. So the *NK* idea of a lasting growth effect of higher real wages is not well grounded. Indeed, consumption out of wages is an induced component of output, so it cannot determine demand and output: only autonomous consumption can, as in the *SM* approach.

the faster growth of investment and above-normal degree of capacity utilisation stimulated by a higher growth rate of autonomous demand g_z does not go-out-of control in an Harrodian fashion? Moreover, we have proved the existence of a warranted rate by assuming that entrepreneurs have a perfect foresight of g_z (we assumed $g^e = g_z$ in equation [9]). Nonetheless, the fact that we have now a range of normal growth paths, each defined for a given g_z, makes it possible to talk of a variety of paths according, say, to different dominant economic regimes and related economic policies overcoming Harrod's 'strict uniqueness'. Each warranted rate is consistent with Classical (exogenous) distribution and a long-run normal degree of capacity utilisation. The question is to prove, analytically, the gravitation from one to another path characterised, respectively, by different g_z that are, of course, unknown to the entrepreneurs (this is discussed in § 5.3).

5.2. Synthesis: comparing normal paths

Harrod: $g_w = s/v_n$: 'strict uniqueness' and instability. Economic policy may stimulate growth by increasing *s* and keep instability at bay through economic planning (not a good *positive* theory).

CE: $g_w = \alpha = rs_c$: changes in *r* provide flexibility and stability whenever 'animal spirits', the unexplained origin of growth, change.

NK: $g_w = \alpha = \dfrac{s_c \pi}{v_n / u_a}$ or $g_w = \alpha = \dfrac{s_c \pi}{v_{nn}}$ where v_{nn} is the 'new normal' capital coefficient: a flexible u_a provides the necessary cushion against the instability due to changes in 'animal spirits', the unexplained origin of growth; no clear role for economic policies (but support to cooperative capitalism).

SM: $g_w = g_z = \dfrac{S/X_n}{v_n}$: the endogeneity of *S/X* provides flexibility with respect to changes of g_z; the autonomous, non capacity-creating components of AD explain economic growth; economic policy, by acting on them, may stimulate growth.

5.3. The *FSP* criticism to the supermultiplier

We may single out four *FSP* critiques to the *SM* approach.

(i) As said, *FSP* supporters seem to maintain that *any* growth model with normal capacity utilisation, including the *SM*, would violate the *KH* (e.g. Palumbo and Trezzini 2003, p. 115; Trezzini 1998, p. 57; Smith 2010, pp. 8-9). Of course, given an initial capital stock (and *s* and v_n), if we *pretend* that the economy proceeds along a steady state growth path, then investment *must* equate capacity saving, and there is only one growth rate of autonomous demand consistent with this long period position. But no *SM* supporter would argue in these caricatural terms (or, for that matter,

neither the supporters of the *CE* nor the *NKs*). Trezzini (1995a, p. 49 and ff) seems indeed to acknowledge that the correct question is: given a long-run level and growth rate of autonomous demand g_z which is unknown to the entrepreneurs, a given, but not necessarily adjusted, capital stock, and the coefficients s and v_n, does the economy tend to a normal growth path $g_w = g_z$ characterised by a normal degree of capacity utilisation? Once the economy converge to a normal path, it is a matter of national accounts that investment is equal to capacity saving. What is relevant from an analytical point of view is that in the process of gravitation to the long run position it is capacity savings that adjusts to investment, consistently with the *KH*. A full understanding of this point would drastically reduce the distance between the two Sraffian positions.

(ii) As seen, there are economic limits to demand-led growth (equation [10] above). Trezzini (1995a, pp. 47-8, see also Shaikh, 2009, p. 469; Smith 2011, p. 8), argues that this "condition impairs the actual 'autonomy' of demand in the growth process and from a theoretical point of view does not seem justifiable. It seems that there is actually no reason why autonomous demand, if really autonomous, could not grow at a rate higher than the ratio [*s/v*]". The question is that this argument does not go very far unless either natural laws are broken (Dejuan 2005, fn. 15) or, by giving up models that show the limits of demand-led growth, these limits will vanish.[45]

(iii) A clear requirement for the stability of the *SM* is that any growth rate of autonomous/non-capacity creating demand g_z is persistent enough. Despite Palumbo and Trezzini's (2003, p. 120) scepticism, the *SM* looks as an analytical tool useful to analyse both specific historical periods in which g_z and long-terms expectations can be considered relatively stable, something the French Regulation school called 'regimes', and more erratic phases in which, anyway, the pattern of autonomous demand act as a temporary attractor. As Dejuan (2005, p. 244) sensibly puts it: even if 'the pace of autonomous demand is not so stable, the adjustment might never be completed and capacity would rarely be fully used. However, even in these conditions we are in the realm of a long-period theory of output since the economy gravitates towards fully adjusted positions' (see also Shaikh 2009, p. 473). The study of normal accumulation paths through the *SM* is obviously useful for policy analysis, and to study crises, since relatively lasting regimes may, however, contain the seeds of their own dissolution, as pointed put in the final part of the paper.

(iv) A minor dispute is that, similarly to Garegnani (1962), *FSP* supporters (and also some *SM* economist like Dejuan 2005) would include in 'final demand' the 'autonomous investment'

[45] Garegnani (1962, p. 68, fn. 2), for instance, acknowledges that: 'The accumulation capacity of the economy is jointly determined by the existing productive capacity and by the propensity to consume of the community' (my translation).

associated to technical change. On the opposite, Cesaratto *et al* (2003) maintain that *all* gross investment is induced in the sense that, *ceteris paribus*, in the long run autonomous investment displaces a corresponding amount of induced investment (Serrano 1995a, p. 81 fn.46, so they do not assign to autonomous investment the Schumpeterian status of driving force of growth (a sceptical view shared also by Kalecki at least in 1967)[46]. To take, however, into account the fact that in each period autonomous investment might be additional to induced investment and support effective demand, Cesaratto et al. (2003, pp. 44-48) suggested an opportune modification of the capital coefficient used in the *SM* allowing for what Keynes's called 'unjustified investment'. A higher depreciation rate might also serve the scope of considering fast technological obsolescence. Cesaratto (1996) argued that even technical change is largely demand driven (expansions drive innovations, not depressions, as Schumpeterians tend to presume; see also Camara-Neto and Vernengo 2012). Product innovations also play, of course, the essential role of sustaining the marginal propensity to consume and credit-driven autonomous consumption.

5.4. Stability of the supermultiplier model

In one recent work Freitas and Serrano (2007 [2013]) (F&S hereafter) integrate the presentation of the *SM* with an explicit stability argument that I will heuristically expose here.

Suppose that, moving from a fully-adjusted position g_z rises. The actual growth rate g_a of AD and output also goes up and, as a consequence, induced consumption and investment will also grow. The degree of capacity utilisation becomes higher than normal. The rise in the induced components generates, in turn, a further augment of g_a, a further climb in the induced components and so on and so forth. Recalling that g_a is a weighted average of g_z and of the growth rate of the induced components of AD, among which investment is the faster growing, implies that $g_k > g_a > g_z$. The exogenously give g_z anchors, so to speak, g_a (unless the reaction of investment is too strong and g_k drags g_a away in a Harrodian fashion). Therefore, in spite of the fact that the attempt by firms to adjust the capital stock is an additional stimulus to AD, the capital stock and capacity are rising more rapidly than AD and output, so that capacity utilisation u_a is falling and tending to normality. The fact that u_a tends to normality means that the escalation of g_k is slowing

[46] Talking of 'the influence of technological innovations', Kalecki (1967 [1971], pp. 150-1] argues that 'this factor is by no means necessarily adequate to secure the full utilisation of equipment or even to keep the degree of this utilization at a constant level. Innovations break the impasse of a simple reproduction only to some extent and they do not warrant the utilization of resources in the sense of Tugan-Baranovski'.

down. This implies that also the rise of g_a is slowing down, and that g_k tends to g_a, that in turn tends to g_z.[47]

In synthesis, while in Harrod investment is the engine both of demand and of the adjustment of capacity, and the two roles may compound spiralling instability, in the SM approach AD is anchored to g_z, a variable that it is not affected by the adjustment process. Therefore, as long as the effects of the larger investment on the supply side (on capacity) are larger and faster than those on the demand side, this adjustment does not create instability.[48]

Might we see this adjustment in terms of the adjustment between two normal paths expressed by equation (18) above [$g_w = \frac{S/X_n}{v_n}$]? We observed that different normal path g_w (=g_z) are characterised by different *Z/X* that, for a given *s*, lead to different *S/X* (recall equation [8]: $\frac{S}{X_n} = s - \frac{\overline{Z}}{X_n}$). Trezzini (1995a, p. 47, our notation) suggests (and acknowledges) in this regard a possible stability dynamics: 'we must study whether by not presupposing normal utilisation it is possible that changes in the fraction [Z/X_n] can constitute an adjustment mechanism of the warranted rate to an autonomously determined rate of growth of autonomous demand. For instance, supposing that [*Z*] grows at a rate [$g_z^{'} > g_z$]; if, while [*Z*] grows at the rate $g_z^{'}$, capacity income [X_n] were to grow at a higher rate, the fraction [Z/X_n], would slowly decrease and affect the

[47] Dejuan (2005, p. 240) seems to argue on a similar vein: 'Harrod's position can be summarised in two points: (1) if the desired rate of growth falls below the warranted rate, capacity will be under-used (u < 1) and (2) as a consequence, entrepreneurs will reduce the desired rate of growth still further. Point (1) is accepted and point (2) is rejected. In the model here (the supermultiplier), excess capacity impinges on effective investment, but not on the expected rate of growth of effective demand. This rate has an objective and independent pattern of behaviour that is not affected by the fluctuations of actual output.' The question with Dejuan's stability proof is that he seems to assume that entrepreneurs know g_z, what it is unacceptable.

[48] Let us compare this result with Harrod. In a normal position we have: $g_k = g_w = g_a$. Suppose that $g_a > g_w$. The consequent rise of g_k leads to an even higher actual rate $g_a^{'}$, so that $g_a^{'} > g_a > g_w$ and so on and so forth, the well known Harrodian instability result. In the *SM* context productive capacity benefits from the positive effects of a higher g_k in adjusting the capital stock to the higher g_a, while the fact that the latter rate is anchored to g_z limits the effects of the higher g_k on g_a. In a nutshell, in the *SM* context the effects of investment on the supply side are faster than those on the demand side. In Harrod, before that g_k has time enough to affect capacity, it spurs g_a, since g_k is the exclusive determinant of the latter (given s_c). In this case the effects of investment on the demand side are larger and faster than those on the supply side generating instability.

warranted rate [$g_w = \frac{S/X_n}{v_n}$], which would slowly adjust itself to the rate [g_z]. Thus it is possible to hypothesise that capacity manages to change enough [without investment demand exploding], i.e. the warranted rate becomes equal to [$g_z^{'}$], and the economy finally grows at the rate [$g_z^{'}$] (now warranted) with long-run normal utilisation'. The dynamics illustrated above in which output and capacity initially grow at a faster rate than $g_z^{'}$, later converging to it, seems to go in the direction envisaged by Trezzini.

F&S (2007 [2013], p. 33-4) point out that what just described is a *necessary condition* for stability. Necessary in the sense that it shows that the *direction* of the adjustment is correct. It becomes a sufficient condition if the reaction of investment is not 'too strong' (Freitas 2007 for the formal condition on investment).

Conclusions: formal stability and 'destabilising stability'

I consider the *SM* approach an important step forward in an non-orthodox growth theory not just because it overcomes the formal deficiencies of previous models, but because by assigning a central role to Kalecki's external markets (or Garegnani's final demand) it opens the way to a richer description of real capitalism. I also fully acknowledge the limitations of the investigation of (formally stable) normal accumulation paths in view of the instability of capitalism, limitations to which the *FSP* is particularly sensitive. Stylised models are, however, essential to fix our ideas and for policy purposes, as also the exponents of the *FSP* generally acknowledge.[49] In this light I believe that the distance between the two Sraffian positions should not be overemphasised.

The importance I attributed to a formal stability proof, moreover, does not in any sense imply that capitalism is stable.[50] Stability is a basic requirement for a good model since real phenomena, economic or not, although undergoing continuous changes, are rarely explosive. As said, capitalism is subject to minor and, as we have recently tested, major crises. Harrodian instability is not, yet, a good explanation of these crises; it had just the merit of showing their potential cumulative course in economies without 'external markets', as pointed put by Kalecki. Following his lesson, I criticised the investment-centred theories of capitalist development and crisis that neglect the autonomous components of AD. I moved from one basic contradiction of

[49] Once the employment of models for certain purposes is accepted, better to use stylised but sufficiently general models. Unfortunately some exponents of the *FSP* have indulged in simulations of secular growth paths using very partial models in which, more specifically, the dynamic of investment is dissociated from that of final demand (e.g. Ciccone 2003). This half-way is clearly unsatisfactory.

[50] These final observations have been prompted by a remark I received from Randall Wray at a presentation in Copenhagen in May 2011.

capitalism, that Kalecki described in better terms than Keynes: the effects of inequality in income distribution on AD or, in other words, the problems of the realisation of the capitalists' social surplus. In a market economy 'external markets' may temporarily solve the realisation problem. By definition these markets are financed by purchasing power creation, and we see here an important field of convergence with the literature on 'endogenous money'. Purchasing power creation finances the external markets that absorb the capitalists' surplus and return to the capitalists' hands as profits. Capitalists thus become creditors of those 'markets'. We may find here a main source of instability in the building up of unsustainable imbalances between core-capitalism and the external markets in what sounds, after all, a debt-driven model of capitalism both the US and the Eurozone have played with (Cesaratto and Stirati 2011; Cesaratto 2012), perhaps the only game in town for market economies. In this regard, convergences can be found with the emphasis of Minskian scholars (e.g. Wray 2011) on the financial fragility of capitalism. In this light, I thus acknowledge again the limitations of the investigation of (formally stable) normal accumulation paths and the necessity to integrate the investigation of long run growth with that of the cycle and crises (e.g. Garegnani and Trezzini 2010).

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References

Auerbach, P. & Skott, P. (1988) Concentration, competition and distribution, *International Review of Applied Economics*, 2, pp. 42 -61.

Bhaduri**,** A. & Marglin**,** S. (1990) Unemployment and the real wage: the economic basis for contesting political ideologies. *Cambridge Journal of Economics* 14, pp. 375-393.

Bortis, H. (1997) *Institutions, Behaviour and Economic Theory - A Contribution to Classical-Keynesian Political Economy* (Cambridge: Cambridge University Press).

Cardoso, M. & Crespo, E. (2012) Some critical appraisals on the profit-led models of growth, First Young Researchers' Workshop of Theoretical and Applied Studies in Classical Political Economy, Centro Sraffa, Rome, September.

Camara-Neto, A.F. & Vernengo, M. (2012), Keynes after Sraffa and Kaldor: Effective Demand, Accumulation and Productivity Growth, in: Cate T. (Ed.), *Keynes's General Theory: Seventy-Five Years Later* (Cheltenham: Edward Elgar).

Cavalieri, T., Garegnani P., Lucii M. (2004) Anatomia di una sconfitta, *la rivista del manifesto*, n. 48.

Cesaratto, S. (1995) Long-Period Method and Technical Change: is There any Inconsistency?, *Review of Political Economy*, 7, pp. 249-278.

Cesaratto, S. (1996) Alternative perspectives on division of labour, structural change and economic growth, in: Chris De Bresson (Ed.), *Economic interdependence and innovative activity: an input-output analysis*, (Cheltenham: Edward Elgar revised version in *Studi Economici*. n.67, 1999].

Cesaratto, S. (1999) Savings and economic growth in neoclassical theory: A critical survey, *Cambridge Journal of Economics*, 23, pp. 771-793.

Cesaratto, S. (2006a), The Saving-Investment Nexus in the Debate on Pension Reforms, in: N.Salvadori (Ed.), *Economic Growth and Distribution. On the Nature and Causes of the Wealth of Nations* (Cheltenham: Edward Elgar).

Cesaratto, S. (2006b). A Reply to Michl. *Cambridge Journal of Economics*, 30, pp. 985-987.

Cesaratto, S. (2010), Endogenous growth theory twenty years on: a critical assessment, *Bulletin f Political Economy*, 4, pp. 1-30.

Cesaratto, S. & Stirati, A. (2011) Germany in the European and Global Crises, *International Journal of Political Economy*, 39, pp.56–87.

Cesaratto, S. (2012), Controversial and novel features of the Eurozone crisis as a balance of payment crisis, *Quaderni del Dipartimento di economia politica e statistica*, available at http://www.econ-pol.unisi.it/dipartimento/it/node/1649 (forthcoming Routledge 2013)

Cesaratto, S. & Serrano, F.L. (2002), As Leis de rendimento nas teorias neoclasica de crescimiento: Una critica Sraffiana, *Revista Ensaios FEE*, vol.23. (English version available at http://www.networkideas.org/featart/aug2002/fa03_Serrano_Cesaratto.htm).

Cesaratto, S., Stirati, A. & Serrano, F. (2003) Technical change, effective demand and employment. *Review of Political Economy*, 15, pp. 33-52.

Ciampalini, A. & Vianello, F. (2000). Concorrenza, accumulazione del capitale e saggio del profitto. Critica del moderno sottoconsumismo, in: M. Pivetti (eEd.) *Piero Sraffa* (Roma: Carocci).

Ciccone, R. (1986). Accumulation and Capacity Utilization: Some Critical Considerations on Joan Robinson's Theory of Distribution. *Political Economy*, 2, pp. 17-36.

Ciccone, R. (1987) Accumulation, Capacity Utilization and Distribution: a Reply, *Political Economy*, 3, pp. 97-111.

Ciccone, R. (2003) *Debito pubblico, domanda aggregata e accumulazione* (Roma: Aracne).

Ciccone, R. (2011) Capacity utilization, mobility of capital and the Classical process of gravitation**,** in: Ciccone et al. (2011), vol. I.

Ciccone, R., Gehrke, C. & Mongiovi, G. (Eds) (2011) *Sraffa and Modern Economics* (New York: Routledge).

Committeri, M. (1986) Some Comments on Recent Contributions on Capital Accumulation, Income Distribution and Capacity Utilization. *Political Economy*, 2, pp.161-186.

Dejuan, Ó. (2005) Paths of Accumulation and Growth: Towards a Keynesian Long-Period Theory of Output, *Review of Political Economy*, 17, pp. 231-252.

Dejuan, Ó. (2010) Demand constrained accumulation, International Conference Sraffa's *Production of Commodities by Means of Commodities* 1960-2010, Roma Tre University (forthcoming…)

Dow, A. & Dow, S.C. (2011) Animal Spirits Revisited, *Capitalism and Society*, 6 (2) (Available at http://www.bepress.com/cas/vol6/iss2/art1/)

Eatwell, J. (1983) The Long-period Theory of Employment, *Cambridge Journal of Economics*, 7, pp. 269-285.

Eatwell, J. (2012) The Theory of Value and the Foundations of Economic Policy, In Memoriam Pierangelo Garegnani Rome, 24th February 2012

Eatwell, J. & Milgate, M. (Eds) (1983) *Keynes's Economics and the Theory of Value and Distribution* (London: Duckworth).

Eatwell, J. & Milgate, M. (2011) *The Fall and Rise of Keynesian Economics* (Oxford: Oxford University Press).

Freitas, F. (2007) Notes on the Dynamic Stability of the Flexible Supermultiplier Demand Led Growth Model, mimeo, IE-UFRJ.

Garegnani, P. (1962 [2013]) *Il problema della domanda effettiva nello sviluppo economico italiano*, SVIMEZ, Rome; English translation *Review of Political Economy*, x, pp. xxx-xxx..

Garegnani, P. (1983a) Notes on Consumption, Investment and Effective Demand, in: Eatwell and Milgate (1983).

Garegnani, P. (1983b), On a Change in the Notion of Equilibrium in Recent Work on Value and Distribution, in: Eatwell and Milgate (1983)

Garegnani, P. (1984) Value and Distribution in the Classical Economists and Marx, *Oxford Economic Papers*, 56, pp. 291-325.

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

Garegnani, P. & Trezzini, A. (2010) Cycles and Growth: A Source of Demand-Driven Endogenous Growth, *Review of Political Economy*, 22, pp. 119-125.

Hein, E., Lavoie, M. & van Treeck, T. (2008) Some Instability Puzzles in Kaleckian Models of Growth and Distribution: A Critical Survey, No 19-2008, IMK Working Paper.

Hein, E., Lavoie, M. & van Treeck, T. (2011a) Harrodian Instability and the 'Normal Rate' of Capacity Utilization in Kaleckian Models of Distribution and Growth - A Survey, *Metroeconomica*, 63, pp. 139-169 (available online: DOI: 10.1111/j.1467-999X.2010.04106.x).

Hein, E., Lavoie, M. & van Treeck, T. (2011b) Some Instability Puzzles in Kaleckian Models of Growth and Distribution: A Critical Survey, *Cambridge Journal of Economics*, 35, pp. 587-612.

Kalecki, M. (1934) On Foreign Trade and 'Domestic Exports', in Kalecki (1971)

Kalecki, M. (1967), The Problem of Effective Demand with Tugan-Baranowski and Rosa Luxemburg, in: Kalecki (1971)

Kalecki, M. (1968) The Marxian Equations of Reproduction and Modern Economics, in: J. Osiatynski (Ed), *Collected Works of Michal Kalecki* (Oxford: Clarendon Press), 1993 (II).

Kalecki, M. (1970) Theories of Growth in Different Social Systems, in: J. Osiatynski (Ed), *Collected Works of Michal Kalecki* (Oxford: Clarendon Press), 1993 (IV).

Kalecki, M. (1971) *Selected Essays on the Dynamics of the Capitalist Economy 1933 – 1970* (Cambridge: Cambridge University Press).

Kregel, J.A. (1980) Economic Dynamics and the Theory of Steady Growth: An Historical Essay on Harrod's Knife Edge, *History of Political Economy*, 12, pp. 97-122.

Lavoie, M. (1995) The Kaleckian Model of Growth and Distribution and its Neo-Ricardian and Neo-Marxian Critiques. *Cambridge Journal of Economics*, XIX, 16, pp. 789-818.

Lavoie, M. (2003) Kaleckian Effective Demand and Sraffian Prices: towards a Reconciliation, *Review of Political Economy*, 15, 53-74.

Lavoie, M. (2006) *Introduction to Post-Keynesian Economics* (Basingstoke: Palgrave Macmillan.

Marglin, S.A. & Bhaduri, A. (1990a) Profit Squeeze and Keynesian Theory, in: Marglin & Schor (1990a).

Marx. K. (1867) *Capital - A Critique of Political Economy*, vol. I (London: Lawrence & Wishart, 1974).

Palumbo, A. (2011), On the Theory of the Balance-of-Payments-Constrained Growth, in Ciccone et al. (2011), vol. II.

Palumbo, A. & Trezzini, A. (2003) Growth without normal capacity utilization, *European Journal of the History of Economic Thought*, 10, pp. 109-135.

Petri, F. (1994) The Golden Age, investment, efficiency wages: a review article, *Economic Notes*, 23, pp. 142-59.

Robertson, D.H. (1915) *A Study of Industrial Fluctuation.* (London: P. S. King & Son), Series of Reprints of Scarce Works on Political Economy No. 8, London School of Economics 1948.

Skott, P. (2012) Theoretical and Empirical Shortcomings of the Kaleckian Investment Function, *Metroeconomica*, 2012, 63, pp. 109-138.

Serrano, F. (1995a) *The Sraffian Supermultiplier*, PhD dissertation, Faculty of Economics and Politics, University of Cambridge.

Serrano, F. (1995b) Long period effective demand and the Sraffian supermultiplier, *Contributions to Political Economy*, 14, pp. 67 -90.

Serrano, F. (2006) Power Relations and American Macroeconomic Policy, from. Bretton Woods to the Floating Dollar Standard, available at http://www.networkideas.org/feathm/sep2006/pdf/power_relations.pdf.

Serrano, F. (2008) Kalecki y la economia americana en los anos 2000, *Circus*, 1, pp. 7-24.

Serrano, F. (2001) Accumulation and 'Unproductive consumption' in the Development Literature: A Classical Supermultiplier Analysis, available at http://www.uni-graz.at/schumpeter.centre/download/summerschool09/Literature/Serrano/superunproductive formula.pdf (published in Portuguese, in: *Polarização mundial e crescimento*, J. Fiori & C. Medeiros (Eds), Editora Vozes, Petropolis, Brazil).

Serrano, F. & Freitas F. (2007) El supermultiplicador sraffiano y el papel de la demanda efectiva en los modelos de crecimiento, *Circus*, 1, pp. 21-37 .

Shaikh, A. (2009) Economic Policy in a Growth Context: A Classical Synthesis of Keynes and Harrod, *Metroeconomica* 60, pp. 455-94.

Smith, M. (2010) Demand-Led Growth Theory: An Historical Approach, International Conference Sraffa's *Production of Commodities by Means of Commodities* 1960-2010, Roma Tre University (forthcoming …)

Trezzini, A. (1995) Capacity Utilisation in the Long-run and the Autonomous Components of Aggregate Demand. *Contributions to political economy*, 14, pp. 33-66.

Trezzini, A. (2011) Steady State and the Analysis of Long-Run Tendencies: the Case of Kaleckian Models, in: Ciccone et al. (2011), vol. II.

Vianello, F. (1975) I meccanismi di recupero del profitto: l'esperienza italiana 1963-73, in A. Graziani (Ed), *Crisi e ristrutturazione nell'economia italiana* (Torino: Einaudi).

Vianello, F. (1989) Effective Demand and the Rate of Profits. Some Thoughts on Marx, Kalecky and Sraffa, in: Sebastiani M. (Ed), *Kalecki's Relevance Today* (London: Macmillan).

Wray, R. (2011) Minsky Crisis, Levy Institute, Working Paper No. 659.