

The macroeconomic implications of consumption: state-of-art and prospects for the heterodox future research

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Abstract

The recent US economic scenario has motivated a series of heterodox papers concerned with household indebtedness and consumption. Though discussing autonomous consumption, most of the theoretical papers rely on private investment-led growth models. An alternative approach is the so-called Sraffian supermultiplier model, which treats long-run investment as induced, allowing for the possibility that other final demand components – including consumption – may lead long-run growth. We suggest that the dialogue between these approaches is not only possible but may prove to be quite fruitful.

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1 Introduction

Following Keynes' famous dictum on investment as the "*causa causans*" of output and employment *levels*, macroeconomic literature has tended to depict personal consumption as a well-behaved and rather uninteresting aggregate demand component.³ To be sure, consumption is much less volatile than investment. Does it really mean it is less important? For many Keynesian economists, the answer is – or at least was, until recently – probably positive.

At any rate, the American experience has at least demonstrated that consumption *is* important, and not only because it usually represents more than 60% of GDP. After all, in the U.S., the very ratio between consumption and GDP has been increasing since the 1980s, in spite of the stagnant real labor income and the growing income inequality. This process, which culminated in the 2007-2008 financial crisis, has motivated a significant number of heterodox papers. To explain the escalating indebtedness of American households, several heterodox authors have resorted to Duesenberry's (or Veblen's) ideas.

In its first part, this paper concentrates on the recent theoretical post Keynesian literature on consumption and consumer indebtedness, with the intent to assess its contributions and limitations. Though most of the papers have been published after 2000, pride of place is given to Paley's (1994) seminal contribution.

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³ It has tended as well to reduce "investment" to *business investment*, abstracting from its two major components, public investment and residential investment, which derives from households' decisions and, at least in the United States, is even more volatile than business investment.

This literature is undeniably “Keynesian” in at least two senses. On the one hand, it features demand-led economies. On the other hand, though dealing with autonomous consumption, it assumes that the demand item that does “lead” growth is, in the end, “investment”, the only exception being, to our best knowledge, Godley and Lavoie (2007, ch.11).

Keynesianism can certainly be associated with the proposition that the product is normally constrained by demand. However, in our opinion, this proposition does not imply that investment should *always* be treated as an autonomous variable whose trajectory is irreversibly altered by (for instance) changes in animal spirits. In a business cycle model, or when analyzing a particular historical juncture, to look for “that factor which is more prone to sudden and wide fluctuation” (Keynes, 1937: 121) is indeed clever advice. When it comes to growth models or to the analysis of somewhat long historical periods, we contend, Keynesian economics can explore different assumptions.

As Keynes himself noticed, the economic system is not as unstable as a naïve reader of the *General Theory*’s first seventeen chapters would expect. Arguably, capacity utilization rates normally fluctuate inside a rather narrow corridor, which to some economists suggests the existence of some adjustment between productive capacity and demand. This, of course, should be no surprise, given that the accelerator continues to be the most robust determinant of investment, annoying both heterodox and orthodox economists.

However complex they may be, growth models converge (if stable) towards a steady state which is dominated by the behavior of its *ultimate* autonomous expenditure variable. In the Keynesian tradition, more often than not investment “rules the roost”. In this case, even if the model includes (e.g.) autonomous consumption or government expenditure (such as Kalecki, 1954), it will assume that in the long run they grow at the same pace of capital accumulation, which will normally depend on a more or less complicated function in which animal spirits (or innovations) may be the ultimate exogenous factor (and variables such as utilization rate, interest rate and Tobin’s q are endogenously determined).

Now, it is pretty obvious that, if one is to obtain a steady state, it is mandatory to assume that the role of “ruling the roost” cannot be shared by two or more variables. There is no steady state if, for instance, investment and government expenditure grows at different rates, for ratios – such as government (private investment) to GDP or public (private) debt to capital (in the case of a stock-flow consistent model) – will not stabilize.

What is not obvious is why Keynesian economists should not tinker with different assumptions. After all, it seems quite clear that, in different historical situations, the ultimate driver of growth may not be private investment, but residential investment, or personal consumption, or government expenditure, or net exports (as in the Thirlwallian tradition). Models devised to examine such possibilities may then gain in clarity by assuming that private investment is purely induced by demand. Of course, wise economists will neither interpret the steady states their models generate as predictions of what will actually happen in the long run of a real economy, nor

will they confuse the simplifying assumption that investment is induced with, for instance, a statement about the inexistence (outside of the model...) of path-dependence in investment decisions.

In this spirit, in the second part of this paper, we turn to the so-called “Sraffian” supermultiplier model (Serrano and Freitas, 2014), which recently was, so to speak, reintroduced to the post Keynesian audience by Lavoie (2013). In the model, as the accelerator is the sole determinant of private investment, it is up to other variables – such as personal consumption – to explain demand growth. The treatment of investment also implies that, in its “full adjustment” steady state, the rate of capacity is the normal one – which is a traditional bone of contention for heterodox economists. However, it may be interesting to warn that the model presents a “medium-run” steady state in which the utilization rate is endogenously determined.

A brief conclusion – in defense of an ecumenical stance in economic modeling – follows.

2 Post-Keynesian literature: household debt and its effects on growth

The Post-Keynesian works on household debt and its effects on growth show some differences related to the models adopted, the theoretical approach emphasized and the period of analysis considered. However, three convergence points can be easily identified. The first one refers to the main conclusion achieved by most of these papers. Almost as a rule, household indebtedness process and the build-up of credit-based consumption have positive effects on aggregate demand in the short-run, but over the long run they can deliver ambiguous results, depending on income redistribution process generated by debt (see, for example, Palley (1994), Dutt (2006), Cynamon and Fazzari (2008), Barba and Pivetti (2009), Kim et al. (2013)).

Secondly, the relative consumption and relative income concerns were brought back to the center of attention. Duenseberry and/or Veblen’s ideas were recovered to deal with escalating household consumption, despite stagnant labor income. Conspicuous consumption and emulation effect were included in many models to explain debt-led consumption dynamics (see on this Barba and Pivetti (2009), Kim (2012), Van Treeck (2012), Ryoo and Kim (2013), Kim et al. (2013), Kapeller and Schutz (2014a; 2014b)).

The last convergence point is the maintenance in most models of the Kaleckian dichotomy between two classes of agents according to the type of income earned. One class of agent is composed by capitalists/ rentists or creditors or high income households and the other class is composed by workers or debtors or low-middle income households (see Palley (1994; 2009), Dutt (2006), Hein (2011), Kim (2012), Kapeller and Schutz (2014a; 2014b)).

The basic mechanism linking prepositions one and two is the following. Workers increase borrowing to “keep up with” richer workers or with the capitalists, trying to compensate for increasing income inequalities through consumption – since, by assumption in these models, workers’ propensity to consume is higher than capitalists’ propensity to consume. This process leads to a rise in consumption and, consequently, boosts aggregate demand.

As borrowing increases, we can see a parallel increase in the stock of debt. As the stock of debt grows, the debt service payment increases too, even if the interest rates are constant. By itself this would lead to a transfer of income from workers, who consume the most, to capitalists who save the most, and could have depressing effects on aggregate demand. If interest rates grow faster and workers' income does not keep its pace (see Barba and Pivetti, 2009), household financial situation could present a progressive worsening and these households would fit each of Minsky's terminology through time: going from hedge to speculative to Ponzi units.

Less consensus is seen when it comes to how long a debt-led consumption regime could last. More specifically, which conditions should be met for this process to go beyond the short-run. Most of the papers present a kind of *turning point* where the positive effect of workers' borrowing over consumption and aggregate demand is compensated by interest payment transfers to capitalists. This turning point depends on the assumptions of the model in question and on the characteristics of the hypothetical economy.

Despite our focus on the Post Keynesian literature from 2000s onwards, Palley (1994) is a seminal work on the subject, which seems to be considered a starting point for this literature and though it is worth mentioning. Palley (1994) aims at building a business cycle model to include household debt into the analysis. His model finds theoretical inspiration in Kaldor's and Minsky's approaches, since household debt is added into a Minskyan framework. Basically, the model proposes to investigate if household debt accumulation increases the likelihood of cyclical instability when the notion of periods of financial tranquility is incorporated into the model. The answer given is yes.

Consumption in Palley (1994) is divided between debtor's and creditor's consumption. Debtor's consumption depends on his income net of interest payments and on borrowing – all borrowing is spent – while creditor's consumption depends positively on his income plus debt service payments receipts and, negatively, on lending. Lending here reduces creditor's consumption but this restrictive assumption could be set aside if we considered that creditors' consumption is not restrained by cash flows (see Dutt, 2006).

One of the criticism to Palley (1994) is that his model is built in terms of level variables, so it is incapable of dealing with the evolution of stock-flow and stock-stock ratios. Besides, neither the effects of changes in the propensity to invest on capital stock nor changes in income distribution are considered (Hein, 2011). One could add that since his model analyzes only short-run fluctuations, it seems to have left an open field to longer period analysis of consumer borrowing and debt over growth dynamics.

After Palley's (1994) initiative, the two core papers dealing with household consumption and debt before the financial crisis are those highlighted by Hein (2011): the work of Bhaduri et al. (2006) and the work of Dutt (2005; 2006). Bhaduri et al. (2006) follow a Kaleckian-Keynesian approach to analyze how the wealth effect in the stock market could expand aggregate demand through a debt-financed consumption. Dutt (2005; 2006) includes consumer debt into a Steindlian growth model to test the hypothesis that increasing debt could reverse

the stagnation perspective of a mature capitalist economy. After the financial crisis of 2007-08, most of the papers have focused on income inequality effects on household debt and growth, which suggests a changing emphasis due to the events revealed by the crisis.

2.1 *How consumption is understood: borrowing, debt and wealth*

According to Hein (2011), we could identify three types of modelling approaches focusing on household debt. The first is the multiplier-accelerator business cycle model proposed by Palley (1994). The second is the kind of model built by Bhaduri et al. (2006), which focuses on wealth effects on consumption (see also Onaran et al., 2011). The last one is the approach of growth and income distribution models that emphasizes the effects of easier access to credit associated with deregulation of the financial sector, which can be found in Dutt (2005; 2006) and where we could fit Hein (2011) himself (see also Hein and Dodig, 2014). Our categorization is close to Hein's (2011); however, we include those works which consider both credit and wealth directly in the consumption function as an additional group. This approach can be found mainly in some Stock-Flow Consistent (SFC) models, as in Godley and Lavoie (2007, ch.11) and Zezza (2008).

In Dutt's (2006) model, there are two types of consumer: workers and capitalists. While workers are allowed to finance a part of their consumption with borrowing, capitalists receive interest income and save a constant fraction of their income. An important assumption is that profit earners do not need to reduce consumption when they lend. Besides, the desired lending is determined by workers' net income. This last assumption is criticized by Hein (2011), as it implies cumulative increases of worker's debt-to-income or debt-to-capital ratios are ruled out and so is potential instability.

Having in mind the U.S. case to build his model, Dutt (2006) considers the banking and financial systems' deregulation process and the financial innovations as supply side factors that could influence how much consumers borrow. So, if credit is largely available and this pushes households towards borrowing, the stagnation prognosis of the Steindlian-Kaleckian model could be avoided in the short-run. Yet increasing consumer borrowing in the long-run can have positive or negative effects because increasing consumer debt redistributes income towards the lender who saves more, thus depressing aggregate demand. Keeping interest rates constant in the model shows increasing interest rates are not a necessary condition for this to happen, but a rise in interest rates could worsen the problem. Some matters left out of the model are recognized by Dutt (2006), e.g. workers do not hold assets, capitalists do not take on loans and changes in asset prices and default are not included. It is worth mentioning that Dutt (2006) considers the rate of capacity utilization is endogenously determined in the long-run and consistent with the notion of long-run equilibrium, where the actual degree of utilization converges to its desired level.

A pretty similar analysis of consumer debt effects is made by Palley (2009). In a Cambridge-Kaleckian approach, Palley builds a model to focus on growth effects, both in the short-run and in the long-run, of consumer indebtedness in two frameworks, in the first the hypothetical economy presents exogenous money and in the second scenario the economy has endogenous money creation. Growth is faster in the second case because banks create money, so lending generates a kind of “monetary wealth effect”. Still, interest payment transfers from debtors to creditors have a negative effect on growth in the consumer debt model. Palley’s (2009) analysis also takes into consideration how interest transfers from debtors to creditors affect the steady state growth path.

Hein (2011) adopts a Kaleckian theoretical approach and takes on an analysis close to Dutt’s (2006), including the long-run configuration and results. However, he lifts the restrictive hypothesis that the desired lending of capitalists is determined by workers’ net income. Based on the financialization context, Hein (2011) rather assumes lenders are not worried about borrowers’ income when providing credit.

In the short run, falling “animal spirits” and a redistribution of income towards the rentiers (considering the worker’s debt-capital ratio is given) have depressing effects over capacity utilization and accumulation. Still these effects can be compensated by workers’ borrowing for consumption. In the long run, as workers’ debt-capital ratio is endogenously determined, if the rate of interest is higher than profit rate, the positive effects of increased borrowing of workers, seen in the short run, are compensated by the negative feedbacks of the amounting debt and higher interest payments (Hein, 2011).

We could assert Dutt (2006) and Hein (2011) analyses are quite alike since they adopt similar models and reach converging conclusions. Both seem to believe borrowing by workers can have positive effects on aggregate demand, through consumption, in the short run. In the medium and long-run, the burden of debt may (or may not) turn the economic system unstable triggering a depressing process on the economy. The inflexion point in the long-run depends on the investment situation. If autonomous investment is relatively weak, it is more likely that consumer indebtedness shows negative effects in the long-run (Dutt, 2006). If “animal spirits” of firms do not fall too much (see on this also Kim, 2012), rentier’s propensity to save is not too high and interest rates remain low, there could be a worker’s debt-to-capital ratio consistent with long-run stable equilibrium (Hein, 2011). Due to the satisfaction of the following condition:

$$\alpha > \theta s_R i \quad (1)$$

Where α represents the animal spirits of the firms, θ is the proportion of rentiers’ savings going to workers as loans, s_R is the rentier’s propensity to save and i is the interest rates⁴ (Hein, 2011).

⁴ This condition is necessary for positive long-run equilibrium rate of capacity utilization with a goods’ market equilibrium and a stable worker’s debt-to-capital ratio (Hein, 2011).

Consumption functions in these papers, aiming at including consumer's debt in growth models, could be expressed as:

$$C_w = Y_w - iD + B \quad (2)$$

$$C_k = c_k(Y_k + iD) \quad (3)$$

Where the first equation (2) is the worker's consumption function and the second equation (3) is the capitalist's consumption function. Worker's consumption depends positively on wage income (Y_w), on borrowing (B) and negatively on interest payment over debt (iD). Capitalist's consumption depends on their propensity to consume (c_k) out of their income (Y_k), mainly composed by distributed profits, and out of interest payment receipts (iD).

The second kind of approach deals with both credit and net worth influence over consumption. Godley and Lavoie (2007, ch.11) is a good example of growth model with these concerns. Their real consumption function takes expected disposable income, consumer credit and wealth into consideration. The authors' real consumption function can be represented as follows:

$$c = \alpha_1(yd + nl) + \alpha_2 W \quad (4)$$

Where yd represents real expected disposable income, nl represents real banks' net lending to households, and W represents household wealth in real terms. α_1 is the propensity to consume out of disposable income and banks' net lending to households, while α_2 is the propensity to consume out of household wealth.

Godley and Lavoie (2007, ch.11) test the effects of three changes in household behavior on growth in the short-run and in the long-run (steady state scenario⁵). First, an increase in the propensity to consume out of disposable income and net loans initially raises consumption and real GDP, but in the longer-run real consumption and output come back to their initial levels. The permanent effect of a higher propensity to consume in the long-run is a smaller level of household wealth. Second, a greater willingness to borrow also increases consumption and output in the short-run, however, in the long-run, consumption and output will be lower than the baseline levels. At last, a reduction in liquidity preference (or an increase in the desire to hold equities) will result in higher consumption and output in the short run because consumption is dependent on wealth – and it increases in a great extent. Again, in the long-run the effect on output disappear due to the drop of gross real investment, while real consumption and wealth are still above the baseline scenario. Differently from Dutt (2006) and Hein (2011), in Godley and Lavoie (2007, ch.11), the growth rates of the economy are led by pure government expenditures and the rate of growth of capital is an endogenous variable, which adjusts to the trend growth rate of these government expenditures.

⁵ The growing economy presented by the model does not reach automatically a steady state in the long-run, but requires active fiscal and monetary policies to achieve full employment without inflation (Godley and Lavoie, 2007, ch.11).

An interesting approach aimed at investigating empirically the US case is proposed by Zezza (2008). His purpose is to build a SFC model, based on Godley-Lavoie's approach, to assess consumption and saving interactions of two classes of households in two markets - financial and housing markets – in the short and in the long-run (steady state). In Zezza (2008), the consumption function is depicted in detail to account for asset price bubbles in the economy. Capitalist households are the richest 5%, they earn profits, interests, rents and wage income; worker households can borrow from banks to finance housing investment and their disposable income is given by wages and interests on bank deposits.

Zezza (2008) proposes two exercises: the first one is to analyze the effects of an increase in expected house prices and the second one is to analyze the emulation effects on consumption. A rise in expected house prices can generate a bubble in the housing market if the supply of new houses does not follow the growth of speculative demand. In the second case, if workers' emulation of capitalist's consumption is expected to happen, the model shows an increase in mortgages and a reduction in the saving rate.

In the third approach mentioned in the beginning of the section, we can fit Bhaduri et al. (2006) and Onaran et al. (2011). Concerned mainly with short and medium-run (analysis in terms of growth rates) effects, Bhaduri et al. (2006) aim at showing how the financial wealth created in stock markets can boost economic growth through debt-financed consumption. Following the Keynesian approach, consumption is not presented according to class distinctions, rather it is presented as a homogenous function dependent on disposable income (net of interest payments) and on borrowing.

One could say there is no difference between Bhaduri et al. (2006) interpretation of consumption and those presented in the first group of this section. However, the difference here is that Bhaduri et al. (2006) do not simply include borrowing into the consumption function, the mechanism that enables consumer credit to expand is the growth of virtual wealth. i.e. in the stock market. “ (...) higher virtual wealth leads to more borrowing by private sector to finance a higher level of expenditure, contributing to aggregate demand. Thus, while the demand-driven real sector expands, it also raises the level of indebtedness of the private sector to the banks and related financial institutions” (Bhaduri, 2006: 419).

Onaran et al. (2011) present an interesting approach of the financialization and functional income distribution effects on aggregate demand in the short and in the long-run. According to them, household consumption is the mechanism through which financialization affects macroeconomic activity. The authors build a Kaleckian-Steindlian model in which consumption depends on profit and labor income (the propensity to consume out of wages being larger than the propensity to consume out of profits). The consumption function also includes housing and financial wealth as consumption determinants (with different propensities to consume out of each kind of wealth) and is presented as:

$$C = c_0 + c_w Y + (c_{\pi r} - c_w) \pi_r Y + (c_{\pi nr} - c_w) \pi_{nr} Y + c_{FW} FW + c_{HW} HW \quad (5)$$

Where c_0 is the autonomous consumption component, c_w , $c_{\pi r}$, $c_{\pi nr}$, c_{FW} and c_{HW} are respectively the propensities to consume out of wages, rentier income, non rentier income, financial wealth and housing wealth. $\pi_r Y$ is the rentier's portion of income and $\pi_{nr} Y$ is the non rentier's portion of income. FW represents the financial wealth and HW the housing wealth.

The core conclusion reached by Onaran et al. (2011) is that a redistribution of income towards the rentier group (profit earners) has two main effects that can offset each other: first, it can depress consumption as it diminishes the income of wage earners. Second, it can increase consumption as wealth effects, in financial and housing markets, operate.

Noteworthy is the fact that debt and wealth accumulation are taken as exogenously given, and debt and financial wealth are put together in the same explanatory variable for modelling reasons. In Godley and Lavoie (2007, ch.11), we had the same propensity to consume out of disposable income and loans⁶. In fact, the flow of new personal loans is exogenously determined by disposable income levels. Similarly, in Onaran et al. (2011) the propensity to consume out of financial wealth and out of borrowing is the same, as they are represented by the same variable. Since a large part of financial and housing wealth is merely notional (as in the US case), it should be expected that a mechanism, as proposed by Bhaduri et al. (2006), would operate to increase credit-based consumption. Onaran et al. (2011) try to capture this element – credit backed by collateral – by considering gross housing wealth in the consumption function instead of net housing wealth.

In short, the three approaches presented in this section try to capture the elements that determine consumption besides disposable income when handling with economic growth issues. The first approach focus on consumer debt, the second one is concerned about both credit and wealth effects on consumption and the last one deals primarily with wealth effects on consumption (even if through credit mechanisms). In the next section, we turn our attention to those papers, which try to address the matter from a slightly different point of view, and include relative income concerns (through consumption emulation) to account for income inequality effects.

2.2 *The role of income inequalities and the emulation effect*

One could ask what motivates American households to rise consumption, through borrowing and indebtedness, while their income (most labor income) stagnates or grows slowly. Post-Keynesian literature finds the answer to this economic fact in Veblen's and Duesenberry's formulations. According to Veblen (1899) what guides people's intent to consume is an ideal consumption pattern that is out of reach and what leads people to pursue this pattern is the emulation motive: "the stimulus of an invidious comparison which prompts us to outdo those

⁶ The assumption of the same propensity to consume out of income and credit seems to be a little unrealistic. The first type of approach mentioned in this section, focused on household borrowing, also assumes the same propensity to consume out income and credit, as workers do not save (Dutt, 2006; Hein, 2011).

with whom we are in the habit of classing ourselves” (Veblen, 1899:64). Following Duesenberry (1949), household consumption depends on relative income concerns. Households are worried about what other households consume (they do not want to fall behind) and try to emulate their consumption pattern. Thus, households try to “keep up with the Joneses” and incur in debt because “(...) it is harder for a Family to reduce its expenditure from a high level than for a Family to refrain from making high expenditures in the first place” (Duesenberry, 1949: 84-85).

Regarding the US experience, Van Treeck (2012) points out that the rising income inequality called for a “renaissance of the relative income hypothesis of consumption” and highlights the attempt of lower and middle-income households, helped by the increased availability of credit, to keep up with consumption levels of higher income households. Cynamon and Fazzari (2008) already stressed that household consumption and debt depend on preferences, which are interrelated and driven partially by norms produced by reference groups. The emulation motive can influence both household debt accumulation and household hour’s allocation between work and leisure. Since consumption goals chased by households are incompatible with their real income, emulation motive is associated with both qualitative and quantitative changes in household debt accumulation (Kim et al., 2013). Barba and Pivetti (2009) stress that the desire to emulate the consumption pattern of the rich could make the poorer work longer hours.

The authors concerned with household debt and increasing income inequality have focused on building models, where workers emulate capitalists or rentiers’ consumption patterns, to evaluate the effects of an “emulation factor” or a “conspicuous consumption” component over the economy’s stability condition. Therefore, we could say these papers are dealing with a type of “inter-class” emulation effect (see, for instance, Barba and Pivetti (2009), Kim (2012), Ryoo and Kim (2013), Kim et al. (2013)). Barba and Pivetti (2009) seem to consider both inter and intra-class emulation effects when making low income group consumption dependent on current income of the upper class and on the highest income attained by the low-middle income class. This means households base their consumption aspiration not only on the unattainable standard of the richest group, but also on those who are better off but not so distant in the income ladder.

On the other hand, Kapeller and Schutz (2014a; 2014b) focus mainly in the latter intra-class emulation effect, since they believe “relative consumption concerns matter primarily within a certain socioeconomic group (e.g. among workers)” introducing “a more realistic assumption on the social mediation of preferences” (Kapeller and Schutz, 2014b: 786). However, this line of reasoning goes against the point made by Cynamon and Fazzari (2008) and Barba and Pivetti (2009): the argument of the “vertical broadening of reference groups”⁷. In a few words, the unattainable pattern/standard of life of the richer leads the rest of the households to go deeper on debt, and for this to happen it is not enough that workers from group one emulate consumption of workers from

⁷ This expression can be found previously in the work of Schor (1998).

group two, they need to emulate capitalists' consumption *too*. Besides, considering that worker's emulate capitalist's consumption or that emulation occurs only within the same income group or taking into account both assumptions could intervene in the sustainability of debt accumulation process, i.e. time length of indebtedness process and the extent of debt hold by households can differ in each case (see Kim and Setterfield, 2013).

In Barba and Pivetti (2009), the consumption function of low and middle-income households includes the current income of this group, the income of the upper class and the highest income obtained by the low-middle income group in the last period. The upper group income is accounted in the ratio Y^U/Y^L , which measures the income inequality through the income ladder. The inclusion of income inequality in the consumption function according to this frame brings Barba and Pivetti's function closer to Duesenberry's. Thus, it implies that when this ratio grows, the low and middle income groups direct a greater part of their disposable income to consumption in order to keep up with the Joneses. In addition to this, the main purpose of the authors is to draw attention to the household debt effects and sustainability in a long-period basis.

The poorer households' emulation of the richer households' consumption is taken into account in most of these papers as an additional term in the consumption function and is based on borrowing mechanisms. Kim (2012) develops a SFC model to investigate the macroeconomic impacts of the emulation effect through borrowing in the short-run and in the steady state scenario, which the author calls "medium-run". His workers' consumption function is represented as:

$$C_w = W_r L - iD_w + \beta C_r \quad (6)$$

Where $W_r L - iD_w$ is the after-interest disposable income and βC_r is the term capturing the emulation effect on workers' consumption. From this term, the larger the parameter β , the larger is the rentiers' consumption (C_r) effect on workers' consumption (C_w). Consequently, as workers' budget constraint is given by:

$$\dot{D}_w = C_w + iD_w - W_r L \quad (7)$$

The higher β , higher is the consumption financed by debt:

$$\dot{D}_w = \beta C_r \quad (8)$$

According to Kim (2012), the emulation effect could lead to an expansion of aggregate demand and, hence, to faster growth. However, low-income groups' emulation of high-income groups' consumption can result in a widening income gap between these groups. An important assumption is that consumption emulation does not necessarily affects worker's income share negatively; it depends on the strength of bargaining power between workers and capitalists. Thus, the emulation effect coupled with a weak bargaining power of workers is what leads to increasing income inequalities.

In a similar approach, Kim et al. (2013) present a term for borrowing (B) in the consumption function (9) that depends on households desired level of consumption (called "target consumption"). Thereby the amount of

borrowing (10) will depend on the difference between the desired consumption (C^T) and the consumption provided by wages (C_w) in the proportion of a parameter β , which is sensitive to borrowing norms and financial market lending norms:

$$C = C_w + C_r + B \quad (9)$$

$$B = \beta(C^T - C_w) \quad (10)$$

The desired level of consumption in turn depends on the level of consumption consolidated in the past, on the current level of consumption of the reference group, in this case the rentier households, and on the expected level of income (dependent on the incomplete set of information, animal spirits and creativity). In the case of Kim et al. (2013) model – which seems to concentrate in the short-term effects, since no long-term period effect is described in the paper – the effects of borrowing and debt on consumption and aggregate demand depend on how borrowing is understood by households. If debt service works as a “substitute” for savings, meaning that households reduce savings first when debt service increases (instead of reducing consumption), debt accumulation will not compose a depressing force on consumption until the critical point where debt servicing surpasses the current savings.

Ryoo and Kim (2013) also consider the workers’ desire to emulate the rentiers’ consumption as a determinant of credit demand. However, the strength of the emulation effect is measured as a variable $z(t)$ in the banks’ lending function. This way, the authors stipulate that changes in the emulation motive of worker households unfold into credit demand, which can be partially accommodated by banks – the ultimate “roof” to the emulation effect. Following the model implications, a rise in the debt-to-income ratio has negative impacts on workers’ income and consumption and stimulates the emulation motive of workers. However, the growing consumption emulation is limited by the parallel increase in (the level of) indebtedness. Noteworthy is the fact that the authors specify in more detail, compared to the previous papers, the long-run scenario configuration: they refer to an average rate of utilization, instead of the actual rate, and the long-run average growth rate of capital stock is approximated by the natural rate of growth.

A somewhat different approach is proposed by Kapeller and Schutz (2014b). The authors divide the worker’s class in two groups – worker of type one and worker of type two – and start from the assumption that a change in income distribution toward profits will happen at expense only of worker of type two. The worker of type one manages to keep its income share. Therefore, a rise in the profit share promotes income inequality *within* the working class. Besides, when worker of type two realizes he is falling behind the worker of type one in income terms, the emulation effect operates, since he aims at keeping pace with consumption of worker of type one. This intra-class emulation effect is included in the formulation of a Minsky-Veblen cycle model to analyze the emergence and the burst of the current US crisis. In this case, increasing income inequality reduces the

saving rate and makes the household appeal to increasing consumer credit⁸. During the ascending phase of the cycle, if banks accommodate credit the result is a self-sustaining boom. Nevertheless, increasing debt levels and interest rates decrease disposable income of households and, in turn, they reduce consumption triggering the descending phase of the cycle. Since the analysis is restricted to the Minskyan cycle, it seems to have left out the long-run effects of income inequalities and emulation.

The basic results of the models including relative income concerns through borrowing are not quite different from the three approaches presented in the previous section. However, the emulation effect contributes to explain how borrowing and consumption grow more than would be expected (if banks accommodate credit demand) based on current income and households' financial situation. The main features of the models presented here and in the previous subsection are arranged in Table 1.

Table 1. Main characteristics of Post-Keynesian literature reviewed

<i>Paper</i>	<i>Theoretical approach</i>	<i>Period of analysis</i>	<i>Growth regime</i>	<i>Consumption</i>
<i>Palley (1994)</i>	Minsky-Kaldor	Short-run	Demand-led: investment	Creditors and debtors
<i>Dutt (2006)</i>	Minsky-Steindl-Kalecki	Short-run and Long-run (rate of capacity utilization is endogenously determined)	Demand-led: investment	Workers and capitalists
<i>Bhaduri et al. (2006)</i>	Kalecki-Keynes	Short-run and medium-run (Analysis in terms of growth rates)	Demand-led: investment	Homogenous consumption
<i>Godley and Lavoie (2007, ch.11)</i>	Post-Keynesian (Keynes-Kalecki)	Short-run and long-run	Demand-led: government expenditures	Homogenous consumption
<i>Zezza (2008)</i>	Post-Keynesian (Godley and Lavoie)	Short-run and long-run (steady state)	Demand-led: investment	Workers and capitalists
<i>Barba and Pivetti (2009)</i>	Duesenberry-Veblen	Long-run	-	Consumption function close to Duesenberry's (relative income concerns)
<i>Palley (2009)</i>	Cambridge-Kalecki	Short-run and long-run (steady state)	Demand-led: investment	Creditors and debtors
<i>Hein (2011)</i>	Kalecki	Short-run and long-run (similar to Dutt's (2006))	Demand-led: investment	Workers and rentiers
<i>Onaran et al. (2011)</i>	Kalecki-Steindl	Short-run and long-run	Demand-led: investment	Homogenous consumption
<i>Kim (2012)</i>	Kalecki-Duesenberry	Short-run and medium-run (steady state)	Demand-led: investment	Workers and capitalists (emulation effect)

⁸ Kim (2012) argues the mechanism takes the opposite direction: the emulation effect through debt could lead to an increasing income gap between workers and capitalists, depending on worker's bargaining power: if worker's bargaining power is weak compared to firm's bargaining power, emulation has a negative effect on worker's real wage and on the wage share.

<i>Ryoo and Kim (2013)</i>	Duesenberry-Veblen-Kaldor-Minsky	Short-run and long-run (average long-run utilization rates converge to natural rates)	Demand-led: investment	Workers and capitalists (emulation effect)
<i>Kim et al. (2013)</i>	Duesenberry-Cynamon and Fazzari	Short-run	No growth (firms do not invest)	Workers and capitalists (emulation effect)
<i>Kapeller and Schutz (2014)</i>	Veblen-Minsky	Short-run	-	Two groups of workers (emulation effect) and capitalists

Source: elaborated by the authors.

At this point, we can summarize the essential contributions of the approaches addressed so far:

- Most of the articles attribute a larger role, than it is used to, to the autonomous component of consumption, here understood as the part of consumption that is not dependent on current disposable income, in the short-run and in the long-period, understood as medium-run or long-run;
- Household debt accumulation effects are analyzed and debt service payments dynamics (its effects on reducing disposable income and as a consumption constraint) is taken into consideration; the emulation boosting effect on consumer credit demand and on indebtedness is also covered.

Some limitations of these papers can also be underlined:

- The great deal of the papers analyzes household debt and consumption in an investment demand-led growth model. The exception is Godley and Lavoie (2007, ch.11) where government expenditures assume the leading role. Besides, even if long-run effects of household debt and consumption are taken into account, the understanding of long-run period is not always specified or emphasized.
- The authors adopt some simplifying hypotheses which if lifted could lead to different results. For instance, in some models, workers do not hold assets (Ryoo and Kim (2013), Dutt (2006)), and changes in asset prices and default are ruled out (Dutt (2006)). Another example is found in Ryoo and Kim (2013), where rentier's portfolio preferences are given and this rules out a source of instability, as endogenous changes in portfolio choices can generate instability and cycles and compose a central part of some approaches of Minsky's financial instability hypothesis. At last, Kim et al. (2013) consider the wealth effects on aggregate consumption are modest and that rentiers do not consume. However, it depends on how the wealth effect on consumption is measured and, certainly, it is important in the US case.

It is worth mentioning that our intent is simply to draw attention to some relevant issues and what we call limitation does not imply that these matters were not recognized by the authors, but instead they could have been discussed in further extension.

2.3 *Autonomous consumption as a source of demand growth*

Keynesian and Kaleckian (and Minskyan) literature has primarily focused on the effects of corporate debt during the business cycle or for long-run growth implications (Palley (1994), Hein (2011)). Still, as already highlighted, there has been a great deal of papers mainly concerned with household debt effects on the business cycle and (less) on the long-run growth process.

Even if credit-based consumption can affect demand during the business cycle, the greater deal of this literature considers the long-run effects on growth to be dependent on investment dynamics. In Dutt (2006), the rate of growth of the economy is given by the investment growth rate (rate of growth of capital). In addition, the magnitude of the autonomous component of investment is what determines the consumer borrowing effects on the aggregate demand in the long run: the larger the autonomous investment component, the more likely it will have positive effects. For Hein (2011), the expected sales (the rate of capacity utilization) and the “animal spirits” (or state of business confidence) of the firms dictate the rate of investment.

Briefly, credit and wealth-based consumption are induced by debt dynamics in these models and the investment keeps its leading role in the long-run period. In other words, most of the papers are dealing with autonomous consumption expenditures (even if not named like this) when introducing a borrowing component and adding the effects of consumer credit backed by financial and housing wealth. In addition, a few papers go further and explicitly attribute an autonomous component to consumption to account for the unexplained part of consumption (see Onaran et al. (2011), Kim et al. (2013), Kapeller and Schutz (2014b)). Yet, in any case, these autonomous components of consumption are assumed to grow in line with the capital stock growth (Serrano (1995), Lavoie (2013)).

In Serrano’s perspective:

Autonomous consumption, on the other hand, is usually admitted only in short run [in multiplier-accelerator theorists’ approaches] (sometimes some autonomous consumption is formally required to provide ‘a floor’ or turning point for the cyclical ‘downsizing’) but in the analysis of long-term growth the autonomous components are simply assumed to grow in line with either the capital stock or the level of income of the economy, usually with the argument that such expenditures must bear some proportion to the size of the economy (Serrano, 1995: 84).

The US recent experience suggests consumption can grow autonomously from current income to a high degree, at least for a while (Guttmann and Plihon (2008), Cynamon and Fazzari (2008), Barba and Pivetti (2009), Bibow (2010), Lavoie (2013)). The “funding effect” (see Brown, 2007) of some institutional arrangements provided by financial innovation, as the consumer credit backed by housing collateral, is a good example of how consumption can grow independently of current income growth; and the keeping up with the Joneses is one of the demand motivation for the deb-led consumption surge and development.

At this point, two questions pop up in mind: what if the capital stock grows in line with autonomous expenditures of aggregate demand? What if autonomous consumption (obviously associated with other autonomous

expenditures) takes on the leading role of economic growth in the long-run? The Sraffian approach seems to be interested in analyzing these issues. The “Sraffian” supermultiplier model, in which autonomous consumption (along with government expenditures and exports) may become the dynamic driver of growth, is an interesting example.

Despite the debate of the compatibility between Sraffian and Post-Keynesian ideas, Marc Lavoie (2010; 2013) brought some of Sraffians’ strands back to the Post-Keynesian’s circuit. In the next section, we present the “Sraffian” supermultiplier model and point to the compatibility between this kind of model where investment is treated as the “tamed” variable (determined by the accelerator) and the Post-Keynesian approaches presented in section 2.

3 Autonomous expenditures and the long-run growth: The “Sraffian” supermultiplier model

As Kalecki (1967: 457) wrote, “capitalists do many things as a class, but they certainly do not invest as a class”. They cannot collectively adjust the growth of productive capacity to the growth of demand; under or overinvestment are unavoidable. Besides, they can only have guesses (either individual or based on conventions) about the growth of demand. As we have learnt from Keynes, uncertainty deeply affects expectations – especially long term ones – making them liable to “sudden and wide” fluctuations. No wonder Kalecki (1968: 165) rightfully wrote that the “central *pièce de résistance* of economics” is the “determination of investment decisions by (...) the level and rate of change of economic activity”, as interpreted, we might add, by less than omniscient or even less than rational agents.

The acknowledgement of all these facts does not change another fundamental fact about *private* investment. The purchase of expensive and quite illiquid capital goods only makes sense if there is demand for the goods to be produced by the increased capacity. Where does this demand come from? One possible answer is that it ultimately comes from the very investment decisions. It is easy to show that in Kalecki (1954), for instance, an autonomous increase in the investment rate of growth accelerates the trend rate of growth and increases the average utilization rate; the same applies to many neo-Kaleckian models. Though one might be tempted to say that, in these models, investment is left “hanging by its own bootstraps”, we know this is not quite true, for the acceleration of investment may be explained by, for instance, an increase in the rate of innovation.

Our point here is that these results depend crucially on the assumption that every other autonomous item in final demand will end up by growing in line with productive capacity, so that in the steady state ratios such as government expenditure/fixed capital will be stable. However, nothing should prevent us from examining the implications of a different answer to the question we have just posed. That is to say, demand may ultimately come from *other* final demand item(s). This procedure is perfectly able to deliver stable models which converge towards a steady state, provided we adopt a different (but equally debatable) simplifying assumption, that investment is strictly induced.

This corresponds, of course, to the supermultiplier research program (Serrano, 1995), which explores the idea that there is a fundamental distinction between capacity-creating private investment and other autonomous expenditure items. Only private investment creates capacity whose “utility” is to be measured according to profitability benchmarks. Other items are not restrained by *this* constraint. Such is the case of government investment, which does create productive capacity. But it is also the case of residential investment, which does not. In addition, government consumption expenditure and exports (which may well create capacity elsewhere) do qualify as autonomous expenditure. Even personal consumption may (partially) behave likewise, as in the models examined in the previous section.

In the rather simple supermultiplier models developed so far, one (and just one) of these autonomous expenditure items is singled out as *the* growth engine. The growth rate of such variable, whatever it is, becomes the warranted rate of growth. Investment must follow, if firms are to keep a constant rate of utilization; if investment growth rates are higher (lower) than the growth rate of the autonomous variable, utilization rates will fall (rise).

In the conclusion, we come back to the reasons why these models can, in principle, focus only on a single growth engine, and explain how these models – promising, but in fact *too* simple – can be improved. Before that, we present some features of Serrano’s pioneering contribution.

Serrano (1995) aims to show under which conditions and in what sense the economic system as a whole can be demand-led, even as we consider the interdependence and the feedback effects that arise from the dual nature of investment and of circular flow of income. Thus, he proposes a model, called the “Sraffian”⁹ supermultiplier model, in which economic growth is demand-led even in the long-run. In this model, long-term growth depends on the rate of growth of an autonomous component of demand exogenously given.

This autonomous expenditure component can be composed by any expenditure, which does not directly generate private productive capacity. Besides, the autonomous character of these expenditures refers to the fact they are not financed by contractual income generated by production decisions (wages and salaries). Following this criteria, the expenditures which could be understood as autonomous expenditures are: capitalists’ consumption; rich workers’ consumption (because they must hold assets, have accumulated wealth and credit access); households’ residential investment; discretionary expenditures of firms (which do not include the purchase of production goods), such as consultancy services, Research and Development, publicity, etc.; government expenditures (consumption and investment) and exports (Serrano, 1995).

It must be emphasized that choosing between investment and this aggregate demand component “Z” (non-private capacity generating, since it can include government investment) as the persistently autonomous variable

⁹ The term Sraffian is chosen to account for exogenous income distribution and the prevalence of normal prices and planned degree of capacity utilization (Serrano, 1995).

in the long-run is an important cleavage which does not deny the fact investment is volatile neither blocks the analysis of autonomous changes in this variable through this model.

For the economic system to be demand-led in Serrano (1995)'s framework, two main conditions need to be fulfilled: first, induced investment plus induced consumption must sum less than the unity. Namely, the general propensity to spend must sum less than the unity; second, a positive level of autonomous aggregate demand expenditure must be verified in the long-run. Formally, these two conditions can be represented respectively as:

$$c + h < 1 \quad (11)$$

$$Z_t > 0 \quad (12)$$

Where c denotes the marginal propensity to consume and h denotes the marginal propensity to invest. Z represents the level of autonomous expenditures in the model. The mere existence of a positive autonomous expenditure means the average propensity to save will be an endogenous variable, even if the marginal propensity to save and the profit share are constant. We will turn to this assumption in greater detail below, based in Serrano's latter work.

Bearing Serrano and Freitas (2014)¹⁰ version of the supermultiplier model in mind, we can turn to the main assumptions of the model. As already described, growth in the long run is led by the autonomous components of aggregate demand which do not generate private productive capacity. In this version, the authors adopt the simplifying assumption that autonomous expenditures are represented by autonomous consumption. Private investment is considered as an induced expenditure and income distribution is exogenously given.

The demand determined output level and the supermultiplier in a long run position are represented as:

$$Y_t = \left(\frac{1}{s-h} \right) Z_t \quad (13)$$

Where the expression between parenthesis is the supermultiplier which captures the level effects associated with induced consumption or savings (s), the multiplier effect, and with induced investment (h), the accelerator effect; and Z_t is the level of autonomous expenditures (consumption). Since autonomous expenditures are included in the model, the marginal propensity to save does not determine the average propensity to save. The average propensity to save depends on the marginal propensity to save and on a proportion between autonomous expenditures and induced investment. However, the marginal propensity to save gives the upper limit of the average propensity to save (Serrano and Freitas, 2014).

In order to make this proposition clearer, we can suppose initially that autonomous expenditures (in this case consumption) are absent. Thus, savings depend strictly on the marginal propensity to save which is equal to the average propensity to save:

$$S = sY \rightarrow s = S/Y \quad (14)$$

¹⁰ Two different versions of this paper were used to describe the model in this section.

In a model with this assumption, it is impossible to change the investment rate if the economy system founds itself in an equilibrium position. Since

$$h = I/Y = s \quad (15)$$

Back to the supermultiplier model, the marginal propensity to invest changes and the investment rate determines the average propensity to save, which is lower than the marginal propensity to save, because there is a positive autonomous expenditure:

$$h = I/Y = S/Y = s - Z/Y \quad (16)$$

Now it is easier to notice that the average propensity to save is an endogenous variable and that an adjustment between investment and savings is possible without implying changes in the marginal propensity to save (s) and in the degree of capacity utilization (u).

Serrano (1996) defined the average propensity to save to the marginal propensity to save ratio as “the fraction”:

$$f_t = \frac{I_t}{(I_t + Z_t)} = \frac{\frac{S_t}{Y_t}}{s} = \frac{h}{s} \quad (17)$$

This fraction is what shows that having Z_t a positive value, the marginal propensity to save defines the upper limit of the average propensity to save. Since when $Z_t > 0$, $f_t < 1$ and $\frac{S_t}{Y_t} < s$.

In order to present the main results of Serrano and Freitas (2014), we need to introduce also their equation for the degree of capacity utilization in the steady state:

$$u^* = \frac{v(g_z + \delta)}{h} \quad (18)$$

Where u^* is the trend level of capacity utilization, v is the capital-output ratio, g_z is the autonomous expenditures (consumption) growth rate, δ is the capital dropout ratio and h is the marginal propensity to invest. Differently from preliminary versions of the supermultiplier, i.e. Serrano (1995), the version brought up by Serrano and Freitas (2014) adopts two configurations of steady state, or long-run equilibrium. In the first steady state, the adjustment among investment, capital and output is partial because the marginal propensity to invest (h) is given. This implies that, as in Neo-Kaleckian models, the degree of capacity utilization is endogenously determined, which is a reasonable assumption since the degree of capacity utilization really fluctuates – even if within a certain corridor. This partial character of the steady state justifies classing it as kind of “medium run equilibrium”. From this equilibrium position, the authors assess the effects of changes in autonomous demand growth g_z , in the wage share (and in the marginal propensity to save s) and in the marginal propensity to invest h .

Looking at equations (13) and (18), a higher rate of growth of autonomous expenditures g_z leads to higher growth rates of induced investment, induced consumption and capital, for a given h . The degree of capacity utilization u^* will also be higher. An increased wage share, or a decrease in the marginal propensity to save s ,

will translate into a higher output Y_t , i.e. will present a level effect on output. However, the growth effect on the degree of capacity utilization will be temporary and the growth trend will keep on following g_z . At last, a higher h will also have a level effect on Y_t , growth rates will increase temporarily but then will return to g_z . The permanent effect will act upon the degree of capacity utilization u^* , which will be lower.

In the second steady state configuration presented by Serrano and Freitas (2014), called *fully adjusted positions*, the marginal propensity to invest h is allowed to move and the degree of capacity utilization tends to the desired degree of utilization. For this steady state to present “full adjustment” the last hypothesis is essential: u must moves towards μ until $u = \mu$. This happens in the model due to the assumption of inter-capitalist competition. Namely, investment will race whenever the actual degree of utilization is higher than the desired degree of utilization: $u > \mu$.

This secular adjustment process is given by

$$\dot{h} = h_t \gamma (u_t - \mu) \quad (19)$$

In which $\gamma > 0$ represents the coefficient explaining the deviation of u from μ according to a rate \dot{h}/h .

The possibility of output adjustment to aggregate demand, i.e. h changes moving u towards μ , requires that two conditions are satisfied. The first condition is that $h = I/Y$ can really change and this depends of the existence of an autonomous expenditure which does not generate private capacity. The second condition is that $h < s$ is necessary to keep a demand-led growth.

During the adjustment process of h , aggregate demand path can be described by the following equation:

$$g_t = g_z + \frac{\dot{h}}{s-h_t} \quad (20)$$

From equation (19) and (20), we can infer that when the degree of utilization is different from the desired degree of utilization ($u \neq \mu$), output grows at rate g_z plus the change rate of the supermultiplier – the second term of equation (20). This later rate reflects additional change of investment due to changes in the propensity to invest h , not due to income changes.

The results reached in Serrano and Freitas (2014) analysis of changes starting from fully adjusted positions are similar to those reached for long run analysis (medium run). An increase in g_z has growth effects on output and capacity. However, the adjustment movement of investment triggers a temporary additional race of aggregate demand with an initial rise in the degree of utilization. According to Serrano and Freitas (2014), afterwards the degree of utilization will oscillate towards the normal degree of utilization μ .

One of the central implications of Serrano’s supermultiplier approach is stressed by Lavoie (2013). Even if the marginal propensity to save, the income distribution and the degree of capacity utilization are given, savings can adjust to investment. Thus, the Keynesian hypothesis that savings adjust to investment is broader than

usually thought. It does not need the assumption of an endogenous rate of utilization in the long run, as in the Kaleckian approach.

The main results of the model also highlight that changes in the autonomous expenditures growth rate have permanent effects on growth rates of output and capacity, while changes in the determinants of the propensities to consume or save have only permanent level effects on output and capacity. Besides, the results in effect terms are quite similar in both scenarios considered: the steady state with incomplete adjustment (medium run) and the steady state with complete adjustment (fully adjusted positions, long run) (Serrano and Freitas, 2014).

According to Serrano (1995), the supermultiplier model shows that in the long run the size of the economy may be partially dependent on the levels and growth rates of autonomous demand components. As a tool, it provides a structure to analyze accumulation in an economic system where the effective demand, the tendencies of autonomous aggregate demand components, assume an important role to explain long term growth.

3.1 The Supermultiplier and the Post-Keynesian debate

The supermultiplier model was brought back to the Post-Keynesian debate by authors as Lavoie (2013). In fact, Serrano and Freitas (2014) believe it is reassuring the fact that Neo-Kaleckian authors, like Lavoie (2013) and Allain (2013), from distinct approaches are reaching quite similar conclusions (to Serrano and Freitas conclusions) in their analyses. Both authors deliver analyses of the sufficient conditions for stability of a demand-led growth regime close to the one presented in Serrano and Freitas (2014). Besides, Lavoie (2013) and Allain (2013) also find that a gradual adjustment of investment share when the actual degree of utilization differs from the normal degree of utilization is compatible with dynamics stability. The central difference between these Neo-Kaleckian approaches and Serrano's approach is related to the interpretation of long-run equilibrium (Serrano and Freitas, 2014).

When dealing with the controversies of the convergence of utilization rates in the long-run in Kaleckian models, Lavoie (2013)¹¹ devotes some pages to the Sraffian supermultiplier, where he presents a "simple" proof of the necessary conditions for the model's mechanism to be valid. The author claims that for some Sraffian authors the presence of an autonomous expenditure, which does not generate capacity, creates a mechanism that brings utilization rates to its normal levels, while the Keynesian hypothesis, which says savings adjust to investment still holds (and not the opposite). The supermultiplier model can be used to divide two strands of Sraffians: those who, like Serrano, support the supermultiplier analysis with its normal capacity utilization rates (see Bortis (1997), Cesaratto et al. (2003), DeJuan (2014)); and those who deny that the capacity utilization rates stay at their normal levels in the long run, neither continuously nor in average (See Ciccone (2011), Park (2000), Palumbo (2013), Trezzini (2011)).

¹¹ This paper is now part of Lavoie's most recent book: *New Foundations of Post-Keynesian Economics*.

According to Lavoie (2013), the first point made by Serrano that even with the marginal propensity to save, the income distribution and the utilization rate as constants, savings can adjust to investment, is confirmed due to the stabilizing mechanism created by this exogenous autonomous growth component. However, the second point, claiming that as long as demand expectations of firms are not systematically biased, average rate of capacity utilization will tend towards its normal rate and the economy will approximate a fully adjusted position, is more fiercely criticized.

If the economic system departs from a fully adjusted position it is unlikely it will remain there and when the economic system moves away from the fully adjusted position it is also unlikely it will come back to that position. Moreover, it is not due to entrepreneurs' mistakes that these two movements are unlikely to happen, it is instead due to the fact that capacity utilization rate remains below or above its normal level for a long period. Thus, the average capacity utilization rate cannot be equal to the normal capacity utilization rate (Lavoie, 2013). Another observation is that in Serrano's model there is no room for the discussion of wage-led versus profit-led growth regimes. Namely, the growth rate of capital adjusts to the autonomous expenditure growth rate and the long-run value of capacity utilization does not depend neither on the profit share nor on the propensity to save out of profits (Lavoie, 2013). In other words, growth and distribution are independent variables, i.e. changes in income distribution *not necessarily* affect growth permanently. Serrano and Freitas (2014b) emphasize that a key feature of the Supermultiplier model is the fact that a permanent relation between income distribution and growth is absent. A consequence of this assumption is that it leaves room for policy measures and income distribution determinants not directly related to the economic expansion process, i.e. political, historical and social factors placed outside the scope of the model.

3.2 *Towards some convergence between the Sraffian and the Post-Keynesian ideas?*

We could identify many convergence points which bring Sraffians and Post-Keynesians closer to each other. These two distinct schools of thought are linked by tradition and history, they agree about policy matters and about the need of government intervention in the economy. Both schools believe in the same causality link between savings and investment (Lavoie, 2010).

In addition to this, Sraffians and Post-Keynesians highlight the role and importance of effective demand in the short-run and in the long-run. Money and credit are the elements responsible for making the effective demand "free" from savings strings. Both schools also suppose that money supply is endogenous and assume the likelihood of the central bank to establish the short-run interest rate. Both adopt a similar concept of capital and believe that ruling out rigidity of wages or market imperfections will not lead the economy automatically to full employment in the long-run. These are just a few of the similarities pointed out by Lavoie (2010).

Thus, we could ask what makes it so difficult to work on a synthesis of these schools? Or at least to put them together under the same tent? According to Lavoie (2010), this difficulty is related to three assumptions usually associated to Sraffians. The first assumption is that production prices are normal prices, which incorporate a normal profit rate; the second refers to the gravitation of market prices towards production prices; third, there are persistent forces pushing the economy towards long-run positions (gravitation centers). These long-period positions are situations where normal prices are at normal levels of output or where actual rates of capacity utilization equal normal rates of capacity utilization. The last assumption attributed to the Sraffians, and which generates controversies between them and Post-Keynesians, is the idea that Sraffians reject the possibility of path-dependence, i.e. long period positions are based on a trend determined *ex ante* and which is independent of short-run period and variables (Lavoie, 2010).

However, for some Sraffians as Ciccone, realized profit rates can differ from normal profit rates over long periods of time, which is another similarity with some Neo-Kaleckians as Lavoie himself, Hein and Van Treeck. The main difference is that for Kaleckians, the actual profit rate can affect the rate of accumulation set by the firms. In turn, for Sraffians this role is absent, since the normal rate of profit is the key variable determining investment in new capital (Lavoie, 2010). According to Lavoie (2010), there is not a strong reason to keep the Sraffian school apart from the Post-Keynesian school, since both recognize that capacity utilization rates can differ from their normal rates both in short and long run.

Regarding the supermultiplier model, we could say that the assumption of “fully adjusted positions” criticized by Post-Keynesians, even if an important part of the model, is not required for keeping most of the model’s conclusions. As Serrano and Freitas (2014) point out, if the supermultiplier model only generated fully adjusted positions, which do not change, it would not be fruitful for analyzing a demand-led growth process. The supermultiplier model admits growth paths in which the actual degree of capacity utilization diverges from normal utilization rates. In addition, Serrano’s approach of the supermultiplier does not deny the possibility of path-dependence. However, this issue is not addressed under the scope of the model, due to the emphasis in the long-run adjustment process of output to aggregate demand.

This review shows that, be in the short run or in the long run, Post-Keynesian approaches and the Supermultiplier approach both seem to be concerned about the effects of autonomous demand components, autonomous consumption here, on economic growth. Moreover, despite the criticism to the Sraffian approach regarding the lack of attention drawn to financial factors, Serrano and Freitas (2014) in the end of their paper recognize that “research efforts should focus on the determinants and dynamics (particularly financial) of the trend of growth of different “unproductive” autonomous components of demand” (Serrano and Freitas, 2014: 21).

As a matter of suggestion, there could be a complementarity between the supermultiplier approach and some Post-Keynesian (and Neo-Kaleckian) approaches, which emphasize the role of financial factors on autonomous

demand components through, for instance, the Stock-Flow Consistent methodology. The common interest in autonomous consumption determinants, found both in the literature reviewed in section 2 and in the supermultiplier approach, is a convergence point that could be further explored through SFC models.

4 Concluding remarks

This paper defends the proposition that Keynesian demand-led models do not necessarily need to be private investment-led ones. Models that abstract from the (unquestionably important, at least in the short run) volatility of private investment, treating it as a rather tamed variable, may be instrumental to the study of dynamic trajectories dominated by the autonomous behavior of other expenditure variables.

As economic modelers of all kinds know, the steady state is a convenient “sci-fi” device, even when they do not naïvely take it as a reliable depiction of “where”, giving it enough time, the economy will be. Nevertheless, the possibility of a steady state does not come without cost. It implies that the model can explore only one growth engine at a time.

But this is not too bad for a start. On the contrary: it will be a difficult and enriching endeavor to build each one of these models. The difficulty arises from the need to take into account the peculiarities of each expenditure variable, including the particular *financial* constraints each of them faces. The limits to (and effects of) the autonomous growth of personal consumption are very different from (e.g.) the limits to (and effects of) government expenditure.

In our opinion, the most appropriate framework to develop this research is the stock-flow consistent one,¹² for it explicitly models the financial flows and stocks. How else would it be possible to analyze the sustainability conditions (or the possibility of “Minskyan” instability) for each possible growth engine?

We can expect tricky (but interesting) hurdles ahead. On the one hand, at some point, these models must be framed in an open-economy setting. After all, for most countries, the external constraint is the ultimate one. On the other hand, it would be fruitful to explore models in which two or more growth engines share the leadership, or alternate in it. The first case is obviously an unstable (but interesting and we daresay realistic) one. As in Cole Porter’s song, “something’s gotta give”: in the absence of a steady state, some variables will unavoidably hit an inferior or superior threshold. Behavior will change, causing or following some kind of crisis. But, then, this may eventually create the conditions for a new growth period to start, in which a new variable rules the roost. Are we terribly mistaken in thinking that this would resemble growth processes in the real world?

5 References

¹² This would, incidentally, unlock the ecumenical potential of stock-flow consistent models as a platform for the dialogue among heterodox economists (Macedo e Silva and Dos Santos, 2011).

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