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CONSPICUOUS CONSUMPTION, INEQUALITY AND DEBT: THE NATURE OF CONSUMPTION-DRIVEN PROFIT-LED REGIMES

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ABSTRACT

This paper extends the theoretical concept of wage-led and profit-led demand regimes by incorporating relative consumption concerns. Specifically, it integrates the Veblenian concept of conspicuous consumption into the Bhaduri–Marglin model by assuming that relative consumption concerns matter primarily within the working class. If in such a framework the profit share increases and the corresponding decrease in workers' income is distributed unevenly, efforts to 'keep up with the Joneses' may increase consumption and, hence, lead to a *consumption-driven profit-led regime*.

1. INTRODUCTION

Ever since its publication, the seminal article by Bhaduri and Marglin (1990) on demand regimes has sparked a lively debate on whether the current growth path of a given country or region is determined by a wage-led or a profit-led demand regime.[1] While the empirical results are often ambiguous (see, for example, Bowles and Boyer, 1995; Gordon, 1995; Stockhammer and Onaran, 2004; Naastepad, 2006; Naastepad and Storm, 2006–7; Hein and Vogel, 2008; Stockhammer *et al*., 2009; Hein and Tarassow, 2010), the theoretical concept itself is clear-cut: a country finds itself in a profit-led demand regime when a fall in wages and a corresponding rise in the profit share induces sufficient

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[1] Initially Bhaduri and Marglin (1990) called them *stagnationis*t (wage-led) and *exhilarationist* (profit-led).

additional investment (Bhaduri and Marglin, 1990) and/or export demand (see, for example, Blecker, 1999) to compensate for the decrease in consumption demand. If these channels are not strong enough, the negative effect on consumption dominates and the demand regime is wage-led.[2] The recent decade has cast doubt on the empirical relevancy of Bhaduri's and Marglin's theoretical concept, since in many western economies—the USA being the most prominent example—rising profit shares did not lead to high rates of investment growth (Stockhammer, 2005–6). Taking economic development in Germany as an example, it seems that the export-driven scenario is a much more eligible case for profit-led demand. Moreover, rising profit shares were accompanied by high consumption growth in many countries, pointing to an unexplained variation in the marginal propensity to consume. This variation is sometimes explained by referring to wealth effects due to increasing house prices (e.g. Zezza, 2008). A complementary argument, that has become widely accepted, attributes the rise in the marginal propensity to consume in the USA to the rise in income inequality taking place over the last decades and the role of relative consumption concerns (see, for example, Cynamon and Fazzari, 2008, 2013; Stiglitz, 2009; Barba and Pivetti, 2009; Evans, 2009; UN Commission of Experts, 2009; ILO and IMF, 2010; Kumhof and Rancière, 2010; Rajan, 2010; Hein, 2011; Kumhof *et al.*, 2012; Stockhammer, 2012, 2013; van Treeck, 2012; Kapeller and Schütz, 2013). Here it is argued that those households that were falling behind in relative income tried to keep up in terms of relative living standard (as depicted by the level of consumption of goods and services) by financing consumption through debt. Thereby deregulation and innovation (e.g. Credit Default Swaps (CDSs), collateralized debt obligations (CDOs)) on financial markets as well as a housing price bubble that inflated collateral values made sure that this demand for credit was accompanied by sufficient supply.[3]

In what follows, we focus on the demand side of these developments and take a sufficiently large supply of consumer credit as given (see for this Kapeller and Schütz, 2014). Thereby, our contribution to the theoretical Post Keynesian literature on demand regimes is inspired by the before-mentioned pre-crisis developments. In our view, these developments make it necessary to amend the existing theoretical arguments on profit-led regimes by providing a simple and clear-cut model incorporating consumer debt and increasing inequality—two main features of the recent turmoil—to illustrate a potential

[2] See also Kurz (1990) who arrives at a similar result by introducing the normal rate of profit into the investment function.

[3] Already before the crisis Minsky (1986) provided a quite well analysis of the pattern of events (see on this also Kapeller and Schütz, 2013).

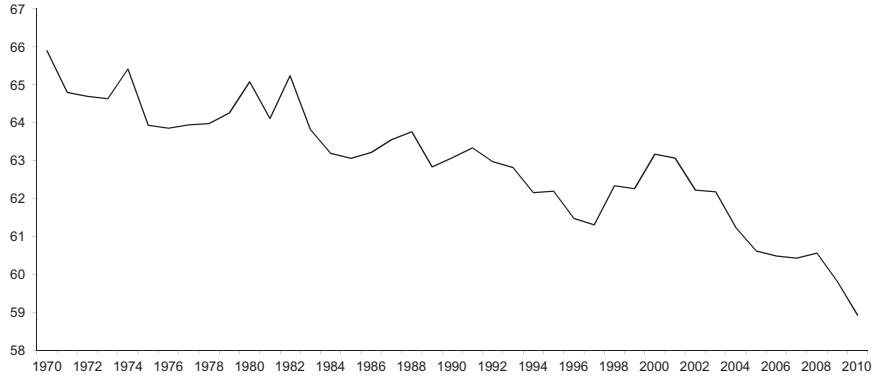

Figure 1. Adjusted wage share.
Source: Annual macro-economic database of the European Commission (AMECO). Here the adjusted wage share is defined as the ratio of compensation of employees to the number of employees (full-time equivalents) divided by the ratio of nominal GDP to total employment (full-time equivalents).

explanation for the recent economic developments in the USA. In doing so, we suggest the possibility of a (naturally short-lived) *consumption-driven* profit-led regime (in addition to the already existing investment- and export-driven possibilities). We illustrate in this paper that once we allow for (1) relative consumption concerns within the working class and (2) increases in the profit share leading to unequally distributed losses within the working class, a temporary profit-led regime becomes theoretically possible even in the absence of any positive effects on investment or net exports. Particularly in the case of the US economy assumption (2) seems to be in line with statistical facts, as a look at the development of the wage share (which mirrors the development of the profit share) and real family income growth suggests: as the wage share has been declining over the last 30 years (except for a short-lived upward movement during the Clinton era, see figure 1),[4] there has also been an increase in income inequality within the working class, as the diverging growth rates of real family income across quintiles 1 to 4 suggest (figure 2).

From a paradigmatic perspective we exploit the potential complementarity between the Institutionalist/Evolutionary concept of *conspicuous consumption* (Veblen, 1970 [1899]) and the (Post-)Keynesian concept of effective demand. In demonstrating our case of a *consumption-driven* profit-led regime we thereby also contribute to a Pluralist Paradigm in the spirit of Dobusch and Kapeller (2012) that seeks to create new insights through the

[4] For a discussion of potential reasons see Stockhammer (2009).

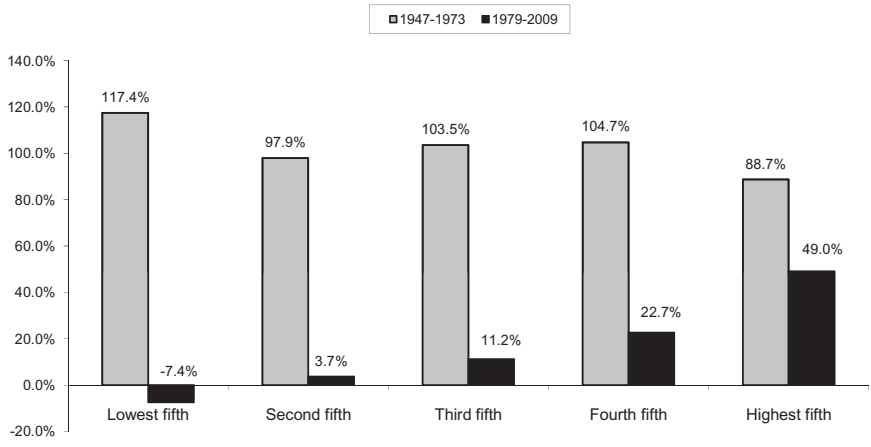

Figure 2. Real family income growth by quintile.
Source: State of Working America; Economic Policy Institute (*EPI*) analysis of Census Bureau data.

exploitation of complementary concepts as they are found in different schools of thought (see on this also Kapeller and Schütz, 2013).[5]

2. THEORETICAL BACKGROUND

While the Keynesian principle of effective demand is well known and does not have to be further explained, the concept of conspicuous consumption (or more general: relative consumption concerns) as well as its specific understanding employed in this paper needs some more emphasis: following Veblen (1970 [1899]), consumer preferences are socially mediated, implying that the hesitation to reduce consumption is not necessarily due to a direct loss of comfort or pleasure, but is related to questions of social status.

[5] There are a variety of reasons why exploring potential complementarities between different heterodox approaches seems beneficial for the further development of economic theory (see Dobusch and Kapeller, 2009, 2012; Garnett *et al*., 2010; Kapeller, 2010). With respect to Institutionalist/Evolutionary and Post Keynesian economics there exist many acknowledged conceptual similarities, which are often applied in combination when answering practical questions. In fact many Post Keynesians utilize concepts from Institutional economics when discussing microeconomic issues and Institutional economists often refer to Post Keynesian arguments on macroeconomic issues (e.g. Lavoie, 1992, 2009; Arestis, 1996; Dosi *et al*., 2010). In sum, however, these contributions often do not point at theoretical complementarities that lead to genuine interactions between theoretical arguments, but rather rely primarily on similarities or on the need to fill obvious blind-spots in one's own tradition.

Specifically, Veblen (1970 [1899]) asserts that the social emulation of preferences is coined by 'a desire to live up to the conventional standard of decency in the amount and grade of goods consumed' (p. 49), where the conventional standard has a slight upwards bias, since '[. . .] each class envies and emulates the class next above it in the social scale, while it rarely compares itself with those below or with those who are considerably in advance'. This viewpoint corresponds well with empirical results on the formation of social identity (Hogg and Terry, 2000), where it is argued that those people with whom we share parts of our daily life (like colleagues or neighbors) have a strong impact on our perception of an adequate, 'conventional' living standard. In turn, such people have a higher probability to serve as reference points (Rabin, 1998) for determining an individual's consumption aspirations. This assumption is reinforced by theoretical results on the evolution of socially mediated preferences within populations, where great gaps in consumption expenditures might lead to mutual ignorance between a minority of very rich and a mass of 'common' people (Kapeller and Steinerberger, 2014, Chapter 5). We find similar results also in behavioral economics, where it is argued that 'the reference state usually corresponds to the decision maker's current position' (Tversky and Kahneman, 1991, p. 1046), while our 'perceptual apparatus is attuned to the evaluation of changes or differences rather than to the evaluation of absolute magnitudes' (Kahneman and Tversky, 1979, p. 277). In terms of social emulation, interpersonal comparisons should, therefore, occur relative to subjects close to 'the decision maker's current position'. In the same vein behavioral economics supports the idea of an upward bias in social emulation, since visible relative losses of income or standard of living are subject to a 'status quo bias' (Kahneman *et al*., 1991). Following these arguments we employ the assumption of conspicuous consumption in our model by assuming that people compare themselves with those people who are similar to them, but still slightly in advance (for empirical evidence see also Stutzer, 2004).

Hence, when conspicuous consumption[6] plays an important role in consumer spending, aspired consumption levels depend not only on income, but

[6] It is sometimes assumed that Veblen (1970 [1899]) used this term only to denote consumption activities of a specific group (the *nouveau riche* of his times) devoted to signaling one's wealth to others. However, a close reading of Veblen (1970 [1899], esp. Chapters 4–5) shows that Veblen explicitly asserts that reputational concerns play a decisive role for all income groups and that the means of satisfying these concerns through conspicuous activities (consumption, leisure . . .) vary over time. Thus, the *nouveau riche* only represent an illustrative case of a far more general principle. In line with this reading of Veblen we employ the concept in a general way as depicting the fact that consumption preferences are not intrinsically given but rather developed through interaction with and comparison with others (*socially mediated preferences*).

also on the consumption level of other, associated groups. Thus, a fall in the wage share occurring at the expense of one group of workers will not necessarily lead to a decrease in aggregate consumption. As long as those workers who lose income can somehow afford to hold on to their aspired consumption level (which is in turn influenced by other workers whose income did not decrease), the immediate consequence will rather be a lower saving rate of those workers falling behind in their income. If income is no longer enough to afford consumption aspirations, consumption-driven credit-arrangements arise and saving rates might even turn negative. However, since saving rates can hardly be negative forever, such a constellation is only a temporary possibility, pointing to the inherent instability of such a scenario.

Duesenberry (1962 [1949]) also makes this connection, although he emphasizes the pivotal role of a continual improvement of consumption goods (i.e. the creation of 'superior goods'), because '[. . .] for any particular family the frequency of contact with superior goods will increase primarily as the consumption expenditure of others increase. [. . .] The result will be an increase in expenditure at the expense of saving' (Duesenberry, 1962 [1949], p. 27). Empirical evidence for the importance of relative consumption concerns for determining credit demand is provided by Christen and Morgan (2005), who show that increases in income inequality (measured by the Gini-Index) contributed significantly to the rise in consumer credit in the USA. Similarly, Krueger and Perri (2006) find that an increase in income inequality does not lead to a corresponding increase in consumption inequality. Further empirical evidence for relative consumption concerns can be found in Boushey and Weller (2006), Bowles and Park (2005), Neumark and Postlewaite (1998), Pollin (1988, 1990) and Schor (1998). See also van Treeck (2012) for an overview related to contributions emphasizing this relationship in the context of the current crisis.

Arguments from Institutionalist/Evolutionary consumption theory have lately been addressed in a series of other Post Keynesian models. Dutt (2005, 2006, 2008, 2012) has shown in several contributions how debt-financed consumption, caused by relative consumption concerns, can increase output in the short run but may have negative consequences for output in the long run. In Dutt (2005, 2006) it is assumed that conspicuous consumption motives are directly related to the willingness of consumers to incur debt. Here conspicuous consumption concerns increase workers' desired level of debt and thereby stimulate the economy in the short run. Long-run effects can be positive or negative, since in the long-run interest payments redistribute income from workers to capitalists (who have a lower propensity to consume). Dutt (2012) introduces a managerial class in addition to the already familiar classes of workers and capitalists. Here the way to account for conspicuous

consumption by workers is structurally similar to Dutt (2006, 2006) and the effect of debt-financed consumption is again positive in the short run but can turn negative in the long run. Dutt (2008) introduces conspicuous consumption by assuming that workers try to emulate the consumption behavior of capitalists. Similar to that, Barba and Pivetti (2009) also offer a model where workers try to imitate capitalists and emphasize the initial expansionary impact of debt-financed consumption. Hein (2012) assumes that the amount of debt-financed consumption depends on capitalists' savings. In his framework, each period a fraction of capitalists' savings goes to workers in the form of credit, where conspicuous consumption concerns are interpreted to have a positive impact on the share of capitalists' savings that goes to workers. He receives what he calls a debt-led demand regime.[7] Long-run implications in Hein (2012) are consistent with Dutt (2005, 2006). Zezza (2008) presents a stock-flow consistent model where wealth effects through rising house prices as well as conspicuous consumption effects cause an increase in aggregate consumption. Like in Barba and Pivetti (2009), Dutt (2008) and Hein (2012) it is workers that emulate the consumption behavior of capitalists. Finally, Palley (2010)—building on the contributions by Keynes (1997 [1936]), Duesenberry (1971 [1948]) and Friedman (1957)—proposes an alternative way to model individual consumption behavior, calling it the 'relative permanent income theory of consumption'. According to the RPI theory, an individual's marginal propensity to consume is a negative function of the average permanent income within the society. Davancati and Pacella (2010) and Kapeller and Schütz (2014) assume that relative consumption concerns matter primarily within classes, where the latter show how increasing income inequality within the working class can in combination with a Minskyian banking sector lead to boom and bust cycles.

In contrast to these contributions, the present paper attempts to relate the issue of conspicuous consumption to the concept of wage-led and profit-led regimes, which means introducing it into the Bhaduri–Marglin model. Furthermore, in line with Davancati and Pacella (2010) and Kapeller and Schütz (2014) and in contrast to the other models mentioned before, we will explicitly model income inequality *within* the working class, thereby assuming that relative consumption concerns matter primarily *within* a certain socio-economic group (i.e. among workers). In accordance with Bhaduri and Marglin (1990) we restrict our focus to the short run. For an analysis how the exploitation of such a demand regime can lead to crisis in the long run see Kapeller and Schütz (2014).

[7] See also Hein and Truger (2010) and Stockhammer (2011) who argue among others that pre-crisis expansions in many countries have been debt-led.

The rest of this paper is structured as follows. Section 3 introduces the standard framework of wage-led and profit-led demand regimes first proposed by Bhaduri and Marglin (1990). Section 4 then modifies this framework along the lines just discussed, creating the possibility of a *consumption-driven* profit-led demand regime. Section 5 discusses the results and puts them into perspective.

3. THE BASELINE SCENARIO: A SIMPLE MODEL WITH WAGE-LED DEMAND

In this section we introduce the basic concept of wage-led and profit-led demand regimes which was first introduced by Bhaduri and Marglin (1990), leaving conspicuous consumption concerns still unconsidered. Several auxiliary assumptions are made to keep the model as illustrative as possible.

As we show later in the paper, the theoretical possibility of a profit-led regime does not rely on positive effects coming from net exports. Therefore we assume a closed economy to keep the illustration as simple as possible. In equilibrium, consumption and investment demand must be equal to aggregate output, where total consumption consists of consumption of the working class and the capitalist class:

$$Y = C_{\mathrm{w}} + C_{\mathrm{c}} + I \tag{1}$$

Prices p are set as a mark-up on unit labor cost:

$$p = (1+m)\left(\frac{w_1^{\mathrm{n}} N_1}{Y} + \frac{w_2^{\mathrm{n}} N_2}{Y}\right) \tag{2}$$

where m denotes the mark-up, w^{n} the nominal wage rate and N the number of workers. Our working class consists of two groups: workers of type 1 and type 2, where we assume that both groups initially earn the same wage ($w_1 = w_2$). The level of output determines employment and productivity is assumed constant over time as well as across groups. From (2) it follows that the share of profit income is given by

$$h = 1 - \frac{w_1 N_1}{Y} - \frac{w_2 N_2}{Y} = 1 - \Omega_1 - (1 - h - \Omega_1) \tag{3}$$

where w stands for the real wage rate, Ω_1 ($=w_1 N_1 / Y$) for the wage share of type 1 workers and the income share of type 2 workers is expressed as residual of the other two income shares. In what follows we assume (just like Bhaduri

and Marglin, 1990), an increase in the profit share. However—trying to capture pre-crisis developments in a stylized way—we assume that the increase in the profit share does not affect all workers in the same way. In particular we assume that the rise in the profit share happens exclusively at the expense of type 2 workers, while type 1 workers are able to attain their share in national income. Thereby a rise in the profit share increases income inequality within the working class. Independently of how this relative reduction in income of type 2 workers comes about, increasing the profit share by the amount ψ in such a way must fulfill the following condition:

$$h + \psi = 1 - \Omega_1 - (1 - h - \Omega_1 - \psi) \tag{4}$$

where we interpret the left side of the equation as the new profit share ($h' = h + \psi$) and the term in brackets as the new income share of type 2 workers (again expressed as a residual).

Capitalists consume a constant fraction c_c of their income:

$$C_c = c_c (h + \psi) Y \tag{5}$$

Workers consume a constant fraction c_w (where $1 > c_w > c_c > 0$) of their income:

$$C_{w1} = c_w \Omega_1 Y \tag{6}$$

$$C_{w2} = c_w (1 - h - \Omega_1 - \psi) Y \tag{7}$$

Investment depends on the rate of return, where the latter can be decomposed into the determinants profit share and capacity utilization ($z = Y/Y^*$, where Y^* denotes output at full capacity utilization) to yield the following investment function:[8]

$$I = I(h + \psi, z) \tag{8}$$

Here we apply the usual definition that production capacity (i.e. the capital stock) is fixed in the short period and investment only adds to capacity once the short period (= period that firms need to install the additional machinery) has elapsed (for a discussion see King, 2008). Furthermore it is assumed that there always exist a sufficient number of available workers and that firms finance investment entirely by means of credit. Furthermore we presume an

[8] See Bhaduri and Marglin (1990). The rate of profit can be written as $r = \Pi/K = (\Pi/Y)(Y/Y^*)(Y^*/K) = (h + \psi)za$, where Π denotes total profits and the ratio of full capacity output to the capital stock (a) is assumed to be constant.

endogenous credit money economy in which granting a loan does not require the transfer of some kind of loanable funds (see, for example, Lavoie, 1992; Godley and Lavoie, 2007).

Case 1: A wage-led regime

We assume that full capacity output Y^* is given in the short period and equal to 1 (which means normalizing all relevant variables as proportions of full capacity output; see Bhaduri and Marglin, 1990). Inserting (5)–(8) into (1) and dividing by Y^* (with $z = Y/Y^*$) yields

$$z = \underbrace{c_c(h+\psi)z}_{C_c} + \underbrace{c_w\Omega_1 z}_{C_{w1}} + \underbrace{c_w(1-h-\Omega_1-\psi)z}_{C_{w2}} + I(h+\psi, z) \tag{9}$$

Differentiation gives the following classical result:

$$\frac{dz}{d\psi} = \frac{\dfrac{\partial I}{\partial \psi} - (c_w - c_c)z}{S_z - I_z} \tag{10}$$

Here $S_z = (h + \psi)(1 - c_c) + (1 - h - \psi)(1 - c_w)$ and $I_z = \partial I / \partial z$ are related to the Keynesian stability condition, according to which the existence of a stable equilibrium requires that the reaction of saving to a change in capacity utilization (S_z) exceeds the reaction of investment (I_z), which gives us a positive denominator in the above equation. Since income distribution is not allowed to change endogenously, any set of parameters for which $S_z > I_z$ assures the existence of such an equilibrium (see Bhaduri, 2008, 150).[9] For any parameter constellation that violates the Keynesian stability condition, the goods market multiplier would be infinite and output would go towards either zero or infinity. This basic structural feature applies to all variants of our model—hence, the model's results are only viable when the relation $S_z > I_z$ actually holds.

The above equation describes the effect of a rise in the profit share on capacity utilization that happens *exclusively* at the expense of type 2 workers. Since the Keynesian stability condition requires a positive denominator in the above equation, the sign of (10) solely depends on the numerator: If the positive effect on investment ($\partial I / \partial \psi$) exceeds the negative effect on consumption ($-[c_w - c_c]z$), the fraction in equation (10) will be positive and the demand regime *profit-led*.

[9] See also Schütz (2012) who discusses this issue for a structurally similar model that allows for endogenous variations in the profit share.

However, if we assume that the empirical relevance of the positive investment effect is rather small (as stagnating real investment growth in many countries with increasing income inequality—among them the USA—suggests, see Stockhammer, 2005–6)—to state our point clear let us assume $I = I(z)$—equation (10) reduces to (11) and the possibility for a profit-led regime disappears.

$$\frac{\mathrm{d}z}{\mathrm{d}\psi} = \frac{-(c_\mathrm{w} - c_\mathrm{c})\, z}{S_z - I_z} \tag{11}$$

For reasons of exposition we keep the assumption of $I = I(z)$ also for the next section.[10]

4. AN EXTENDED MODEL WITH PROFIT-LED DEMAND: INTEGRATING CONSPICUOUS CONSUMPTION MOTIVES

In accordance with Veblen's concept of conspicuous consumption we assume that type 2 workers and type 1 workers share a common social identity (Hogg and Terry, 2000) and, hence, type 1 workers serve as a reference group of type 2 workers implying that the consumption aspirations of the latter will depend on the consumption of the former. In particular, as type 2 workers fall behind in terms of income, they will be concerned about their consumption relative to type 1 workers. As already emphasized we assume that relative consumption concerns are mostly relevant among workers as compared with between workers and capitalists. While this is obviously a simplification, we think that the first channel is more relevant as the argument of a common social identity is stronger in this case. Furthermore we assume that there is only upward-comparison, meaning that consumption decisions of low-income workers (type 2) do not influence consumption decisions of the higher income workers (type 1).

Therefore, we assume that the consumption function in (7) describes the consumption behavior of type 2 workers as long as their income is not less than those of type 1 workers. As soon as the income of type 2 workers falls below that of type 1 workers equation (7) will only describe a part of the consumption decision, since it does not account for any potential desire to

[10] This actually takes us from the Bhaduri–Marglin model (whose contribution it was to allow for profit-led demand regimes) back to the Amadeo (1987) version of a Rowthorn–Dutt model (Rowthorn, 1981; Dutt, 1987), which only permits wage-led regimes. Those readers who prefer to stick to the assumption of a positive $\partial I/\partial h$ can do so by just adding $\partial I/\partial h$ to the numerator of the results presented in the next section, since this is the only way how it would enter.

keep up with their peers (type 1 workers). Therefore we introduce $\beta = N_2/N_1$ to account for the proportion of workers whose income is depressed (our type 2 workers) relative to those workers whose income stays constant (type 1) and replace (7) by the following equation once type 2 workers fall behind in income (Kapeller and Schütz, 2014):

$$C_{w2} = (1-\alpha)c_w(1-h-\Omega_1-\psi)Y + \alpha C_{w1}\beta \tag{12}$$

Consumption behavior as described in (7) is also reminiscent in (12), but its influence is weakened. If $\alpha = 1$, workers would want to exactly hold on to the consumption level of type 1 workers, while with $\alpha = 0$ equation (12) reduces to (7) and we would exclude this kind of relative consumption concerns. The higher the desire to keep up with the other group is, the larger is α.

Case 2: A consumption-driven profit-led regime

As long as consumption aspirations of type 2 workers do not exceed their disposable income, these workers do not have to incur debt. In this case the equilibrium condition as written in (9) takes the following form (where we already use the assumption of $\partial I/\partial\psi = 0$):

$$z = \underbrace{c_c(h+\psi)z}_{C_c} + \underbrace{c_w\Omega_1 z}_{C_{w1}} + \underbrace{(1-\alpha)c_w(1-h-\Omega_1-\psi)z + \alpha C_{w1}\beta}_{C_{w2}} + I(z) \tag{13}$$

Differentiating gives the following result:

$$\frac{dz}{d\psi} = \frac{[c_c - (1-\alpha)c_w]z}{S_z - I_z} \tag{14}$$

where $S_z = (h + \psi)(1 - c_c) + \Omega_1(1 - c_w) + (1 - h - \Omega_1 - \psi)[1 - (1 - \alpha)c_w] - \alpha c_w\Omega_1\beta$ and $I_z = dI/dz$.

As we can see, the result in (14) can be positive or negative depending on the size of α. If the relative consumption effect is rather small, we get the standard wage-led result. Conversely, if relative consumption concerns are strong enough—i.e. if $(1 - \alpha)c_w < c_c$—the demand regime will be *profit-led*, giving us the *consumption-driven profit-led demand regime* mentioned at the beginning.[11]

[11] See on this also Wisman and Baker (2010) who claim that the period preceding the 2008 crisis was characterized by a profit-led regime, however without presenting any theoretical framework.

Case 3: A debt-financed consumption-driven (DFCD) profit-led regime

At least the USA have witnessed not only a decrease in the saving rate of households, but also an increase in household debt. In terms of our model, this would be the case when consumption demand of type 2 workers exceeds their disposable income and, hence, the change in debt of type 2 workers is positive. In such a scenario we have to account for debt payments. For this purpose we assume that type 2 workers receive loans, on which they have to pay interest and installments. Interest payments thereby translate into additional revenues for capitalists leading to the following specifications of aggregate consumer behavior:

$$C_c = c_c[(h+\psi)Y + rD_{w2}] \tag{15}$$

$$C_{w2} = (1-\alpha)c_w[(1-h-\Omega_1-\psi)Y - (r+\phi)D_{w2}] + \alpha C_{w1}\beta \tag{16}$$

where r denotes the interest rate on loans and ϕ the installment rate.[12]

Our equilibrium condition now becomes

$$\begin{aligned} z = {} & \underbrace{c_c[(h+\psi)z + rD_{w2}]}_{C_c} + \underbrace{c_w\Omega_1 z}_{C_{w1}} \\ & + \underbrace{(1-\alpha)c_w[(1-h-\Omega_1-\psi)z - (r+\phi)D_{w2}] + \alpha C_{w1}\beta}_{C_{w2}} + I(z) \end{aligned} \tag{17}$$

Total differentiation of (17) yields

$$\frac{dz}{d\psi} = \frac{[c_c - (1-\alpha)c_w]z + [c_c - (1-\alpha)c_w]r\frac{dD_{w2}}{d\psi} - (1-\alpha)c_w\phi\frac{dD_{w2}}{d\psi}}{S_z - I_z} \tag{18}$$

where S_z and I_z as well as the direct effect of redistribution ($[c_c - (1-\alpha)c_w]z$) are the same as in (14). In this case we assume that the consumption aspirations of type 2 workers exceed their income and, therefore, an increase in

[12] As already mentioned we assume an endogenous credit money economy in which granting a loan does not require the transfer of some kind of loanable funds. This implies that extending a loan does not decrease the purchasing power of the lender (since credit money is created *ex-nihilo*), but increases the purchasing power of the borrower. Vice versa, the repayment of a loan through installments only decreases the purchasing power of the borrower, without increasing the purchasing power of the lender (since repaying a loan only cancels out the previously created deposit). See on this, for example, Lavoie (1992, Chapter 4). For the demonstration of the stock-flow consistency of this economy as well as further discussion see Kapeller and Schütz (2014).

inequality ($d\psi > 0$) will result in additional debt ($dD_{w2} > 0$). As a consequence we receive two terms involving the (positive) ratio $dD_{w2}/d\psi$ on the right side of the equation denoting the indirect effects arising from household debt. The two terms associated with $dD_{w2}/d\psi$ express the effects of interest payments (which are redistributive payments and, thus, have the same coefficient as the direct effect of redistribution) as well as installment rates (which simply decrease the purchasing power of type 2 workers).

Hence, the overall effect on demand as induced by direct redistribution (first term of the numerator) as well as interest payments (second term of the numerator) is positive when $[c_c - (1 - \alpha)c_w] > 0$, whereas installment payments (third term of the numerator) will reduce consumption of type 2 workers as well as aggregate demand if $\alpha < 1$ (see also footnote 12). The net effect of indebtedness of workers is, thus, ambiguous. It is positive if the additional capitalist consumption induced by interest payments is greater than the consumption withhold due to interest payments and installments, i.e. if $c_c r > (1 - \alpha)c_w(r + \phi)$. In sum the sign of (18) can again be positive or negative, where strong keeping-up effects (large α) and low installment rates (ϕ) favor the emergence of *profit-led* regimes based on an increase in consumption spending financed through additional household debt. Specifically, if we assume keeping up effects to fully determine consumer behavior ($\alpha = 1$), then both of our conditions are fulfilled with certainty and the emergence of a *profit-led* regime follows as a logical consequence.

5. CONCLUDING DISCUSSION

In evaluating, interpreting and applying the above model it is important to keep in mind some very basic limitations of its generality. These are primarily related to the alleged relative consumption effects, which do not seem to represent a universally true relationship, but a culturally and institutionally shaped mode of conduct. One should expect this effect to apply primarily in advanced industrial societies. Furthermore, even within this subgroup of economies private borrowing intended for consumption purposes might be culturally restricted (see Stiglitz, 2008) or difficult to practically establish. In his analysis of the development of consumer spending before the Great Depression Brown (1997) approached these issues very clearly. He argues that private debt is to be seen as one of the major causes of the Great Depression and that its expansion in the 1920s was mainly due to the 'social destigmatization of consumer borrowing' (p. 619) (an incentive for people to incur debt) and the growing significance of 'the institution of consumer credit' (p. 623), that is installment sales established in the retail sector (an

Table 1. Factors favoring the expansion of consumer credit

	Great Depression	*Financial crisis*
Cultural level	Destigmatization of consumer credit	Prevalence of mortgaging homes
Institutional level	Rise of the installment plan	CDSs and CDOs

innovation allowing people to incur debt). Thereby Brown addresses *cultural* as well as *institutional* aspects to explain the increased consumption in the 1920s partly through the increased social acceptance and institutional availability of credit. In the USA these historical observations find their modern counterparts in the prevalence for mortgaging one's home (on the cultural level) and the establishment of new financial innovations, such as CDOs or CDSs, which led to an increased availability of credit (see also table 1). As emphasized by Kindleberger (1978) such institutional innovations or rearrangements leading to an increased supply of credit are a general feature of financial euphoria and crises.

A different and possibly stronger argument against the prevalence of relative consumption concerns to explain the rise in consumption expenditures, which has to our knowledge not yet been advanced in the literature, refers to the households' minimum living standards: if wages of workers in low-income groups are, on average, only a little above subsistence level, a further redistribution to the top might force these households to incur debt in order to satisfy their minimum living standards. This would leave the model's results intact but provide a different rationale for explaining the observed theoretical results. While this argument represents an important complement to our model, especially relevant for the lowest income groups, it seems hard to believe that the whole magnitude of the increase in debt is due to the necessity of satisfying very basic needs. Additionally, this raises the question of what exactly to classify as basic needs—is it implied to be a biological concept or is it, rather, subject to social conventions (which would lead us back to our initial argument about socially mediated preferences)?[13]

Furthermore, due to its very stylized nature the model cannot claim to give a full account of what led to the crisis in 2008. Among those things missing in

[13] See also Veblen (1970 [1899], p. 70) on this issue: 'No class of society, not even the most abjectly poor, forgoes all customary conspicuous consumption. The last items of this category of consumption are not given up except under the stress of the direst necessity. Very much of squalor and discomfort will be endured before the last pretense of pecuniary decency is put away.'

our analysis are, for example, a discussion of developments in the financial sector leading to this expansion of credit supply (see on this, for example, McCulley, 2009; Dymski, 2010; Kapeller and Schütz, 2014), the impact of asset values (e.g. housing prices) on consumer decisions (see on this, for example, Zezza, 2008), the influence of new attractive goods in combination with easier credit conditions (i.e. autonomous debt financed consumption; as *inter alia* argued by Barba and Pivetti, 2009) or increasing shareholder value orientation, which according to Stockhammer (2005–6) had on the one hand a direct negative effect on investment, but on the other hand led to rising stock prices, which again stimulated consumption and investment. We exclude these aspects to demonstrate our argument on the theoretical possibility of a consumption-driven profit-led regime in the most straightforward way, but acknowledge their importance in detailing the causes of the current crisis.

Despite these limitations, this paper shows how including relative consumption concerns can lead to the emergence of a new kind of profit-led regime. More precisely, it illustrates how—theoretically—a rise in the profit share can cause an increase in consumption demand if (1) the corresponding relative losses in wage income are distributed unevenly among workers and (2) there are strong relative consumption concerns among those who suffer a loss in income. Additionally, this newly explored theoretical possibility of a *consumption-driven profit-led regime* also shows that the two concepts combined in this paper—the Post Keynesian Bhaduri–Marglin model and a behavioral assumption stemming from Institutionalist thought—are indeed complementary and add a new possibility for profit-led demand to the already known investment- and export-driven scenarios.

In our case, these theoretical considerations seem to be relevant to the pre-crisis developments in the USA, where falling wage share, rising inequality within the working class and debt-financed consumption prevailed most obviously. Very interesting in this respect is that two recent empirical studies report '*perverse distribution effects*' (Stockhammer and Stehrer, 2011, p. 19)—i.e. positive effects of a fall in the wage share on consumption: Barbosa-Filho and Taylor (2006, table 1) for the USA and Stockhammer and Stehrer (2011, table 2) for several specifications for the USA, the UK, Ireland and Australia. Thereby both studies lack a thorough theoretical explanation. Here we think that the presented framework could help to shed some light on this issue.

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