Conspicuous consumption, inequality and debt: The nature of consumption-driven profit-led regimes

Jakob Kapeller*
Bernhard Schütz†

Abstract

This paper extends the theoretical concept of wage-led and profit-led demand regimes, first introduced by Amit Bhaduri and Steven Marglin in the early 1990s, by incorporating relative consumption concerns. Specifically, it integrates the Veblenian concept of conspicuous consumption into a typical 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*. The model's empirical relevance is illustrated with respect to the pre-crisis developments as observed in the U.S.

JEL CLASSIFICATION NUMBERS: B52, D11, E12, E20

*University of Linz, Department of Philosophy and Theory of Science, Altenbergerstrasse 69, 4040 Linz, Austria, email: JAKOB.KAPELLER@JKU.AT, phone: +43 732 2468 3685

†University of Linz, Department of Economics, Altenbergerstrasse 69, 4040 Linz, Austria, email: BERNHARD.SCHUETZ@JKU.AT, phone: +43 732 2468 8584

1 Introduction

Ever since its publication in the *Cambridge Journal of Economics* the seminal article by Bhaduri and Marglin (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 e.g. Bowles and Boyer, 1995; Gordon, 1995; Hein and Tarassow, 2010; Hein and Vogel, 2008; Naastepad, 2006; Naastepad and Storm, 2006-7; Stockhammer and Onaran, 2004; Stockhammer et al., 2009), the theoretical concept itself is fairly 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 additional investment (Bhaduri and Marglin, 1990) and/or export demand (see e.g. 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. The recent decade has cast doubt on this theoretical concept: First, in many western economies falling wage shares did not lead to high rates of investment growth, thereby questioning the empirical relevance of investment-driven profit-led regimes. Taking economic development in Germany as an example, it seems that the export-driven scenario is a much more eligible case for profit-led growth. Second, 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, which is to be pursued in this paper, is to argue that a rise in income inequality induced households to engage in conspicuous consumption financed by an increase in household debt.

In what follows we account for these observations by incorporating insights from Institutionalist/Evolutionary consumer theory, which will lead to a new type of profit-led regime that is more in line with recent economic developments, es-

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

pecially in the U.S. The resulting profit-led regime is *consumption-driven* and depends on falling saving rates within some parts of the working class.

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. 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. Arestis, 1996; Dosi et al., 2010; Lavoie, 1992, 2009). 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.

Arguments from Institutionalist/Evolutionary consumption theory have lately been addressed in a series of Post Keynesian contributions. Dutt (2005, 2006) and Hein (2012) introduce conspicuous consumption motives in a Post Keynesian model and assume that the importance of these motives is directly related to the willingness of consumers to incur debt. They do not, however, establish a clear connection between conspicuous consumption effects and income distribution. 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. In a similar vein Dutt (2008) and Barba and Pivetti (2009) analyze a scenario where workers try to imitate the consumption behavior of capitalists. In contrast to these contributions this paper asserts that relative consumption concerns play a role primarily *within* a certain socio-economic group (i.e. among workers) and investigates how a different understanding of consumption behavior affects our concept of wage-led and profit-led demand regimes.

This paper is structured as follows: Section two focuses on the economic situation in the U.S. - a case in which the emergence of a consumption-driven profit-led regime seems most pronounced - before the crisis and provides empirical data on the evolution of income distribution, output growth and household debt. Section three illustrates the standard framework of wage-led and profit-led demand regimes, thereby allowing for a first comparison of the empirical developments and the implications of the standard model. Building on these insights, the standard framework is modified in section four leading to the already mentioned *consumption-driven profit-led demand regime*. Since the continuation of such a regime will almost certainly lead to a credit crunch, section 5 attempts a Minskyan interpretation to our model's result and discusses possible scenarios of further development. Section six provides a discussion and historical contextualization of these results whereas section seven offers some concluding thoughts.

2 Consumption demand, economic growth and debt: Theoretical perspectives and stylized facts

In the U.S. the wage share has been steadily declining over the last 40 years (figure 1; see also Stockhammer, 2009). Experiencing a short rise during the Clinton era, it began to fall again with the start of the 2000-2001 recession, continuing to fall throughout the following phase of economic expansion and dropping sharply after the start of the recent crisis.

As mentioned earlier, Post Keynesians do not see a contradiction between a fall in the wage share and positive economic growth. However, from a Post Keynesian viewpoint the source of growth should have been either investment or net exports. This conclusion, though, cannot find any empirical support for the pre-crisis period in the U.S. (see figure 2): During the years of the last expansion from 2002 to 2007, investment contributed little to economic growth (while the contribution is even negative in two years, 2004 represents an exceptional case)

Figure 1: Adjusted wage share

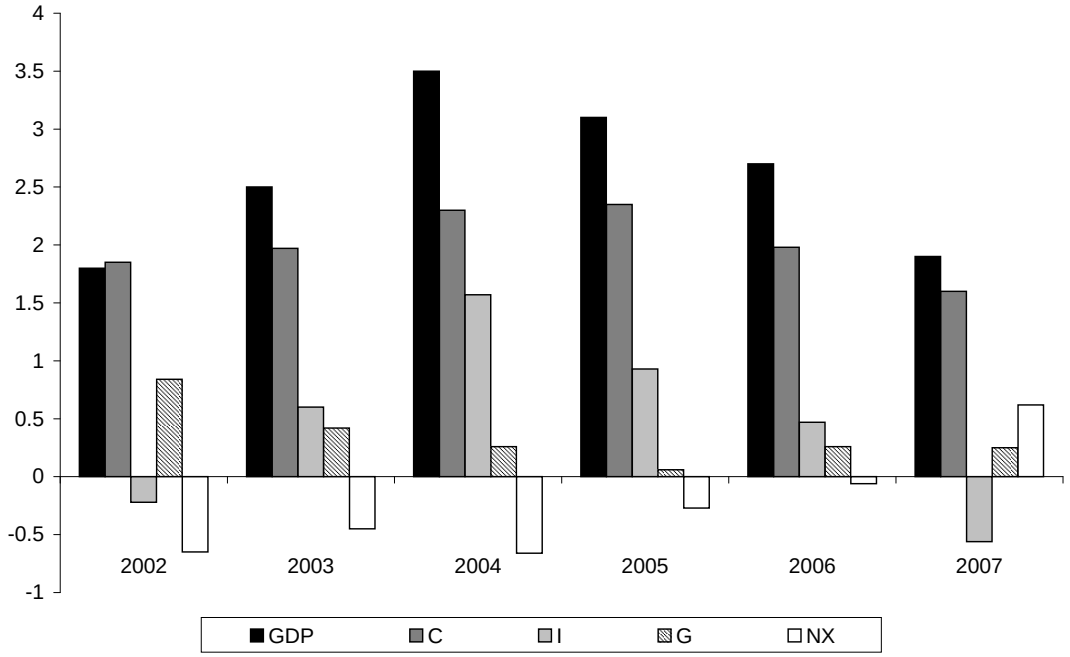
Source: AMECO. Here the adjusted wage share is defined as the ratio of compensation of employees to the number of employees (full-time equivalents) divided by the ratio of nominal GDP to total employment (full-time equivalents).

and also net exports cannot be identified as a source of growth. Quite on the contrary, consumption was the dominant force behind U.S. economic growth.[2] Putting it differently, the expansion from 2002-2007 may have been - using a standard Post Keynesian term - *profit-led* (i.e. accompanied by a rising share of profit income)[3], but at the same time neither investment nor net exports played a dominant role. Instead the expansion was driven by an increase in consumption spending, *although* the wage share was decreasing.

[2]See also Evans (2009). The high positive contribution of government expenditures in 2002 is mainly due to an increase in military spending.

[3]See Wisman and Baker (2010). Note, however, that there are a number of authors labeling this period debt-led instead of profit-led (see Hein, 2011; Hein and Truger, 2010; Stockhammer, 2011), since it was neither wage nor profit income that financed the consumption boom, but debt. However, a profit-led demand regime does not necessarily imply that the increase in demand is due to additional spending out of profit income (this assertion might hold for the investment-driven case where additional profits facilitate financing investment projects, but not for the export-driven case where demand growth is backed by foreign income that is spent on domestic goods due to lower prices), but simply that a rise in the profit share is accompanied by an increase in demand. In this case, it would be consumption demand.

Figure 2: GDP growth (black bar) decomposed into its components (shaded and white bars) between 2002 and 2007



Source: U.S. Department of Commerce, Bureau of Economic Analysis

In the U.S., capital income goes almost exclusively to the highest income quintile of households (table 1). In other words, the decrease in wage income relative to profit income at the level of functional income distribution directly implies redistribution from the lowest four quintiles to the highest quintile in terms of the personal income distribution.

Table 1: Share of capital income received by households (quintiles)

	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
2005	0.6	1.4	3.0	6.2	88.8

Source: Estimations from the Congressional Budget Office (2008, table 1). For further information see Shapiro and Friedman (2006).

Comparing these figures with the change in real hourly wages from 2002 - 2007 (table 2)[4], we see that the low real wage growth that led to the fall in the wage

[4]Note that numbers reported in table 2 are cutoff values, where the given value for the 10th percentile is equal to the hourly wage that separates the first from the second decile.

share depicted in table 1, was distributed unequally between workers: The lowest and the third deciles had suffered a 1.7 and a 2.8 percent decrease in real hourly wages while deciles 2, 4 and 5 suffered moderate losses and deciles 6 to 8 experienced minor increases. In other words, losses were concentrated at the lower end of income distribution, with the first and the third deciles taking the largest burden.[5]

Table 2: Changes in real GDP per hour worked and real hourly wage for income deciles during the last two expansions

	GDP	10th	20th	30th	40th	50th	60th	70th	80th	90th	95th
1993-2000	15.3	9.7	10.7	8.1	6.4	5.0	6.2	6.9	7.7	10.6	16.4
2002-2007	7.7	-1.7	-0.4	-2.8	-0.7	-0.4	1.2	0.1	1.5	2.4	3.1

Source: Own calculations based on data from OECD Employment and Labor Market Statistics and OECD Economic Outlook as well as the Economic Policy Institute: The State of Working America (`http://www.epi.org/page/-/datazone2008/wage-comp-trends/wagecuts_all.xls`).

Post Keynesian theory suggests that redistributing from wage income to profit income should lead to a rise in the aggregate saving rate. The empirical facts, however, give a different picture: Figure 3 shows a declining saving rate until the start of the recent crisis, falling from 3.5 percent in 2002 to 2.4 percent in 2007.

While the idea that a decrease in savings might be induced by a redistribution from wage to capital income does not seem to fit very well into Post Keynesian theory[6], it can make sense from an Institutionalist viewpoint. Following Veblen

Therefore, table 2 does not contain information about the development of wages of the upper 5 percent, but only about the hourly wage separating the lowest 95 percent from the upper 5 percent. However, we can use wage income (excluding capital gains) reported by the top 5 percent income earners as a rough guide (data provided by Emmanuel Saez: `http://elsa.berkeley.edu/~saez/TabFig2008.xls`), which increased by 40 percent between 1993-2000 and by another 12 percent between 2002-2007.

[5]Note the striking difference in table 2 between the recent expansion and the expansion of the Clinton-era, where real wages increased for all income deciles and especially strong at the lower end of income distribution (though real wage growth was also substantially below GDP-growth).

[6]In the General Theory Keynes (1997[1936], Book III) assumed the propensity to consume to be quite stable and rather independent of any socially mediated consumption concerns, although he notes "ostentation" and "extravagance" as consumption motives of minor importance (they belong to the "subjective factors" determining consumption spending; p. 108).

Figure 3: Personal saving as a percentage of disposable personal income

Source: U.S. Department of Commerce, Bureau of Economic Analysis

(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. Following that argument, people define themselves relative to the (visible) consumption of their neighbors and colleagues (or other people they closely associate with). Hence, when conspicuous consumption[7] plays an important role in consumer spending, aspired consumption levels depend not only on income but 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 losing income can somehow afford to hold on to their aspired consumption level (as influenced by other workers whose in-

[7]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 this 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*).

come 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. Duesenberry (1962[1949]) argues in a similar vein, though 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. When that occurs, impulses to increase expenditure will increase in frequency, and strength and resistance to them will be inadequate. The result will be an increase in expenditure at the expense of saving." (Duesenberry, 1962[1949], p. 27)

Among others, Barba and Pivetti (2009) prominently argued that one of the reasons for the recent phase of consumption driven growth was the desire to 'keep up with the Joneses'. Assuming that preferences are indeed socially mediated - that is, depending on the "Joneses" - implies that "peers" play a pivotal role in consumption decisions, since they constitute important "reference points" (Kahneman et al., 1991) or "prototypes" (Hogg and Terry, 2000) for determining consumption aspirations. In this context, "peers" can be friends, neighbors, family members or a certain socio-economic group (Cynamon and Fazzari, 2008). The social mediation of preferences is (primarily) unidirectional in this context: "[...][E]ach 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" (Veblen, 1970 [1899], p. 81). The assumption that people tend to make upward comparisons is also employed by Duesenberry (1962[1949]) and is confirmed empirically by Stutzer (2004).

Empirically, figure 4 shows that the ratio of consumer credit to disposable income indeed soars to unprecedented levels during the relevant period. Mortgage equity withdrawal - out of which a substantial fraction was used for consumption purposes - also increased around 2000 (Barba and Pivetti, 2009).[8] While these developments were surely favored by an increase in credit supply - caused by

[8]Salotti (2010) shows that the effect of housing value on consumption was largest for households in the lowest income quintile.

institutional changes on credit markets and a house price bubble - Christen and Morgan (2005) provide empirical support that demand side developments caused by conspicuous consumption played a decisive role by showing that increases in income inequality (measured by the Gini-Index) contributed significantly to the rise in consumer credit. 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 conspicuous 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. These results stand in contrast to the standard permanent income/life-cycle view (see Debelle, 2004; Finocchiaro et al., 2011), which implies that an increase in debt-financed consumption is due to rational decisions by households who react to the easing of credit constraints, increasing housing wealth and low real interest rates to optimally smooth their consumption path.[9]

Concluding, the recent U.S. expansion was characterized by rising consumption expenditures, a shift in the functional income distribution from wage to profit income (which corresponds to a shift of income from the lowest four income quintiles to the highest) and a relative redistribution of wage income from lower to higher deciles. This led to an increase in wage inequality amongst workers, a fall in the saving rate and a rise in consumer credit. The adapted Post Keynesian model presented in the next sections attempts to take these facts into account.

[9]Another alternative explanation for the rise in debt is that deregulation has led to an increase in credit supply as a political means to provide even low-income Americans access to privately owned homes. While this line of thought - cheap mortgage credit as a means for social policy targets - has some merits it should lead to a sharp increase in residential investment to provide a convincing main explanation for the increase in debt. Since we cannot observe a suffciently large increase (the average contribution to GDP growth was 0.02 percent per year for the relevant period; see OECD Economic Outlook), we stick to our interpretation of additional mortgages as a means for financing consumption.

Figure 4: Consumer credit as a percentage of disposable income

Source: Federal Reserve Flow of Funds Accounts; U.S. Department of Commerce, Bureau of Economic Analysis; see also: Barba and Pivetti (2009)

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 depicted in figure 2, changes in net exports did not play a significant role in the 2002-2007 expansion, which is why we assume a closed economy. 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:

$$Y = C_w + C_c + I \tag{1}$$

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

$$p = (1+m)\left(\frac{w_1^n N_{w1}}{Y} + \frac{w_2^n N_{w2}}{Y}\right) \tag{2}$$

where m denotes the mark-up, w_n the nominal wage rate and N_w the number of workers. Our working class consists of two groups: workers of type 1 and type 2, where we assume that both groups are perfectly identical and initially earn the same hourly wage ($w_1 = w_2$). From (2) it follows that the share of profit income is given by

$$h = 1 - \frac{w_1 N_{w1}}{Y} - \frac{w_2 N_{w2}}{Y} = 1 - \Omega_1 - (1 - h - \Omega_1) \tag{3}$$

where w stands for the real wage rate, Ω_1 $(= w_1 N_{w1}/Y)$ 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 will, just like Bhaduri and Marglin (1990), assume an increase in the profit share. However, contrary to the former we will not assume that the increase in the profit share happens at the expense of the working class as a *whole*, but that – roughly in line with what facts presented in the previous section – the reduction in wage income is solely imposed on the second group of workers. Trying to keep things as simple as possible we will assume that an increase in the profit share happens such that it decreases only the income share of type 2 workers while it keeps the income share of the type 1 workers constant. Independently of how this reduction in income of type 2 workers comes about - for instance, through a decline in nominal wages of type 2 workers or a rise in the mark-up/labor productivity that is only matched by an increase in nominal wages of type 1 workers - such a redistribution (ψ) of income will fulfill the following condition:

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

Here the profit share can be found on the left side of the equation and the income share of type 2 workers is again represented by the term in brackets.

Capitalists consume a constant fraction c_c of their total disposable income, consisting of their share in production income and all interest payments on workers' debt D_w (interest payments between capitalists and between capitalists and firms, who are the owners of the latter, cancel out):

$$C_c = c_c \left[(h + \psi) + rD_w\right] \tag{5}$$

Workers consume a constant fraction c_w (where $c_w > c_c$) of their disposable income, which is equal to their share in production income minus installments (ϕD_w) and interest payments (rD_w):

$$C_{w1} = c_w \left[\Omega_1 Y - (r + \phi) D_{w1}\right] \tag{6}$$

$$C_{w2} = c_w \left[(1 - h - \Omega_1 - \psi)\, Y - (r + \phi) D_{w2}\right] \tag{7}$$

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:[10]

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

Case1: A wage-led regime

[10]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.

We assume that the initial stock of workers' debt in our economy is zero and 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:

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

Differentiation gives the following classical result:

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

Here $S_z = \left(h+\psi\right)\left(1-c_c\right) + \left(1-h-\psi\right)\left(1-c_w\right)$ and $I_z = \partial I/\partial z$ are related to the Keynesian stability condition, according to which the reaction of saving to a change in capacity utilization (S_z) must exceed the reaction of investment (I_z), which gives us a positive denominator in the above equation. This basic structural feature applies to all variants of our model.

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

This result, however, is at odds with the empirical evidence that has been discussed in the previous section: First, if anything there was a rather small positive investment effect despite a substantial rise in the profit share, implying that for

the period preceding the crisis $\partial I/\partial\psi$ may have been close to zero. Assuming $\partial I/\partial\psi = 0$ would give us:

$$\frac{dz}{d\psi} = \frac{-\left(c_w - c_c\right) z}{S_z - I_z} \tag{11}$$

Equation (11) posits a negative effect of redistribution on output. This leads straight to our second concern, which is that consumption did in fact *increase* rather than decrease. This makes it necessary to adapt the above model in the light of the pre-crisis developments, a question considered in the following section. Besides, assuming $\partial I/\partial\psi = 0$ takes us from a 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 (Dutt, 1987; Rowthorn, 1981), which only permits wage-led regimes. In the next section we will see how a profit-led regime can emerge even in the absence of an influence of the profit share on investment.

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. 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 keep up with their peers (type 1 workers). Therefore we introduce $\beta = N_{w2}/N_{w1}$ 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:

$$C_{w2} = (1-\alpha)c_w\left[(1-h-\Omega_1-\psi)\,Y-(r+\phi)\,D_{w2}\right]+\alpha C_{w1}\beta \tag{12}$$

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 $\alpha = 0$ (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.

Case2: 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:

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

Differentiating gives the following result:

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

where $S_z = (h+\psi)\,(1-c_c)+\Omega_1\,(1-c_w)+(1-h-\Omega_1-\psi)\left[1-(1-\alpha)c_w\right]-\alpha c_w\Omega_1\beta$ and $I_z = \partial I/\partial z$.

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

– that is 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.

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

According to the stylized facts presented in section 2 the U.S. 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 disposable income of type 2 workers decreases sufficiently to fall behind their consumption aspirations. When type 2 workers take up loans to finance consumption expenditure, capitalist income increases by interest payments. These are paid by type 2 workers, who also have to pay installments. Our equilibrium condition now becomes:

$$\begin{aligned} z &= \underbrace{c_c\left[(h+\psi)\,z + rD_{w2}\right]}_{C_c} + \underbrace{c_w\Omega_1 z}_{C_{w1}} \\ &\quad + \underbrace{(1-\alpha)c_w\left[(1-h-\Omega_1-\psi)\,z - (r+\phi)\,D_{w2}\right] + \alpha C_{w1}\beta}_{C_{w2}} \\ &\quad + I(z) \end{aligned} \tag{15}$$

Total differentiation of (15) yields:

$$\frac{dz}{d\psi} = \frac{\left[c_c - (1-\alpha)c_w\right]\left(z + r\frac{dD_{w2}}{d\psi}\right) - (1-\alpha)c_w\phi\frac{dD_{w2}}{d\psi}}{S_z - I_z} \tag{16}$$

where S_z and I_z are the same as in (14). Redistribution increases indebtedness ($dD_{w2}/d\psi > 0$) which carries positive and negative effects: Interest payments increase capitalist consumption and decrease workers consumption, where the overall effect on demand will be positive when $(1-\alpha)c_w < c_c$. Installment payments reduce workers consumption without having positive effects on capitalist

consumption.[11] In the end the sign of (16) can again be positive or negative, where strong keeping-up effects (large α) and low installment rates favor the emergence of *profit-led* regimes based on an increase in consumption spending financed through additional household debt.

5 After the crunch

However, we have seen in recent history that creditors will not grant loans infinitely. Therefore, exploiting such a regime, albeit leading to an increase in demand in the short run, will lead to a collapse of this regime at some point. An analysis when exactly credit supply will stop is beyond the scope of this paper. However, since the recent crisis has been called a Minsky moment (see e.g. McCulley, 2009; Whalen, 2007), we may pose this issue within a Minskyan framework. Though case 3 seems to amount to a Ponzi-scheme, workers do not start out as *Ponzi-units* (who can neither fulfill the repayment of interest nor of the principal on outstanding debt from current income) in the Minskyan sense (see Minsky, 1986, 1992) when they begin to finance consumption through debt. Rather, they are *hedge financing units* at first, who can service all debt payments (interest and principal) out of current income if they wanted. However, as interest and installment payments accumulate, the gap between disposable income and consumption aspirations increases so that households become *speculative finance units* (who can still afford interest, but not installment payments out of current income and hence already rely on creditors rolling over debt) or the already mentioned Ponzi-units. The type 2 workers in our model stop being hedge financing units once current income is less than payments on outstanding debt plus subsistence level consumption $\bar{C}$ (i.e. minimum expenditure necessary to pay for food, residence etc.) as represented in condition (17).

$$(1 - h - \Omega_1 - \psi)\frac{Y}{N_{w2}} < (r + \phi)\frac{D_{w2}}{N_{w2}} + \bar{C} \tag{17}$$

[11] Repayment of the principal reduces outstanding loans positions on banks' balance sheets but do not lead to additional profits. Potential feedback mechanisms through changed liquidity positions of banks are neglected.

In other words, once income redistribution and indebtedness together reach a level to satisfy (17), type 2 workers will be bankrupt (unable to repay debt) as soon as the supply of credit stops. Now let us assume that there is an institutionally determined limit to an access to credit with respect to current income (as it is imposed by the creditors or financial intermediaries of a given economy) depicted by θ such that credit supply continues as long as the following condition is satisfied:

$$(1 - h - \Omega_1 - \psi)\frac{Y}{N_{w2}} < (r + \phi)\frac{D_{w2}}{N_{w2}} + \theta \tag{18}$$

Combining the conditions (17) and (18) leads to a very intuitive conclusion. For all combinations of $\theta \geq \bar{C}$ lenders will put an end to the *DFCD profit-led regime* early enough so that workers can no longer hold on to their current lifestyle, but are still able to orderly repay their debt. For all combinations of $\theta < \bar{C}$ workers will be bankrupt once the regime collapses.[12] Therefore, access to consumer credit creates the following trade-off situation: On the one hand, few restrictions on the access to credit (low θ; prevailing when institutional and other factors favor the supply of credit, e.g. through Collateralized Debt Obligations (CDOs), Credit Default Swaps (CDS) or a real estate bubble) creates the possibility of a prolonged boom phase *despite* increasing income inequality. On the other hand, the easier the access to credit (i.e. the lower θ), the more severe will be the damage (bankrupt households and bad debts) once the regime collapses.[13] Conversely a very restrictive credit supply (high θ) will put an early end to debt-financed profit-

[12]Provided that there is no shift in the "self-categorization" of type 2 workers which may affect the already mentioned relevant "prototypes" or "reference points" influencing consumption behavior and that there is no substantial institutional change occurring in the credit market, the *DFCD profit-led regime* may even continue after the credit crunch if workers can get rid of most of their debt (e.g. if banks have to write off large quantities), as this would somehow rewind the process (ignoring any effects of negative bank equity). If not, a credit crunch would probably restore a wage-led regime in the first scenario, whereas in the second scenario another profit-led regime may emerge: since type 2 workers have to live at subsistence level, with all income exceeding $\bar{C}$ going into debt repayment, a further reduction of income share of type 2 workers would increase capitalist consumption without reducing workers' consumption.

[13]Here our analysis is in line with authors such as Bhaduri et al. (2006), Hein (2012) and Palley (1994) who emphasize the evolution of debt from an initial accelerator of growth to a burden to growth later on.

led regimes, but, on the other hand, ensures that the economic consequences arising from an exhaustion of credit supply are less severe.

6 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 sub-group 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 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 U.S. 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, like CDOs or CDS, which led to an increased availability of credit (see also table 3). 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. In terms of our model the development of new financial institutions would increase the durability of a *DFCD profit-led regime* by inducing a lower θ, whereas the increasing social acceptance of financing consumption activity through mortgages would increase the tendency to engage in the race to keep up with the Joneses' (i.e. increase α).

Table 3: 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	CDS and CDOs

With respect to the current crisis in general and the development of the past twenty years in the U.S. in particular the above results have to be put into perspective: While we do believe that conspicuous consumption together with shifts from profit- to wage income and increasing inequality within the working class did play a major role in the recent consumption-led boom, we are also aware of alternative explanations for these recent developments. Dutt (2006), for instance, argues that changes on the supply side (the already mentioned institutional changes) play the more important role in consumption booms. However, while the removal of credit constraints - represented by the soar in housing prices and the emerging opportunity to borrow against house values - played an important role in the run-up to the recent crisis (see Evans, 2009), it does not explain why households exploit all of their credit possibilities (except in a permanent income/life-cycle framework where credit constrained rational households are substantially below the optimal level of debt). Moreover, this supply side view is at odds with the already mentioned empirical evidence provided by Christen and Morgan (2005) concerning the strong relationship between income inequality and credit growth. As another contributing factor Barba and Pivetti (2009), referring to Duesenberry (1962[1949]), mention the availability of new attractive goods.

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 ($\bar{C}$): If wages of workers in low-income groups are, on average, only a little above $\bar{C}$ 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 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)?[14] So in sum, we do believe that the consumption-driven profit-led regime introduced in this paper captures an empirically important part of the pre-crisis period, notwithstanding that there exist important prerequisites for and complementary arguments to the explanation suggested by our model.

7 Concluding thoughts

This paper showed how relative consumption concerns can lead to the emergence of a new kind of profit-led regime. More precisely, it illustrated how a rise in the profit share can cause an increase in consumption demand when conspicuous consumption effects of those workers suffering a decline in relative income are taken into account. Additionally, this newly explored theoretical possibility of a *debt-financed consumption-driven (DFCD) profit-led regime* also shows that the two concepts combined in this paper – a Post Keynesian 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, the resulting model fits well with the experience of the U.S. in the past 10 to 15 years - and most probably also applies to other countries with a similar economic development (Greece, Ireland, Spain and the U.K.; see Hein, 2011). Very interestingly, two empirical studies recently reported "perverse distribution effects" (Stockhammer and Stehrer, 2011, p. 520) – i.e. negative effects of the wage share on consumption – for several Anglo-Saxon countries: Barbosa-Filho

[14]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."

and Taylor (2006, Table 1) for the U.S. and Stockhammer and Stehrer (2011, Table 2) for several specifications for the U.S, the U.K., Ireland and Australia. Both studies lack a thorough theoretical explanation, which could be provided by the model presented in this paper.

Notwithstanding this overlap one is, as always, inclined to ask for the generality of this model: Why does it fit a certain time frame, but not others? In our discussion of the prerequisites for economic developments similar to those sketched in the model, we remained at a general level, by pointing at the relevance of certain institutional and cultural prerequisites influencing the availability of credit. Thereby, it is important to note that these prerequisites may take quite different concrete forms, since they are dependent on the cultural context (is private debt culturally accepted?), financial innovations (which institutional tools do we possess to determine the amount of credit available?) and concrete banking practices. We think that this kind of generality is a conceptual advantage, since it avoids the integration of limiting assumptions, but allows for a certain conceptual flexibility. Wealth effects due to the rising house prices as an explanation for the current crises provide a neat example in this context: While these effects surely are of high relevance for understanding the current crisis, this relevance is based on the cultural and institutional acceptability of private debt as a means for financing consumer spending. Without this cultural and institutional context, wealth effects alone would not pull the trigger. Since the concrete forms of those requirements might be highly specific, a certain modesty and openness will eventually facilitate their theoretical integration.

Acknowledgements:

We would like to thank Eddy Beckers, Octavio Fernandez-Amador, Eckhard Hein, Michael Landesmann, Markus Marterbauer, Susanne Pech, Miriam Rehm, Martin Riese, Christa Schlager and Sepp Zuckerstätter for a series of very helpful and inspiring comments. Any remaining errors are ours.

References

Amadeo, E. J., 1987. Expectations in a steady-state model of capacity utilization. Political Economy 3, 75–89.

Arestis, P., 1996. Post-Keynesian economics: towards coherence. Cambridge Journal of Economics 20(1), 111–135.

Barba, A., Pivetti, M., 2009. Rising household debt: Its causes and macroeconomic implications – a long-period analysis. Cambridge Journal of Economics 33(1), 113–137.

Barbosa-Filho, N. H., Taylor, L., 2006. Distributive and demand cycles in the US economy – A structuralist Goodwin model. Metroeconomica 57(3), 389–411.

Bhaduri, A., Laski, K., Riese, M., 2006. A model of interaction between the virtual and the real economy. Metroeconomica 57(3), 412–427.

Bhaduri, A., Marglin, S., 1990. Unemployment and the real wage: the economic basis of contesting political ideologies. Cambridge Journal of Economics 14(4), 375–393.

Blecker, R. A., 1999. Kaleckian macro models for open economies. In: Deprez, J., Harvey, J. T. (Eds.), Foundations of International Economics: Post Keynesian Perspectives. Routledge, pp. 116–149.

Boushey, H., Weller, C., 2006. Inequality and household economic hardship in the United States of America. DESA Working Paper no. 18.

Bowles, S., Boyer, R., 1995. Wages, aggregate demand, and employment in an open economy: An empirical investigation. In: Epstein, G. A., Gintis, H. M. (Eds.), Macroeconomic policy after the conservative era: Studies in investment, saving and finance. Cambridge University Press.

Bowles, S., Park, Y., 2005. Emulation, inequality, and work hours: Was Thorstein Veblen right? The Economic Journal 115(507), 379–412.

Brown, C., 1997. Consumer credit and the propensity to consume. Journal of Post Keynesian Economics 20(4), 617–638.

Christen, M., Morgan, R. M., 2005. Keeping up with the Joneses: Analyzing the effect of income inequality on consumer borrowing. Quantitative Marketing and Economics 3, 145–173.

Congressional Budget Office, 2008. Historical effective tax rates, 1979 to 2005: Supplement with additional data on sources of income and high-income households. Report.

Cynamon, B. Z., Fazzari, S. M., 2008. Household debt in the consumer age: Source of growth – risk of collapse. Capitalism and Society 3(2), 1–30.

Debelle, G., 2004. Macroeconomic implications of rising household debt. BIS Working Paper no. 153.

Dobusch, L., Kapeller, J., 2009. Why is economics not an evolutionary science? New answers to Veblen's old question. Journal of Economic Issues 43(4), 867–898.

Dobusch, L., Kapeller, J., 2012. Heterodox United vs. Mainstream city: Sketching a framework for interested pluralism in economics. Forthcoming in the Journal of Economic Issues.

Dosi, G., Fagiolo, G., Roventini, A., 2010. Schumpeter meeting Keynes: A policy-friendly model of endogenous growth and business cycles. Journal of Economic Dynamics and Control 34(9), 1748–1767.

Duesenberry, J. S., 1962[1949]. Income, Saving and the Theory of Consumer Behavior. Harvard University Press.

Dutt, A. K., 1987. Alternative closures again: A comment on 'growth, distribution and inflation'. Cambridge Journal of Economics 11(1), 75–82.

Dutt, A. K., 2005. Conspicuous consumption, consumer debt and growth. In: Setterfield, M. (Ed.), Interactions in Analytical Political Economy: Theory, Policy and Applications. M. E. Sharpe, pp. 155–178.

Dutt, A. K., 2006. Maturity, stagnation and consumer debt: A Steindlian approach. Metroeconomica 57(3), 339–364.

Dutt, A. K., 2008. The dependence effect, consumption and happiness: Galbraith revisited. Review of Political Economy 20(4), 527–550.

Evans, T., 2009. The 2002-2007 US economic expansion and the limits of finance-led capitalism. Studies in Political Economy 83, 33–59.

Finocchiaro, D., Nilsson, C., Nyberg, D., Soultanaeva, A., 2011. Household indebtedness, house prices and the macroeconomy: a review of the literature. Sveriges Riksbank Economic Review 2011:1, 6–28.

Garnett, R. F., Olsen, E., Starr, M. (Eds.), 2010. Economic Pluralism. Routledge.

Gordon, D. M., 1995. Growth, distribution, and the rules of the game: social structuralist macro foundations for a democratic economic policy. In: Epstein, G. A., Gintis, H. M. (Eds.), Macroeconomic policy after the conservative era: Studies in investment, saving and finance. Cambridge University Press, pp. 355–383.

Hein, E., 2011. Redistribution, global imbalances and the financial and economic crisis: The case for a Keynesian New Deal. International Journal of Labour Research 3(1), 51–73.

Hein, E., 2012. Finance-dominated capitalism, re-distribution, household debt and financial fragility in a Kaleckian distribution growth model. PSL Quarterly Review 65(260), 11–51.

Hein, E., Tarassow, A., 2010. Distribution, aggregate demand and productivity growth – theory and empirical results for six OECD countries based on a post-Kaleckian model. Cambridge Journal of Economics 34(4), 727–754.

Hein, E., Truger, A., 2010. Finance dominated capitalism in crisis – the case for a Global Keynesian New Deal. MPRA Working Paper no. 21175.

Hein, E., Vogel, L., 2008. Distribution and growth reconsidered: Empirical results for six OECD countries. Cambridge Journal of Economics 32(3), 479–511.

Hogg, M. A., Terry, D. J., 2000. Social identity and self-categorization processes in organizational contexts. Academy of Management Review 25(1), 121–140.

Kahneman, D., Knetsch, J. L., Thaler, R. H., 1991. Anomalies: The endowment effect, loss aversion and status quo bias. Journal of Economic Perspectives 1, 193–206.

Kapeller, J., 2010. Citation metrics: Serious drawbacks, perverse incentives and strategic options for heterodox economics. American Journal of Economics and Sociology 69(5), 1376–1408.

Keynes, J. M., 1997[1936]. The General Theory of Employment, Interest, and Money. Prometheus.

Kindleberger, C. P., 1978. Manias, Panics and Crashes. Macmillan.

Krueger, D., Perri, F., 2006. Does income inequality lead to consumption inequality? Evidence and theory. The Review of Economic Studies 73(1), 163–193.

Lavoie, M., 1992. Foundations of Post-Keynesian Economic Analysis. Edward Elgar.

Lavoie, M., 2009. Introduction to Post-Keynesian Economics. Palgrave Macmillan.

McCulley, P., 2009. The shadow banking system and Hyman Minsky's economic journey. In: Siegel, L. B. (Ed.), Insights into the Global Financial Crisis. Research Foundation of CFA Institute, pp. 257–268.

Minsky, H. P., 1986. Stabilizing an Unstable Economy. Yale University Press.

Minsky, H. P., 1992. The Financial Instabilty Hypothesis. The Jerome Levy Economics Institute of Bard College Working Paper no. 74.

Naastepad, C. W. M., 2006. Technology, demand and distribution: a cumulative growth model with an application to the Dutch productivity growth slowdown. Cambridge Journal of Economics 30(3), 403–434.

Naastepad, C. W. M., Storm, S., 2006-7. OECD demand regimes (1960-2000). Journal of Post Keynesian Economics 29(2), 211–246.

Neumark, D., Postlewaite, A., 1998. Relative income concerns and the rise in married women's employment. Journal of Public Economics 70, 157–183.

Palley, T. I., 1994. Debt, aggregate demand, and the business cycle: an analysis in the spirit of Kaldor and Minsky. Journal of Post Keynesian Economics 16(3), 371–390.

Pollin, R., 1988. The growth of U.S. household debt: Demand-side influences. Journal of Macroeconomics 10(2), 231–248.

Pollin, R., 1990. Deeper in Debt: The changing Financial Conditions of U.S. Households. Economic Policy Institute.

Rowthorn, R., 1981. Demand, real wages and economic growth. Thames Papers in Political Economy Autumn, 1–39.

Salotti, S., 2010. Wealth effect in the US: evidence from combination of two surveys. MPRA Working Paper no. 27352.

Schor, J. B., 1998. The Overspent American: Why we want what we don't need. Basic Books.

Shapiro, I., Friedman, J., 2006. New, unnoticed CBO data show capital income has become much more concentrated at the top. Center on Budget and Policy Priorities.

Stiglitz, J. E., 2008. Towards a General Theory of consumerism: Reflections on keynes' Economic Possibilities for our Grandchildren. In: Pecchi, L., Pida, G. (Eds.), Revisiting Keynes: Economic Possibilities for our Grandchildren. MIT Press, pp. 41–86.

Stockhammer, E., 2009. Determinants of functional income distribution in OECD countries. IMK Studies no. 5.

Stockhammer, E., 2011. Wage-led growth: An introduction. International Journal of Labour Research 3(2), 167–188.

Stockhammer, E., Onaran, Ö., 2004. Accumulation, distribution and employment: a structural VAR approach to a Kaleckian macro model. Structural Change and Economic Dynamics 15, 421–447.

Stockhammer, E., Onaran, Ö., Ederer, S., 2009. Functional income distribution and aggregate demand in the Euro area. Cambridge Journal of Economics 33, 139–159.

Stockhammer, E., Stehrer, R., 2011. Goodwin or Kalecki in demand? Functional income distribution and aggregate demand in the short run. Review of Radical Political Economics 43(4), 506–522.

Stutzer, A., 2004. The role of income aspirations in individual happiness. Journal of Economic Behavior and Organization 54, 89–109.

van Treeck, T., 2012. Did inequality cause the U.S. financial crisis? IMK Working Paper no. 91.

Veblen, T., 1970 [1899]. The Theory of the Leisure Class. Unwin.

Whalen, C. J., 2007. The U.S. credit crunch of 2007: A Minsky moment. Levy Institute Public Policy Brief No. 92.

Wisman, J. D., Baker, B., 2010. Rising inequality and the financial crises of 1929 and 2008. American University Working Paper no. 2010-10.

Zezza, G., 2008. U.S. growth, the housing market, and the distribution of income. Journal of Post 30(3), 375–401.