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Factors generating and transmitting the
financial crisis:

Functional distribution of income

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Factors generating and transmitting the financial crisis: Functional distribution of income

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Abstract: The distribution of income between capital and labour has, until very recently, been ignored by the majority of the economics profession. At the same time, the rate of wage growth has systematically lagged the growth of productivity, leading to a fall in the share of wages in total income. This paper considers the links between shifts in the functional distribution of income, rising personal income inequality and the mechanisms which led to the financial crisis of 2007-2008. The paper argues that the most widespread explanation for increasing inequality – increasing demand for skilled labour due to technological change – is not convincing, and that political factors have played an important role. Mechanisms by which increasing inequality feed through into financial instability are considered. These include debt as an insurance mechanism against greater income volatility; debt as an adjunct to emulative consumption behaviour; debt as a political tool to defuse the growing gap between wages and productivity; and debt as a way to overcome the stagnationary macroeconomic effects of rising inequality.

Key words: Aggregate Factor Income Distribution; Financial Crises

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There seems little question that in 1929, modifying a famous cliché, the economy was fundamentally unsound ...In 1929 the rich were indubitably rich ...the five percent of the population with the highest incomes in that year received approximately one-third of all personal income ...This highly unequal income distribution meant that the economy was dependent on a high level of investment or a high level of luxury consumer spending or both. The rich cannot buy great quantities of bread. (Galbraith, [1954] 1992, p. 195)

1 Introduction

1.1 The wage share

That the share of wages in national income has tended to remain stable over time—indeed remarkably so—has long been a stylised fact.¹ Why this should be so has never been settled to a satisfactory degree. This constancy is all the more remarkable given the complexities of the changes in the structure of production and of relative incomes that lie beneath the aggregate figures—after examining the share of wages in income in the UK and USA for the period 1911–1935, Keynes declared that the constancy of the ratio during that period was “a bit of a miracle” (1939, p. 49).

Authors have attempted to explain this phenomenon in a number of ways. Kalecki ([1939] 1990) argued that, over the course of the business cycle, changes in the “degree of monopoly” were usually offset by compensating changes in the price of raw materials, leaving the share of wages constant.² Solow, on the other hand, argued that, given a neoclassical aggregate production function with plausible parameter values for the elasticity of substitution between labour and capital, the observed increase in the labour share of around ten percent over the period 1929–1954 was consistent with the rate of capital accumulation over that period.

Solow, however, was circumspect about the possible dangers of reliance on such a theoretical apparatus to draw conclusions about these statistics:

The general equilibrium theory is in the first instance a microeconomic one....It

is hard to believe that the theory offers any grip at all on the variability of relative shares as the data change—in fact this may be viewed by some as a symptom of its emptiness. (Solow, 1958)

Nonetheless, this theory has since become the standard approach to the construction of macroeconomic models. In recent years, as noted by Stiglitz (2011), “it has become acceptable, even fashionable, to use particular parameterizations, for example, constant elasticity utility functions” (p. 594).

Most recently, Piketty (2014) has reopened the debate by focusing on the share of income accruing to owners of capital. Piketty does not break with tradition and retains the constant elasticity of substitution aggregate production function, but augments it with his “fundamental law of capitalism”: the fact that the rate of return on capital will exceed the rate of growth of total output, leading to a rise in the capital share.

The marginalist method can be taken to the extreme through the use of a Cobb-Douglas specification which excludes *by assumption* the possibility of non-unitary elasticity of substitution, with the result that factor shares are fixed:

[I]f the distribution of income (say between labor and capital) matters, for example, for aggregate demand and therefore for employment and output, then using an aggregate Cobb-Douglas production function which, with competition, implies that the share of labor is fixed, is not going to be helpful. (p. 596)³

If one is further interested in, for example, an integrated analysis of the interaction between aggregate demand and debt, another recent innovation in macroeconomic modelling—that of the representative agent—is similarly unhelpful. With the economic system modelled on the basis of a single representative household, any redistribution between labour and capital can exert no macroeconomic influence since the income lost by that household as wages will be exactly offset by income gained as profit. Financial dynamics are likewise excluded by assumption: in such a model, there exists no-one for the representative household to borrow from, and no-one to lend to.

However, over the past 30 years or so, while the economics profession has been

busy purging its models of any features that could allow for an analysis of the macroeconomics of income distribution and debt, the apparently stable share of wages in national income appears to have broken down. At the same time, the distribution of wage income has become increasingly unequal. For the great majority of wage-earners in advanced capitalist economies, wage growth has systematically lagged the growth of labour productivity.

It is argued by a growing number of economists that this pattern of increasing income polarisation should be seen as one of the deeper underlying causes of the financial and economic crisis which began in 2007–2008.⁴ The most obvious connection with the crisis is to be found in the fact that the proximate trigger of the crisis was excess accumulation of debt in the household sector of the United States. This debt was, for the most part, accumulated by households whose incomes had not risen in line with productivity growth, and in many cases had fallen in real terms. At the same time, state provision of services was being scaled back. As a result, many households turned to debt in order to maintain consumption. This debt was often obtained by using housing that was rising in value as collateral. At the same time, a disproportionate and rising share of income was accruing to wealthy households at the top of the income distribution, setting up an increasing demand for safe, standardised financial assets in which to hold their wealth. Banks responded by securitising the debt of the poor and selling it to the wealthy. The rest of the story is, by now, well known.

1.2 Dimensions of inequality

The aim of this Deliverable is to examine the relationship between the functional distribution of income and the financial and economic crisis that began in 2007–08. The “functional” distribution refers to the division of output between different types of income, such as wages, profits and interest. Despite a recent renewed interest in the distribution of income, the economics literature has—with some important exceptions—tended to focus on other measures of inequality, such as changes in the distribution of income among different groups of wage-earners, and changes in the distribution (and composition) of total personal income. As highlighted in the previous section, this

neglect of the functional distribution is, at least in part, a reflection of the structural features of standard economic models.

What emerges from this literature is a picture of a dramatic divergence in income and wealth over the last thirty years or so, in particular between the those at the top of the distribution and those close to the median. The dominant explanation for this rise in inequality is that it is the result of increases in demand for skilled labour, driven by innovations in technology, particularly the use of computers. Until recently this view went largely unchallenged in the mainstream literature, but an increasing number of authors are now beginning to argue that there is more to the story. The emerging literature, however, is a primarily a story about the distribution of personal and wage income, rather than the *functional* distribution of income. These two ways of looking at income distribution are not, however, unrelated: personal and functional measures are two ways of quantifying the outcome of the same underlying mechanisms. Changes in the structure of production as a result of industrial reorganisation, globalisation and immigration will lead to simultaneous shifts in both distribution measures. For example, as labour shifts from unionised, relatively low productivity manufacturing sectors characterised by relatively low profit margins and a low dispersion of wage income, to the less unionised, relatively high productivity services sector in which profit margins are higher and wage income more dispersed, both an increase in wage dispersion and a shift in the functional distribution of income will be observed. The following view, put by Gordon & Dew-Becker (2008), is therefore rejected:

[L]abor's share in national income is not related to the current debate about increased inequality. If the labor income of the highest-paid workers increased enough, we would observe simultaneously an increase in labor's share and a decline in the real income of the median worker (p. 43)

What *is* true is that the effect of increasing wage and income dispersion on the wage share in national income cannot be determined *a priori*—the overall effect on the wage share may be either negative or positive. But this does not imply that the mechanisms which lead to increased wage dispersion are not also significant in determining the overall wage share. In fact, most of the evidence suggests that, although the mecha-

nisms are complex, changes in each of the two measures have been in the same direction:

The declining bargaining power of the average worker has resulted in two observable changes: a shift of income from labor to capital, and a shift of both labor and capital income to the top of the income distribution (Levy & Temin, 2007, p. 37)

Moreover, at the top of the income distribution, the distinction between capital and labour income is becoming increasingly blurred. As will be shown in the next section, much of the concentration of “wage income” at the top of the distribution is accounted for by the salaries, bonuses and stock options of managerial and financial employees. Whether this can really be considered as wage income—as it is in national accounts—is debatable.⁵

Literature which examines personal income distribution in isolation, however, excludes from analysis (by design) a significant portion of total national income. The implicit assumption in models based around the neoclassical aggregate production function is that all income—whether wages or profits—is returned to factors of production, as income, in each period. In fact, it is clear from national accounts and the balance sheets of non-financial corporations that a significant and rising share of national income never leaves the corporate sector. Non-financial businesses increasingly finance investment out of retained earnings, while simultaneously holding increasing stocks of liquid financial assets. To view such real and financial investment as being financed using income which has, in each period, been returned to shareholders only to then be subsequently re-invested, is clearly misleading.

Given the inter-related nature of the various measures of income distribution, this Deliverable will take a broad-based analytical approach by engaging with the wider literature on income distribution and its relationship to the financial crisis, as well as those contributions which look specifically at the functional distribution of income. It should be noted that much of the discussion will be rather US-centric, for two main reasons. Firstly, most of the authors who write on income distribution are based at US institutions and focus their research on the case of the US. The “hollowing out” of the

US middle class over recent decades has become a subject which has attracted considerable popular attention.⁶ Secondly, because the crisis of 2007–2008 first erupted in the United States, changes in the pattern of income distribution there are likely to be of particular significance in interpreting that crisis.

1.3 Paper outline

This Deliverable is structured as follows. The following section gives an overview of recent changes in the functional distribution of income, and places these changes in the context of wider shifts of other measures of the distribution of income. Section 3 discusses competing explanations that have been advanced to explain these shifts. Section 4 discusses the empirical evidence on the causes of inequality. Section 5 considers the connections between inequality and the financial crisis from a number of different theoretical viewpoints. Section 6 concludes.

2 Trends in income distribution

In this section, recent trends in various measures of income distribution are presented and briefly discussed. One common measure of the functional distribution of income—the “adjusted labour share”—is shown for six selected economies in Figures 1 and 2. In all six, with the exception of the UK, the labour share shows a clear decline from peaks in the mid-to-late 1970s to around 2007-08 when the crisis struck.

Data for the functional distribution of income in developing countries are less readily available, but the evidence suggests that declines in the labour share of income in LDCs may be at least as pronounced as in developed countries. Figure 3 shows summary indices of the wage share for developed countries, as calculated by Stockhammer (2012b). Three series are shown: DVP3 summarises the data for three countries where data are available since 1970; DVP5 for five countries where data are available from 1979; and DVP16 for a group of sixteen developing countries, where data are available from 1993.

A new data set compiled by two authors at the University of Chicago collects data on the share of labour in the value added of the corporate sector for a large sample of countries.⁷ The authors summarise their findings as follows: “Of the 59 with at least 15 years of data between 1975 and 2012, 42 exhibited downward trends in their labor shares. Of the trend estimates that are statistically significant, 37 are negative while only 9 are positive.” These results are summarised in Figures 4 and 5. Figure 4 shows the estimated labour share and the fitted trend in the US, China, Japan and Germany. Figure 5 summarises the trends across the dataset, with the eight largest economies highlighted.

It should be noted that the impression given by these figures—of a significant fall in the share of national output going to labour—has not gone unchallenged. A range of criticisms have been directed at those who argue that a shift in the distribution of income from wages to profits has taken place over the last thirty years or so. The most straightforward of these criticisms is simply that the trend decline is a result of the data period selected for analysis, and that much of the decline is simply a reversal of the sharp increases in the labour share seen in the 1960s and 1970s. Based on calculations from the US NIPA tables, Piketty & Saez (2003, p. 3) find that the shares of wages and capital in the US corporate sector have remained close to constant over the long-run period from around 1930 to 2000.⁸ Gordon & Dew-Becker (2008) argue that “one can reach almost any conclusion about changes in labor’s share, depending on the time period examined.”

Another source of debate relates to a number of questions on the correct way to measure the labour share, and in particular how to deal with the incomes of those registered as self-employed.. Further, different approaches to measurement deal differently with the government sector, the housing sector, taxes, interest payments, price deflators for consumption and production and capital depreciation. Depending on the assumptions made regarding these factors, very different results can be obtained (Gomme & Rupert, 2004).

The usual procedure in constructing “adjusted” wage shares, such as those shown in Figures 1 to 3, is that the ratio of “unambiguous” labour income to capital income is

calculated, and this ratio is used to calculate an implied average real wage rate which is then applied to the “ambiguous” proprietor’s income in order to impute the share of self-employment income which should be classified as wages.⁹ A number of authors have argued that a relative rise in the wages of self-employed persons relative to payroll employees implies that this adjusted labour share now significantly underestimates the true aggregate labour share. This is illustrated by Figure 6 from Elsby et al. (2013), which compares the published headline labour share published by the US Bureau of Labor Statistics with shares of gross value added in the non-farm business sector taken from the NIPA tables. As this figure demonstrates, during the 1980s the published BLS labour share exceeded the aggregate labor share in income calculated from the NIPA tables and has fallen steadily since. Elsby et al. argue that this accounting artefact can explain a third of the reported decline since 1980. The figure also illustrates that the conclusion that a falling labour share automatically implies a rising profit share must be treated with caution: a rising share of value added going to taxes, for example, will lead to a reduction in *both* the profit share and the wage share in some measures.

While space is not available in this Deliverable to discuss these issues fully, it should be noted that, as a result of these complexities, a number of authors have argued that time series such as those shown in Figure 1 are misleading, at least as far as the United States is concerned: “Over the full period 1950–2006 labor’s share has risen, not fallen, but once the labor portion of of proprietor’s income is added in, labor’s share has been almost exactly flat for more than 50 years” (Gordon & Dew-Becker, 2008, p. 43).¹⁰ However, while no final consensus has yet been reached on the issue, a larger number of authors take the opposite view and conclude that a significant decline in the labour share has taken place. The discussion will thus proceed on the assumption that the declining labour share trends shown are broadly accurate, but it should be borne in mind that debate continues on the issue.

The labour share is only one part of a larger story on inequality, however. Over the period 1979–1995, by either of the two measures shown in the figures, the recorded fall in the US labor share is under five percent. Over that same period, for full-time US workers, the real wages of those with 12 years of education fell by 13.4% and the real

wages of those with less than 12 years of education fell by 20.2%. Over the same period, the real wages of workers with 16 or more years of education rose by 3.4%, leading to an dramatic widening of the wage differential between workers with different levels of education. (Feenstra & Hanson, 2003; Katz & Autor, 1998)

Two widely referenced measures of the distribution of wage income are shown for the United States in Figures 7 and 8. These figures show the ratios of average wages of different deciles of the overall wage distribution, for both males and females. The pattern of changes is similar for both males and females, although the levels of inequality at the bottom of the distribution differ. In both cases, the 90/10 ratio has shown a steady rise over the period so that the average wage of the top decile has increased from around 1.8 times that of the fifth decile, to a multiple of around 2.3 in the case of females, and around 2.4 in the case of males. The picture at the bottom of the distribution is more complex: the 50/10 ratio rose sharply over the 1980s, but subsequently levelled off in the case of females, and declined somewhat in the case of males. The same decline in the relative wages of blue-collar workers during the 1980s and into the 1990s can be found for Australia, Canada, Japan, Sweden, and the United Kingdom, Hong Kong and Mexico (Feenstra & Hanson, 2003). However, the rise in inequality has not been as sharp in most countries as that in the US—among advanced countries, only in the United Kingdom have relative wage changes been comparable (Gosling & Machin, 1995).¹¹

Detailed data on the personal distribution have been compiled by Alvaredo et al. (2013), based on data collected from tax returns. Figure 9 shows the share of income (excluding capital gains) received by each of the top one percent of the population, the next four percent (5–1%), and the rest of the top ten percent (10–5%). When the top one percent of the population is excluded, the remainder of the top decile has shown a gradual increase in their share of income since the end of the Second World War. The pattern shown by the top one percent is quite different: after declining sharply after the crash of 1929, the decline slows from around 1950 and remains fairly constant until the mid-to-late 1980s. After this point, the share of income taken by the top one percent increases from around nine percent of total income to almost eighteen percent before

the crash of 2007–08. After an initial decline following the crash, the share of the top one percent resumed its climb, reaching over nineteen percent by 2012, higher than the pre-2007–08 crash and close to levels reached before the 1929 crash.

What is notable is that this pattern is not reproduced across all countries. Again the data for the United Kingdom most closely track those of the United States, with a clear 'U'-shaped pattern over time. In contrast, France and Japan show similar patterns until World War 2, but do not then replicate the remarkable increase in inequality found in the US and UK. France and Japan are thus characterised as having an 'L'-shaped pattern of top income shares (see Piketty & Saez, 2003).

The authors also provide data on the composition of the top incomes. Figure 9 shows this composition for an even smaller group at the very top of the income distribution—those in the top 0.1 percent of the population by income. What is striking about this figure is the way that dividend income has been replaced in the income of this group by that of wages and entrepreneurial income: “the composition of income in the top income groups has shifted dramatically over the century: the working rich have now replaced the coupon-clipping rentiers” (Piketty & Saez, 2003, p. 3)

The story is completed by Bakija et al. (2008) who, using tax return data, show that in the US “executives, managers, supervisors and financial professionals” account for 70 percent of the increase in the incomes of the top 0.1% between 1979 and 2005 and 60 percent of the increase going to the top 1%. By 2005, the so-called wages of this group made up over 9% of total national income, up from around 4% in 1979. Despite being classified as wage income in the national accounts, a significant portion of the remuneration of such top executives actually takes the form of stock options.¹²

What these trends in the data illustrate is that the distinction between labour and capital income has become increasingly hard to pin down. If the income of the top 1% of financial and managerial staff in form of salaries, bonuses and stock options were to be reclassified as non-wage income in the national accounts, the decline in the wage share in the US would be considerably more pronounced. This is illustrated in Figure 11 which shows the labour share of in the non-farm business sector of the US, divided by income fractile. The decline in the wage share of the bottom 95% is clear, while the

share taken by the upper fractiles has increased dramatically.

3 Explanations for changes in the distribution of income

3.1 Skill-biased technical change

The most widely cited cause for the increase in inequality in advanced economies (and particularly the United States) is technological change. Writing in the *Financial Times* shortly before the financial crisis, Jagdish Bagwati argued that those who looked to globalisation as an explanation for increasing inequality were misguided:

The culprit is not globalization but labour-saving technical change that puts pressure on the wages of the unskilled. Technical change prompts continual economies in the use of unskilled labour. Much empirical argumentation and evidence exists on this. (FT, January 4, 2007, p. 11)

It is argued that technology has advanced in such a way as to increase the demand for skilled labour relative to that of unskilled labour. At the same the educational system has failed to keep step with its output of so-called “human capital”, leading to a dispersion in wage rates. As Krugman notes,

the hypothesis that technological change, by raising the demand for skill, has led to growing inequality is so widespread that at conferences economists often use the abbreviation SBTC—skill-biased technical change—without explanation, assuming that their listeners know what they are talking about” (2007, p. 132).

A key text for this school of thought is Goldin & Katz's *The Race between Education and Technology* 2009.¹³ In their review of the book, Acemoglu & Autor predict it will revolutionise the way economists think about the subject:

Goldin and Katz's magnum opus, *The Race between Education and Technology*, rivals Becker's *Human Capital* in ambition and potential influence over

the economics profession and beyond...The way most economists currently think about the supply and demand for human capital is still largely shaped by Becker's insights. Goldin and Katz's book promises to be equally transformative.

The canonical "technology vs. skill" model can be summarised as follows.¹⁴ As in standard neoclassical models, technology is viewed as factor-augmenting. However, technological improvements result in increases in factor productivity occurring disproportionately such that productivity increases more at higher skill levels. Technological progress thus increases returns to all factor inputs but with the weight of increases increasing with the higher levels of skill of labour inputs, resulting in a skill premium for more able workers.

The empirical evidence used to support this argument is shown in Figure 12. The figure shows the change in the log weekly wage for males in the US, divided into five categories based on the level of education attained.

Since factor prices are determined by the interaction between supply and demand, the skill premium effect will be lessened if the supply of skilled labour increases in line with demand. On the other hand, if the growth of the supply of skilled labour lags the growth rate of technological change, the skill premium will widen. This raises the question of why "human capital formation" has not responded to demand, leading to shortages of skilled labour and widening wage differentials.

Acemoglu & Autor broadly agree with Goldin & Katz's conclusion that "the United States has ...lost its educational leadership because its educational institutions have become decadent" (Acemoglu & Autor, 2012, p. 2). However, they highlight a number of problems for the canonical model. Firstly, the model *over*-estimates wage dispersion from around the beginning of the 1990s—the estimated gap between supply and demand for skilled labour implies a greater skill premium than that which is actually observed. The growth in inequality slowed while the information technology boom continued (Card & DiNardo, 2002). Secondly, it cannot explain the observed *absolute* fall in real wages at the bottom of distribution, particularly for males, as shown in Figure 12. (The model is also unable to explain the shift in the functional distribution of income

from wages to profits, unless technological change is assumed to be capital-biased as well as skill-biased.) Finally, the fact that the gap between the 10th percentile and the median (50th) percentile contracted from the early 1990s, while the 90/50 gap continued to expand, cannot be explained.

In an attempt to rationalise these facts, Acemolu & Autor update the canonical model such that technology is labour-replacing, rather than labour-augmenting, and they introduce a distinction between skill-levels and “tasks” (in the standard neoclassical production function, there is no distinction between the quality of factors of production, and the skills required for the tasks to which they are assigned).

Regardless of the validity of the approach of adding features to standard models until they begin to converge with reality,¹⁵ this analysis leads to questions about why education in the United States has failed to keep up with the demands of the modern age. High school graduation rates peaked in early 1960s and have been stagnant ever since, so that the US is now ranked in the bottom third of rich countries. College graduation rates show a similar sudden slowdown in the 1980s—enrollment rates increased significantly but so did dropout rates—so that college graduation rates for men born in the 1970s were no higher than for men born in the 1940s. (Rajan, 2010, p. 25)

The possible hypothesis that some sort of natural plateau in education levels has been reached is widely rejected on the basis that if this were the case then a similar pattern would be observable in other countries. In contrast, with education levels increasing elsewhere, the US is continually slipping down world ranking tables on educational achievement. Instead, the explanation provided by these authors is essentially a political one:

Research by political scientists and economists alike ...suggests that the U.S political system has been giving much more weight to the rich and wealthy and much less to the poor...it is unlikely that...investments in the schooling of the most disadvantaged...will be taken (Acemoglu & Autor, 2012, p. 32)

Debates within this strand focus on questions such as where in the skill distribution better education is most urgently needed. At the elite level the US still plays the role of a world leader, and it is argued that, if the predictions of the standard models are

accepted, it will need to retain this position if growth rates are to be maintained. On the other hand, considerations of equity demand that resources be directed towards the more politically problematic middle ground. Authors are, however, rather fatalist about the feasibility of the kind of policy responses that would be required: “improvement requires real and effective policy change in an area where too many vested interests favor the status quo” (Rajan, 2010, p. 8).

Given the acceptance of a limited potential for improvement in the standards of mass education, and in line with the conveyor-belt view of human capital as the final output of a sequence of production functions, the search for culprits has recently shifted further back in the “value chain”, with researchers examining the role of “non-cognitive returns to parental inputs” (Bertrand & Pan, 2013) and the dynamics of the production and depreciation of “health capital” (Currie, 2008). Rajan summarises this strand of thinking in plainer English: “The problems are rooted in indifferent nutrition, socialization and learning in early childhood and in dysfunctional primary and secondary schools that leave too many Americans unprepared for college” (2010, p. 8)

A possible alternative interpretation of the data shown in Figure 12 is the following. It is known that “wage income” is becoming concentrated in the hands of a shrinking proportion of the population. If we hypothesise that this income in some way represents appropriation of rents, the link with education becomes less clear. Rather, it may be the case that the individuals who are appropriating these rents tend to come not from the bottom of the income distribution, but, in general, from well-off backgrounds. As such, these individuals will tend to have high levels of educational attainment. But correlation does not necessarily imply causation. In fact, if it were possible to disaggregate the group of educated individuals (say the top two lines of Figure 12) who are held to have gained the most from skill-biased technical change, it is likely that the same pattern of concentration would be discerned *within* these skill-groups. Thus, even in the top educational categories, most individuals may not be beneficiaries of increasing inequality but, due to the inclusion in these categories of those taking very high incomes, the *average* incomes for the group appears to be high.¹⁶

A final issue with the SBTC argument is raised by Alvaredo et al. (2013): why did wage dispersion not occur in France & Japan? If technological change, rather than political action, were to blame for increasing income inequality, then the same patterns should have been seen equally across the globe. The acceptable answer, presumably, is that educational standards have slipped in the US and UK but not in France and Japan. This answer avoids the issue of the falling wage share in the latter countries, however. An alternative hypothesis is that there is more to the issue than the simple technological change story. These other possible explanations are considered next.

3.2 The alternative story

Not all authors have bought into the SBTC story. Some have noted that the thirty-year period of rising inequality that took place before the crisis was characterised not only by increasing use of information technology, but also by deeper processes of deregulation, globalisation and financialisation. Aside from skill-biased technical change, a range of other possible explanations for the decrease in wage shares and divergence in income equality have thus been suggested.

Although these factors will be discussed in separate sections, it should be emphasised that several of these explanations involve mechanisms which are multi-dimensional and overlapping. For example “globalisation” and “financialisation” are complex concepts which do yet not conform to any widely accepted definition. Some definitions of globalisation, for example, will include such phenomena as deregulation and increasing competition.

3.2.1 Labour market deregulation and trade union decline

The period of rising inequality that took place before the crisis was coincident with a period of deregulation in almost all spheres of economic life. In particular, labour markets were subjected to sustained pressure to increase “flexibility”. From the point of view of standard economic models, the deregulation of product and labour markets is almost universally regarded as having positive effects—in the long run at least, even

if some short-run costs are inevitable.

Blanchard & Giavazzi (2003), for example, present a model in which market rigidities imply that, in the short run, deregulation leads to higher unemployment and lower wages, but in the long run the eradication of inefficient rents leads to an outcome in which “workers gain more as consumers than they lose as workers” (p. 880). For workers to feel the the beneficial effects of “flexible” labour markets, all that is required, therefore, is a little patience.

In this view, the strongly falling labour share in European states “reflects the fact that unions have become less powerful in the Continental countries, and that the wage has come closer to the marginal product of labor” (Blanchard, 1997, p. 103).¹⁷ Blanchard goes further and suggests that the introduction of labour-saving technologies may in fact have been *caused* by the intransigence of unions in the late 1970s, leading firms to react by investing in these technologies. He concludes that the fall in the labour share is the result of a combination of capital-biased technical change and “redistribution of rents” between firms and workers as a result of changes in relative bargaining strength.

An alternative view is associated with post-Keynesian theories in which marginal costs are held to be close to constant and the distribution between labour and capital is thus determined purely on the basis of the outcome of a bargaining process. Authors from this school of thought assert that the drive to increasing “flexibility” of labour markets is, instead, one element in a wider ideologically driven attack on state provisions and the rights of workers, to the advantage of corporate and financial interests:

The small government agenda attacks the legitimacy of government and pushes relentlessly for deregulation regardless of dangers. The labor market flexibility agenda attacks unions and labor market supports such as minimum wages, unemployment benefits, employment protections, and employee rights. Abandonment of full employment puts workers under duress, while monetary policy is conducted with an eye to low inflation targeting and support of financial interests. Finance therefore squeezes wages through both public policy and through control over corporations exercised via deregulated finan-

cial markets (Palley, 2013, pp. 4–5).

Authors have highlighted the decline of the trade union movement in advanced nations as an important explanatory factor in the apparent inability of “traumatised workers” to resist downward pressures on wages.¹⁸ As already noted, the imputed significance of this decline depends largely on the theoretical and ideological orientation of the author. From the point of view of standard economic theory, trade unions extract rents by setting wages above the market clearing rate, leading to welfare losses and unemployment (eg. Gottschalk & Moffit, 1994). However, once the unrealistic assumption of perfect competition among firms is abandoned, the notion of an equilibrium market-clearing price for labour no longer holds and the distribution of income becomes the outcome of a bargaining process between firms and workers.¹⁹ Greater bargaining strength on the part of labor will result in a higher real wage. At the aggregate level, so long as the overall demand for labour is inelastic, a higher average real wage will translate into a higher overall labour share. From a non-marginalist perspective, trade unions thus provide an essential mechanism by which workers are able to resist firms’ mark-up pricing decisions and maintain the growth of real wages relative to productivity (Kalecki, [1971] 1990).

Until recently in the mainstream literature, it was largely taken for granted that greater unionisation is associated with greater wage *inequality*. However, since the publication of Freeman’s (1980) seminal study, this view has been substantially weakened. Freeman found that unionisation was correlated with a substantial compression of wage incomes. This result has subsequently been confirmed by a number of other more recent studies (eg. Card et al., 2004).

Table 1 shows union membership rates for sixteen countries, as calculated by Friedman (2009). The table includes both peak and current membership rates. Membership peaked in the United States in 1956, and in the late 1970s in other Anglo-Saxon economies. By 1995, union membership had peaked in twelve of the sixteen countries. What is noteworthy is the remarkable variance in union density rates across countries.²⁰

This decline in union membership was paralleled by a fall in the level of strike activi-

ties, as shown for the US in Figure 13. Levy & Temin note that “the rapid fall underestimates the decline in work stoppages as expressions of union power as strikes increasingly became expressions of union despair ...rather than efforts to improve working conditions ” (2007, p. 37)

On one side of the ideological divide, union declines are seen as the result of the triumph of consumerism over socialism and the alignment of workers incentives with those of managers. The opposing view finds an explanation in “a mix of three factors: a great rise in strength and heavy-handedness among the owners and managers of business since the 1970s; a loss of state support for collective bargaining; and a decline in union militancy” (Holt, 2007, pp. 102–103) In attempting to explain the decline of union membership, authors have also highlighted the stagnationary tendencies of advanced economies since the late 1970s; the decline of industrial manufacturing and the rise of services; and the weakening of labour as a result of increasing trade and immigration. In line with this view, several authors have argued that attacks on trade unions were part of a wider political programme to weaken labour, to the advantage of corporations (eg. Palley, 2012; Irvin, 2011; Horn et al., 2009). As such, the weakness of unions is seen as having played a central role in the increasing disparity of incomes (See also Section 3.3).

Detractors have taken issue with this on the basis of timing: in the United States, unionisation began falling in 1950s, before the rise in inequality began. Further, significant increases in inequality have been noted in sectors that were never strongly unionised, such as the legal and medical professions (Steelman & Weisberg, 2005). However, as shown in Figure 13, a second peak in strike action in the US meant that the numbers of people involved in strikes in the early 1970s were nearly as great as in the late 1950s. Others who have sought to downplay the significance of union decline *per se* include Rajan, who argues that “weakness of unions may also have reduced moderately educated workers’ bargaining power, though the loss of high-paying union unionized jobs probably has more to do with increased competition and entry as a result of deregulation, as well as competition from imports.” (2010, p. 28)

Finally, authors have pointed to the fact that in the United States, the decline in

unions took place simultaneously with a fall in the real minimum wage, as shown in Figure 14. It is thus hard to disentangle the extent that unions and the minimum wage each contributed to the rise in income inequality. Card & DiNardo (2002) argue that falls in the minimum wage explain much of the increase in inequality: the period of sharpest decline in the minimum wage was over 1980s, at the same time as the greatest increases in inequality. They find a close to perfect correlation of the minimum wage with the change in 90-10 ratio.

3.2.2 Globalisation

Alongside deregulation of domestic markets, the pre-crisis period was characterised by extensive dismantling of barriers to international trade and capital flows. The effects of globalisation and, in particular, the effects of trade competition with developing countries are oft-cited causes of downward pressure on low-skilled wages and “de-industrialisation” in advanced countries. Increased capital mobility, leading to greater potential for foreign outsourcing and international technology transfers serve to further undermine the bargaining position of workers (Rodrik, 1997).

From the point of view of the functional distribution of labour, the standard analytical approach remains the Heckscher-Ohlin trade theory and the related Stolper-Samuelson theorem (1941). However, while the predictions of the theory are partially supported by outcomes in advanced nations—the capital share has increased and wage dispersion between skill groups widened—the same is not true of developing countries. The evidence suggests that the increasing inequality that has occurred in advanced nations has been paralleled by similar divergences in developing nations (Davis & Mishra, 2007; Stockhammer, 2012b). This outcome contradicts the prediction of the theory that the owners of more abundant factors of production—unskilled labour, in the case of developing countries—should see an increase in income. Further, the theory predicts increasing dispersion between high and low skilled workers in advanced countries, but cannot account for the fact that even most high skilled workers in the west have seen their incomes lagging labour productivity (Krugman, 2007). Finally, it has also been shown that the labour share has also fallen within the non-traded sectors of the econ-



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omy (Azmat et al., 2007). It is argued by Feenstra (2007) that it is this failure to conform to the predictions of standard models that has led many economists to reject trade liberalisation and outsourcing as significant explanatory factors for the falling wages of low-skilled workers in the West, leading to the emphasis on technical change instead.

Those who argue against trade as an important factor contributing to higher inequality highlight the relatively small share of trade in total GDP: in many countries the trade-to-GDP ratio is lower now than it was in 1913. However, trade in intermediate goods makes up a significantly higher proportion of the total than in the past. Feenstra (2007) argues that the effect of such outsourcing of manufacturing by corporations is similar to skill-biased technical change in terms of the changes in relative demand for high and low-skilled labour. Feenstra argues that this effect accounts for 15-24% of the shift in total demand.

It has also been argued that there is a connection between the current account deficits run by countries such as the UK and US and the decline in manufacturing. Falling wages are thus linked with international imbalances via de-industrialisation and off-shoring.

In addition to the wage competition from abroad faced by workers in an increasingly globalised world, the arrival of low-skilled immigrants from overseas is another potential cause of pressure on the wages of the low-skilled. If immigrants mostly take low-paying jobs at the bottom of the income distribution, this will have direct effects on measures of wage dispersion. The effect on the functional distribution of income, again cannot be *a priori* determined, since it will depend on the profitability of the sectors in which immigrants are employed, the sectoral composition of the economy and so on.

As well as generating competition in the labour market, globalisation also opens up product markets to competition from overseas firms. It is argued that this can increase demand for high-skilled employees, leading to “winner-takes-all” or “superstar markets” (Rosen, 1981). Greater entry and exit of firms as a result of increased product market competition leads in turn to greater volatility in incomes for workers. This may be recorded as greater dispersion, since workers will more regularly move between different income categories (see Section 5.1.1).

3.2.3 Financialisation

In addition to the factors outlined above, it has been argued that financialisation has contributed directly to the decline in the labour share of income in a number of specific ways (Hein, 2011, 2012, 2013). Like “globalisation”, “financialisation” is a complex and nebulous concept, and one that has yet to converge on a widely-accepted meaning. For the sake of the current discussion, these issues will be put to one side and, following Hein, the broad definition given in Epstein (2005) will serve as a reference point: “...financialisation means the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies” (p. 3).

Hein’s analysis is based up a Kaleckian theoretical framework. Following Kalecki ([1954] 1965) and Steindl (1952), it is assumed that, in an economy which is operating with spare capacity, marginal costs will be close to constant. In the presence of overhead costs such as salaries, taxes and interest payments, unit costs will thus fall as output increases.²¹ Given the further assumption that firms fix prices as a constant mark-up over marginal costs, as output increases, the share of profits in total output will increase. Thus, in the short-run, cyclical changes in capacity utilisation will affect the distribution of income between capital and labour. Over the longer period, however, it is the factors that influence the price mark-up, overhead costs, and sectoral composition of the economy which are of greater significance.²² It is these longer-term influences on the wage share that Hein relates to the role of financialisation. Hein (2011) identifies seven “stylised facts of financialization” which will affect the long-term distribution of income in such a framework:

1. Increasing dividend payments.
2. Increasing interest rates or interest payments.
3. Increasing salaries of top management.
4. Increasing shareholder value orientation & management short-termism.
5. A shift in the sectoral composition of value-added towards a higher share for the

financial corporate sector.

6. Mergers and acquisitions activity.
7. Liberalisation and globalisation of international finance and trade.

Following Kalecki ([1954] 1965, [1971] 1990), Hein identifies five transmission channels through which these features of financialisation may affect the wage share:

1. Increasing overhead costs.
2. Decreasing strength of trade unions and bargaining power of labour more generally.
3. Changes in the price of imported primary and semi-finished products.
4. Changes in the degree of competition in the goods market (or, equivalently, changes in the Kaleckian “degree of monopoly”).
5. Changes in the sectoral composition of the economy.

The ways in which each of these seven stylised features of financialisation are held to affect the functional distribution of income are shown in Figure 15. The first four features will all result in a drain on the internal funds of firms, reducing the finance available for investment purposes. As such, these can be regarded as equivalent to an increase in overhead costs, potentially leading businesses to respond by increasing price markups in an attempt to prevent a fall in profits.²³

An increase in the power of shareholders and the short-termism of management will tend to lead to a shift in preferences away from capital investment, towards activities that will generate returns for financial investors, such as increases in the prices of shares. Shareholders will also exert pressure on firms to “rationalise” and “streamline” businesses, so that higher short-term surpluses may be generated. The effects of such reorientation of management priorities may translate into a reduced tolerance of, and willingness to negotiate with, trade unions—resulting in job insecurity and a weakening of the bargaining position of employees.

All of the first four stylised facts thus unambiguously tend to reduce the labour share of output. Labour's ability to resist such behaviour depends, most significantly, on the strength of trade unions. However, the shifting sectoral composition of the economic systems of advanced capitalist countries also tends to weaken the trade union movement. As already noted, with the rise of services and the decline of industrial manufacturing, rates of unionisation have been falling. Such sectoral shifts also have more direct effects on the labour share of income. Since profit shares are greater in the services sector—viewed in a neo-Kaleckian framework as resulting from higher price mark-ups—the wage share will fall as labour moves from the unionised, low mark-up industrial sector into the non-unionised high mark-up services sector. With respect to financialisation, these sectoral shifts are associated in particular with a rising share of financial services activity in total value added.

3.3 Political aspects of income distribution

So far, a number of related changes—union weakening, reductions in marginal tax rates for the rich, deregulation and competition—have been discussed largely in isolation. Writers with a background in critical political economy have long emphasised the interrelated nature of such changes, and linked them with the associated rightward shift of the political “centre” in the period from around the late 70s, under the term “neoliberalism”.

On the other hand, writers from an orthodox academic economics background tend to view such changes as the result of enlightened policy-makers rolling back the dead hand of government in order to allow market forces to flourish. Any associated increases in inequality thus result from the “natural” workings of the market once it is allowed free reign to adjust to technological change, changing trade patterns and so on.

In recent years however, some representatives of the conventional wisdom have begun to question the notion that politics has played no role in the increasingly apparent divergence in incomes and opportunities in the United States. As noted above, Rajan (2010) and Goldin & Katz (2009) both conclude that government policy favouring the

wealthy minority at the expense of the rest of society lies behind the deterioration in educational standards in the US, with technological change and market forces translating the resulting shortages of skilled labour into greater inequality.

An author who attributes a more substantive role to the conservative political shift is Paul Krugman. Krugman notes the correlation (over the period from around the mid-1970s) between increasing inequality and what he refers to as political “polarisation” arising from a rightward shift of the Republican Party.²⁴ This leads to the question of causality—the conventional wisdom holds that, with technological change and trade globalisation leading to widening inequality, an increase in political “polarisation” between the winners and losers is the outcome.

That, more or less, is the story I believed when I began working on this book ...Yet I've become convinced that much of the causation runs the other way—that political change in the form of rising polarization has been a major cause of rising inequality.” (Krugman, p. 6)

Krugman thus finds himself in the troubled position—“[i]t sounds like economic heresy”, (p. 7)—of agreeing with those who put forward the radical proposition that inequality can be affected not only by such “impersonal” variables as globalisation and technical change, but also by the exercise of political power:

...[E]conomists, startled by rising equality, ...discovered to their surprise that the transition from the inequality of the Gilded Age to the relative equality of the postwar era wasn't a gradual evolution. Instead, America's postwar middle-class society was *created*, in just the space of a few years, by the policies of the Roosevelt administration—especially through wartime wage controls.²⁵

Time and again, Krugman reiterates his astonishment that “Economics 101” has failed to provide us with an exhaustive account of the forces that operate to determine the distribution of income and wealth.²⁶

Krugman draws heavily on the work of Goldin & Margo (1992) and Levy & Temin (2007) to support his argument that politically-driven changes in “institutions and norms”,

rather than SBTC, lies behind diverging incomes.²⁷ The former authors coined the phrase the “Great Compression” to refer to the pre-neoliberal period of lower income inequality.²⁸ The latter present evidence that, given the shift in “institutions and norms”—increases in top-bracket income taxes in particular—from the period of what they dub the “Treaty of Detroit” to that of the Washington Consensus, the conclusion must be drawn that “technology and trade’s impacts are embedded in a larger institutional story” (p. 6).²⁹

In a carefully argued piece, Levy & Temin make the case that the reversal of the Great Compression was the result of supply-side policies implemented in reaction to the stagnation and inflation of the late 1970s.³⁰ They draw a parallel with the policy shift of the 1930s, induced by the distress experienced in the wake of the crash, and the policy shift of the late 1970s and early 1980s. In a timely remark (the working paper was published in May 2007), the authors conclude that “only time will tell if more economic distress is needed to change policy yet again” (Levy & Temin, 2007, p. 42).

Thus, while not rejecting the SBTC story, the authors take a more nuanced approach in arguing that such factors are embedded in the wider institutional context, so that politics, rather than technology, is the key factor in determining income distribution:

In our interpretation, the recent impacts of technology and trade have been amplified by the collapse of these institutions, a collapse which arose because economic forces led to a shift in the political environment in the 1970s and 1980s. If our interpretation is correct, no re-balancing of the labour force can restore a more equal distribution of productivity gains without government intervention and changes in private sector behaviour” (Levy & Temin, 2007, p. 5)

These authors have thus essentially rediscovered the position that has long been argued by those coming from a political economy background: that the actions of the state and the market combine to generate macroeconomic outcomes.³¹

3.4 Summarising the argument

A clear divide exists between competing interpretations of the rise in inequality that has taken place of the last thirty years. The conventional wisdom holds that most of the decline in the average worker's bargaining power is the result of skill-biased technical change, resulting in an excess demand for skilled labour. This effect is regarded as being augmented by the effects of trade and globalisation: as markets become more open and competition increases, the polarising effects of technical change are more powerfully transmitted through otherwise neutral market forces. In this view, the effect of the political drive towards deregulation since the 1980s allows market forces to operate freely and removes the excessive distortions that were put in place in the post-War period:

[T]he evidence is most persuasive that the growing inequality ...stems primarily from the gap between the highly educated and their supply. Progressives, no doubt, attribute substantial weight to the antilabor policies followed by Republican governments since Ronald Reagan, whereas conservatives attribute much of the earlier wage compression to anticompetitive policies followed since Franklin Roosevelt. (Rajan, 2010, p. 29)

The alternative view is that the period of deregulation, de-unionisation and privatisation represented a systematic restructuring of the economic system. This was undertaken in response to the economic crisis of the late 1970s and was guided by a conservative policy agenda that first appeared in the form of Friedman's monetarism. The proponents of this policy agenda had been waiting on the sidelines when the economic slowdown and inflationary crisis of the late 1970s gave them the opportunity to impose their policies. Instead of full employment, the control of inflation became the primary goal of macroeconomic policy. The aims of the political class thus became aligned with the interests of an increasingly dominant and financialised corporate sector which had subordinated the goals of long-term investment and productivity growth to short-term gain for shareholders. While a number of authors representative of the conventional wisdom have recently begun a cautious shift in position towards a greater

recognition of the political causes of the shift in income distribution, a significant gap remains between the two positions.³²

4 Empirical Evidence

4.1 Quantifying the SBTC story

Much apparently rigorous statistical evidence has been generated to support the view that “impersonal market forces” have acted to translate changing demand structures due to technological change into rising inequality of income. Once one scratches the surface of these studies, however, it becomes clear that these ostensibly robust and scientific econometric analyses are subject to a range of serious methodological, theoretical and implementational issues.

The quantification and measurement of technological change is a far from straightforward matter. The standard assumption in the literature is that technological change augments the productivity of certain factors of production more than others, setting up shifts in demand for those factors which are not accommodated by supply, leading to changes in relative factor remuneration. This technological change is most commonly associated with the increasing use of computers in production. One approach is thus to include some measure of computer usage as a variable in regression analysis. Candidates include, for example, the share of the information technology industry in total GDP, the share of total investment directed towards ICT or a measure of the stock of computer equipment (eg. IMF, 2007). Investment and capital stock measures require a number of further assumptions about, for example, depreciation rates for computer hardware and software which are inevitably somewhat arbitrary.

Given the obvious potential for inaccuracy of such measures, other authors have opted instead to include variables for each of the *other* possible explanations for inequality that have been identified, calculate the contributions each of these have made to some measure of inequality, and attribute the residual—unexplained—change in inequality to technological advancement (eg. Estrada & Valdeolivas, 2012). Krugman summarises this approach as follows:

The procedure goes something like this: First, assume that rising inequality is caused by technology, growing international trade, and immigration. Then, estimate the effects of trade and immigration—a tendentious procedure in itself...Finally, attribute whatever isn't explained by the measurable factors to technology (2007, p. 133)

A final alternative is to proxy technological change either by the capital-labour ratio (eg. EC, 2007), or—since computer usage has been increasing over time—by a time trend (eg. Ellis & Smith, 2007; Bentolila & Saint-Paul, 2003).³³ Given that it is already known that inequality has increased over time—this is what the regressions aim to explain—it is hardly a shock to discover that when the selected measure of inequality is regressed against time, a positive correlation is discovered. Nonetheless, this approach has been used in a number of studies to demonstrate that technological change is the cause of rising inequality.³⁴

The use of productivity residuals *a la* TFP growth, and capital-labour ratios as alternatives to the measurement of some largely unobservable variable serve to highlight a deeper methodological issue. As noted by Laidler (2006), “largely un-discussed problems with capital theory still plague much modern macroeconomics.” Laidler is referring to the well established and deep-seated theoretical problems which surround the use of aggregate production functions, particularly when used for econometric testing.³⁵

The way that econometric models are specified in much of the SBTC literature is usually to first assume that the data under investigation are generated by an aggregate production function. The functional form of the function is then imposed by assumption—the usual candidates are constant elasticity or translog specifications. In older TFP estimation exercises, the usual procedure is to then calculate the growth of factors of production—labour and capital of different types—and then attribute the remaining, unexplained, growth to increases in “total factor productivity” arising from technological change.

For the method to be valid, the standard assumptions need to be fulfilled: perfect competition, factor mobility, full employment and so on. However, even under such cir-

cumstances, it has been conclusively shown that the results obtained are meaningless (Felipe & McCombie, 2003; Weeks, 2005). This is because quantities of input factors are typically measured *in value terms*, ie. at market prices, deflated by some price index. Under such conditions, changes in quantities of factors become indistinguishable from changes in prices. While this can be at least partially overcome on the part of labour by measuring labour input in efficiency units of some kind, there is no way to measure capital other than at market prices. Thus, the residuals—whether these are intended to measure TFP growth or inequality arising from technical change—will also capture price changes of factors of production.

Another approach to measuring the strength of the effects of SBTC is slightly different: First assume the aggregate functional form, then calculate the quantity of labour and capital inputs, and finally examine the evolution of the real wage. Assuming perfect competition, factors of production will receive a wage equal to their marginal product—and thus the changes in remuneration of factors of production can be used calculate the changes in elasticities of demand, and thus the imputed change in the form of the production function (eg. Blanchard, 1997).³⁶

It has been shown, however, that methods which rely on econometric estimates of the elasticity of demand for factors of production such as labour are also theoretically invalid (Lavoie, 2008). It can easily be demonstrated that instead of the elasticity of demand for factors of production, what is actually being measured is the factor income share. Labour demand functions derived from assumed aggregate production functions are in fact identical to those derived from accounting identities. Thus, any calculated value of technical change based on shifts in the elasticity of demand for labour will be meaningless *unless* the economy exactly conforms to the assumed functional form.

In short, the conclusion must be drawn that the great majority of statistical studies purporting to find proof that income inequality is driven by technological change—or to measure the strength of that change—suffer from serious theoretical and methodological issues. Conclusions drawn on the basis of these studies must therefore be treated with caution.

4.2 The global labour force

A recent paper published by the IMF “finds that the effective global labour force has risen fourfold over the last two decades.” (IMF, 2007, p. 7). Admittedly, this is a rather imprecise quantity to try and pin down—the authors also note that another recent paper by Freeman (2005) found that the global labour force had merely doubled. Nonetheless, a growing literature deploys econometric analysis to try and determine the effects of this rapidly expanding global labour force (however measured) on the welfare of workers in advanced capitalist economies. In particular, low-skilled workers in these countries face both direct competition from immigrants and indirect competition from foreign workers as a result of outsourcing and rising trade in consumption goods.

The results of studies which attempt to quantify the effect of immigration on domestic wages vary widely, but measured effects appear to cluster around zero (Borjas, 2006, p. 222). Evidence of a significant effect is sometimes found at the level of local markets, but this effect tends to disappear at the macro level. One explanation offered to explain this is that local effects stimulate internal migration (Borjas, 2003; Borjas & Katz, 2007).

The timing of immigration also poses problems for those who argue it is the prime culprit in wage stagnation: the greatest rise in inequality in the US took place in the 1980s, while immigration was at its highest during the 1990s, during which time the 50-10 ratio declined (Mishel et al., 2012).

Borjas et al. (1997) look at the relationship between LDC-US trade, immigration and the wage differentials between high-school graduates, high-school drop-outs, and those with college education. They find little effect of trade and immigration on the high-school graduate-college graduate differential. However they argue that immigration and LDC trade explain an important part of the increase in differential between high school graduates and drop-outs, with immigration playing the more significant role. The measured effects remain small however:

Even the most pessimistic mainstream estimates, by George Borjas and Larry Katz of Harvard, suggest that immigration has reduced the wages of high-school dropouts by about 5 percent, with a much smaller effect on work-

ers with a high school degree, and a small positive effect on highly educated workers. Moreover, other economists think the Borjas-Katz numbers are too high.” (Krugman, 2007, p. 134)

Further, it has been argued that because immigrants usually take low-paid jobs, thus tending to occupy the bottom of the income distribution, they contribute directly to *measured* inequality even though the effects of competition on the wages of non-immigrants is small. Lerman (1999) shows that the measured effects of immigration on the 90/10 ratio depend crucially on *whether the migrants are included* in the wage data by which inequality is measured.

4.3 Trade unions

As noted in Section 3.2.1, since the publication of research on unionisation and wage dispersion by Freeman (1980), the received wisdom that trade unions are a cause of wage inequality has largely been overturned. The key finding of Freeman’s study was that, although trade union coverage led to higher wages in unionised sectors of the economy, and thus to greater wage dispersion between unionised and non-unionised sectors, this was more than offset by the reduction in variance *within* those unionised sectors. At the aggregate level greater union coverage is thus associated with a reduction in the overall inequality of wage incomes.

Card et al. (2004) reproduce and update Freeman’s results for the US, UK and Canada and find that unions systematically reduce the variance of wages of males in these countries (but not females) and find strong evidence that the decline in union membership is an important factor in explaining the rising dispersion of wages in the US and UK. The authors conclude that unionisation rates “explain a sizeable share of cross-country differences in male wage inequality among the three countries” and that “our research strongly confirms that the ongoing decline in private sector unionism had socially undesirable consequences” (p. 556).

Similar results have been found in studies looking at the UK in isolation: using establishment-level survey data, Gosling & Machin (1995) conclude that “for semi-skilled earnings, the decline in the share of plants with recognized unions can account

for 11-17 percent of the rise in earnings inequality over this time period.” (p. 167). More recently Brown et al. (2004) found that union coverage is positively associated with reduced wage dispersion, and that despite declining union presence, the union vs. non-union differential in earnings dispersion remains and may even have risen in significance.

Critics of this analysis, such as Gordon & Dew-Becker (2008) complain that only around 10% of the 90/10 earnings differential can be explained by unionisation. However, as noted by Mishel et al. (2012), the evidence suggests that unions have the greatest influence in preventing wage falls in the middle of the income distribution.³⁷ If union strength primarily affects the degree of variance around median earnings, this would explain why union membership may have relatively smaller effects on the 90/10 ratio, since earnings at the very top and bottom of the income distribution are largely determined by factors other than unionisation. This may also have some significance in explaining the fact that the econometrically-measured effect of unionisation on the overall labour share tends to be weak.

Elsby et al. (2013) examine the relationship between the change in the labour share of total payroll at the industry level and the change in an index of union coverage for each industry for the US over the period 1987–2011. The data and the fitted regression line are reproduced in Figure 16. Although a positive relationship between de-unionisation and the falling labour share is found, it is weak: de-unionisation can explain only around five percent of the decline in the labour share.

Results based on cross-country analysis are similarly mixed. Figure 16, reproduced from OECD (2012), plots the change in labour share in the business sector between 1990–92 and 2005–07 against changes in collective bargaining coverage for a sample of advanced economies. No clear correlation between the two variables can be detected. In particular, it is interesting to note that there was a large recorded fall in the labour share in Scandinavian countries characterised both by high levels of unionisation (see Table 1) and a small *positive* change in unionisation, as well as Italy, which also recorded only a small change in unionisation.³⁸

Replacing the labour share with the Gini coefficient as the dependent variable changes

these results considerably. Weeks (2005) runs a cross-country regression with data from seven advanced countries, with a number of explanatory variables including trade union membership rate. The results are also tested on two individual countries, the UK and the US. Weeks finds strong evidence that the decline in union membership lies behind the increase in inequality of the “neoliberal four” of the UK, the UK, New Zealand and Australia. Weeks concludes that “the evidence strongly suggests that increases in inequality have been the result of policies, most importantly, policies that have weakened the power of organized labour. Reductions in government social expenditure and abandoning full employment as a policy goal have also played a substantial role.” (p. 11)

These results contradict the conclusions drawn by some authors that labour market protection (as measured by union density, welfare state generosity, and so on) is an important *cause* of the falling labour share (eg. IMF, 2007). This conclusion is drawn on the basis of cross-country regressions in which labour market policies to increase “flexibility” are included as explanatory variables. It is known that Anglo-Saxon economies in which the “flexible labour market” policy programme was pursued most aggressively were those in which union membership and other related measures showed the smallest declines, as well as those which relatively smaller falls in the wage share are recorded. Thus, it is not surprising that regression analysis will find a correlation between “flexibility” of labour markets and smaller relative falls in the wage share. However, since it is known that these countries have displayed the largest increases in all other measures of inequality, the conclusions reached by these authors should be treated with caution.³⁹

4.4 Cross-country panel studies

As well as the multitude of studies that test individual candidate variables, or look at a menu of possible candidates in single countries, there exist a number of cross-country econometric studies which attempt to identify causes of changes in the functional distribution of income. A brief summary of these studies is given in this section. For a more comprehensive discussion of this literature, see Stockhammer (2012b).

These studies typically identify a large number of potential explanatory variables and include these in a cross-country panel analysis. Since these studies provide ample opportunities for the complexity of mechanisms operating in different countries at different times to become entangled, some caution must be exercised in interpreting the results.

The problems of constructing numerical series that capture SBTC sufficiently to be included in econometric work have already been discussed. Issues also exist with respect to the measurement of the bargaining power of workers. As noted by Stockhammer (2012b), “much of the literature, which is inspired by neoclassical theory, equates welfare state generosity with the bargaining power of labour”. Indices used to measure the bargaining power of labour often measure labour market “flexibility”, in line with neoclassical theoretical propositions.

Harrison (2005) uses a large dataset of around 100 countries, on which basis it is argued that “between 1960 and the end of the 1990s, labor shares in poor countries fell, while shares in rich countries rose”. This conclusion is questionable, and appears to result from a dataset which does not tally with that used by others. For example, a rising labour share is shown in Austria, while other studies have identified Austria as exhibiting one of the strongest negative trends. The most significant explanatory variable is found to be the capital-labour ratio, while measures of financial integration—capital controls and FDI flows—are also significant. It is argued that labour-market flexibility is correlated with lesser falls in the labour share.

Azmat et al. (2007) uses a cross-country panel of the network industries in OECD countries (ie. telecoms, electricity and so on) and finds that the falling labour share is correlated with privatisation, which can explain around 20% of the falling the labour share of value added in these industries. The proposed mechanism is that “the incentives of senior managers have shifted towards maximizing shareholder value and away from other objectives.” The paper thus considers one of the mechanisms identified by Hein (2013, see Section 3.2.3), albeit on the basis of a Cobb-Douglas formalisation.

Ellis & Smith (2007) run regressions on a panel of around twenty advanced countries. Explanatory variables are included for GDP growth, oil prices, exchange rates



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and indices of regulation. Their preferred theoretical explanation for the fall in the labour share—changing technology—is proxied by the inclusion of a linear time trend. Based on the the result of the regressions—the time trend is statistically significant—they conclude that the fall in the labour share is the result of technological “churn” due to increased rates of obsolescence. This “greater churn strengthens firms bargaining positions and allows them to capture a larger share of factor income” (p. 18). The statistical significance of a linear time trend thus provides compelling evidence that changes in technology have lead to a reallocation of rents from labour to capital.

IMF (2007) uses a panel of 18 OECD economies over the period 1983–2002. Slightly updated results using essentially the same model and data are also presented in a working paper by Jaumotte & Tytell (2007). The econometric specification includes a large number of variables: measures of imports, off-shoring and immigration; union density and employment protection as well as ICT capital and the capital-labour ratio. For largely unexplained reasons, the ICT capital stock enters the regressions both in linear and squared form. The measures for union density and employment protection are found to be insignificant and dropped from the regressions. In line with other studies it is noted that countries that have more aggressively targeted labour market “flexibility” have seen smaller falls in labour share. The authors argue that the impacts of off-shoring have been overstated, but do find a positive correlation between the falling wage share and off-shoring. However, the authors note the results suggest the possibility of reverse causality: a low wage share tends to reduce the appeal of off-shoring. The authors conclude that adoption of ICT is the primary cause, although globalisation-related variables are also significant. The observed differences between the fall in the labour share in the US and Europe are attributed to different rates of ICT adoption, and differences in labour market “flexibility”.

EC (2007) uses a panel of thirteen OECD countries over the same time period, and uses a similar specification to that of IMF (2007), with the main difference that technological change is proxied by a measure of ICT specified in terms of “capital services” rather than a stock. This ICT measure has no statistically significant effects on the overall labour share (although it does affect the share of different skill-groups)



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, meaning that the capital-labour ratio is the only remaining proxy for technological change. Nonetheless, the authors reach the following conclusion: “the estimation results clearly indicate that technological progress made the largest contribution to the fall in the aggregate labour income share ... Globalisation also had a negative impact on the aggregate labour income share but to a lesser extent than technological progress” (p. 260).

Stockhammer (2009) examines the analysis of IMF (2007) and EC (2007) more closely. He attempts to recreate the findings of the studies and discovers that their conclusion that technological change is the key driver—even in terms of their chosen proxies—is not robust and that the studies suffer from a number of serious econometric issues, in particular, biased results due to autocorrelation in the residuals. He tries a number of alternative specifications in which a number of additional variables are added. These include a more careful specification of union effects to take account of the Ghent system, and two variables which aim to capture the effects of financialisation: the real interest rate and a measure of the stock of financial assets and liabilities to GDP. The reliability of these latter measures as a proxy for financialisation is open to question. Once the econometric deficiencies of the EC (2007) and IMF (2007) studies are corrected, the conclusions about the role of technology no longer stand. Instead, the variables which aim to capture globalisation, the bargaining power of labour and financialisation are instead found to be most strongly correlated with the fall in the labour share.

4.5 Wrapping up the econometrics

Little more needs to be added at this point. The methodological and theoretical issues surrounding such measures as residuals and capital-labour ratios have been outlined. Even putting these aside, whether the capital-labour ratio is a valid proxy for technological change is highly questionable. Given that most economies experience capital deepening over time, it is hardly surprising that such a variable will “explain” something else that has occurred through time. In fact, many of the conclusions found in these studies can be predicted simply from examining the descriptive statistics. Putting aside the inadmissible conclusions which are drawn regarding technical change, what emerges

from this literature is that the various measures of trade globalisation always show up as significant (and are more robust than ICT proxies). Measures of union density and labour bargaining power are often significant, but estimated effects are weak—a number of reasons why this may be the case have already been discussed. In any case, there is good evidence that trade unions do reduce wage *inequality*, contrary to much neoclassical received wisdom. Finally, the evidence on financialisation is thinner on the ground and harder to interpret. As noted previously, this is a complex concept and difficult to quantify. Caution must therefore be exercised in concluding that financialisation is a driver of inequality based on the evidence available so far, although there are indications that this is the case.

5 From inequality to crisis

5.1 The indebted household

5.1.1 Debt as insurance mechanism

The most intuitively obvious link between falling or stagnating wages and financial crisis is debt. The period preceding the crisis was marked by an enormous run-up of private-sector debt and, in particular, a significant accumulation of debt in the household sector. At the time, this was not seen as cause for concern among most academic economists or policy makers, since rising leverage ratios were accompanied by rising asset prices so that the net worth of households was fairly stable:

In evaluating household debt burdens, one must remember that debt-to-income ratios have been rising for at least a half century. With household assets rising as well, the ratio of net worth to income is currently somewhat higher than its long-run average. So long as financial intermediation continues to expand, both household debt and assets are likely to rise faster than income ... Overall, the household sector seems to be in good shape, and much of the apparent increase in the household sector's debt ratios over the past decade reflects factors that do not suggest increasing household financial stress. (Greenspan,

2004)

Even at the time however, there were detractors. Five years previous to Greenspan's sanguine remarks, Wynne Godley made the following prediction:

Moreover, if, *per impossibile*, the growth in net lending and the growth in money supply growth were to continue for another eight years, the implied indebtedness of the private sector would then be so extremely large that a sensational day of reckoning could then be at hand. (Godley, 1999, p. 11)⁴⁰

And so it turned out. Yet, before the crisis struck, the view was widely held that the observed increases in household debt were simply the benign result of efficient financial markets performing their role in allowing households to smooth their consumption expenditures. Along with Greenspan, this view was particularly associated with the work of Krueger & Perri (2003, 2006).⁴¹

While not denying the large increases in income inequality that were taking place, these authors argued that what matters for welfare is consumption outcomes, rather than equality of income *per se*. In well-functioning financial markets, agents faced with a higher volatility of "transitory components of income" will use financial markets to prevent that volatility feeding through into consumption "shocks". Further, greater variance in earnings doesn't matter so long as if everyone gets a turn—if the large bonuses and other benefits handed out at the top of the wage structure go to different households every year, there is no reason to view this as an inequitable outcome.

The Krueger-Perri-Greenspan argument can thus be summarised as follows. Increased competition as a result of deregulation gave rise to a greater volatility of income. Households could mitigate the effects of this volatility on consumption through interaction on the financial markets. The accumulation of debt stocks were thus just the result of the endogenous evolution of the financial system in response to "demand" from households.

Researchers thus set out to determine the relationship between income inequality and consumption inequality, by examining survey data. These studies concluded that "the increase in income inequality for the U.S. in the last 25 years has not been accom-

panied by a substantial increase in consumption inequality” (Krueger & Perri, 2006, p. 186).⁴²

In these, and similar studies, a distinction is drawn between “within-group” and “between-group” income and consumption inequality, with the assumption being that “between-group” inequality—with groups defined in terms of age, sex, ethnicity, education and so on—will be permanent, because it results from fixed characteristics of those groups. On the other hand, “within-group” inequality is taken as a proxy for transitory changes in income arising from insurable idiosyncratic income shocks.⁴³ Krueger & Perri find that in both cases, consumption inequality did not rise significantly. However, in the case of income inequality, it was found that this remained fairly stable and closely tracked consumption inequality in the between-group case only. In the case of within-group inequality, however, this increased much more markedly than consumption inequality, leading the authors to conclude that increasing consumer debt was simply the outcome of households insuring themselves against idiosyncratic income shocks.⁴⁴

Aside from the obviously problematic inference that all variance in income of, for example, university-educated middle-aged black males is due to transitory shocks, these studies suffered from a number of other methodological and data-related problems. In particular, the total consumption implied by the survey data used differs significantly from that in NIPA accounts, and the divergence worsens over the period under investigation.⁴⁵

These studies added to an already large literature that attempts to disentangle the complex and simultaneous changes that have occurred in the structure and evolution of wages in the U.S. Authors have tried to estimate the relative importance of permanent and transitory wage dispersion in the observed overall increase, the degree to which income mobility has changed over time and the degree to which changes in income feed into changes in consumption. Understanding how these changes have fed through into changes in the labour share introduces an additional layer of complexity.

In an early contribution, Gottschalk & Moffit (1994) showed that around one third of the increase in wage inequality of white males was due to higher volatility, while

around two-thirds could be attributed to permanent shifts. These results were subsequently updated in Moffitt & Gottschalk (2008), in which it is shown that volatility increases levelled off after the 1990s, with permanent increases in wage dispersion playing a more significant role subsequently. Cutler & Katz (1992) examined the relationship between changes in income and changes in consumption for different quintiles of the population. They concluded that in all except the second-highest income quintile, consumption changes were proportional to income changes—essentially a Keynesian “consumption function” type of effect. Furthermore it was noted that in the very lowest quintile, consumption fell *more* than proportionally with income (Cutler & Katz, 1992), and that the degree of income volatility was greatest for those in the lowest quintile (Gottschalk & Moffit, 1994). More recently Kopczuk et al. (2010) examined Social Security Administration data and concluded that virtually all of the increase in inequality was due to permanent shifts, and further that earnings mobility at the top of the distribution had not increased. Overall mobility had increased somewhat, but this was due entirely to a decrease in the gender earnings gap. For men taken separately, income mobility had decreased slightly. Similar results on mobility were found by Bradbury & Katz (2002) who concluded: “Compared to 30 years ago, families at the bottom are poorer relative to families at the top and also a bit more stuck there. Mobility alone has not and is not likely to counteract the hardships caused by increasing inequality” (p. 5).

The patterns that emerged from these studies were thus (1) permanent shifts in income were at least as important as transitory effects, (2) the poorest faced the greatest uncertainty and instability in income, (3) the poorest were least likely to use credit to offset income volatility and (4) for most, the chances of moving into a higher income bracket had not improved.

Despite this substantial volume of evidence undermining the Kruger-Perri analysis, van Treeck & Sturn note that their results were widely reported in reputable news sources as established facts (2012, p. 13).

5.1.2 Keeping up with the Joneses: populist credit expansion

Authors less ideologically committed to the distributional neutrality of market outcomes have sought to consider other reasons why income and consumption may systematically diverge over time, leading to the accumulation of debt stocks. Rather than strict adherence to the notion that well-being is determined entirely at the atomistic level based on individual consumption preferences, these authors allow for the possibility that the social significance of consumption choices and habit formation resulting from past income and consumption patterns also matter.

The macroeconomic theory of consumption which underpins the debt-as-insurance view is Friedman's (1957) "permanent income hypotheses". Friedman's intervention was an attack on Duesenberry's (1949) "relative income hypothesis". Duesenberry had proposed a modified version of the consumption function in which the "demonstration effects" that occur as individuals experience the higher-quality goods consumed by those on higher incomes affect the consumption decisions of individuals on lower incomes.⁴⁶

Much of the literature on imitative consumption behaviour can ultimately be traced back to Veblen ([1899] 1919), who argued that in a society in which welfare depends on social status, and social status is gained through "conspicuous consumption", individual will make socially-determined consumption choices. With the advent of increasing mathematical formalisation of economic models, such social status models fell out of favour, while those such as Duesenberry who tried to understand the broader determinants of consumption and saving patterns were denounced for "psychologizing" (Mason, 2000).

It is interesting to note that the period during which the debates took place which led to the abandonment of socially-embedded theories of consumption and saving was that of the 1950s and 1960s, the era of the "great compression". By the time the "great divergence" in income inequality got underway in the 1970s, formalised objective utility theory was in firm control. As economic reality was headed in one direction, theory appeared to have fixed a course in the other:

Beginning in the 1980s, luxury goods markets expanded dramatically, with

both upscaling of goods and services and product innovation at the high end....Curiously, consumption studies, which were busy rejecting the models that made sense of this behaviour, had little to say about these developments. Perhaps they had thrown out the proverbial Veblenian baby with the bathwater. (Schor, 2007)

Nonetheless, a number of authors have returned to the ideas of Veblen and Duesenberry, albeit largely within the framework of optimising behaviour. In particular, Robert H. Frank has developed the concept of “positional externalities” in which the utility gained from the possession or consumption of “positional goods” can be affected by the purchasing behaviour of others. This leads to “expenditure cascades” as those on lower incomes attempt to imitate the consumption patterns of the better off (Frank, 1985, 2005). In a similar vein, Bagwell & Bernheim (1996) present a model in which informational asymmetries that prevent agents from displaying their true relative wealth can be overcome through the “signalling” effects of conspicuous consumption. Through such sanitising reductionism, Veblen’s ideas become safe enough to publish in the *American Economic Review*.

The significance of all this lies in the fact that “liberal” academic economists face considerable difficulties in reconciling their beliefs about the operation of the market economy with what is—to all but the most ideologically blinkered—an undeniable empirical fact: that in the period before the financial crisis, debt was accumulated by households on average and below-average incomes because wages had systematically lagged productivity growth and, in many cases, had fallen in real terms. At the same time as average incomes stagnated or fell, the security of those incomes declined as increased competition and deregulation led to a shift away from permanent employment to more precarious (or “flexible” in the official terminology) forms of contracting. In order to maintain what would be seen by most as a basic minimum standard of living, ordinary families were forced into debt. At the aggregate level, the saving rates of the household sector not only displayed a secular and persistent fall, they become negative in the period before the crisis.⁴⁷

Academic economists who argue that the accumulation of debt in the period pre-

ceding the crisis was *not* simply a consumption-smoothing reaction to increased mobility of income (eg. Rajan, 2010; Stiglitz, 2008; Krugman, 2007; Kumhof & Ranci re, 2010), thus, either implicitly or explicitly, are assuming some kind of socially-imitative, relative-income, or habit-persistence type of consumer behaviour.

This then leads to the question of what enabled households to accumulate such large and unsustainable debt stocks? On this question, Rajan takes the view that in order to mitigate the political consequences of declines in the relative incomes of median households, the U.S. government acted to create an environment in which credit extension allowed those families to “keep up with the Joneses”:

Stripped to its essentials the argument is that if somehow the consumption of middle-class householders keeps up, if they can afford a new car every few years and the occasional exotic holiday, perhaps they will pay less attention to their stagnant monthly paychecks ...the political response ...was to expand lending to households, especially low-income ones ...easy credit has been used as a palliative throughout history by governments that are unable to address the deeper anxieties of the middle class directly. (Rajan, 2010, p. 9)

To support this argument, Rajan emphasises the role of the government in setting up Fannie Mae and Freddie Mac as a way to enable lower income households to obtain access to consumption credit.

On the other hand, Stiglitz (2010) takes issue with this view that populist credit expansion was undertaken by a government afraid of the electoral consequences of declining real incomes. Instead, he points to problems of incentives in the financial system, and in turn to the failure of regulators. Stiglitz points out that, at the time, Fannie and Freddie were not making sub-prime loans, were not involved in commercial real estate and were not dealing derivatives.

The most telling point though is that Fannie Mae and Freddie Mac’s mandate was for “conforming loans”, loans to the middle class. The banks jumped into subprime mortgages—an area where, at the time, Freddie Mac and Fannie Mae were not making loans—without any incentives from the government.

This group of authors therefore accept the fact that inequality led to debt, and that debt led to crisis, but notably fail to reach a consensus on the incentives and mechanisms that lay behind the expansion of lending.

5.2 The macroeconomics of inequality

The problem wasn't that consumers lived beyond their means. It was that their means didn't keep up with what the growing economy was capable of producing at or near full-employment. A larger and larger share of total income went to people at the top.

So in the longer term, it's hard to see where the buying power will come from unless America's vast middle class has more take-home pay. Yet the economy is moving in exactly the opposite direction: Businesses continue to slash payrolls. And the hourly wage of the typical American with a job continues to drop, adjusted for inflation. (Reich, 2010)

The significance of income distribution in the possible crisis transmission mechanisms discussed so far lies primarily with the potential for shifts in income distribution to induce changes in the leverage of economic agents, particularly those at the bottom end of the income distribution. However these shifts are always the outcome of individual decisions at the microeconomic level, in response to changing income patterns.

As such, the potential for shifts in income distribution to have wider repercussions on macroeconomic dynamics is largely overlooked. To a significant extent, this is the result of the analysis taking place against the either implicit or explicit theoretical background of general equilibrium, in which deviations from full-employment equilibrium are the result of transitory shocks, either through mistaken policy interventions or because of changes in technology and preferences. In such a system, the mismatch between the demand and supply of skilled labour leads to a change in relative wages, and the system is thus not displaced from equilibrium, although it could be argued that resulting factor allocation is sub-optimal from the point of view of productivity and growth.

From a different theoretical standpoint, a number of authors have argued that shifts in the functional distribution of income will have persistent effects on aggregate demand, and thus on output and employment. In the case that these shifts have led to reduced aggregate demand, the result is a stagnationary tendency that can only be overcome through, for example an export surplus or the extension of debt to the households sector. Such a framework allows for the integration of income distribution with both macroeconomic effects and domestic and international financing positions.

The origin of this theoretical framework is the “neo-Kaleckian” growth model which originated in the work of Rowthorn (1981), Taylor (1983) and Dutt (1984). As in the model used by Hein (2013) (see Section 3.2.3), these authors make the assumption that when the economy is operating with spare capacity, marginal costs will be close to constant and unit costs will thus either also be constant or—in the presence of overhead costs—falling.⁴⁸ Given the further assumption that firms fix prices as a mark-up over marginal costs, the main determinant of the functional distribution of income will be the ratio of the price mark-up to labour costs.⁴⁹

In both the original models of Kalecki and Steindl and the more recent neo-Kaleckian growth models, the assumption of a higher propensity to save out of profits than wages leads to the outcome that a redistribution of income from profits to wages results in an increase in aggregate demand. Under the assumption that either a fall in spare productive capacity or an increase in profits will induce firms to raise the rate of investment, the result is that higher real wages will be associated with higher growth rates. Growth is thus said to be “wage-led”. Conversely, a decrease in the price mark-up or, equivalently, a fall in the real wage will lead to a fall in the share of wages in national income and a fall in aggregate demand. The resulting excess capacity and fall in the rate of profit trigger a reduction in the rate of investment, resulting in stagnationary tendencies.⁵⁰

It was shown by Bhaduri & Marglin (1990) that, by adjusting the assumptions made regarding the factors that determine investment so that excess capacity and the profit *margin* have clearly separated effects (which operate in different directions), the result that growth will always be wage-led no longer holds. Instead, depending on the rel-

ative strength of the effects of income redistribution on consumption and investment demand respectively, the overall effect on aggregate demand of an increase in the real wage may be either positive—if consumption is more sensitive—or negative—in the case that investment is more sensitive. As a result, growth may be either profit-led or wage-led.

The theoretical framework introduced by Bhaduri & Marglin (often referred to as the post-Kaleckian model) has been adapted to form the basis of a large empirical literature. This literature uses econometric estimations of consumption and investment functions to classify economies as conforming to either “wage-led” or “profit-led” growth regimes.⁵¹ These regime classifications refer to the structural characteristics of the economies under consideration and are thus considered to be determined in a way that is largely outside of policy control. However, it is assumed that government *does* take a direct influence in determining the distribution of income as a result of, for example, taxation, social security and labour market policies.⁵²

The overall outcome in terms of aggregate demand of government policies that affect the distribution of income is thus held to depend on the underlying growth regime. In either the case of redistribution in favour of profits in a wage-led demand regime, or in favour of wages in a profit-led regime, the outcome will be to introduce stagnationary tendencies. On this basis, it is argued that four broad outcomes are possible: two expansionary and two stagnationary. These are summarised in Table 2: the two expansionary possibilities correspond to “trickle-down capitalism” and “social Keynesianism”, while the stagnationary outcomes can be characterised as “doomed social reforms” and the unstable case arising from redistribution in favour of profits under a wage-led regime.

It is the last of these outcomes that authors writing from the wage-led growth perspective have focused on: that of redistribution from wages to profits in the context of a wage-led structural growth regime. As discussed in Section 2, there is strong evidence of a decline the share of wages in both developed and developing countries over the past three decades or so. At the same time, on the basis of empirical studies, it is argued that many major world economies can be classified as wage-led, at least on the

basis of their *domestic* aggregate demand characteristics.⁵³ In the face of government policies that have weakened the position of labour relative to capital in these countries, the outcome has been stagnant growth, requiring these countries to turn to alternative sources than domestic income to provide the aggregate demand required to prevent recession.

Two primary strategies have been identified for such countries: growth may become either “debt-led”, or “export-led”. In the first regime, aggregate demand is sustained by the extension of credit to households in order to maintain consumption expenditures. A connection is posited between, on the one hand, the increasing use of debt by households to finance consumption and, on the other, price increases in housing and stock markets. The effects of these rising asset prices are held to be twofold: wealth effects arising as a result of capital gains may stimulate demand for credit-financed consumption from households. At the same, rising nominal wealth provides households with the collateral necessary to obtain that credit, for example by re-mortgaging housing that is rising in value. In the second, “export-led” regime, a trade surplus provides the required aggregate demand to maintain growth, given an insufficient real wages rate.

Examples of debt-led economies are the United States and the United Kingdom, while Germany and China provide the exemplars of export-led growth.⁵⁴ In both cases, an inevitable side-effect of the strategy is the accumulation of financial imbalances. In the case of a debt-led regime, those imbalances materialise as the bank debt of households. In the case of export-led regimes, financial imbalances lead to the accumulation of international financial positions at the expense of those countries which trade with export-led economies. These stocks of financial liabilities may be either public sector (as in the case of Greece, for example) or private sector (as in the case of Spain).

Thus, the introduction of government policy to weaken the bargaining position of labour leads to stagnationary tendencies. The drive to overcome these stagnationary tendencies through debt-led and export-led regimes is strengthened by government policy shifts to deregulate financial markets, allowing for the accumulation of both domestic and cross-border financial positions to cover the rising imbalances. This line of

argument is summarised by Stockhammer:

[T]he economic imbalances that caused the present crisis should be thought of as the outcome of the interaction of the effects of financial deregulation with the macroeconomic effects of rising inequality. Economic imbalances should be viewed as the result of interaction between inequality and financial deregulation (2012a, p. 1)

In this view, a number of self-reinforcing macroeconomic mechanisms thus combine to generate financial imbalances at both the domestic and international level. The fall in the wage share results in deficient aggregate demand and weak investment growth. To compensate for these stagnationary tendencies, two broad growth strategies then emerge, facilitated by financial deregulation: debt-led and export-led growth. So long as global growth is sustained through such strategies, the inevitable result is the accumulation of both public and private debt stocks.⁵⁵

One aspect that this macroeconomic analysis does not explicitly discuss is the relationship between the labour share and the other measures of inequality that are discussed in other strands of the literature. In particular, in the post-Kaleckian theoretical framework on which the analysis is based, shifts in the aggregate wage share derive from changes in output in the short run and changes in the average price mark up in the longer run. However, what is not discussed is the extent to which these long-run shifts are the result of changes in mark-ups at the level of individual industries, or shifts between industries with different mark-ups. Empirical evidence presented by other authors, (eg. IMF, 2007; Böckerman & Maliranta, 2011) suggests that, instead of pricing and bargaining effects at the industry level, much of the aggregate change arises from shifts in economic structure away from the high-markup and low-productivity manufacturing sector towards services industries which are characterised by higher markups (and lower unionisation). However, other authors such as Karabarbounis & Neiman (2013) have found the opposite to be the case: most of the aggregate decline is due to “share” rather than “shift” effects.

Finally, there are potential issues with the econometric evidence presented. This evidence uses adjusted wages shares as discussed in Section 2 as a measure of the

“wage share”. However, in Kalecki’s original formulation it is the wages of *manufacturing* workers upon which price markups are set. This is acknowledged in the framework used by Hein (Section 3.2.3) by including salaries in overhead costs. However, this distinction is not maintained in the econometric work, presumably due to data limitations. This issue is potentially exacerbated by the dramatic dispersion of wage incomes within the “labour share” in the Anglo Saxon economies. However, correcting for these issues would largely strengthen the macroeconomic argument outlined above, since any resulting redefinition of the “wage share” would likely show an even greater decline.

5.3 The view from the top: wealth concentration

The literature discussed thus far has, inasmuch as a connection between inequality and the crisis is accepted, analysed this connection almost exclusively in terms of the relationship between inequality and debt. Put another way, the discussion has been entirely focused on the liability side of the household balance sheet. Some authors have emphasised inequality as a factor increasing the demand for credit, while others have pointed to ineffective regulation or misplaced government action as factors which lay behind the ability of financial institutions to extend this credit. What has not been discussed is the potential demand for assets on the part of households. Thus, while the literature engages extensively with the idea that stagnant or falling incomes at the bottom of the income distribution have given rise to increased indebtedness, the implications of rapidly rising incomes at the top of the income distribution are ignored.

The tendency of commentators to overlook the role of wealth concentration in the crisis is a puzzling one. As noted by Mishel et al. (2012), wealth inequality in the US is greater than income inequality: The top 1%, next 9%, and bottom 90% shares of income were 16.9%, 25.6%, and 57.5%, respectively in 2004. Shares of wealth were 34.3%, 36.9%, and 28.7%, respectively.

One contribution that does consider the role of wealth accumulation is the widely-discussed paper by Kumhof & Rancière (2010). As already noted, in the canonical representative agent general equilibrium models, the possibility that different groups of individuals will hold different net financial positions are excluded by construc-

tion. In order to overcome this, Kumhof & Ranci re present an augmented DSGE model in which “workers” borrow from “investors”. This is possible because “investors” are characterised by a particular type of “real balance in the utility function” specification in which financial wealth and physical capital exhibit different types of non-linearities.⁵⁶ At the same time, the utility function of workers is altered so that instead of utility depending on absolute levels of consumption, it is subject to a certain minimum or subsistence level. In the context of imperfect competition, the model is then simulated by applying a “bargaining power shock”, so that the real wage falls, but consumption does not fall commensurately and workers thus borrow from investors to cover the shortfall. The model is calibrated so that higher leverage ratios increase the probability of a crisis arising from debt default.

The model does not shed much light on the question at hand, however. Rather it primarily serves to illustrate the complexities of modelling essentially straightforward phenomena related to inequality and debt within the confines of a neoclassical general equilibrium model.

In Section 5.2, the macroeconomic effects of rising inequality are considered. It is argued that the redistribution of income that has occurred, in favour of those that have a greater saving propensity, has resulted in deficient aggregate demand. But what of the saving of those households? The appropriation of an ever greater share of income by those that save the greatest part of their income must inevitably lead to a rising concentration of wealth among those households. In a series of papers, Lysandrou (2011a,b,c) and Goda & Lysandrou (2011) argue that the demand for a means by which wealthy households can store this wealth is an aspect of the crisis that has so far been largely overlooked. In this view, the explosion of financial securities—both in value and in complexity—were the result of a demand arising from the concentration of wealth at the top of the income distribution. Lysandrou argues that “toxic assets were created largely in response to external pressures, a principal source of which was global inequality” (2011a, p. 323). With aggregate demand slackening—as a result of falling or stagnant incomes relative to productivity for the great majority—the opportunities for profitable business investment for the wealthy minority were dissipating. At the

same time, there was a growth in demand for securities from institutional investors and sovereign wealth managers, in part due to the rising global imbalances.

The effects of these dynamics can be seen in the falling yields of securities, even as the supply of such securities continued to increase rapidly. In turn this “demand for yield” from high net worth individuals brought hedge funds into the picture as the conduit between wealthy individuals and the banking system. Feedback between the banking system and the hedge funds, fuelled by the overwhelming demand for investment opportunities, led to ever greater heights of financial “engineering” and “innovation”, aided and abetted by the drive for financial deregulation. These “innovations” in turn allowed leverage ratios to rise ever further, and stimulated banks to react to this search for yield by extending credit to poorer, higher risk, borrowers.

6 Concluding remarks

Over the last thirty years or so, the share of wages in national income has fallen in the majority of countries for which data are available. In the Anglo-Saxon countries in which either the labour share has not fallen, or has fallen less dramatically, other measures of inequality have increased significantly.

The textbook answer to the question of why corporations and wealthy individuals are appropriating ever-greater shares of output, while those who produce that output see their incomes stagnate or fall is that this is a result of the inevitable process of technological advancement. Striving for higher educational standards is the only way to reverse the trend in developed nations.

This Deliverable has examined the evidence which underpins this argument and demonstrated that the theoretical framework is deficient and the empirical evidence flawed. The single-sector neoclassical model on which many of these studies are based essentially rules out consideration of the systemic macroeconomic effects of rising inequality, and in particular the possibility of an interaction between inequality, financialisation and debt.

A more convincing explanation is that rising inequality and a falling wage share have



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been driven by globalisation, deregulation and financialisation. The interaction between these factors is complex and overlapping, but the common thread is a policy agenda which has systematically weakened the bargaining power of workers. As a result, an increasingly concentrated group of individuals have been able to appropriate a growing share of national incomes.

This concentration of income in has, in turn, led to inadequate aggregate demand and stagnationary tendencies in advanced economies. Two different and mutually reinforcing mechanisms for maintaining growth rates in the face of falling demand have emerged in response: on the one hand, credit expansion to a household sector faced with stagnant or falling real income and, on the other, a reliance on export growth. In one group of countries, including the US, rising household indebtedness has been accompanied by growing current account. These current account deficits provide the external demand required for another group of countries such as, Germany and China, which have run trade surpluses. At the other end of the income distribution, wealth concentration, when combined with changes in institutional investment structures and international imbalances, gave rise to an excess demand for financial assets, especially dollar-denominated securities. Financial deregulation accommodated the emergence of both the debt-led and export-led growth regimes and enabled the financial innovation that was necessary to turn the resulting risk-laden debt stocks into apparently safe financial assets.

Rising inequality of income is thus an important underlying cause of the financial and economic crisis which broke in 2007–08. Blame cannot be pinned on any one factor: deregulation, liberalisation, globalisation, financialisation and technology have all played important and inter-connected roles. More research is now required to disentangle those roles.

Notes

¹“It was known for some time that the share of wages and the share of profits in the national income has shown a remarkable constancy in the ‘developed’ capitalist economies of the United States and the United Kingdom since the second half of the nineteenth century” (Kaldor, 1957, pp. 591–592).

²Kalecki noted that there was no reason to believe that this mechanism would remain in effect: “It is, of course, not at all certain that in the future the rise in the degree of monopoly will continue to be compensated by a fall in the price of basic raw materials. If it is not, the relative share of manual labour will tend to decline.” ([1939] 1990, p 248)

³This view is not shared by Mankiw who, in his widely-used macroeconomics textbook states that: “Despite the many changes in the economy over the past four decades [the] division of income is easily explained by a Cobb-Douglas production function” (2007, p.55–58, quoted in Atkinson 2009). A somewhat more complex explanation is given by Acemoglu (2003) who argues that the long-run constancy of factor shares can be explained by a CES production function in which the elasticity of substitution is less than one and, in the long-run, all technical change is purely labour-augmenting or “Harrod-neutral”. It is claimed that the labour-augmenting technical innovations “selected” by profit-maximising firms will then exactly offset changes in relative factor demands arising as a result of capital accumulation.

⁴High profile examples include Krugman (2007), Stiglitz (2010) and Rajan (2010).

⁵It is notable that in economies such as France and Japan in which wage dispersion has been less pronounced, this has been accompanied by a stronger shift in the functional distribution in favour of profits. In the Anglo-Saxon economies, the opposite pattern is found.

⁶See, for example, Levy (1998); Warren & Tyagi (2003).

⁷Such a measure thus excludes possible changes in the functional distribution arising from changes in the overall sectoral composition such as changes in the share of interest income.

⁸In *Capital in the 21st Century*, 2014, Piketty presents series for the capital-labour split in Britain and France which show a falling labour share in Britain from 1970 and from 1980 in France. These are derived on the assumption that all non-capital income is labour income. Given Piketty’s main result of a rising share of total income accruing to capital, the falling wage share is a logical implication.

⁹See Gollin (2002) for further discussion on adjusting for the income of the self-employed. Gollin concludes that “estimated labour shares ...are essentially flat over space and time” (p. 471).

¹⁰See also Krueger (1999); Gollin (2002); Feldstein (2008); Rupert (2012).

¹¹See Horn et al. (2009) for summary figures of 50/10 and 90/50 ratios for other advanced economies. For the male 90/10 ratio, the pattern in UK and Germany is similar to that of US, while Japan shows little change, and France shows a decline. The 50/10 ratio is flat in most countries over the period, except for France and Germany which show a decline and a significant increase respectively. The latter is likely driven by wage repression at the bottom of the income distribution.

¹²Almost all of the capital gains income which accrues when such options are exercised is treated in the national accounts as wages: “Nonqualified stock options (NQOs) are not considered income until exercised, at which time the difference between the stock price on the day of exercise and the option price is treated as ordinary wage income ...[A]bout 95 percent of stock option grants involve NQOs and almost three-fourths are exclusively NQOs.” (Goolsbee, 2000, pp 360–361)

¹³For an early survey of the evolution of this theoretical position, see Levy & Murnane (1992). See also Autor et al. (2008).

¹⁴The conceptual framework can be traced back to Tinbergen (1974) who inspired the title of Goldin & Katz's book:

My approach suggests that it depends on the 'race' between demand for third-level manpower due to technological development and the supply of it due to increased schooling, whether the reduction in inequality found for the last century, can be resumed after the stagnant period from 1950 to 1970. (p. 224)

¹⁵Acemoglu (1998) constructs a model which explains the decline in college premium in 1970, and subsequent increase, using a rather elaborate disequilibrium version of Say's Law: an increase in the supply of college graduates stimulates further skill-biased technological change. Autor et al. (2003, 2006) present models that purport to explain the loss of middle-class jobs by assuming that computers substitute differentially for middle- and low-skill tasks while complementing higher-skill tasks. Ellis & Smith (2007) construct a model in which different "vintages" of capital co-exist and obsolescence rates are rising due to technical progress, leading to a weakening in the relative bargaining power of labour.

¹⁶I am indebted to Mark Setterfield for this point.

¹⁷Blanchard also notes that the relatively weaker declines in the wage share in Anglo-Saxon economies might be explained by the fact that unions were already relatively weaker in those countries.

¹⁸According to anecdotal evidence, the term originates with Alan Greenspan.

¹⁹In this view, the notion that "rents" are distributed between labour and capital based on relative bargaining strength—as in New Keynesian models—is rejected. If it is assumed that marginal costs are close to constant then if the real wage is set equal to marginal cost, firms will never make non-negative profits.

²⁰Local institutional and social factors also play an important role: "France, for example is a nation very conscious of worker rights and the social wage, where a strike by the transportation workers' union paralyze the nation and where ...workers regularly join in mass protests and demonstrations—but it has since World War II had the lowest union density of any industrialized nation." (Holt, 2007, p. 101)

²¹See Lavoie (1996) and Lee (1996) for discussion of the assumption of fixed marginal costs and Blinder et al. (1998) for a recent empirical study.

²²See Michell (2013).

²³Blanchard (1997) argues that it is implausible that this mechanism could explain the shifts in income distribution: "the shifts ...could be interpreted as showing that firms have steadily increased their markups in goods markets since the early 1980s. I find this explanation implausible. The period since the early 1980s has been characterized by increased, not decreased, competition—especially so in continental Europe, with the reduction of barriers to trade within the European Union. Phelps has argued that high real interest rates since the early 1980s have led firms to care less about their customer base, and thus to go for higher markups and higher profit margins in the short run. But it is difficult to believe that this effect, to the extent that it has been present, could have offset the effects of steadily stronger competition in goods markets over the past fifteen years." (p. 102)

²⁴Krugman rejects the claim that *both* parties have shifted substantially to the right.

²⁵Unsurprisingly, such conclusions coming from a high-profile commentator like Krugman drew the ire

of conservative commentators: "Such a rosy-colored view of the past fails as objective historical analysis. Instead, it amounts to ideologically-motivated nostalgia" (Lindsey, 2009, p. 3).

²⁶"[I]nstitutions, norms and the political environment matter a lot more for the distribution of income—and ...impersonal market forces matter less—than Economics 101 might lead you to believe" (p. 8); "This persistence makes a strong case that anonymous market forces are less decisive than Economics 101 teaches" (p. 137); "The idea that rising pay at the top of the scale mainly reflect social and political change, ...strikes some people as ...too much at odds with Economics 101" (p. 145).

²⁷Krugman argues that Levy & Temin have "led the way" in explaining the relationship between the political environment and the Great Compression. He thus appears unaware of the rich literature on what economists commonly refer to as the "Golden Age" of capitalism, eg. Marglin & Schor (1990)

²⁸These authors, however, conclude that "World War II and the National War Labor Board share some credit for the Great Compression, but much was due to an increasing demand for unskilled labor when educated labor was greatly expanding." (p. 1)

²⁹A similar position is taken by Piketty & Saez (2003) who argue that "...this pattern or evolution of income inequality is additional indirect evidence that nonmarket mechanisms such as labor market institutions and social norms regarding inequality may play a role in setting compensation at the top." (p. 34)

³⁰In contrast, Krugman concludes that the primary factor leading to the rise of neoliberalism (although he doesn't use the term) is racism: "The legacy of slavery, America's original sin, is the reason we're the only advanced economy that doesn't guarantee health care to our citizens. White backlash against the civil rights movement is the reason that America is the only advanced country where a major political party wants to roll back the welfare state." (2007, p. 11).

³¹It is notable how careful these authors are not to acknowledge that their "discovery" is anything less than entirely original.

³²Palley (2013) refers to the partial and qualified acknowledgement of the significance of inequality by Rajan and others as an example of "Gattopardo" economics, in reference to the film of the novel by di Lampedusa: "Gattopardo economics takes on board ideas developed by critics of mainstream economics, but it does so in a way that ignores the thrust of the original critique and leaves mainstream analysis unchanged. Gattopardo economics makes change more difficult because it deceives people into thinking change has taken place. By masquerading as change, it crowds-out space for real change." (p. 1)

³³"Data series proxying for our main candidate explanation, the rate of technological progress, are unfortunately not available....Therefore instead of measuring this phenomenon directly, we pursue a more indirect method of including a linear time trend starting in the mid-1980s ..." (Ellis & Smith, 2007, p. 14)

³⁴A neat way to side-step these issues is found by Guscina (2006), who uses the growing gap between labour productivity and remuneration as a proxy to determine the effects of technological change. She argues that "if compensation and employment shares rise with labor productivity, we can deduce that technological change is labor-augmenting, but if the opposite is true, technological change is capital-augmenting." The regression is set up with inequality specified as the dependent variable and labour productivity as the independent variable. The resulting "especially strong and robust" correlation between productivity and in-

equality leads to the conclusion that “the IT revolution ...appears to have been capital-augmenting, lowering labor’s share in countries whose productivity grew more rapidly.” (p. 11)

³⁵For a history of the debates which lie behind these issues, see Harcourt & Cohen (2003).

³⁶A recent contribution from two authors at the University of Chicago uses the neoclassical aggregate production function approach in a different way to provide a theoretical explanation for the decline in the labour share of income. Karabarbounis & Neiman (2013) assume a constant positive elasticity of substitution in production between capital and labour. Then, faced with an exogenous (and unexplained) “investment-specific technology shock” (p. 6) which reduces the price of capital, firms will substitute capital for labour and the resulting decline in the relative demand for labour leads to a fall in the real wage and the labour share of income. The authors argue that econometric testing demonstrates that their proposed effect “explains” at least half of the observed falls in the labour share. The authors thus conclude that the SBTC story has been overstated.

³⁷They also find that effects of unions in reducing inequality are most significant for recent graduates.

³⁸Stockhammer (2009) notes that the Scandinavian countries are part of the “Ghent” system which requires workers to be union members in order to be eligible for unemployment benefits. Unionisation rates (and changes) are thus not directly comparable with non-Ghent countries.

³⁹See also Horn et al. (2009).

⁴⁰In light of Godley’s prediction, and given the failure of standard New Keynesian models to even incorporate the potential for financial imbalances to play a macroeconomic role, there is a hint of irony to Krugman’s recent evaluation of Godley’s approach to macroeconomics: “...Godley’s notion that we should represent behavior by rules of thumb isn’t something new—it’s something old, which got driven out of macroeconomics ...So why did hydraulic macro get driven out? Partly because ...an analysis in terms of rational behavior always trumps rules of thumb. But there were also some notable predictive failures of hydraulic macro, failures that it seemed could have been avoided by thinking more in maximizing terms.” (Krugman, 2013)

⁴¹van Treeck & Sturn (2012) refer to this position as the “Krueger-Perri-Greenspan argument” (p. 11).

⁴²Gordon & Dew-Becker (2008) go further and argue that the consumption survey data significantly under-estimates the actual consumption of poor households because of an in-built bias in the CPI which serves to exclude the welfare-enhancing effects of Wal-Mart’s pricing behaviour on the consumption basket of those on lower incomes, while simultaneously under-estimating the negative effects on those in higher income brackets: “Both because low-income households shop at Wal-Mart, and because they spend a larger proportion of their household income on food than high-income households, there is a prima-facie case that the retail channel involving Wal-Mart ...has significantly reduced the cost of living for lower-income households....Many high income households have never visited a Wal-Mart. Their expenditures exhibit a higher share of services, particularly high-end services like private secondary schools, college tuition, high-end spas, massage therapists, landscape gardeners, and other service providers whose relative prices rise steadily relative to the consumer price level” (p. 33). The authors also noted that “while the poor may do better when price indexes are corrected, they do much worse when their health outcomes are considered.” (p. 45) and further, that “lower-income people are more likely to...eat unhealthy foods.” (p. 35) The possibility that a connection exists

between the welfare-enhancing effects of shopping for groceries at Wal-mart and the welfare-diminishing effects of consuming a less than nutritionally optimal diet appears to have eluded the authors.

⁴³See also Katz & Autor (1998).

⁴⁴A different approach is taken by Bordo & Meissner (2012) who use a panel analysis of 14 countries to argue that, while credit booms do tend to be followed by crises, no evidence can be found of a correlation between inequality and credit booms.

⁴⁵For further discussion of the shortcomings of these studies, see van Treeck & Sturn (2012, pp. 12–13).

⁴⁶Friedman built upon the “life-cycle hypothesis” of Modigliani (Modigliani & Blumberg, 1954; Ando & Modigliani, 1963). Modigliani had previously endorsed, then rejected, Duesenberry’s relative income hypothesis. It has been speculated that the real purpose of Friedman’s attack on Duesenberry was to discredit Keynes (Mason, 2000).

⁴⁷The Greenspan-Krueger-Perri hypothesis in fact predicts the opposite outcome in terms of household saving: higher insecurity and volatility might lead to greater *gross* debt, but the *net* financial position of the household sector should improve as families react to greater uncertainty through increased precautionary saving.

⁴⁸See Lavoie (1996) and Lee (1996) for discussion of the assumption of fixed marginal costs and Blinder et al. (1998) for a recent empirical study.

⁴⁹See Michell (2013).

⁵⁰See dos Santos (2013) for a critique of the neo-Kaleckian analytical framework.

⁵¹See Lavoie & Stockhammer (2012) for an accessible introduction to the conceptual and theoretical framework.

⁵²Scholars writing from this viewpoint thus start with significantly different starting assumptions to those postulated by “Economics 101”, from which Krugman faced such a long struggle of escape (see Section 3.3).

⁵³Once the effects of changes in the real wage on the demand for exports is taken into account, the overall growth regime of a domestically wage-led economy may become profit-led. Onaran & Galanis (2012) argue that China provides the most striking example of such a system.

⁵⁴The theoretical framework has given rise to a growing empirical literature which uses econometric techniques to estimate consumption and investment functions for individual economies and thus classifies countries as either “wage-led” or “profit-led”. See, for example, Bowles & Boyer (1995), Stockhammer & Ederer (2008), Stockhammer et al. (2009, 2011) and Onaran & Galanis (2012).

⁵⁵A view which is essentially indistinguishable from this analysis was given by Fitoussi & Stiglitz, although the authors do not, of course, acknowledge any of the post-Keynesian writers: “...aggregate demand deficiency preceded the financial crisis and was due to structural changes in income distribution. As the propensity to consume out of low incomes is generally larger, this long-term trend in income redistribution by itself would have had the macroeconomic effect of depressing aggregate demand. In the US the compression of low incomes was compensated by the reduction of household savings and by mounting indebtedness that allowed spending patterns to be kept virtually unchanged. ...Most European countries tread a different path. The redistribution to higher incomes resulted in an increase in national savings and depressed



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growth. ...These two paths were mutually reinforcing because the savings from the EU zone contributed to the financing of US borrowing, along with surpluses of other regions. ...Thus, the combination of structural disequilibria that goes by the name of global imbalances resulted in a fragile equilibrium that temporarily solved the aggregate demand problem on a global scale at the expense of future growth." (Fitoussi & Stiglitz, 2009, pp. 3-4).

⁵⁶"Our preferred interpretation is that agents derive direct utility from the prestige, power and social status conferred by wealth" (p. 9).

Tables and Figures

Country	Peak membership		2009	
	Rate (%)	Year	Rate (%)	Decline (%)
Australia	46.1	1974	21.0	54.4
Austria	49.6	1988	40.1	19.2
Belgium	70.0	1995	69.6	0.6
Canada	33.3	1977	28.0	15.9
Denmark	86.2	1994	82.1	4.8
Finland	101.3	1993	94.6	6.6
France	26.2	1946	9.2	64.9
Germany	37.3	1991	28.5	23.6
Italy	53.3	1995	53.1	0.4
Japan	23.4	1975	17.9	23.5
Netherlands	33.9	1973	23.2	31.6
Norway	68.5	1996	67.8	1.0
Sweden	97.0	1994	92.9	4.2
Switzerland	31.8	1957	22.5	29.2
United Kingdom	53.0	1979	30.2	43.0
United States	26.4	1956	13.9	47.3

Table 1 – Decline in trade union membership rates.

NB. membership rates are defined as number of union members divided by labour force. Since union members may include the unemployed and retired, rates can exceed 100%

Source: Friedman (2009).

		Distributional outcome	
		Higher profit share	Higher wage share
Growth regime	Profit-led	Trickle-down capitalism Instability, requiring exogenous growth stimulus	Doomed social reforms Social Keynesianism
	Wage-led		

Table 2 – Growth implications of policy outcomes under different regimes.

Adapted from Lavoie & Stockhammer (2012, Table 4, p. 6)

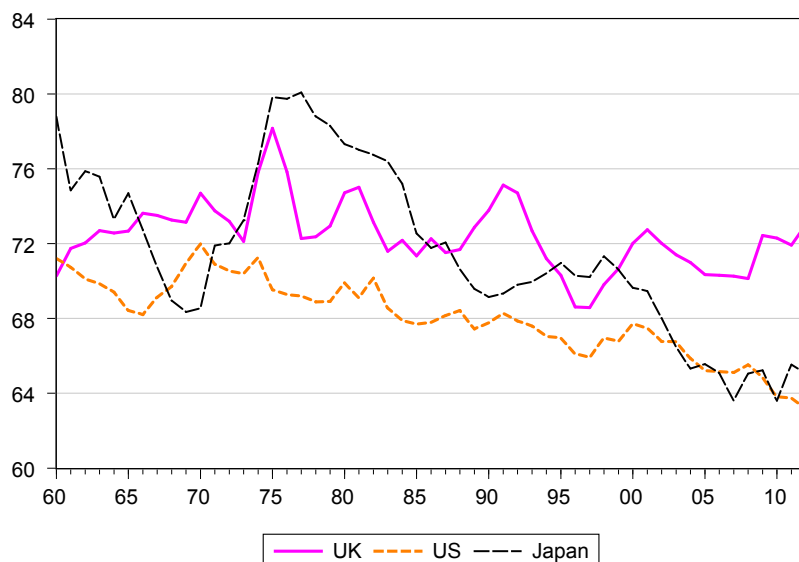


Figure 1 – Adjusted wage share as % of GDP at current factor cost, 1960–2012.
 Source: EC (2013)

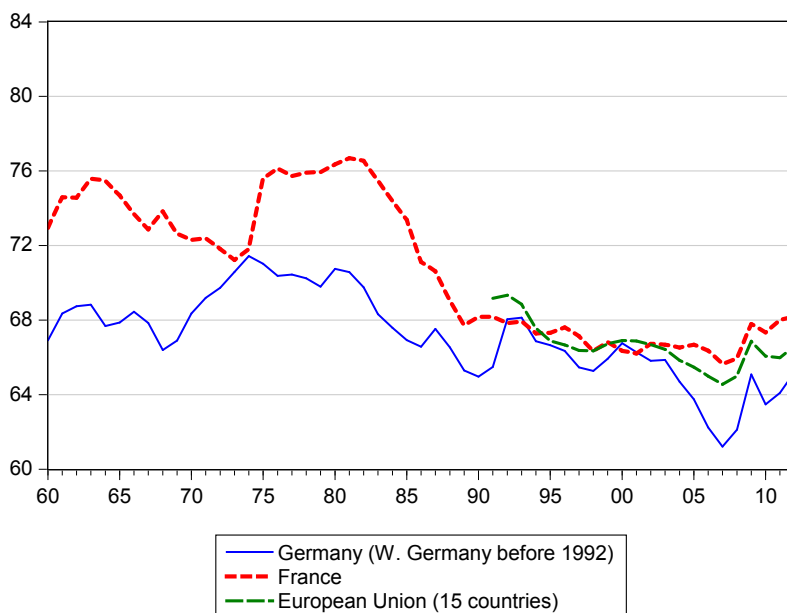


Figure 2 – Adjusted wage share as % of GDP at current factor cost, 1960–2012.
 Source: EC (2013)

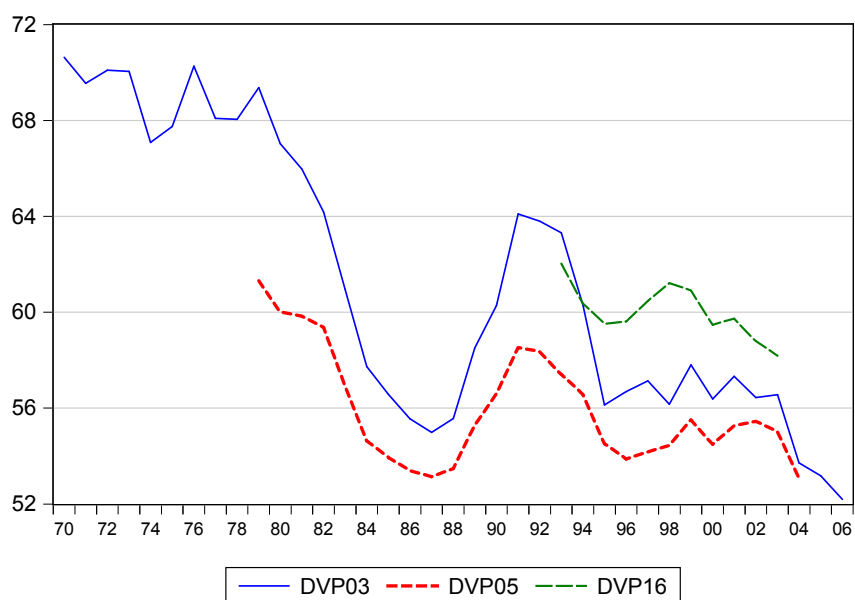


Figure 3 – Functional distribution of income in developing countries
 DVP3: unweighted average of Mexico, South Korea, and Turkey;
 DVP5: unweighted average of China, Kenya, Mexico, South Korea, and Turkey;
 DVP16: unweighted average of Argentina, Brazil, Chile, China, Costa Rica, Kenya, Mexico, Namibia, Oman, Panama, Peru, Russia, South Africa, South Korea, Thailand, and Turkey
 Source: Stockhammer (2012b)

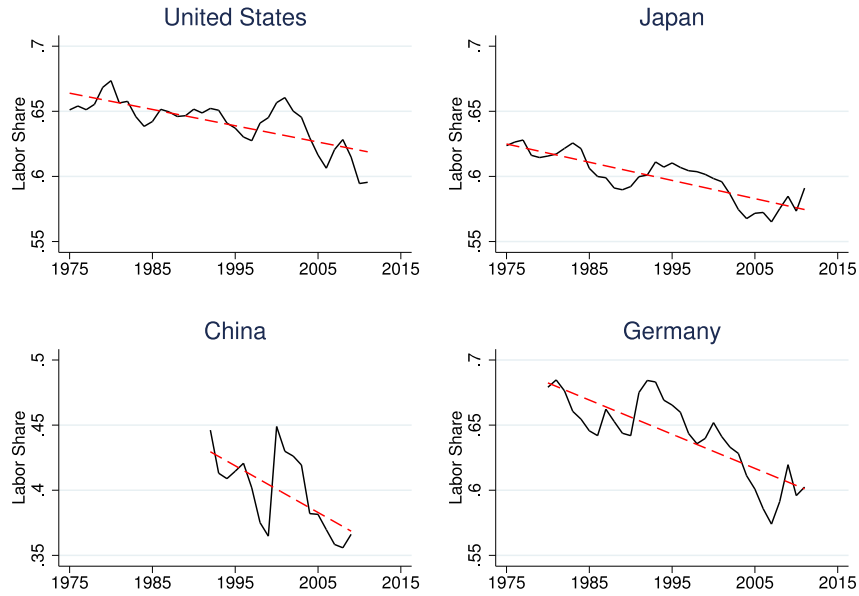


Figure 4 – Wage share in four large economies.
 Reproduced from Karabarbounis & Neiman (2013)

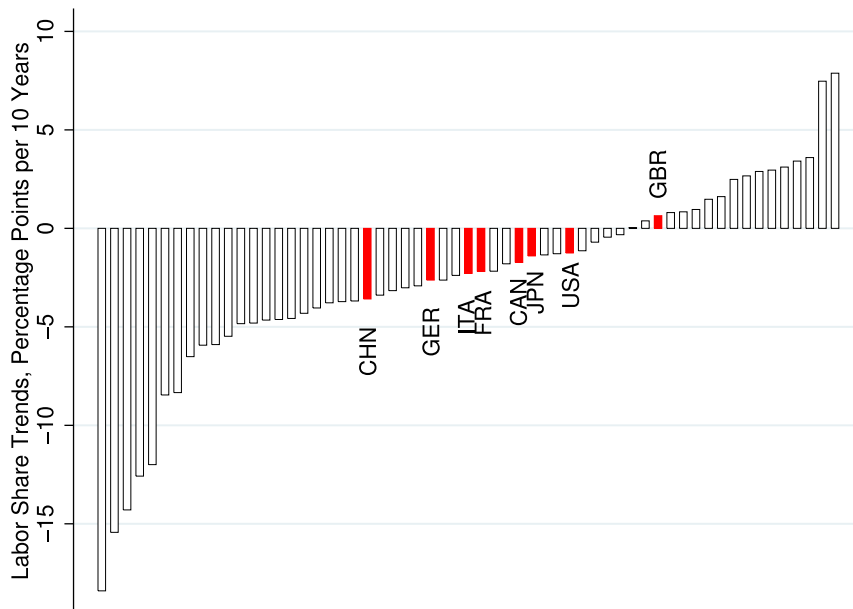


Figure 5 – Trend wage share cross-country comparison.
 Reproduced from Karabarbounis & Neiman (2013)

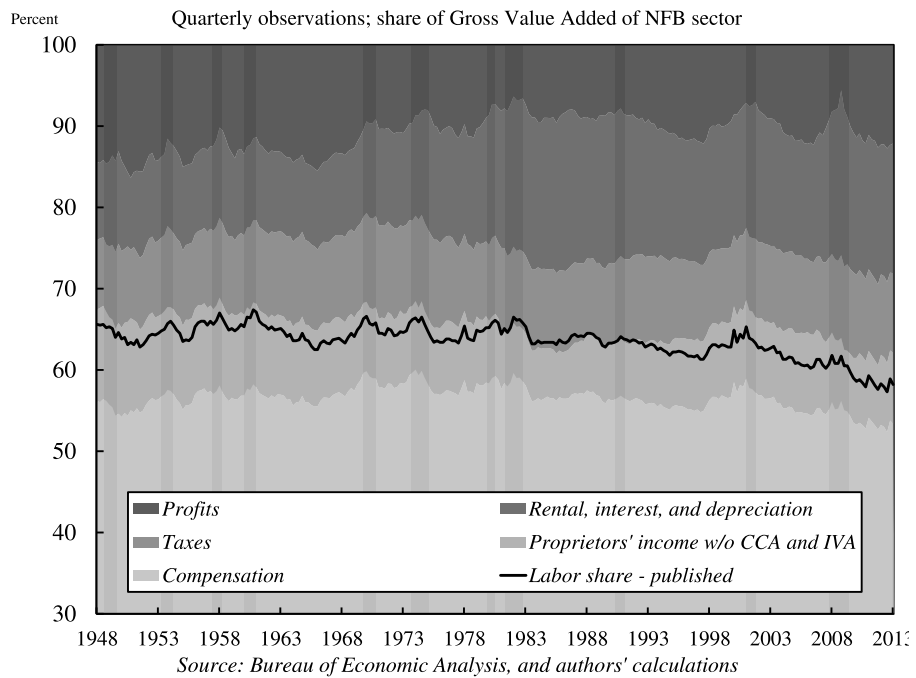


Figure 6 – US non-farm business Labour Share.
 Reproduced from Elsby et al. (2013)

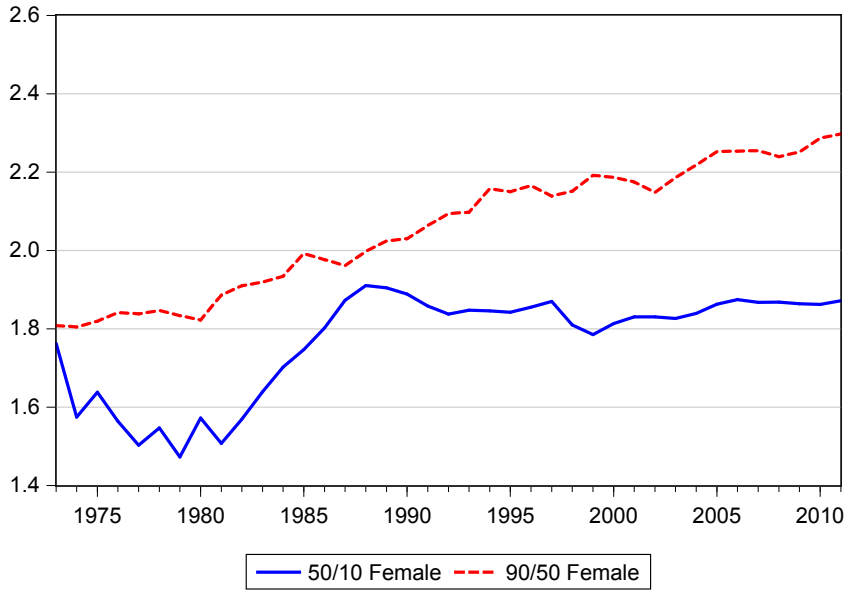


Figure 7 – Female wage dispersion in US.
 Source: Mishel et al. (2012)

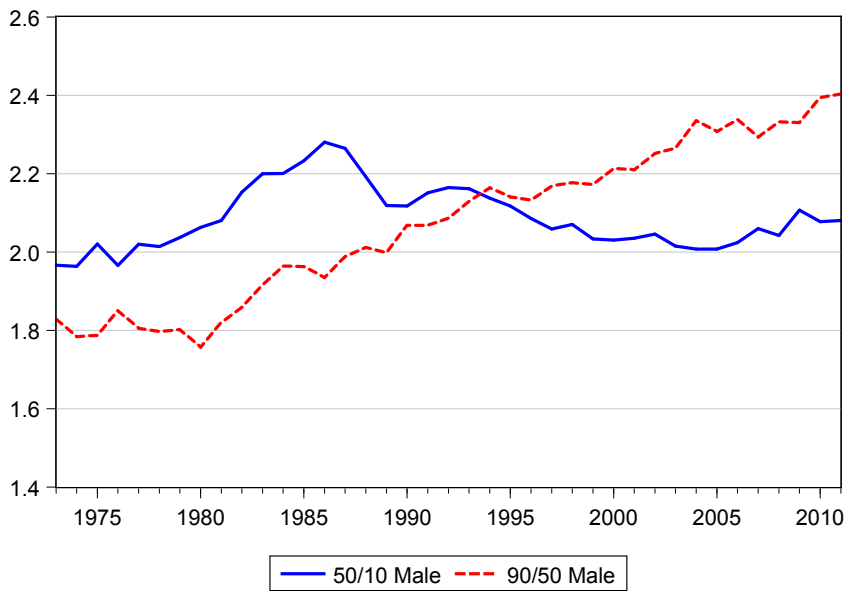


Figure 8 – Male wage dispersion in US.
 Source: Mishel et al. (2012)

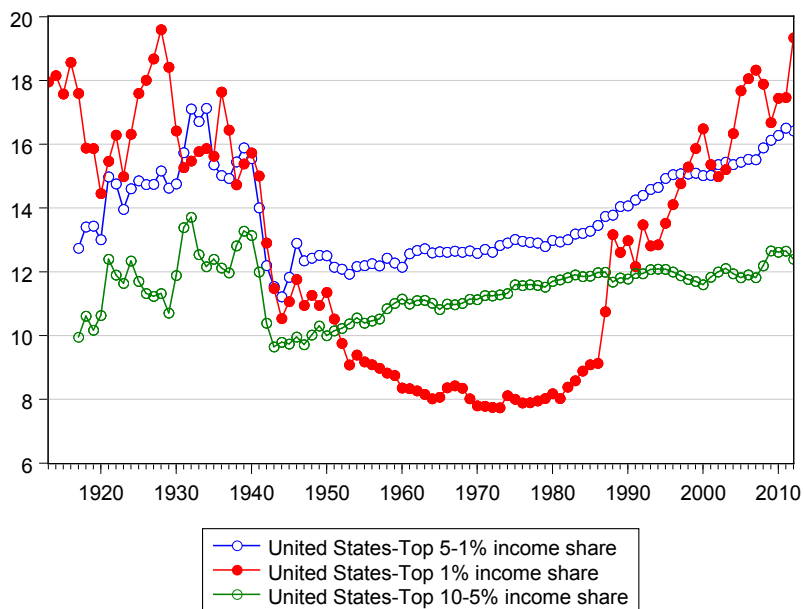


Figure 9 – Personal income distribution.
 Source: Alvaredo et al. (2013)

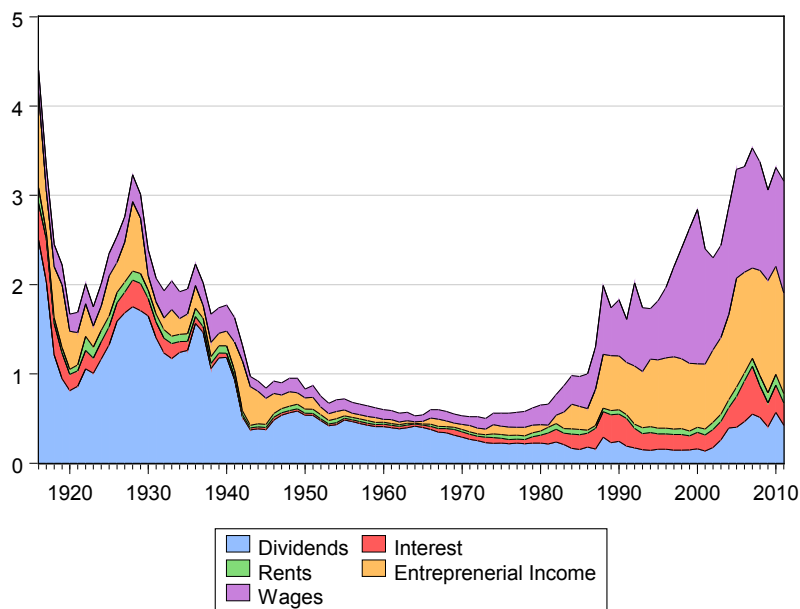
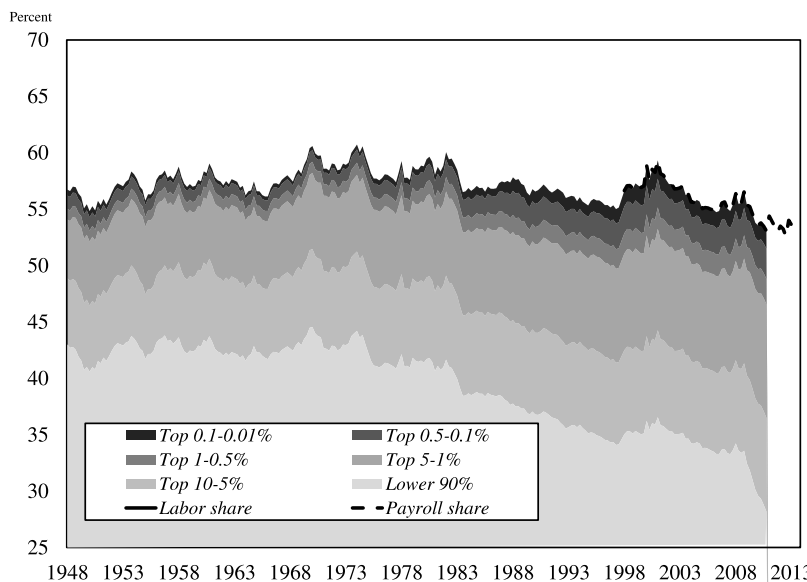


Figure 10 – Composition of top 0.1% of personal income.
 Source: Alvaredo et al. (2013)



Source: Bureau of Labor Statistics, Bureau of Economic Analysis, IRS, Alvaredo et al. (2013), and authors' calculations.

Figure 11 – US nonfarm business labor share split by income fractile.
 Reproduced from Elsby et al. (2013, p. 36)

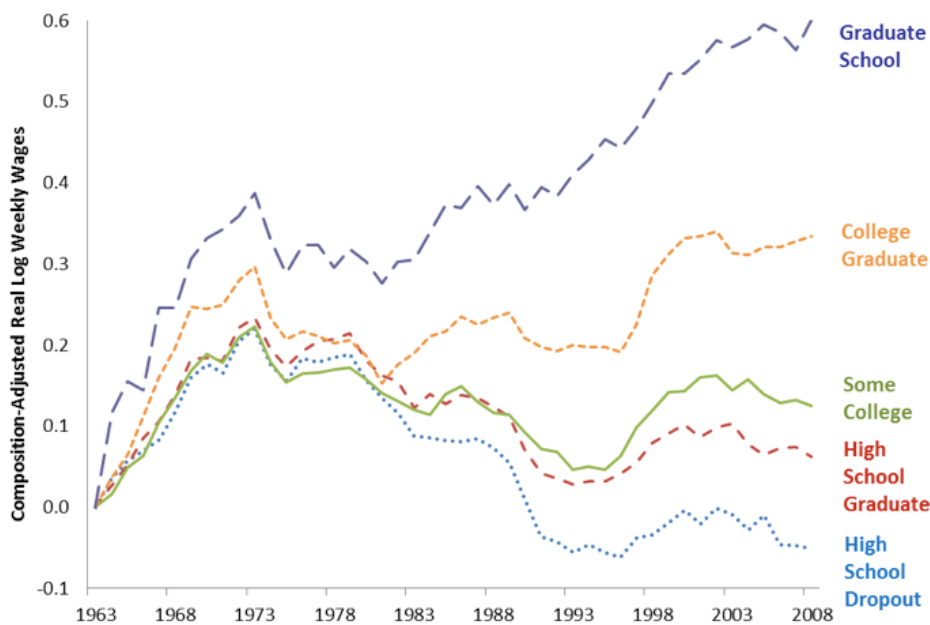


Figure 12 – Skill-biased technical change (SBTC).
 Source: Acemoglu & Autor (2012)

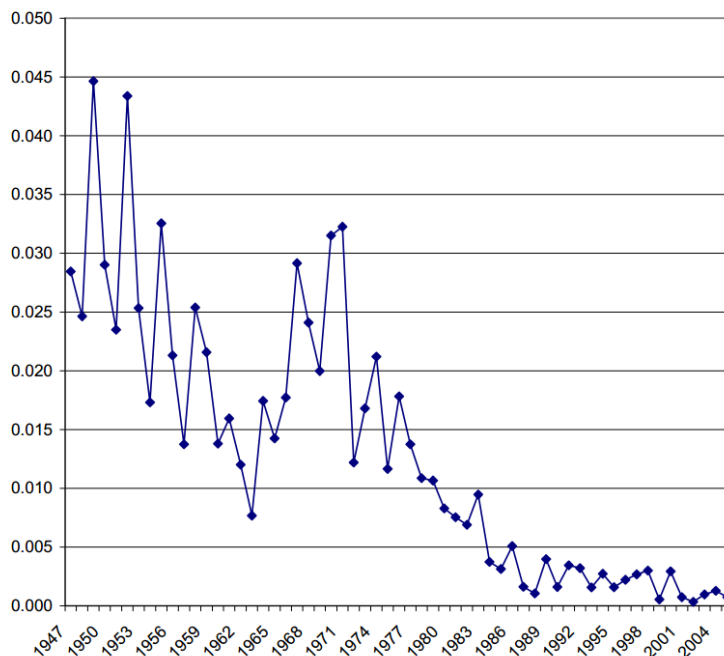


Figure 13 – Persons engaged in work stoppages in US as proportion of all workers.
 Reproduced from Levy & Temin (2007)

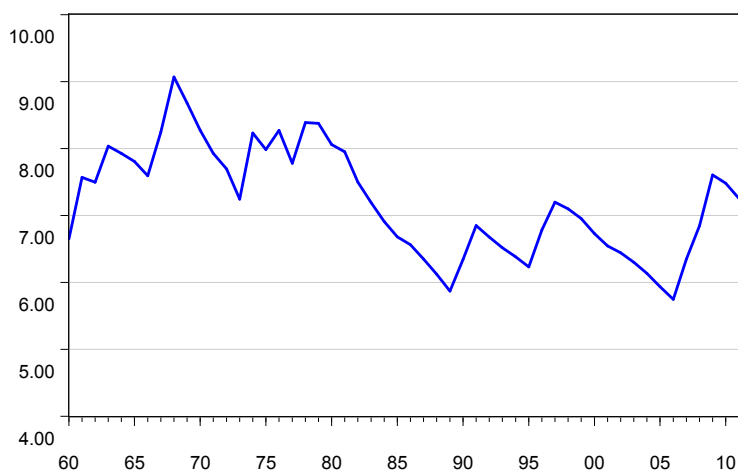


Figure 14 – US minimum wage, 2011 dollars.
 Source: Mishel et al. (2012)

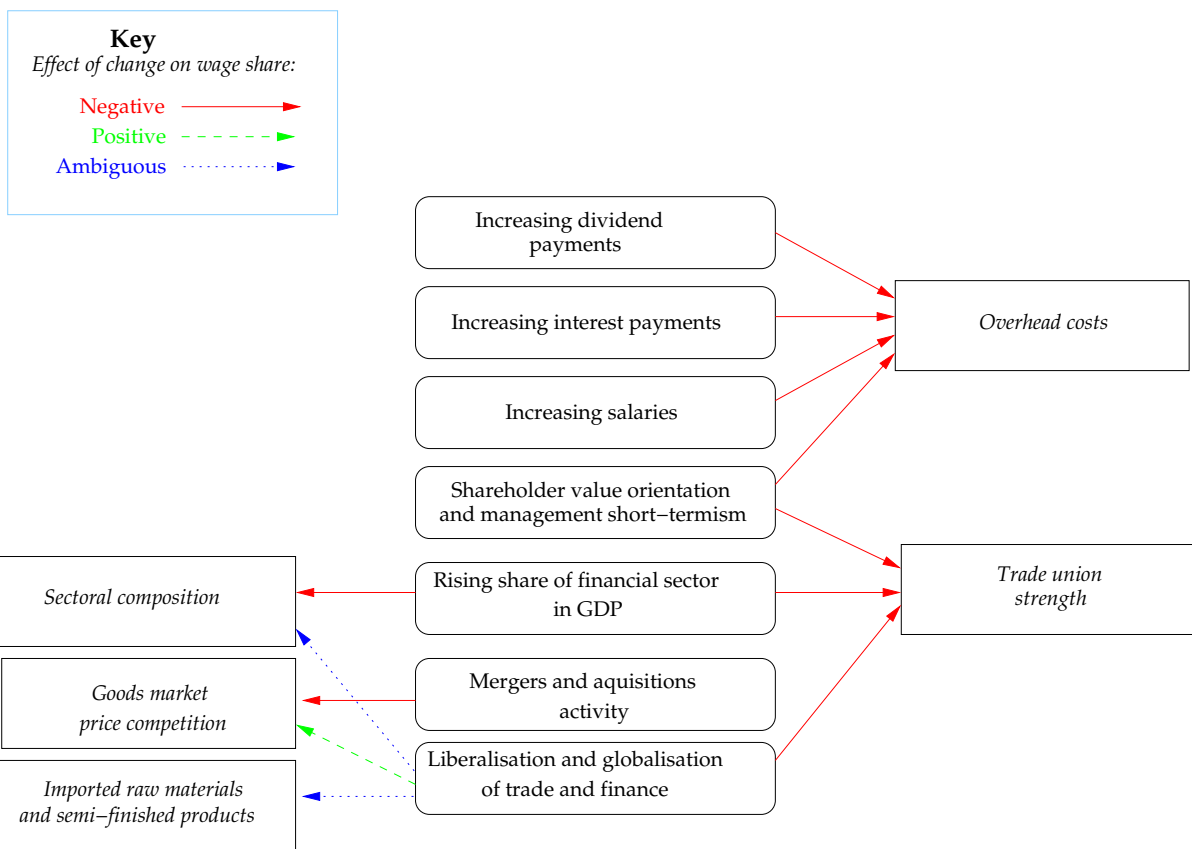
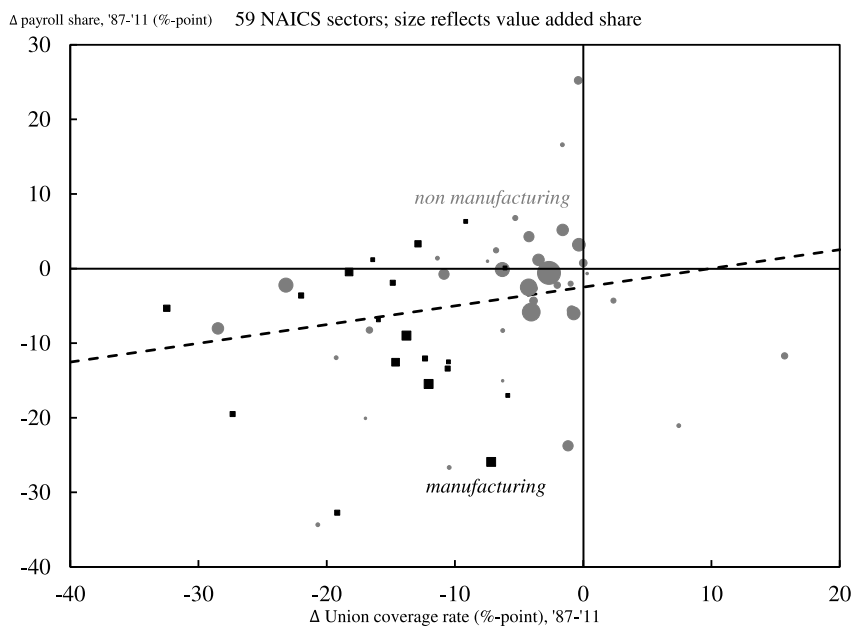
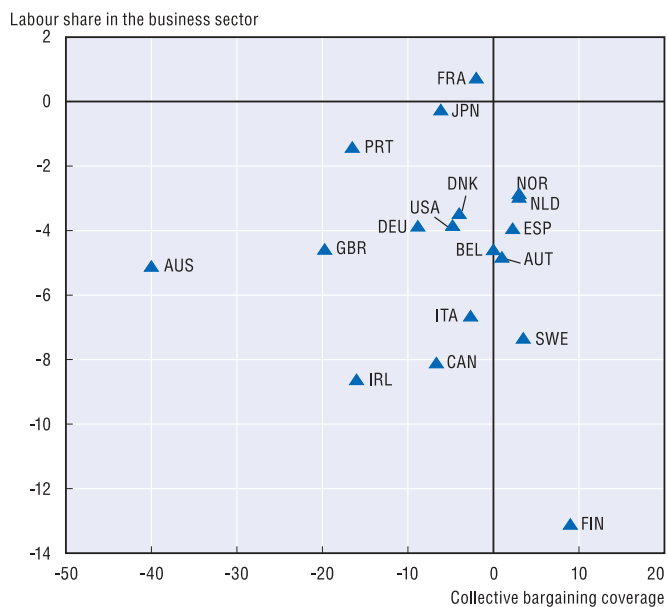


Figure 15 – Effects of financialisation on the wage share.
 Adapted from Hein (2011, Table 3)



Source: Bureau of Economic Analysis, Bureau of Labor Statistics, and authors' calculations

Figure 16 – Trade union coverage and wage share.
 Reproduced from Elsby et al. (2013, Figure 11)



Source: OECD calculations based on OECD STAN, EUKLEMS and Visser, J. (2011), "Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts", 1960-2010(ICTWSS), Version 3.0, May, www.uva-aias.net/208.

StatLink <http://dx.doi.org/10.1787/888932651750>

Figure 17 – Trade union coverage and wage share.
 Reproduced from OECD (2012, p. 138)

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THE ABSTRACT OF THE PROJECT IS:

The research programme will integrate diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms. The programme involves an integrated and balanced consortium involving partners from 14 countries that has unsurpassed experience of deploying diverse perspectives both within economics and across disciplines inclusive of economics. The programme is distinctively pluralistic, and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs. The central issues addressed are the ways in which the growth and performance of economies in the last 30 years have been dependent on the characteristics of the processes of financialisation; how has financialisation impacted on the achievement of specific economic, social, and environmental objectives?; the nature of the relationship between financialisation and the sustainability of the financial system, economic development and the environment?; the lessons to be drawn from the crisis about the nature and impacts of financialisation? ; what are the requisites of a financial system able to support a process of sustainable development, broadly conceived?

THE PARTNERS IN THE CONSORTIUM ARE:

Participant Number	Participant organisation name	Country
1 (Coordinator)	University of Leeds	UK
2	University of Siena	Italy
3	School of Oriental and African Studies	UK
4	Fondation Nationale des Sciences Politiques	France
5	Pour la Solidarite, Brussels	Belgium
6	Poznan University of Economics	Poland
7	Tallin University of Technology	Estonia
8	Berlin School of Economics and Law	Germany
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