

Conditions of Work and Employment Branch

***Wage-led growth: concept, theories and policies***

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# **Wage-led growth: Concept, theories and policies<sup>1</sup>**

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## **1. Introduction**

The subprime financial crisis that started in 2007 and which became the global financial crisis has forced economists and politicians alike to reconsider the theories and policies that had gradually been accepted as conventional wisdom over the last thirty years. As we write this however, at the end of 2011, the Keynesian fiscal stimulus programs based on infrastructure expenditures and a more generous support of social programs that were suggested by international organizations in late 2008 were adopted only by a handful of countries and were rather short-lived. All the talk now, at least in European countries, is about fiscal austerity policies and the belief that cuts in government expenditures will magically lead to an increase in economic activity. Similarly, while it is now generally recognized, in contrast to the financial market efficiency hypothesis, that financial innovations and self-regulated financial markets are likely to be destabilizing and endanger the real economy, little has been done in practice by regulators to restrain the excesses of the financial system. We believe that the global financial crisis has also demonstrated the dangers and limitations of another tenet of current conventional wisdom in economics, i.e., the claim that wage moderation, accompanied by more flexible labour markets as well as labour institutions and laws more favourable to employers, will ultimately make for a more stable economy and a more productive and dynamic economic system.

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<sup>1</sup> The paper is part of the project 'New perspectives on wages and economic growth: the potentials of wage-led growth'. It was presented at a session of the Regulating for Decent Work (RDW) conference, held at the ILO, Geneva, July 6-8, 2011. We wish to thank participants for their remarks and questions, in particular Pierre Laliberté, as well as Eckhard Hein and Simon Sturn.

The past decades have witnessed falling wage shares and a polarization of personal income distribution in most (but not all) countries. Average wages and average labour compensation have not kept up with productivity growth. Functional income distribution has shifted at the expense of labour. In many countries personal income distribution has also become more unequal, and wages and salaries themselves have become more polarized, with high-end salaries taking an ever-larger proportion of earned income. By many measures income inequality is worse than at any time in the 20<sup>th</sup> century (Atkinson et al. 2011). At the same time economic growth processes have become unbalanced. Financial crises have become more frequent; household debts have risen sharply; the household sector has become an overall borrower while the corporate sector has become a global lender in the Anglo-Saxon countries; international imbalances have increased, with some countries relying excessively on export growth.

This paper argues that the polarization of income distribution and the decline in the wage share play an important role in the generation of unbalanced and unequal growth. We believe that these phenomena are, at most, only partially associated with technical change and changes in the composition of output, and that the essential cause of the long-run evolution of income distribution and its rising dispersion is the change in economic policies and in the institutional and legal environment that has been more favourable to capital and its high-end supervisory employees over the last thirty years or so. In other words, we do not think that the determination of real wages or the wage share is a purely endogenous phenomenon. Income distribution can be modified or influenced by appropriate government policies, that act both on primary income distribution, for instance by reinforcing the bargaining power of labour unions or securing low real interest rates, and on secondary income distribution, by modifying the tax code.

We believe it is time to reconsider the validity of pro-capital distributional policies, and to examine the possibility of an alternative path, one based on pro-labour distributional policies, accompanied by legislative changes and structural policies that will make a wage-led growth regime more likely, i.e., pursue what we call a *wage-led growth strategy*, which, in our view, will generate a much more stable growth regime for the future. This belief is shared by others, thus leading to the organization of the current project, *New perspectives on wages and economic growth: the potentials of wage-led growth* (henceforth, the *wage-led growth project*). This issue is particularly important in view of the fact that the financial crisis has plunged many economies in recession, thus further weakening the ability of workers to resist attempts to lower wages or real wages, and hence with the consequence, at the macroeconomic level, of further reducing the wage share in national income.

The advocacy of a wage-led economic strategy has a long history. It has been articulated in reformist visions within the labour movement and was discussed under the heading of ‘underconsumption’ in 19<sup>th</sup> century economics. Famous underconsumptionists in the history of economic thought include Malthus, Sismondi and Hobson.<sup>2</sup> Underconsumptionist ideas got a boost from their endorsement by Keynes, when he proposed his theory of effective demand, arguing that excessive saving rates, relative to deficient investment rates, were at the core of depressed economies. Underconsumption theories can also be related to the problems of the realization of profit, as discussed by Marx and subsequently by various Marxist authors such as Baran and Sweezy (1966), while other authors, closely related to Kalecki (1971), such as Steindl (1952) and Bhaduri (1986), have brought together the theory of effective demand and the problem of the realization of profit. On this basis, the benefits of a wage-led growth strategy has been resurrected and formalized by several Kaleckian or post-Keynesian authors, starting with Rowthorn (1981), Taylor (1983) and Dutt (1987). Taylor (1988) showed early on that when emerging countries had enough capacity to adjust, a wage-led growth strategy made sense. More recently, the policy-oriented concept of a wage-led growth strategy was prominently used by UNCTAD (2010, 2011).

A standard objection to the consideration of the underconsumption thesis or the consideration of problems related to the lack of effective demand is that long-run growth – the trend rate of growth, also called the potential growth or the natural rate of growth – is ultimately determined by supply-side factors, such as the growth rate of the labour force and the growth rate of labour productivity. While adepts of the so-called ‘endogenous growth theory’ will recognize that investment in human capital or research and development may end up modifying the potential growth rate, they usually set aside the idea that actual growth rates could have an influence on potential growth rates. Yet, since the advent of the global financial crisis, government agencies and central banks in many industrialized countries have lowered their forecasts of long-run real growth, thus demonstrating clearly that weak aggregate demand does have an impact on potential growth. As Dray and Thirlwall (2011, p. 466) recall, ‘it makes little economic sense to think of growth as supply constrained if, within limits, demand can create its own supply’. This explains why we shall focus on the income distribution determinants of aggregate demand, paying less attention to the supply-side factors.

The main objective of the present paper is to provide an accessible introduction to the topic of a wage-led growth strategy for policy makers. Another important objective is to present

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<sup>2</sup> See Bleaney (1976) for a historical account of underconsumptionist theories.

the overarching framework underlying the efforts of the authors of the other papers of the project, thus also providing an introduction to the notions of *wage-led* and *profit-led* economic regimes, in the hope that other researchers will adopt these distinctions and embark on the kind of empirical research required to assess whether various other individual countries or regions are in a wage-led or a profit-led regime.

In the next section, Section 2, we provide a policy-oriented framework for the analysis of the interaction between distribution and growth. We will need to make a distinction between distributional policies and a macroeconomic regime. It is important to make these conceptual definitions and distinctions because they are not always obvious to non-economists. On the one hand governments can pursue pro-labour or pro-capital distributional policies, which aim at increasing or decreasing the share of wages in national income respectively; while on the other hand we have wage-led and profit-led economic regimes, which are associated with the structural macroeconomic features of the country under investigation. More technically, distributional policies are about changes in the *determinants* of income distribution, while the economic regime is about the *effects* of changes in income distribution on the economy. We will also see how policies and regimes can interact to create either stable and high growth processes or whether some combination can lead instead to slow or unstable growth processes.

In section 3, we shall examine why an economy would exhibit a wage-led economic regime, looking both at supply-side effects, that is the relationship between the share of wages and labour productivity growth, and at demand-side effects, which will be our main concern in this section and in this paper. Section 4 provides a summary of some key empirical findings of related to the question of wage-led versus profit-led growth. It summarises the causes for changes in wage shares, indicates the approximate size of some key effects on the demand side, summarises the findings on the productivity effects, and discusses the emergence of the two growth regimes that followed the generalization of neoliberalism, *debt-led growth* and *export-led growth*. Both of these neoliberal growth processes have come with wage suppression and greater income inequality.

Finally, section 5 argues that since the world economy as a whole is likely to be in a wage-led regime, an economically sustainable process of growth requires the adoption of a wage-led strategy, with pro-labour distributional and structural policies. This will generate a wage-led growth process, which will ultimately be favourable to all concerned, including employers.

## 2. Distribution and growth: A conceptual framework

The relation between distribution and growth had been at the centre of macroeconomic analysis in classical economics, but with the dominance of neoclassical economics in the 20<sup>th</sup> century, issues of distribution have occupied a secondary place, since income distribution was assumed to be regulated by marginal productivity relations within a perfect competition model, with wages for various occupations being determined by the pure market forces of supply and demand. But such a mechanical model of wage determination and income distribution does not hold up in a world where monopsonist features, imperfect competition and economic and social power come into play.<sup>3</sup> In such a world, in contrast to the ideal world of market fundamentalism, market forces do not produce optimum results and there is room for modifying income distribution. In the following we offer a policy-oriented framework to analyse the relation between distribution and growth. We start by contrasting pro-labour and pro-capital distributional policies.

### 2.1 Pro-capital versus pro-labour distributional policies

Income distribution is the outcome of complex social and economic processes, but governments directly influence it by means of tax policy, social policy and labour market policy. As shown in Table 1, we define as *pro-capital distributional policies* those policies that lead to a long-run decline in the wage share in national income, while *pro-labour distributional policies* are policies that result in an increase in the wage share. Pro-capital distributional policies usually proclaim to promote 'labour market flexibility' or wage flexibility, rather than increasing capital income. They include measures that weaken collective bargaining institutions (by granting exceptions to bargaining coverage), labour unions (e.g., by changing strike laws) and employment protection legislation, as well as measures or the lack of measures that lead to lower minimum wages. There are also measures that alter the secondary income distribution in favour of profits and the rich, such as

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<sup>3</sup> It has sometimes been argued that because several empirical studies of aggregate production functions have yielded estimates of the output elasticities of factors that were consistent with the predictions of marginal productivity theory under conditions of perfect competition (because these elasticities equated pretty closely the shares of wages and profits), it was possible to conclude that markets behaved as if they were fully competitive. But it has since been shown that this success was achieved because what the regressions of aggregate production functions are really measuring are the wage and profit shares, not the output elasticities, as the regressions are in fact estimating national accounting identities. See Lavoie (2007) for a review of this critical literature.

exempting capital gains from income taxation, or reducing the corporate income tax. Ultimately, pro-capital policies impose wage moderation.

Pro-labour policies in contrast are often referred to as policies that strengthen the welfare state, labour market institutions, labour unions, and the ability to engage in collective bargaining (e.g., by extending the reach of bargaining agreements to non-unionised firms). Pro-labour policies are also associated with increased unemployment benefits, higher minimum wages and a higher minimum wage relative to the median wage, as well as reductions in wage and salary dispersion. While in the case of a pro-capital distributional policy, real wages will not grow as fast as labour productivity, all else equal, with a pro-labour distributional policy, the wage share will remain constant or will increase over the long run, as real wages grow in line with labour productivity or exceed productivity.

Of course, there are also other factors influencing income distribution, such as technological changes, trade policy, globalization, financialization and financial deregulation. These factors have recently played an important role, but we will not elaborate on them here, as we wish to focus on the interaction of distributional policies and economic regime.

Table 1. Pro-labour and pro-capital distributional policies

	Distributional policies		Other factors
	<b>Pro-capital</b>	<b>Pro-labour</b>	
Policies	'Labour market flexibility' Abolish minimum wages Weaken collective bargaining Impose wage moderation	'Welfare state' Increase minimum wages Strengthen collective bargaining	Changes in technology Globalization Financialization
Results	Weak wage growth Wage share ↓ Increased wage dispersion	Rising real wages Stable (or ↑) wage share Decreased wage dispersion	

## 2.2 Profit-led versus wage-led economic regimes

So far we have considered the economic policies pursued by a government, which could alter income distribution in favour of profits or of wages or the median wage. Next we consider the following question: knowing that income distribution is shifting in favour of profits or wages, what is the effect of such a shift on economic performance? For instance, if income distribution



in a country is shifting in favour of profit recipients, does this by itself have favourable consequences on aggregate demand in the short run, on the growth rate of aggregate demand in the long run, or on the growth rate of labour productivity? If indeed this shift towards profits has favourable repercussions on the economy, as we have just defined them, then we shall say that this economy is in a *profit-led economic regime*. If not, if the shift towards profits has a negative impact on the economy, then the economy is in a *wage-led economic regime*. By symmetry, we can argue that economies that, all else being equal, experience rising wage shares that induce a favourable outcome are part of a wage-led regime, while rising wage shares that generate an unfavourable outcome indicate the presence of a profit-led regime. This is all summed up in Table 2. At this stage, we do not attempt to distinguish between demand and productivity effects, but only discuss the economic regime, assuming for the moment that demand and productivity react in a similar direction to distributional changes. We shall tackle this issue in more detail in the next section.

Table 2. Definition of profit-led and wage-led regimes

		Overall impact on the economy	
		<b>Expansionary</b>	<b>Contractionary</b>
Income distribution change imposed on society	<b>An increase in the profit share</b>	Profit-led regime	Wage-led regime
	<b>An increase in the wage share</b>	Wage-led regime	Profit-led regime

Whether an economy is under a profit-led or a wage-led regime depends on the economic structure of the economy. It will depend in part on the existing income distribution in the country, but also on various behavioural components, such as the propensity to consume of the various income recipients, on the sensitivity of entrepreneurs to changes in sales or in profit margins, and on the sensitivity of exporters and importers to changes in costs, foreign exchange values, and changes in foreign demand, as well as the size of the various components of aggregate demand – consumption, investment, government expenditures and net exports. While an economic regime also depends on the various economic structures and institutions, as well as various forms of government policy, it should be clear that the nature of the economic regime as defined in Table 2 is not a choice variable for economic policy in any straightforward sense. It should not be understood as designed by economic policy, but rather as determined by the institutional structure of the economy.

We can now bring together the analyses of distributional policies and of economic regimes, as shown in Table 3. Between the two sets of distributional policies and the two economic regimes, four different combinations are possible. These do have quite different properties. If pro-capital distributional policies are pursued in a profit-led economy, this will result in a profit-led growth process. Inversely, if pro-labour policies are pursued in a wage-led economy, this will result in a wage-led growth process. These are the two cells in the main diagonal in Table 3. In both cases distributional policies and economic structures are consistent with each other. However, if pro-capital policies are pursued in a wage-led economy or if pro-labour policies are pursued in a profit-led economy, this will result in stagnation. In practice, inconsistent distributional policies and regimes are also likely to evolve towards unstable growth patterns as growth will have to rely on external stimulation.

Table 3. Viability of growth regimes

		Distributional policies	
		<b>Pro-capital</b>	<b>Pro-labour</b>
Economic regime	<b>Profit-led</b>	Profit-led growth process	Stagnation or unstable growth
	<b>Wage-led</b>	Stagnation or unstable growth	Wage-led growth process

Table 3 is useful in classifying different political ideologies as the four different combinations allow us to classify many important arguments. Take the first cell (pro-capital policies in a profit-led economy). This scenario, as shown in Table 4, corresponds to liberal ideology and what is often called trickle-down economics. Policies more favourable to profit recipients and to employers and their high-rank employees are said to lead to improved macroeconomic performance. Under such a scenario, the average worker will eventually benefit from wage cuts and harsher working conditions as higher profit margins will induce entrepreneurs and executive officers to work harder and invest in more numerous machines and more productive capacity, so that rewards will eventually trickle down to workers as well, in the form of higher employment rates and higher purchasing power. This scenario could be called ‘neoliberalism in theory’. It rests on the idea of a trickle down process whereby increasing profits lead to virtuous cycle of higher growth that ultimately also benefits labour and the poor.

Table 4. Actual growth strategies in the economic regime/distributional policies framework

		Distributional policies and strategies	
		<b>Pro-capital</b>	<b>Pro-labour</b>
Economic regime	<b>Profit-led</b>	‘Neoliberalism in theory’ Trickle-down capitalism	‘Doomed social reforms’ (TINA)
	<b>Wage-led</b>	‘Neoliberalism in practice’ – Unstable, has to rely on exogenous growth drivers (debt-led growth or export-led growth)	Social Keynesianism Postwar Golden age

The cell that mixes pro-labour policies in a wage-led regime summarizes what many economists (e.g., Marglin and Schor 1990) regard as a key characteristic of the post-war era. The expansion of the welfare state (in advanced economies) led to a golden age of growth which was favourable to both workers and entrepreneurs, as rising real wages generated large increases in labour productivity and profits, until it was interrupted by the oil shocks of the 1970s.

The next cell (pro-labour policies in a profit-led economy) could be called ‘doomed social reforms’. It is the scenario that neoliberals claim would happen if progressive social reforms were implemented. Margaret Thatcher’s famous dictum, later repeated by several think-tanks and even left-wing politicians, that ‘there is no alternative’ (TINA), makes sense in this cell. Some Marxists use a similar scenario to illustrate the futility of attempts to restore a more humane economy within the capitalist mode of production. Within this cell, attempts to raise workers’ compensation or the wage share inevitably lead to a slowdown of the economy, as such changes in income distribution are inconsistent with the profit-led regime of the economy, usually leading to their quick abandonment.

Finally there is the fourth cell, which combines pro-capital distributional policies with a wage-led regime. We will argue that this describes ‘neoliberalism in practice’ in several countries, since two or more decades of pro-capital redistribution policies have resulted in a mediocre economic performance relative to the performance achieved in the Golden age.<sup>4</sup> Furthermore,

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<sup>4</sup> Although some researchers would argue instead that reliance on free market mechanisms and more flexible labour markets have generated large increases in world real income over the last three decades (Balcerowiz and Fisher, 2006). But these authors forget to compare the last decades to the evolution of the 1950s and 1960s. Harvey (2003) and Glyn (2006) offer insightful discussions of neoliberalism in practice.

this neoliberalism in practice has been accompanied by a heavy reliance on a bloated financial sector or on external demand, which has generated economic and financial instability. The reliance on these external drivers – export-led growth and debt-led growth – constitutes an attempt to circumvent the slow growth inherent to the contradiction between the pro-capital distribution policies being pursued by society and the intrinsic properties of an area under a wage-led economic regime. More will be said about this later.

Thus far, we can conclude that if several countries, or if some regions, are under a wage-led regime, then pro-capital policies that pertain to boost the spirits of employers will fail. These policies will not generate favourable effects on aggregate demand and productivity. In a wage-led regime, what we need instead are pro-labour policies, which will help generate sustainable growth. In other words, in a wage-led regime, what we need is a wage-led growth strategy. What we now need to examine are the factors that determine whether an economy is in a wage-led or profit-led regime. And we shall see later still the results of a set of empirical studies on this specific question.

### **3. Profit-led or wage-led economic regimes?**

In this section, we wish to present the tools that will help us distinguish between wage-led and profit-led economic regimes. Following conventional practice among researchers in the field established since Boyer (1988), we will distinguish between demand regimes and productivity regimes, although, as we shall see, the overall effects on aggregate demand and productivity growth are interdependent. We will first deal with the demand side, emphasized by Keynesian economists, since aggregate demand in this paper will be our main focus.

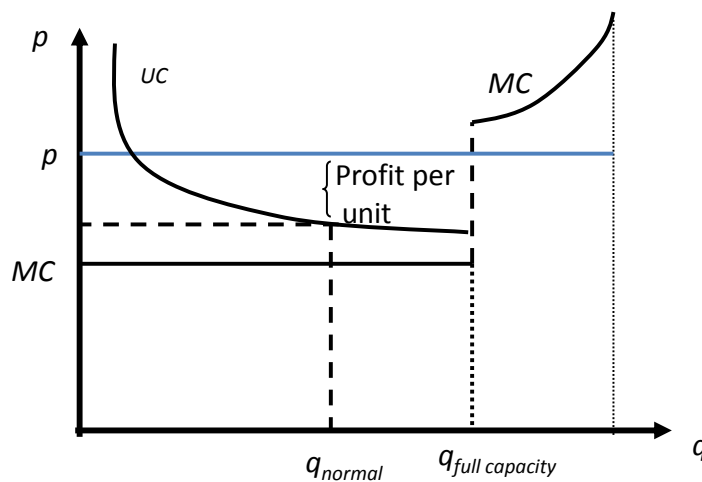
#### **3.1 Preliminary microeconomic issues**

In the mainstream model of the firm with perfect or at least pure competition, any increase in the real wage leads to a reduction in output and employment, and the same effect will be observed at the market level. The essential causes of this result are the assumption of profit maximization and the assumption of diminishing returns. Higher marginal costs, at constant prices, induce firms to cut down production and employment, in their efforts to maximize total profits. However, what happens if we give up the assumption of diminishing returns? There exist a large number of empirical studies, the most recent being that of Blinder et al. (1998, ch. 12), that conclude that firms face constant marginal costs and decreasing unit costs up to full

capacity. Thus, unless firms are forced to produce beyond full capacity, they will not operate anywhere near an area of diminishing returns, operating much of the time around an area known as the normal rate of capacity utilization, shown as  $q_{normal}$  in Figure 1.

What are the consequences of accepting the empirical relevance of constant marginal costs with decreasing unit costs? They imply that, at a given price, firms will not impose self-restrictions on the amounts that they produce. With decreasing unit cost, the more is being produced and sold, the higher is the realized profit per unit, and hence the larger are the overall profits made by the firm. There is no profit-maximizing constraint anymore that limits production and employment. The crucial constraint is given by sales: it is an effective demand constraint. Thus, even if unit costs are rising, say because the labour wage rate has risen, the firm is still compelled to produce as much as it can sell at a given price. The crucial constraint is demand, or the lack thereof. In general, higher real wages will not necessarily entail a reduction in production and employment, unless the real wage is so high that it is not profitable to produce any more.<sup>5</sup>

Figure 1: Constant marginal costs with decreasing unit costs



<sup>5</sup> A good example of such a situation occurred when East Germany was reunited with West Germany, with the East German mark being valued at par with the Deutsche mark. As a result, relative real wages faced by East German firms were propelled up as they had to cut down their uncompetitive prices.

With constant marginal costs and decreasing unit costs firms are thus induced to produce as much as they can sell (up to full capacity), since such a strategy will allow them to make more profits. But if real wages rise, will firms be able to sell more or will they have to sell less? The answer must be provided at the macroeconomic level. It involves the impact of higher real wages on various components of aggregate demand, that is, the various components of gross domestic product on the expenditure side – consumption, investment, net exports, and government expenditures. How will aggregate demand react to a change in income distribution, for instance to a change in real wages? In what follows, until we deal with the supply-side effects, we shall assume that an increase in real wages is associated with an increase in the share of wages in national income and with a reduction in profit margins of firms.

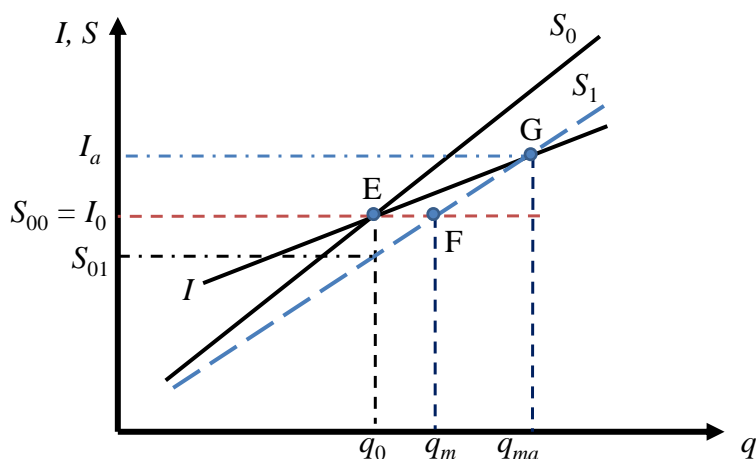
### 3.2 Demand regimes

We start with a graphical analysis of the effects of an increase in the wage share (or in real wages at constant labour productivity) on real GDP and on the volume of investment. For simplicity, we consider a closed economy without government. We know that in such an economy the short-run equilibrium level of GDP is given by the intersection of the saving and investment functions. As is standard in Keynesian and Kaleckian economics, we assume that saving ( $S$ ) is a positive function of income. We further assume that investment ( $I$ ) is a positive function of GDP – this is the so-called and well-known accelerator relation, which essentially says that higher sales and rates of capacity utilization will induce firms to engage in more investment expenditures. In Figure 2, the starting equilibrium is given by point E, at the intersection of the  $S_0$  and  $I$  curves.<sup>6</sup>

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<sup>6</sup> We further assume, as is standard in this kind of model, that investment is less sensitive than saving to a change in GDP, i.e., that the investment slope is less steep than the saving function.

Figure 2. Effects of an increase in the wage share in the canonical Kaleckian model



Let us now see what happens when there is an (exogenous) increase in real wages or in the wage share. What will be the effects on the saving and investment functions? With respect to the saving function, it all depends on the saving propensities (or their complements, the propensities to consume). If the propensities to consume out of profits and out of wages are the same, then the change in real wages will have no impact whatsoever on the saving function, which is the standard assumption in mainstream models. In other words, for a given income level, there will be no change whatsoever in consumption. However, if the propensity to consume out of wages is higher than that out of profits, then the saving function of Figure 2 will rotate downwards, to  $S_1$ , meaning that less saving and hence more consumption will occur at the same GDP level. Saving will drop from  $S_{00}$  to  $S_{01}$ , meaning that consumption will have increased by the equivalent amount at the given GDP level. This occurs because the redistribution of income towards a higher wage share generates an increase in consumption expenditures, since wage earners spend a greater portion of their income than profit recipients. A decrease in wage dispersion, providing a greater share of income to the lower quintiles, would lead to a similar result. Keeping the level of investment still for the moment, at its original value  $I_0$ , we can see that this increase in real wages will bring about an increase in real GDP, as GDP will move from  $q_0$  to  $q_m$  once multiplier effects are taken into account, the new equilibrium now being at point F.

These consequences are well supported by empirical evidence, which shows that the propensities to save out of profits are much higher than those out of wages (in part because firms by definition save all of their retained earnings) and which also shows that the propensities

to save of the richest quintiles are higher, as one would expect, than those of the poorest quintiles.<sup>7</sup> These effects reinforce each other since wage earners generally are poorer than most profit recipients. Capital gains on real estate and the stock market may reduce somewhat the differential between the propensity to consume of wage earners and profit recipients, and this differential will also be affected by the existing social security system.

The move from  $q_0$  to  $q_m$  when real wages and the wage share are higher gives comfort to the underconsumptionists. With higher wages and hence more consumption, GDP and employment rise. However, a second positive effect may also arise, due to the accelerator effect, underlined by Kaleckian authors and econometricians. Investment may also increase if investment expenditures respond positively to the increase in sales and capacity utilization. This is shown in Figure 2 with the move along the investment function, as the economy reaches its new equilibrium point G, given by investment level  $I_a$  and output level  $q_{ma}$ . Thus so far, it would seem that an increase in the wage share has a favourable impact on both consumption and investment. This is the result that was obtained in the canonical Kaleckian models of Rowthorn (1981), Taylor (1983) and Dutt (1987).

Investment, however, does not depend only on sales; it also depends on expected profitability. While Kaleckian economists argue that expected profitability depends on past realized profitability, Marxists and several other economists tend to claim instead that expected profitability depends on the share of profits in national income, that is, on the profit margin of firms, or more precisely on the profit rate that firms expect to achieve on their capital when capacity is utilized at its normal rate (see Lavoie 1995, p. 795-800).<sup>8</sup> As higher real wages, all else constant, imply lower profit margins and lower profitability at the normal rate of capacity utilization, it implies a downward shift of the investment function. The profitability effects in the model presented here, with investment being a function of the rate of utilization and the profit share, have been formalized by Bhaduri and Marglin (1990), the article of which is famous for having defined the dichotomy between wage-led and profit-led regimes. Similar formalizations of

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<sup>7</sup> Both Marglin and Bhaduri (1990) and Bowles and Boyer (1995) found that this differential in propensities to save out of profits and out of wages was around 0.40 on average over several countries. This is in line with the results of Onaran and Galanis (2012).

<sup>8</sup> Kalecki's equation, in its simplified version where wages are all consumed and profits are all saved, says that realized profits are equal to the value of investment expenditures. If investment depends on realized profits, the equation would imply that higher real wages that induce higher investment expenditures would always lead to higher profits, and hence taking profitability into account would never allow us to modify our previous conclusions. This has been called the paradox of costs by Rowthorn (1981): higher wage costs reduce profits for a single firm, but with the accelerator they increase overall profits if all firms face similar cost increases.



the investment function were also adopted by Kurz (1990), Taylor (1991) and Blecker (2002), as well as by many authors wishing to assess the presence of these regimes in empirical studies. This variant of the canonical Kaleckian model is often referred to as the post-Kaleckian model of growth and distribution. It is worth quoting Bhaduri and Marglin in full here:

Any increase in real wage rate, depressing profit margin and profit share ..., must decrease savings and increase consumption to validate the under-consumptionist thesis.... Nevertheless, aggregate demand ( $C + I$ ) may still rise or fall depending on what impact that lower profit margin/share has on investment. Since it is plausible to argue that, other things being equal, a lower profit margin/share would weaken the incentive to invest, the contradictory effects of any exogenous variation in the real wage on the level of aggregate demand become apparent. A higher real wage increases consumption but reduces investment, in so far as investment depends on the profit margin. (Bhaduri and Marglin 1990, p. 378).

Figure 3. Effects of an increase in the wage share in the post-Kaleckian model

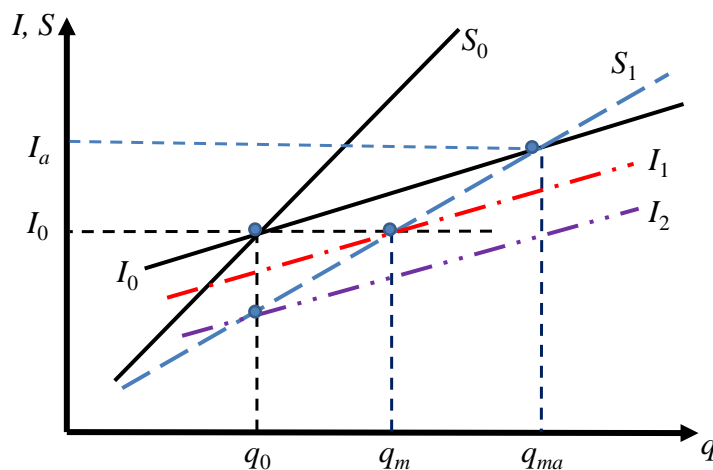


Figure 3 illustrates the three possible cases that may arise when profitability is taken into consideration. If the profitability effect is weak (relative to the consumption effect and the accelerator effect), with the investment function not dropping below  $I_1$ , then both GDP and

investment are higher following the increase in real wages. In this case, both the short-run and the long-run effects are favourable to the economy. We will then say that the economy is experiencing a *wage-led demand regime* as well as a *wage-led investment regime*, since GDP is rising in the short-run but is also likely to grow faster in the long-run, thanks to the higher rate of investment. In the intermediate case, the profitability effect will lead to a shift of the investment curve somewhere between the  $I_1$  and the  $I_2$  curves. In this case, higher real GDP generates a higher output level but investment will be lower. We will then say that the economy is still in a *wage-led demand regime*, while belonging to a *profit-led investment regime*. This is because GDP is rising in the short-run, but likely to grow more slowly in the long-run, due to the lower investment level. Finally, we have the third case, which occurs when the profitability effect shifts the investment function below the  $I_2$  curve, meaning that the increase in real wages provokes a reduction in real output and a reduction in investment expenditures. This case corresponds to both a *profit-led demand regime* and a *profit-led investment regime*.

All three possible cases are shown in Table 5. It should be further pointed out that in most empirical studies, still ignoring for now the net export component of aggregate demand, researchers simply try to estimate the size of the shifts in the saving and investment curves, at a given real GDP level, putting aside the multiplier and accelerator effects (that is, estimating whether at  $q_0$ , the shift in the saving curve is larger or smaller than the shift in the investment curve, i.e., whether the increase in consumption is larger than the decrease in investment).

Table 5. Effects of an increase in the wage share and demand regimes

		Effect on output (or the rate of capacity utilization)	
		<b>Positive</b>	<b>Negative</b>
Effect on investment (or the rate of accumulation)	<b>Positive</b>	Wage-led demand and wage-led investment	
	<b>Negative</b>	Wage-led demand and profit-led investment	Profit-led demand and profit-led investment

Broadly speaking, we may thus say that a *wage-led demand regime* means that an increase in the wage share leads to an increase in aggregate demand in the short run, or that an increase in the profit share leads to a decrease in aggregate demand in the short run. Furthermore, we say that a *wage-led investment regime*, which is a stronger and more long-run concept than *wage-led*

*demand*, implies that an increase in the wage share will lead in addition to an increase in investment expenditures. Over the long run it implies an increase in the rate of accumulation of the capital stock.<sup>9</sup>

Of course there are many factors other than income distribution that determine aggregate demand: monetary policy, fiscal policy, various shocks such as oil price shocks, the bursting of a stock market bubble, changes in real exchange rates, changes in the growth rate of foreign GDP, etc. Indeed, for most year-to-year changes, income distribution will only be a minor influence on the determination of aggregate demand, with other developments playing a more prominent role. However, if there are long-lasting, deep changes in income distribution as have occurred in the last quarter century, they will end up having a substantial role.

### 3.3 Taking net exports into account

So far, we have not taken into account government expenditures and net exports. It is difficult to treat government expenditures as anything but exogenous to income distribution. We may thus say that the effects of changes in income distribution as identified above are a fair representation of the domestic effects. Knowing whether the economy is within a *domestic* wage-led or profit-led regime is important in itself. Since one country's exports are some other country's imports, this raises the possibility of a fallacy of composition: while each individual country can increase its demand by exporting more, not all countries can do so at the same time. The world economy overall is a closed economy. It will thus be essential to look at the domestic effect and the total effects (i.e., including net exports) separately. To find out whether an economy is wage-led or profit-led *in total*, we must also take care of the effects of changes in income distribution on net exports, as has been underlined by Blecker (1989, 2011) as well as Bhaduri and Marglin (1990). It is usually argued that an increase in real wages will have a negative impact on the trade balance. If wages are pumped up, without export prices rising, this will lead to a reduction in profit margins and may render some exports unprofitable; if prices are pushed up, some export products will not be competitive any more. As Blecker (1989, p. 404) said, 'this is essentially the case of a

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<sup>9</sup> The section focuses on the demand regime. One could also define an employment regime, which depends on the demand regime and the productivity regime (to be discussed in the next subsection). In mainstream economics it is standard to assume a downward sloping labour demand curve, i.e., it is assumed that employment is profit led. Keynes doubted whether a wage cut would stimulate employment and thought that, at least in some circumstances it might decrease employment (Keynes 1936, chapter 19). This latter case is akin to a wage-led employment regime. For modern post-Keynesian discussions of employment and wages, see Lavoie (2003) and Stockhammer (2011).

“profit squeeze”, in which profit margins are compressed between domestic costs on the one side and foreign competition on the other’.<sup>10</sup> Hence an economy which is in a profit-led domestic demand regime will normally necessarily be in a profit-led total demand regime as well. Table 6 shows this and summarizes the various possibilities when distinguishing between the effects of an increase in the wage share on domestic aggregate demand and the effects on total aggregate demand, also taking into account the foreign sector.

Table 6. Effects of an increase in the wage share and domestic and total demand regimes

		Effect on total aggregate demand , including net exports	
		Positive	Negative
Effect on domestic aggregate demand (investment and consumption only)	Positive	Wage-led domestic demand regime and wage-led total demand regime	Wage-led domestic demand regime and profit-led total demand regime
	Negative		Profit-led domestic demand regime and profit-led total demand regime

The negative effects of a higher wage share are likely to be bigger in small open economies. In Figure 2, the negative effect on net exports can be represented as a backward shift of the saving function, from  $S_1$  back towards  $S_0$ . Finding out whether an economy is in a wage-led or profit-led demand regime, *in total*, one must thus consider the net effect of an increase in the wage share on the three private components of aggregate demand – consumption, investment and net exports – and hence the net effect is not clear *a priori* and will depend on the relative size of the effects on the three components. This is summarized in Table 7.

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<sup>10</sup> An increase in real wages may not have a negative effect on net exports if it arises as a result of a spontaneous change in the pricing strategy of firms, with producers and exporters deciding to reduce their profit margins.

Table 7. Economic structure: wage-led and profit-led demand regimes

	Demand regime	
	<b>Profit-led</b>	<b>Wage-led</b>
Economic structure	Small differentials in propensities to consume	Propensity to consume out of wages is much higher than the propensity to consume out of profits
	Investment is highly sensitive to profitability and accelerator parameter is low	Investment is not sensitive to profitability and accelerator parameter is high
	Very open economy with high net export price elasticity and high import income elasticity	Relatively closed economy with low net export price elasticity and low import income elasticity
Other factors	Other sources of demand: Government fiscal and monetary policies Financial factors: financial asset and real estate price bubbles Exchange rate evolution and changes in world demand Changes in world commodity prices ....	

The addition of international trade and net exports when assessing the impact of changes in income distribution certainly adds a degree of complexity. First, the favourable domestic impact of an increase in the wage share may get reversed once we consider the effects on net exports. As long as the negative impact of a higher wage share on profitability is not too large, we may be easily persuaded that ‘there is no necessary antagonism between capitalists and workers in a mature capitalist economy characterized by excess capacity: it is possible to increase both real wages and employment on the one hand, and realised profits and growth on the other hand. This comforting conclusion must be drastically revised in the light of the model of an open economy.... The possibility of a conflict between a redistribution towards wages and maintaining international competitiveness greatly reduces the prospects for a happy coincidence of worker’s and capitalists’ interests’ (Blecker 1989, p. 406-7).<sup>11</sup>

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<sup>11</sup> Blecker refers to a mature economy, but it should be pointed out that Taylor (1983) figured that less developed countries also operate with excess capacity, and hence that the Kaleckian model also applies to emerging countries.

But there is a second delicate point in the case of an open economy, already referred to earlier, that of the danger of an error of composition, especially when an economy is in a domestic wage-led demand regime. We will discuss this danger later, but at this stage it is worth quoting Blecker's views on this in full:

A situation in which competitive wage cuts (or 'wage restraints') are pursued in all countries will potentially harm the interests of workers everywhere: real wages will be sacrificed, as long as mark-ups are flexible; but employment will not increase, as long as the competitive gains cancel each other out. In this case, the regressive effect of multilateral wage cuts on income distribution could well lead to a world-wide depression of demand and employment. On the one hand, if workers in all countries increase their money wages, and if the international competitive effects roughly cancel out, then the world economy as a whole can potentially enjoy wage-led growth – provided that firms still feel sufficient competitive pressures to compel them to cut their mark-ups in response to the wage increases. (Blecker 1989, p. 407).

Thus, rather than examining what happens when the wage share changes in a single country, it may be interesting to examine what happens when change in the wage share affects all trading partners simultaneously. It can be thought of as a change in the world wage share. Under this scenario, while a country may be under a profit-led demand regime when looking at the total effect of an increase in the wage share, a simultaneous increase in the wage share of all countries may still have a positive effect on the aggregate demand of a profit-led country if its domestic demand is wage-led. We will see that this is indeed the case when we go over the most recent empirical results related to demand regimes.

### **3.4 Productivity regimes**

So far we have dealt with aggregate demand. What about supply effects? The key summary variables for the supply side from the standpoint of mainstream economics are the capital stock (capital accumulation) and labour productivity. As the evolution of the capital stock has already been discussed when identifying the wage-led and profit-led investment regimes in the section above, which from the Kaleckian standpoint mainly belong to the demand side, this section will focus on the productivity regime.

Productivity will be profit led if an increase in wages discourages productivity-enhancing capital investment and, as a consequence, the growth of labour productivity slows down (as most forms of technological progress require capital investment, this is called embodied technological progress). Increases in wage growth may have a positive effect on productivity growth, if either firms react by increasing productivity-enhancing investments in order to maintain competitiveness or if workers' contribution to the production process improves. This may be the case either because of enhanced workers' motivation or, in developing countries, if their health and nutritional situation improves. This case is often referred to as the efficiency wage hypothesis in the mainstream literature.<sup>12</sup> But we may as well call it the Webb effect, since a positive causal relationship going from higher real wages to higher productivity was already proposed a long time ago by Sidney Webb (1912), one of the founders of the London School of Economics. Other explanations have also been offered to explain the observed negative relationship between inequality and growth.<sup>13</sup> The main features of the two productivity regimes are presented in Table 8.

Table 8. Economic structure: wage-led and profit-led productivity regimes

		<b>Productivity regime</b>
<b>Economic structure</b>	<b>Profit-led</b>	Wage restraint leads to productivity-enhancing investment
		Higher real wage growth or a higher wage share leads to slower productivity growth
	<b>Wage-led</b>	Wage growth has strong positive effects on labour effort and productivity-enhancing investments
		Higher real wage growth or a higher wage share leads to faster productivity growth

Defined as we just did, even mainstream economists might recognize that all economies are in a wage-led productivity regime, since mainstream economists would argue that rising real

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<sup>12</sup> A meta-analysis – a regression on regressions – here based at the firm and industry level and conducted by Krassoi Peach and Stanley (2009), has shown that the best statistical studies find a strong and robust evidence of this efficiency wage effect, thus showing that higher real wages lead to higher productivity. This positive link is even reinforced when controlled for simultaneity.

<sup>13</sup> Aghion et al. (1999) discuss possible positive supply-side effects of lower inequality (and thus, implicitly, of higher wages) based on New Growth Theory, arguing in particular that income and wealth inequality makes investment more difficult when capital markets suffer from imperfections..

wages induce firms to invest in more capital-intensive methods, which, under the standard assumptions of neoclassical production functions, would lead to higher labour productivity. We may however also take into account indirect effects, based on another branch of post-Keynesian economics – the Kaldorian branch – as do Boyer (1988), Setterfield and Cornwall (2002) as well as Naastepad and Storm (2010), to assess whether a productivity regime is wage-led or profit-led. In this case, we must also incorporate the demand effects. Kaldorians have for a long time argued that supply-side growth is endogenous, thus predating the mainstream theories of endogenous growth. This is the so-called Kaldor-Verdoorn law, for which there is a substantial amount of empirical evidence (McCombie and Thirlwall 1994, McCombie 2002) and the formal origins of which can be traced back to Kaldor's (1957) technical progress function. The Kaldor-Verdoorn law claims that there is a positive relation between the growth rates of GDP and the growth rate of labour productivity. In other words, demand-led growth will have an impact on the supply components of growth (Léon-Ledesma and Thirlwall 2002, Dray and Thirlwall 2011). More simply, it is claimed that there is a positive causal relationship going from the growth rate of the economy to the growth rate of labour productivity (and even the growth rate of the labour force).<sup>14</sup>

What does the Kaldor-Verdoorn relation imply for the assessment of the productivity regime? Suppose there is an increase in the wage share or in growth rate of real wages. As argued before, the partial effect on productivity growth is likely to be positive. In the case of a wage-led demand regime the indirect Kaldor-Verdoorn effect will reinforce the direct productivity effect. Hence in this case, the total productivity effect will always be positive and hence we will always have a wage-led total productivity regime. Take now the case of a profit-led demand regime. An increase in the wage share or in the growth rate of real wages will generate a decrease in the growth rate of the economy. The Kaldor-Verdoorn effect will translate this decrease into a decrease in the growth rate of labour productivity. However this indirect negative effect of increasing the growth rate of real wages may be partially or entirely wiped out by the direct positive productivity effect, assuming once more a wage-led partial productivity regime, as empirically verified for OECD countries by Storm and Naastepad (2008, p. 535) and Hein and Tarassow (2010, pp. 747-9). Thus, although the economy is in a profit-led demand regime, the

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<sup>14</sup> McCombie (2002, p. 106) says that the Verdoorn coefficient is in the 0.3 to 0.6 range, meaning that a one percentage point addition to the growth rate of output will generate a 0.3 to 0.6 percentage point increase in the growth rate of labour productivity, a number which is also consistent with the one obtained recently by Storm and Naastepad (2008). Hein and Tarassow (2010), looking at 1960-2007 data, find a similar range for European countries, but a lower range for the UK and the US, between 0.1 and 0.25.



effect on labour productivity growth of an increase in the wage share may be positive overall, since the direct positive productivity effect of the increase in the wage share or in the growth rate of real wages may still overwhelm the negative indirect productivity effect arising from the decrease in economic activity generated by wage expansion in this regime. Table 9 summarizes the possible combined results of the productivity and demand regimes when the partial productivity regime is wage led, which is the most likely case, and the wage share or the growth rate in real wages is increased.

Table 9. Total productivity effect of an increase in the wage share, when the partial productivity regime is wage led

Demand Regime	Partial productivity effect	Indirect productivity effect (Kaldor-Verdoorn effect)	Total productivity effect (sum of partial and indirect effects)
Profit led	Positive	Negative	Positive or negative
Wage led	Positive	Positive	Positive

So far we have assumed that economic activity or economic growth has an effect on labour productivity growth. But we have not yet taken into account the possibility that productivity growth could have a feedback effect on economic growth and economic activity. Thus what happens on the productivity front as result of changes in income distribution could have an additional indirect effect on the demand regime.<sup>15</sup> Since the various possible cases of this interdependence between the demand and the productivity regimes are discussed extensively by Storm and Naastepad (2012), here we simply mention the fact that the feedback effects of productivity growth on output growth may transform an apparent profit-led demand regime into a wage-led one (whereas the opposite is impossible). This will happen when the total productivity effects of an increase in the wage share are positive and large, and when the positive

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<sup>15</sup> There are two ways to conceive this. In the work of Naastepad and Storm (2010), an increase in real wages leads to a change in productivity growth, but this then has a negative impact on the differential between real wages and productivity. Thus, in a wage-led demand regime, this will generate a negative relationship, on the aggregate demand front, between productivity growth and output growth. In a profit-led demand regime, this relationship will be positive. By contrast, Hein and Tarassow (2010) consider wage shares to be the exogenous element. They argue, along Kalecki's lines, that an increase in productivity growth will have a positive impact on output growth as higher productivity growth and technical progress will induce firms to speed up accumulation, and thus this positive relationship will occur both for wage-led and profit-led demand regimes.

effects of productivity growth on aggregate demand overwhelm the presumably weak negative effects of a higher wage share on aggregate demand (Hein and Tarassow 2010, pp. 737-739).

#### 4. Some empirical findings relevant to the *wage-led growth project*

The previous section has developed a conceptual framework. The main components of this framework have been investigated empirically within the *wage-led growth project*. This section summarizes some key empirical findings as they relate to our conceptual framework. We refer the reader to the project reports for further and much more detailed findings, and for a full discussion of the methodologies that have been used and their possible limitations.

##### 4.1 Determinants of income distribution

Since the early 1980s dramatic changes in income distribution have occurred. There has been a substantial decline in the wage share across the world. The decline is well documented for advanced economies (IMF 2007), but it has also taken place in developing countries, where data is less readily available. The decline in the wage share is one aspect of broader changes in income distribution that also include an increase in personal income inequality, in particular in the Anglo-Saxon countries (Atkinson et al. 2011; OECD 2011). Changes in functional income distribution are particularly interesting for our wage-led growth project as they relate to the demand and productivity effects previously discussed. While there is a substantial literature on the changes in personal income distribution, the issue of functional income distribution is comparatively under-researched, in particular for developing economies. Mainstream explanations typically highlight technological changes as the main determinant of income distribution and do concede that globalisation has had negative effects on the wage share in advanced economies (IMF 2007, EC 2007). Critical economists have highlighted that welfare state retrenchment and financialization have put downward pressure on wages (Jayadev 2008, ILO 2009, Hein and Mundt 2012)

Stockhammer (2012) offers a panel analysis of the determinants of the wage share that takes into account changes in technology, globalisation (in production and trade), financialglobalization and welfare state retrenchment. While he finds some evidence regarding the effects of technological changes, overall they are not the main driver of changes in income distribution. Globalisation has negative effects on the wage share. Interestingly, globalisation has *not* benefited workers in developing economies. A higher degree of openness has negative effects on the wage share in advanced as well as in developing economies – which is in contrast to what the Stolper-Samuelson theorem predicted. Financialisation has a strong negative impact on the wage share, in advanced as well as in developing economies. Welfare state retrenchment has

negative effects on the wage share. Labour market institutions variables do have elusive effects on the wage share. For advanced economies, where better data is available, Stockhammer (2012) finds that the decline in the organisational strength of labour unions has a negative effect.

These results highlight that income distribution is not primarily driven by changes in technology. Governments can indeed influence income distribution, but several policy areas that might not appear directly related to social policy can have strong repercussions on income distribution. In particular financial regulation and the management of international capital flows seem to have strong effects, as does trade policy. With regard to labour and social policies, the results suggest that strengthening collective bargaining and the right to form labour unions are ways to modify income distribution.

## **4.2 Demand effects**

The Bhaduri and Marglin (1990) post-Kaleckian model has recently inspired a rich empirical literature trying to identify demand regimes by econometric means. Onaran and Galanis (2012) provide new consistent estimates for most G20 countries. Table 10 gives an overview of the existing empirical results for major economies where several studies are available. These studies differ by the countries and time period covered as well as by the method employed and are thus difficult to compare.<sup>16</sup> Overall, the majority of studies find that domestic demand regimes tend to be wage-led, whereas international trade turns demand regimes in some economies to being profit-led.

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<sup>16</sup> Hein and Vogel (2008), Stockhammer and Stehrer (2011) and Onaran and Galanis (2012) offer more extensive discussions of the literature.

Table 10. Econometric results on wage-led and profit-led demand regimes for major economies

	<i>Domestic Demand</i>		<i>Total Demand</i>	
	<b>wage-led</b>	<b>Profit-led</b>	<b>wage-led</b>	<b>Profit-led</b>
Euro area	SOE09, OG12		SOE09, OG12	
Germany	BB95, NS07, HV08, SHG11, SS11, OG12		NS07, HV08, SHG11, OG12	BB95
France	BB95, NS07, ES07, HV08, SS11, OG12		(SO04), NS07, HV08, OG12	BB95, SE07
NL	NS07, SS11	HV08	NS07	HV08
Austria	SE08, HV08, SS11			SE08, HV08
UK	BB95, NS07, HV08, OG12	SS11	BB95, NS07, HV08, OG12	
Japan	BB95, OG12	NS07	OG12	BB95, NS07
USA	BB95, HV08, OSG12, (SS11), OG12	NS07	BB95, HV08, OSG12, OG12	(SO04), NS07, BFT06

Note: Reference in brackets denotes statistically insignificant results.

BB95: Bowles and Boyer 1995; BFT08: Barbosa-Filho and Taylor 2006; ES07: Ederer and Stockhammer 2007; HV08: Hein and Vogel 2008; NS07 Naastepad and Storm 2006-07; OSG12: Onaran et al. 2012; SO04: Stockhammer and Onaran 2004; SE08: Stockhammer and Ederer 2008; SHG11: Stockhammer et al. 2011; SOE09: Stockhammer et al. 2009; SS11: Stockhammer and Stehrer 2011; OG12: Onaran and Galanis (2012).

Table 11 summarises the findings of Onaran and Galanis (2012). It gives the effects of a reduction in the (adjusted) wage share for most G20 countries. More precisely, it details the effects of a one percentage point increase in the profit share of an individual country on the components of demand of that country (columns A, B and C), on private excess demand (the sum of those three components, column D) and on aggregate demand (taking multiplier effects into account, column E). Comparing the estimates of columns A and B, it can be verified that their sum is negative and hence that all countries of the sample are in a wage-led domestic demand regime, thus retrieving the fairly consensual result of previous studies. The impact of the increase in the profit share on private excess demand (column D) is negative in a majority of countries, thus meaning that these countries are in a wage-led total demand regime, but there are still a number of countries that have a profit-led total demand.

However, as countries trade with each other, the effects of changes in income distribution in individual countries are not the same as the effects that would arise as a result of a worldwide change in income distribution. Thus the table also reports the results of simulating the complex interactions of the international demand components. Column G gives the results for a simultaneous ('worldwide') decrease in the wage share in all G20 countries by one percentage point. This effect is negative in the vast majority of the countries. Several countries that were in a profit-led demand regime, when assessed individually, such as Canada and Mexico,

nonetheless do suffer reductions in demand if their trade partners also experience a decline in the wage share. Indeed, total G20 GDP declines by 0.36% in reaction to a worldwide one percentage point decline in the wage share, thus helping to explain why even countries that are in a profit-led total demand regime might suffer nevertheless from a worldwide reduction in the wage share.

Table 11. Summary of the results of Onaran and Galanis (2012): effects of a national and global one percentage point increase in the profit share

	Effects of national increase in profit share on					Effect of worldwide increase in profit share on aggregate demand
	C/Y	I/Y	NX/Y	private excess demand/Y	aggregate demand	
	A	B	C	D (A+B+C)	E	
Euro area-12	-0.439	0.299	0.057	-0.084	-0.133	-0.245
Germany	-0.501	0.376	0.096	-0.029	-0.031	-
France	-0.305	0.088	0.198	-0.020	-0.027	-
Italy	-0.356	0.130	0.126	-0.100	-0.173	-
United Kingdom	-0.303	0.120	0.158	-0.025	-0.030	-0.214
United States	-0.426	0.000	0.037	-0.388	-0.808	-0.921
Japan	-0.353	0.284	0.055	-0.014	-0.034	-0.179
Canada	-0.326	0.182	0.266	0.122	0.148	-0.269
Australia	-0.256	0.174	0.272	0.190	0.268	0.172
Turkey	-0.491	0.000	0.283	-0.208	-0.459	-0.717
Mexico	-0.438	0.153	0.381	0.096	0.106	-0.111
Korea	-0.422	0.000	0.359	-0.063	-0.115	-0.864
Argentina	-0.153	0.015	0.192	0.054	0.075	-0.103
China	-0.412	0.000	1.986	1.574	1.932	1.115
India	-0.291	0.000	0.310	0.018	0.040	-0.027
South Africa	-0.145	0.129	0.506	0.490	0.729	0.390

Source: Onaran and Galanis (2012, Tables 11 and 13).

'Effect of worldwide change in profit share on aggregate demand': effect of a simultaneous change in the profit share in all countries, including domestic multiplier effects and international trade effects

Note: The global simulation excludes Germany, France and Italy since they are part of the Eurozone.

These results have important policy implications. They indicate that, at least with regard to aggregate demand, an internationally coordinated wage-led growth strategy seems viable. Aggregate demand in the world economy is clearly wage led. While there are some countries that are individually profit led, the positive effect of the profit share on demand relies on net exports. Effectively this means that some individual countries can successfully pursue beggar-thy-

neighbour policies via wage moderation, but this does not constitute a viable strategy for demand on a global scale. If all countries pursue wage moderation policies, a much smaller subset of the countries in a profit-led total demand regime will still benefit from their pro-capital distributional policies. This highlights the need for policy makers to realise the role of wages as a source of demand. On a more technical level, it highlights the need for international coordination when dealing with wage and social policies, so as to prevent a race to the bottom in wages.

### **4.3 Productivity effects**

On the supply side, the key question is how changes in the wage share or in real wages affect productivity growth (or more broadly speaking, technological progress). Mainstream economists typically argue that competitive markets are most conducive to growth and, in the next step, argue for labour market (and product market) deregulation. Critical economists highlight that labour market institutions can not only have positive social effects as they help overcome market failures, but they also may have positive effects on economic growth because good labour relations will improve the propensity of workers to contribute to the production process.

Recently, this has inspired several empirical studies, which are surveyed by Storm and Naastepad (2012). Naastepad (2006) found that a 1% percentage point increase in real wages would lead to a 0.52% point increase in labour productivity for the Netherlands. Storm and Naastepad (2009) investigate labour market institutions in twenty OECD countries from 1984 to 2004. They find that relatively regulated and coordinated ('rigid') institutions lead to higher productivity growth. Vergeer and Kleinknecht (2010-11) perform a panel analysis for OECD countries from 1960 to 2004 and also find that stronger labour market institutions lead to faster long-run growth. Both studies also look at the impact of real wage growth on productivity growth. Both Storm and Naastepad (2009) and Vergeer and Kleinknecht (2010-11) find that faster real wage growth leads to faster productivity growth, the former with an elasticity ranging from 0.50 to 0.55 while the latter gets numbers ranging from 0.31 to 0.39 for a longer time period. Hein and Tarassow (2010) analyse the link between income distribution and productivity growth for six OECD economies by means of time series analysis over the 1960-2007 period. They also report that faster real wage growth leads to faster productivity growth, the elasticity running around 0.30 except for Austria where it reaches 0.67.

All these studies face challenges in identifying the direction of causality and the distinction between short-run and long-run effects, and more research is certainly needed. Indeed, simple national growth accounting makes clear that faster productivity growth should be

associated with faster real wage growth, thus bringing about the problem of reverse causality. Marquetti (2004) has found however that while real wages appear to Granger-cause productivity, the reverse is not true – there is unidirectional causality. This would thus justify studies that pertain to study the impact of real wage growth on productivity growth.

Storm and Naastepad (2012) summarise these findings by positing that, as a reasonable order of magnitude (for advanced economies) one can assume that a one percentage point increase in real wage growth leads to a 0.38 percentage point increase in labour productivity growth. This illustrates that higher real wages induce firms to increase labour productivity in order to protect their profitability. Hence, despite the small number of studies, it seems fair to conclude that the available evidence suggests that real wage growth has a positive long-run effect on labour productivity growth. This is important for economic policy as it suggests that excessive wage constraint is likely to lead to weak productivity performance, while a wage-led growth strategy is consistent with positive developments on the supply side.

#### **4.4 Classifying recent growth regimes and strategies**

Neoliberalism came with the promise that deregulation of goods markets, labour markets and financial markets would lead to higher growth and increased welfare. Higher inequality was to be accepted because it was said to yield economic benefits. In our terminology, neoliberalism posited a strongly profit-led economic regime. But neoliberalism has failed to deliver on its promise. Growth rates in the allegedly overregulated postwar era were higher than in the neoliberal phase. Deregulation and globalization did indeed generate increased inequality, but without much of the benefits that were supposed to come with them.

If the world economy is indeed wage led (as we have argued above), how did neoliberal economies grow at all? In our view, neoliberalism has operated in the south-west cell of Tables 3 and 4, pursuing a strategy based on pro-capital distributional policies, but within an essentially wage-led economic structure. Such a strategy will lead either to stagnation – or it has to rely on external factors for stimulating growth. Indeed the latter is what has characterized the performance of neoliberalism in practice. Instead of generating a robust growth path based on rising profit margins and profit shares, neoliberalism in practice has relied on either financial bubbles and rising indebtedness (in short, finance-led or debt-led growth) or it has relied on a mercantilist strategy based on export surpluses. Boom-bust cycles driven by stock markets, property markets or capital flows have been a key feature of neoliberalism as practiced in the real world, as exemplified by the Latin American crises of the 1980s and of the mid 1990s (the Peso



crisis), the EMS (European Monetary System) crisis (1992/93), the South East Asia crisis (1997/98), the dot.com bubble burst 2000/01 and the Great Recession of 2008/09.

To understand this pattern one has to appreciate the central role of financial deregulation and the rising importance of finance for the neoliberal growth model – a process that is now called *financialization* (Hein and Mundt 2012, van Treeck and Sturn 2012). Besides contributing to the rise in income inequality, as managers and employees of the finance sector rip off bonuses of all sorts, financial deregulation has given rise to speculative episodes and, over long periods, to increasing debt levels for financial institutions and households, making up for the impact of reduced wage growth on consumption expenditures (Barba and Pivetti 2009). Booms on stock markets and property markets are allowed by bubbles in the supply of credit, and they often attract capital inflows that fuel the bubbles further (Reinhart and Reinhart 2008; Kindleberger and Aliber 2011). But the liberalization of capital flows also means that some countries will have current account surpluses and net capital outflows. International financial deregulation thereby has given rise to two symbiotic growth models: a debt-led growth model (with foreign capital inflows) and an export-led model (with capital outflows).

While the dichotomy of debt-led and export-led growth models is useful as it captures an important part of the dynamics behind the growing international imbalances, Hein and Mundt (2012) develop a more nuanced taxonomy that allows to empirically classify growth models as debt-led, domestic demand-led, weakly export-led and strongly export-led. Table 12 summarises their main results.

Table 12. Taxonomy of G20 countries and of growth models of neoliberalism in practice

Debt-led	Domestic demand-led	Weakly export-led	Strongly export-led
Australia	France	Argentina	China
Mexico	Italy	Brazil	Germany
United Kingdom	India	Canada	Indonesia
USA	South Africa	Russia	Japan
	Turkey	Saudi Arabia	South Korea

Source: Hein and Mundt (2012, Table 7).

Two statistics will help substantiate the usefulness of the distinction in debt-led and export-led economies.<sup>17</sup> We wish to demonstrate, that roughly speaking and with some

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<sup>17</sup> Similar statistics, but from different sources or time periods, are also provided by Hein and Mundt (2012).

exceptions, countries that have run current account deficits over the last decade are the same countries that have greatly speeded up their accumulation of household debt relative to GDP.<sup>18</sup> Table 13 splits a set of countries into two groups, according to their average current account balance as a ratio of GDP between 2003 and 2010, by distinguishing between countries that have run large current account surpluses and those with large current account deficits, omitting the countries that had roughly neutral current account balances.

Table 13. International imbalances and changes in household debt, selected countries

	Countries	Current account balance (a)	Increase in household debt (b)
Countries with large current account surpluses	Switzerland	+11.8	+5
	Russia	+7.5	+9
	Netherlands	+6.7	+33
	China	+6.3	+8
	Germany	+5.4	-11
	Japan	+3.6	-7
	Austria	+2.9	+8
	South Korea	+2.5	+32
Countries with large current account deficits	Greece	-10.2	+35
	Portugal	-9.9	+27
	Spain	-6.8	+34
	USA	-4.7	+26
	Ireland	-2.6	+63
	United Kingdom	-2.3	+32
	Italy	-2.1	+18
	Australia	-2.0	+42

(a) Current account balances are in percentage of GDP, 2003-2010 averages.

(b) Increases in household debt are in percentage points of GDP, between 2000 and 2008. Ireland starts at 2001; Switzerland starts at 1999 and ends in 2007.

*Source:* Current account balances: IMF (2011); Household debt: McKinsey (2010, Appendix A), and for Ireland, Greece, Austria and the Netherlands the data comes from Eurostat (financial flows and stocks by sector).

<sup>18</sup> In a sense, this is not unexpected, since by identity, as pointed out in particular by the late Wynne Godley, domestic household net borrowing + corporate net borrowing + public borrowing = current account deficit.

European countries such as Germany, Switzerland and the Netherlands have experienced large current account surpluses, as have Russia, Japan and China.<sup>19</sup> By contrast, the USA, the UK and peripheral European countries such as Greece, Portugal, and Spain have been subjected to large current account deficits.<sup>20</sup> The last column of Table 13 shows the increase in household debt, in percentage points, from 2000 to 2008. For instance, in the case of the USA, the household debt to GDP ratio moved from 72% to 97% between 2000 and 2008 – an increase of 25 percentage points from the beginning of the millennium until the beginning of the global financial crisis. Countries that had substantial current account deficits also went through very large increases in their household debt to GDP ratio over the most recent decade, as exemplified by Greece and Spain among others. By contrast, many of the countries that enjoyed large current account surpluses had either a decrease in their household debt to GDP ratio or a small increase in this ratio, with the exception of the Netherlands and South Korea.

These findings are important for economic policy making because they illustrate how neoliberalism in practice has generated growth, despite a wage-led economic regime: it has relied on external stimulation of demand, either via debt-led growth or via export-led growth. Both growth mechanisms can work for some countries for some time, but both are ultimately unsustainable. Debt-led growth comes with rising debt levels of households and of the financial sector. The crisis and its subsequent painful deleveraging process illustrate the limits of this growth model. Export-led growth models require high (or rising) current account surpluses in some countries and thus deficits in others. In other words, they require rising international imbalances, which are widely considered to have contributed to the financial crisis. In short, neoliberalism in practice has given rise to unstable and unsustainable growth. After its collapse, the world economy needs an alternative.

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<sup>19</sup> Some authors have questioned the claim that Asian economies and China in particular have pursued export-led growth. They argue that, based on a growth accounting approach, the domestic components of aggregate demand have grown faster than net exports (Felipe and Lim 2005). Still, these countries have run consistently large current account surpluses.

<sup>20</sup> With the exception of Ireland, current account positions and trade balances are similar. Ireland, in past decades, has had current account deficits, but net export surpluses. This is because of the large amount of repatriated profits, thus leading to a large discrepancy between GDP and GNP.

## 5. Conclusion: Wage-led growth – a viable economic strategy

Wages have a dual function in capitalist economies. They are a cost of production as well as a source of demand. An increase in the wage share has several effects on demand and whether actual demand regimes are wage led or profit led is subject to an ongoing academic debate. Our interpretation of the available evidence is that domestic demand regimes are likely to be wage led in most economies. In open economies the net export effects may overpower the domestic effects and total demand in many individual countries may well be profit led. However larger geographical (or economic) areas are likely to be wage led. The most recent empirical studies show that the world economy overall is in a wage-led demand regime and if all countries pursue pro-labour distributional policies simultaneously, even countries that are profit-led will experience increases in aggregate demand, their economic activity being driven up by faster growth abroad. This can be contrasted to a situation where all countries are pursuing an export-led strategy: it is clear that only half of them can be successful, as all countries cannot be simultaneously net exporters.

There is comparatively less research on the supply-side effects of an increase in the wage share. However, there are several studies that find positive effects of wage increases on productivity growth, suggesting that the long-term effects of wage expansion are likely to be favourable to the economy.

There is an alternative to neoliberalism. Indeed there needs to be an alternative to neoliberal policies, because the export-growth model is of limited use and generates global imbalances, while the model based on debt-led consumption is unsustainable. A wage-led growth strategy is a viable option and the most likely strategy to succeed if coordinated internationally.<sup>21</sup> A wage-led growth strategy would combine pro-labour distributional social and labour market policies, along with a proper regulation of the financial sector, including a reduction in the income claims of top management, most surely those in financial sectors, as well as a reduction in the claims of those collecting interest and dividend payments.

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<sup>21</sup> It is sometimes argued by Marxist authors that wage-led demand regimes are unstable, meaning that high output and employment growth rates achieved with high wage shares will generate further increases in the wage share because of the stronger bargaining power of workers. Thus the feedback effects of aggregate demand and employment on income distribution, effects that we have not considered in this paper since we assumed the wage share to be an exogenous element, can make the wage-led demand regime unstable in that growing wage shares and higher growth may create reinforcing cycle (Stockhammer 2004). This argument however omits the feedback effects driven by the productivity regime. Fast output growth may not entail fast employment growth, because of the rise in productivity growth generated by the Kaldor-Verdoorn effect, as explained in detail in Storm and Naastepad (2012).

Distributional policies that are likely to increase the wage share and reduce wage dispersion include increasing or establishing minimum wages, strengthening social security systems, improving union legislation and increasing the reach of collective bargaining agreements.<sup>22</sup> All of these policies go against orthodox economic wisdom and, under the perceived pressure to reduce public budget deficits, current economic policy seems to be moving in the opposite direction, with calls for government austerity policies, which are most likely to affect the middle class and the poor, and calls for structural reforms, which are a euphemism for more flexible labour markets and reduced wage rates. However, in times of crisis and a lack of effective demand, what economies need is more state involvement, not less. A successful policy package to economic recovery needs to have sustained wage growth as one of its core building blocks. Only when wages grow with productivity growth will consumption expenditures grow without rising debt levels.

To be successful a modern version of a wage-led growth strategy will also require a restructuring of the financial sector. The deregulated financial sector has fuelled speculative growth and resulted in the worst recession since the 1930s. If a repeat of the crisis is to be prevented, this will require managing international capital flows, a re-focussing of the financial sector on narrow banking, the elimination of destabilizing financial innovations, and a higher fiscal contribution of the financial sector (e.g., in the form of a financial transactions tax). Briefly put, as suggested by Hein and Mundt (2012), what is needed is a ‘Global Keynesian New Deal’.

Some concerns have been expressed regarding the potential negative effects that such pro-labour policies would exercise on countries that are currently in a profit-led demand regime. Countries like China are likely to have parameters that put them in a profit-led demand regime, due to their large trade sector, highly dependent on pricing conditions, and their low propensity to consume out of wages. How can an economy operating under the conditions of a profit-led regime be transformed into one where a wage-led regime rules? Only a couple of hints will be provided. On the export front, one would need to modify the range of products being offered for exports, progressively switching to products that are less sensitive to pricing competition. On the domestic front, it is clear that a well-developed social security system – with proper unemployment programs, support programs for the elderly, and full health coverage – are likely to induce income recipients, and in particular wage earners, to reduce their precautionary savings,

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<sup>22</sup> Meta-analysis has shown that raising minimum wages do not lead to reduced employment, in contrast to what is asserted by mainstream authors on the basis of a partial equilibrium analysis. Doucouliagos and Stanley (2009) demonstrate that the minimum wage literature is contaminated by publication bias, and that the best studies support the claim that there is no negative relationship between minimum wages and employment.

thus leading to a reduction in the propensity to consume out of wages, and hence helping to create the structural conditions required for a wage-led regime.

## References

- Aghion, P., Caroli, E., Garcia-Penalosa, C. 1999. Inequality and economic growth: the perspective of the new growth theories. *Journal of Economic Literature*, 37 (4): 1615-1660.
- Atkinson, A., Piketty, T., Saez, E. 2011. Top incomes in the long run of history. *Journal of Economic Literature*, 49 (1): 3-71.
- Balcerowicz, L., Fisher, S. (eds) 2006. *Living Standards and the Wealth of Nations: Successes and Failures in Real Convergence*. MIT Press, Cambridge and London.
- Baran, P., Sweezy, P. 1966. *Monopoly Capital*. Monthly Review Press, New York.
- Barba, A, Pivetti, M, 2009. Rising household debt: Its causes and macroeconomic implications—a long-period analysis. *Cambridge Journal of Economics*, 33 (1): 113-37.
- Barbosa-Filho, N., Taylor, L. (2006). Distributive and demand cycles in the US economy – a structuralist Goodwin model. *Metroeconomica*, 57 (3): 389-411.
- Bhaduri, A. 1986. *Macroeconomics: The Dynamics of Commodity Production*. M.E. Sharpe, Armonk.
- Bhaduri, A., Marglin, S., 1990. Unemployment and the real wage: the economic basis for contesting political ideologies. *Cambridge Journal of Economics*, 14 (4): 375-93.
- Bleaney, M. 1976. *Underconsumption Theories: A History and Critical Analysis*. International Publishers, New York.
- Blecker, R., 1989. International competition, income distribution and economic growth. *Cambridge Journal of Economics*, 13 (3): 395-412.
- Blecker, R. 2002. Distribution, demand and growth in neo-Kaleckian macro-models. In M. Setterfield (ed.), *The Economics of Demand-led Growth: Challenging the Supply-side Vision of the Long Run*. Edward Elgar, Cheltenham: 129-152.
- Blecker, R. 2011. Open economy models of distribution and growth. In E. Hein and E. Stockhammer (eds): *A Modern Guide to Keynesian Macroeconomics and Keynesian Policies*. Edward Elgar, Cheltenham: 215-239.
- Blinder, A.S., Canetti, E.R.D., Lebow, D.E., Rudd, J.B. 1998. *Asking About Prices: A New Approach to Understanding Price Stickiness*. Russell Sage Foundation, New York.
- Bowles, S., Boyer, R., 1995. Wages, aggregate demand, and employment in an open economy: an empirical investigation. In G. Epstein and H. Gintis (eds): *Macroeconomic Policy after the Conservative Era: Studies in Investment, Saving and Finance*. Cambridge University Press, Cambridge: 143-171.
- Boyer, R. 1988. Formalizing growth regimes. In G. Dosi, C. Freeman, R. Nelson, G. Silverberg and L. Soete (eds), *Technical Change and Economic Theory*. Pinter Publishers, London and New York: 608-630.
- Doucoulagos, H., Stanley, T.D. 2009. Publication selection bias in minimum-wage research? A meta-regression analysis. *British Journal of Industrial Relations*, 47 (2): 406-428.
- Dray, M., Thirwall, A.P. 2011. The endogeneity of the natural rate of growth for a selection of Asian countries, *Journal of Post Keynesian Economics*, 33 (3): 451-468.
- Dutt, A.K. 1987. Alternative closures again: a comment on ‘Growth, distribution and inflation’, *Cambridge Journal of Economics*, 11 (1): 75-82.
- Ederer, S., Stockhammer, E. 2007. Wages and aggregate demand in France: An empirical investigation. In E. Hein and A. Truger (eds): *Money, Distribution, and Economic Policy – Alternatives to Orthodox Macroeconomics*. Cheltenham, Edward Elgar: 119-138.
- European Commission 2007. The labour income share in the European Union. Chapter 5 of: *Employment in Europe*.
- Felipe, J., Lim, J. 2005. Export or demand-led growth in Asia. Asian Development Bank, ERD working paper No. 69. [http://www.adb.org/Documents/ERD/Working\\_Papers/WP069.pdf](http://www.adb.org/Documents/ERD/Working_Papers/WP069.pdf)

- Glyn, A. 2006. *Capitalism Unleashed: Finance, Globalization and Welfare*. Oxford, Oxford University Press.
- Harvey, D. 2003. *A Short History of Neoliberalism*. Oxford, Oxford University Press.
- Hein, E. Mundt, M. 2012. Financialisation and the requirements and potentials for wage-led recovery – a review focussing on the G20. Paper written for the project ‘New perspectives on wages and economic growth: the potentials of wage-led growth’.
- Hein, E., Tarassow, A. 2010. Distribution, aggregate demand and productivity growth: theory and empirical results for six OECD countries based on a post-Kaleckian model. *Cambridge Journal of Economics*, 34 (4): 727-754.
- Hein, E., Vogel, L. 2008. Distribution and growth reconsidered – empirical results for six OECD countries. *Cambridge Journal of Economics*, 32 (3): 479-511.
- IMF, 2007. The globalization of labor. Chapter 5 of *World Economic Outlook April 2007*. IMF, Washington.
- IMF, 2011. *World Economic Outlook September 2011: Slowing Growth, Rising Risks*. Washington (DC), IMF. <http://www.imf.org/external/pubs/ft/weo/2011/02/pdf/text.pdf>
- ILO, 2008. *World of Work Report 2008. Income inequalities in the age of financial globalization*. Geneva: ILO.
- Jayadev, A.. 2007. Capital account openness and the labour share of income. *Cambridge Journal of Economics* 31, 423-443
- Kaldor, N. 1957. A model of economic growth. *Economic Journal*, 67, December: 591-624.
- Kalecki, M. 1971. *Selected Essays in the Dynamics of the Capitalist Economy*. Cambridge University Press: Cambridge.
- Keynes, J.M. 1936. *The General Theory of Employment, Interest and Money*. Macmillan: London.
- Kindleberger, C.P., Alizer, R.Z. 2011. *Manias, Panics, and Crashes: A History of Financial Crises*. Palgrave Macmillan: New York.
- Krassoï Peach, E., Stanley, T.D. 2009. Efficiency wages, productivity and simultaneity: A meta-regression analysis. *Journal of Labor Research*, 30 (3): 262-268.
- Kurz, H. 1990. Technical change, growth and distribution: A steady-state approach to unsteady growth. In H. Kurz (ed.), *Capital, Distribution and Effective Demand: Studies in the Classical Approach to Economic Theory*. Polity Press, Cambridge: 210-239.
- Lavoie, M. 1995. The Kaleckian model of growth and distribution and its neo-Ricardian and neo-Marxian critiques. *Cambridge Journal of Economics*, 19 (6): 789-818.
- Lavoie, M. (2003). ‘Real Wages and Unemployment with Effective and Notional Demand for Labor. *Review of Radical Political Economics*, 35 (2): 166-82
- Lavoie, M. 2007. Neoclassical empirical evidence on employment and production laws as artefact. *Rivista Economía Informa*, 351, March-April: 9-36.
- Léon-Ledesma, M., Thirwall, A.P. 2002. The endogeneity of the natural rate of growth, *Cambridge Journal of Economics*. 26 (4): 533-552.
- Marquetti, A. (2004). Do rising real wages increase the rate of labour-saving technical change? Some econometric evidence. *Metroeconomica* 55 (4): 432-441.
- Marglin, S., Bhaduri, A. 1990. Profit squeeze and Keynesian theory, in Marglin and Schor (1990): 153-186.
- Marglin, S., Schor, J. (eds) 1990. *The Golden Age of Capitalism. Reinterpreting the Postwar Experience*. Oxford: Clarendon.
- McCombie, J. 2002. Increasing returns and the Verdoorn law from a Kaldorian perspective In: J. McCombie, M. Pugno and B. Soro (eds), *Productivity Growth and Economic Performance: Essays on Verdoorn’ Law*. Palgrave Macmillan, Basingstoke: 64-114.
- McCombie, J., Thirwall, A.P. 1994. *Economic Growth and the Balance-of-Payments Constraint*. Macmillan, London.



- McKinsey Global Institute 2010. *Debt and Deleveraging: The Global Credit Bubble and its Economic Consequences*. [http://www.mckinsey.com/mgi/reports/freepass\\_pdfs/debt\\_and\\_deleveraging/debt\\_and\\_deleveraging\\_full\\_report.pdf](http://www.mckinsey.com/mgi/reports/freepass_pdfs/debt_and_deleveraging/debt_and_deleveraging_full_report.pdf)
- Naastepad, C.W.M. 2006. Technology, demand and distribution: A cumulative growth model with an application to the Dutch productivity growth slowdown. *Cambridge Journal of Economics*, 30 (3): 403-434.
- Naastepad, C.W.M., Storm, S. 2006-07. OECD demand regimes (1960-2000), *Journal of Post Keynesian Economics*, 29 (2): 213-248.
- Naastepad, C.W.M., Storm, S. 2010. Feasible egalitarianism: demand-led growth, labour and technology. In: M. Setterfield (ed.), *Handbook of Alternative Theories of Economic Growth*, Edward Elgar, Cheltenham: 311-330.
- OECD (2011). *Divided We Stand: Why Inequality Keeps Rising*. OECD Publishing.
- Onaran, Ö., Stockhammer, E., Grafl, L. 2012. The finance-dominated growth regime, distribution, and aggregate demand in the US. *Cambridge Journal of Economics* 35 (4): 637-661.
- Onaran, Ö., Galanis, G. 2012. Wage-led and profit-led demand: a global mapping. Paper written for the project 'New perspectives on wages and economic growth: the potentials of wage-led growth'.
- Reinhart, C., Reinhart, V..2008. Capital flow bonanzas: An encompassing view of the past and present. NBER Working Paper No. W14321.
- Rowthorn, R. 1981. Demand, real wages and economic growth. *Thames Papers in Political Economy*, Autumn: 1-39.
- Setterfield, M., Cornwall, J. 2002. A neo-Kaldorian perspective on the rise and decline of the Golden Age. In M. Setterfield (ed.), *The Economics of Demand-led Growth: Challenging the Supply-side Vision of the Long Run*. Edward Elgar, Cheltenham: 67-86.
- Steindl, J. 1952. *Maturity and Stagnation in American Capitalism*. Basil Blackwell: Oxford.
- Stockhammer, E. 2004. Is there an equilibrium rate of unemployment in the long run?. *Review of Political Economy*, 16 (1): 59-77.
- Stockhammer, E. 2008. Wage coordination or wage flexibility?. *Intervention*, 5 (1): 54-62.
- Stockhammer, E. 2011. Wage norms, capital accumulation, and unemployment: a post-Keynesian view. *Oxford Review of Economic Policy*, 27 (2): 295-311.
- Stockhammer, E. 2012. Decline in wage share: causes and prospects. Paper written for the project 'New perspectives on wages and economic growth: the potentials of wage-led growth'.
- Stockhammer, E., Ederer, S. 2008. Demand effects of a falling wage share in Austria. *Empirica*, 35 (5): 481-502.
- Stockhammer, E., Hein, E., Grafl, L. 2011. Globalization and the effects of changes in functional income distribution on aggregate demand in Germany. *International Review of Applied Economics*, 25 (1): 1-23.
- Stockhammer, E., Onaran, Ö. 2004. Accumulation, distribution and employment: A structural VAR approach to a Kaleckian macro-model. *Structural Change and Economic Dynamics*, 15 (4): 421-447.
- Stockhammer, E., Onaran, Ö., Ederer, S. 2009. Functional income distribution and aggregate demand in the Euro area. *Cambridge Journal of Economics*, 33 (1): 139-159.
- Stockhammer, E., Stehrer, R. 2011. Goodwin or Kalecki in Demand? Functional Income Distribution and Aggregate Demand in the Short Run. *Review of Radical Political Economics*, 43 (4): 506-522.
- Storm, S., Naastepad, C. W. M. 2008. The NAIRU reconsidered: why labour market deregulation may raise unemployment. *International Review of Applied Economics*, 22 (5): 527-544.
- Storm, S., Naastepad, C. W. M. 2009. Labor Market Regulation and Productivity Growth: Evidence for Twenty OECD Countries (1984-2004). *Industrial Relations*, 48 (4): 629-54.

- Storm, S., Naastepad, C.W.M. 2012. Wage-led or profit-led supply: wages, productivity and investment. Paper written for the project 'New perspectives on wages and economic growth: the potentials of wage-led growth'.
- Taylor, L. 1983. *Structuralist Macroeconomics: Applicable Models for the Third World*. Basic Books, New York.
- Taylor, L. 1988. *Varieties of Stabilization Experience*. Clarendon Press, Oxford.
- Taylor, L. 1991. *Income Distribution, Inflation and Growth: Lectures on Structuralist Macroeconomic Theory*. MIT Press, Cambridge (Mass.).
- UNCTAD 2010. *Trade and Development Report 2010: Employment, Globalization and Development*. UNCTAD: Geneva.
- UNCTAD 2011. *Trade and Development Report 2011: Post-Crisis Policy Challenges in the World Economy*. UNCTAD: Geneva.
- Van Treeck, T., Sturn, S. 2012. Debates on inequality as the cause of the current economic crisis. Paper written for the project 'New perspectives on wages and economic growth: the potentials of wage-led growth'.
- Vergeer, R., Kleinknecht, A. 2010-11. The impact of labor market deregulation on productivity: a panel data analysis of 19 OECD countries (1960-2004). *Journal of Post Keynesian Economics*, 33 (2): 371-408.
- Webb, S. 1912. The economic theory of a legal minimum wage. *Journal of Political Economy*, 20, December: 973-998.