Varieties of demand and growth regimes – post-Keynesian foundations

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Abstract

We review post-Keynesian contributions to demand and growth regime analysis. First, we distinguish the Kalecki-Steindl approach and the Sraffian supermultiplier approach as relevant theoretical foundations for demand and growth regime research, with investment-driven and distribution-led growth in the focus of the former and autonomous demand-led growth in the latter. Based on this, we review different ways of analysing the co-existence of demand and growth regimes in the current period of neoliberal and finance-dominated capitalism. We distinguish, first, a basic national income and financial accounting decomposition approach, second, a Sraffian supermultiplier inspired growth decomposition approach, and, third, several lenses looking at growth drivers. We argue that these three levels of analysis are, in principle, not mutually exclusive nor even contradictory, but that they rather complement each other. We conclude that, in particular the PK analysis of growth drivers provides several systematic links with comparative and international political economy approaches, when it comes to the introduction of the political economy dimension (social blocs, growth coalitions, changes in institutions favouring certain type of re-distribution and economic policies, etc.), while the national income and financial accounting, as well as the Sraffian supermultiplier growth accounting decomposition approaches provide the consistent macroeconomic foundations for such syntheses.

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1. Introduction

Starting with the work by Baccaro and Pontusson (2016, 2018) on growth models, post-Keynesian economics (PKE) research on demand and growth regimes has been included into the comparative political economy (CPE) debates on varieties of capitalism (VoC).[1] Schedelik et al. (2021) have suggested to apply the PKE inspired growth models approach to emerging capitalist economies, too, and Mertens et al. (2022) have elaborated on such extensions. In international political economy (IPE), Blyth and Matthijs (2017) have also argued in favour of overcoming microeconomic supply side perspectives by opening up towards (post-)Keynesian macroeconomics. For a long time, the macroeconomics of VoC research in the tradition of Hall and Soskice (2001) had been based on New Consensus Macroeconomics (NCM) (Carlin and Soskice 2009, 2015), which downgrades the role of aggregate demand, finance, and income and wealth distribution for long-run analysis. Since these areas are of utmost importance for PKE, opening CPE and IPE research to PKE demand-led growth approaches may generate a better understanding of the interactions of institutions, distribution and the macro-economy, and the variations of medium- to long-run growth regimes in modern capitalism, which have emerged during the last decades.

The work by Baccaro and Pontusson (2016, 2018) has triggered some PK responses that endorse this approach but that also try to clarify some of the misunderstandings, extend the analysis to further dimensions like welfare state models (Hein et al. 2021), or outline the PK macroeconomics which could be useful for CPE analysis more generally (Stockhammer 2022, Stockhammer and Kohler 2022).[2] Other PK authors, however, still make use of the traditional static Hall and Soskice (2001) VoC distinction between liberal and coordinated market economies, which is meant to be overcome by the more dynamic growth models approach, and have linked this to their research on different demand and growth regimes in modern capitalism (Behringer and van Treeck 2018, 2019, Setterfield and Kim 2020).

However, none of these papers has provided a systematic review of the PKE research on demand and growth regimes (or models) as such. Such a review may be helpful for at least two reasons. First, it should clarify the different uses of growth models or demand and growth regimes research in PKE and link the different levels of analysis which have emanated in a systematic way.[3] Second, by doing so, it should facilitate communication with authors from CPE and IPE and clarify where and how PKE and CPE/IPE analyses can be linked and synthesized. In this paper we will thus review two basic ways in which PKs have made use of the notion of a demand and growth regime. Each basic approach will then have several variants, as will be explained in this paper.

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[1] Whereas Baccaro and Pontusson (2016) and the CPE research following their lead are using the term 'growth model', we prefer to talk about 'demand and growth regimes', which is more common in PKE.

[2] Stockhammer (2022) points out three core macroeconomic foundations that PKs can provide for CPE: first, the Kaleckian distinction of wage-led and profit-led demand regimes; second, the PK theory of money, finance, financialisation and Minskyan financial instability; and, third, the focus on path-dependent growth and demand-led technological progress. This does not contradict what we will present in this paper. However, we will go beyond this, with a more detailed focus on demand and growth regime analysis in PKE.

[3] Our focus here is thus on PK contributions to demand and growth regime research and not on a general overview, going well beyond PKE, on different approaches toward varieties and varietals of capitalism, as attempted by Palley (2022), for example.

A first basic perspective on demand and growth regimes refers to the main growth determinants in PK demand-led growth models, like investment-led growth, distribution-led growth or autonomous demand-led growth. 'Regime' may then also refer to the response of the equilibrium solution of a macroeconomic model towards a change in model parameters or exogenous variables, like the wage or profit share, income inequality, the rate of interest, the debt-capital ratio, or also shareholder power. These responses will mainly depend on the coefficients in the behavioural functions of the models, which are determined by history, institutions, power, conventions etc. Of course, these effects can be and have been estimated in order to show how a certain economy in a certain time period has responded towards changes in one of these variables, considered to be exogenous for analytical purposes.

A second basic perspective on demand and growth regimes refers to empirical-historical analysis, which describes the actual development path of an economy. First, this is related to the changes in demand and growth regimes over time, as analysed for developed capitalist economies since World War II. Second, this is associated with analysing the co-existence of different regimes during certain episodes, like finance-dominated capitalism, before and after the 2007-09 crises, the Global Financial Crisis and the Great Recession. We have analysed PK contributions to the historical succession of demand and growth regimes, in particular after World War II, in Hein et al. (2015b), focussing on the contributions by Cornwall and Cornwall (2001), Steindl (1979, 1989), Smithin (1996) and Minsky (1986) and comparing them to the contributions from the French Regulation Theory (Aglietta 1976, Boyer 2000) and the US Social Structure of Accumulation approach (Gordon et al. 1987, McDonough et al. 2010). There, we have pointed out that the PK approaches are not only focussed on macroeconomics but also provide some basic analyses of the political economy dimension of theses regimes, including institutions, class and power relationships – in the spirit of Kalecki (1943a).[4] In the current contribution we will thus focus on PK analyses of the co-existence of different demand and growth regimes under finance-dominated capitalism. Here, different sources of demand and finance, different drivers of growth, as well as the role of institutions and the application of macroeconomic policies are in the focus. This may then lead to clustering countries for certain periods of time into different regimes and examining the change in these regimes over time.

The paper is organised as follows. In Section 2, we start with an overview of potential demand and growth regimes as derived in the Kalecki-Steindl and the Sraffian supermultiplier versions of post-Keynesian (PK) demand-led growth models, point out their differences and commonalities, as well as their implications for empirical-historical growth regime analysis. Section 3 will then turn to the recent debate on the co-existence of different demand and growth regimes in finance-dominated capitalism, as well as the change in regimes with the 2007-09 financial and economic crises. We will single out the different levels of analysis, their

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[4] We thus do not fully agree with Stockhammer and Kohler (2022, p.185), who argue that 'While it (PKE, E.H.) frequently refers to power and institutions as explanatory factors, they are not subject of analysis themselves.' In our view this downgrades the Kalecki-Steindl political economy tradition in PKE, based on Kalecki (1943a), Steindl (1979) and Bhaduri and Steindl (1983). Saying this does, of course, not deny that the respective expertise of CPE is more in political economy while PKE's is more in heterodox macroeconomics.

relationships with the theoretical models reviewed in Section 2, and we will argue that the approaches in the literature so far are rather complementary than mutually exclusive or inconsistent. Section 4 will summarise and conclude.

2. Demand-led growth regimes in post-Keynesian distribution and growth models

In PK distribution and growth theory, three basic strands can be distinguished, the Kaldor-Robinson models, based on the works of Kaldor (1955/56, 1957) and Robinson (1956, 1962), the Kalecki-Steindl models, based on the works of Kalecki (1943b, 1954) and Steindl (1952), and the Sraffian supermultiplier models, based on the work of Serrano (1995) (Hein 2023, Chapter 7).[5] Of course, all three strands have in common that long-run growth is demand-led, and that saving adjusts to investment also in the long run. Since income distribution has no independent role to play when it comes to determining long-run growth trends in the Kaldor-Robinson models, in Kaldor's (1966) later export-led growth model, nor in Thirlwall's (1979) balance-of-payments constrained growth model which builds on Kaldor (1966), we will focus here, also for lack of space, only on the Kalecki-Steindl and the Sraffian supermultiplier models.[6]

2.1 The Kalecki-Steindl based PK distribution and growth models: investment-led growth and distribution-led regimes

In the PK demand-led distribution and growth models in the tradition of Kalecki (1943b, 1954) and Steindl (1952), long-run growth is led by firms' investment and capital accumulation, determined by growth/sales expectations and capacity utilisation, as well as profitability in some models. The rate of capacity utilisation is treated as an endogenous and adjusting variable beyond the short run. Wage and profit shares are mainly determined by mark-up pricing of firms on unit variable costs in oligopolistic or monopolistic goods market.[7] The mark-up is determined by the degree of competition in the goods market, and thus the relative powers among firms, by the power of workers to raise nominal wages in the labour market as response towards rising mark-up and prices, and, in the long run, also by persistent changes in overhead costs of firms (Kalecki 1954, Chapters 1-2, Hein 2014, Chapter 5). The paradox of saving, also derived by Keynes (1936) for short-run macroeconomics, is valid in the long run, too: Higher propensities to save out of profits or out of wages lead to lower equilibrium capacity utilisation, capital accumulation, growth and a lower rate of profit. The emerging long-run growth rate is usually associated with unemployment and thus deviates from the neoclassical full employment growth rate, the natural rate of growth, without any endogenous adjustment.

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[5] For a systematic comparison of different versions of orthodox and heterodox distribution and growth theories in a unified modelling framework making use of the method of model closures, see Hein (2017b, 2023, Chapter 7).

[6] For presentations of the Kaldor-Robinson first generation PK distribution and growth models, as well as Kaldor's export-led and Thirlwall's balance of payments constrained growth models, see Blecker and Setterfield (2019, Chapter 3), Hein (2014, Chapter 4), and Lavoie (2022, Chapter 6).

[7] For presentations of the Kalecki-Steindl PK distribution and growth models, see Blecker and Setterfield (2019, Chapter 4), Hein (2014, Chapters 5-11), and Lavoie (2022, Chapter 6).

2.1.1 Wage- vs. profit-led regimes

Since income distribution is seen to be exogenous for demand and growth, and determined by institutions and power relationships,[8] Kalecki-Steindl models provide the space for exploring distribution-led demand and growth regimes. This has generated the prominent distinction between 'wage- and profit-led' demand and growth regimes.[9] If an increase in the profit share (h) reduces equilibrium demand, capacity utilisation (u^*), capital accumulation (g^*) and growth, we are in a wage-led regime, but if it increases these macroeconomic variables a profit-led regime is given (Table 1). Also intermediate regimes with wage-led demand and profit-led growth are possible (Hein 2014, Chapter 6). In a profit-led regime, an increase in the profit share also raises the equilibrium profit rate ($r^* = hu^*/v$, with v for the technologically determined capital-potential output ratio), while in the other two regimes the effect may be positive or negative.

Table 1: Wage- and profit-led demand and growth regimes in Kaleckian distribution and growth models			
	$\dfrac{\partial u^*}{\partial h}$	$\dfrac{\partial g^*}{\partial h}$	$\dfrac{\partial r^*}{\partial h}$
Wage-led demand and growth regime	−	−	+/−
Intermediate regime: Wage-led demand and profit-led growth	−	+	+/−
Profit-led demand and growth regime	+	+	+

In the closed economy version of the neo-Kaleckian model, based on Rowthorn (1981) and Dutt (1984, 1987), demand and growth are always wage-led, because variations in the profit share only have direct effects on consumption, as the propensity to save out of profits is higher than out of wages. But there is no direct impact on investment, which is determined by 'animal spirits' and the rate of capacity utilisation (as wells as the profit rate in some models). However, as shown by Blecker (1989), for an open economy neo-Kaleckian model, with a potentially positive effect of the determinants of profit share on net exports, assuming a positive link of the profit share with international price competitiveness of domestic producers and the Marshall-Lerner condition to hold, also profit-led demand and growth regimes may arise. This will be the case, if the effect of redistribution on net exports dominates the effect on domestic demand. This is more likely for small open economies with a high share of exports

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[8] This does not mean that in Kalecki-Steindl models demand, growth and employment dynamics have no impact on income distribution, as Dutt (2012) has pointed out, and there a several Kalecki-Steindl models exploring such short-run interactions, as accounted in Hein (2017a). However, for medium- to long-run analysis, Kaleckians hold that distributional trends are political economy outcomes, which are difficult to relate directly and uniquely to output and employment dynamics.

[9] See also Lavoie (2017) for a historical account of the development of the wage-led vs. profit-led demand and growth debate.

in total demand, with a strong link of profit shares with the real exchange rate and international price competitiveness, and with a high price elasticity of the demand for exports and imports.

Another way of generating profit-led demand and growth, as a potential regime also for the closed economy, is the introduction of a directly positive effect of the profit share into the investment function, as in the post-Kaleckian models by Bhaduri and Marglin (1990) and Kurz (1990). Profit-led demand and growth will emerge, if the direct effects of a variation in the profit share on investment dominates over the effects on consumption. For the open economy post-Kaleckian model, the effect of changes in the profit share on net exports is taken into account as well. The nature of the demand and growth regime will thus depend on the propensities to save out of wages and out of profits, the responses of investment towards demand/capacity utilisation and the profit share, the impact of redistribution on international price competitiveness, the relevance of price competitiveness for exports and imports, and the degree of openness of the economy. Starting with Bowles and Boyer (1995), these theoretical models have inspired dozens of empirical papers estimating the type of regime dominating in certain countries in certain periods of time, with partly contradicting results, depending on the method applied.[10]

The original neo- and post-Kaleckian models – and most of the empirical research – has focussed on functional income distribution and has paid little attention to the distribution of profits and wages among households. The inclusion of this distributional dimension may modify the results regarding wage- and profit-led regimes, as reviewed by Hein and Prante (2020). For example, Palley (2017) assumes that workers' households save and also accumulate real and financial wealth, and thus obtain parts of profits, and that saving and consumption behaviour of managers receiving salaries/wages is close to the one by the capitalists. The distribution of real and financial wealth, and thus profits from that wealth, between capitalists and workers and the distribution of salaries/wages between managers and workers then have an impact on the nature of the regime. With the propensity to save of managers/capitalists out of their profit and wage incomes being higher than the propensity to save of workers, a higher share of workers in wealth and profits makes the economy more likely to be profit-led, whereas a higher share of workers in wages and salaries makes it more likely to be wage-led. Even though with constant profit and wage dispersion the economy may be wage-led, it may turn profit-led, if an increase in the profit share is accompanied by a higher share of workers in capital ownership (and thus profits) or by a higher share of workers in wages/salaries.[11]

Increasing wage/salaries inequality, however, may affect the demand and growth responses towards changes in the profit shares also in the opposite direction, if workers'

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[10] For recent multi-country results, see Hartwig (2014), Onaran and Galanis (2014) and Onaran and Obst (2016). For reviews of empirical studies see Akcay et al. (2022), Hein (2014, Chapter 7), and Stockhammer and Onaran (2013). For discussions of different empirical approaches, the structural or single equations approach, on the one hand, and the aggregative or systems approach, on the other hand, see, for example, Blecker (2016) and Stockhammer (2017).

[11] Furthermore, if demand and growth are profit-led, a more equal distribution of wages/salaries, i.e. a higher share of workers and a lower share of managers, is always expansionary in Palley's (2017) model.

consumption demand is affected by relative incomes and interdependent consumption norms ('keeping up with the Jonses'), or by the requirement to maintain a basic level of private consumption when real wages and wage shares are falling.[12] Of course, workers' households also need to have access to credit in order finance consumption beyond their income and must be willing to go into debt. Consumption emulation can then be seen a complex phenomenon affected by socio-cultural preferences, institutions, the (non-)provision of public goods (especially housing, education and healthcare) and the degree of regulation of the financial sector. In this case, rising wage inequality associated with a higher profit share may turn an otherwise wage-led regime ('seemingly') profit-led (Hein and Prante (2020) – and will be associated with rising indebtedness of the workers' household sector.

The issue of distribution-led regimes has also been extended to labour productivity growth and thus to potential growth (Dutt 2006, Hein 2014, Chapter 8, Hein and Tarassow 2010, Naastepad 2006, Storm and Naastepad 2012, 2013). For this purpose the basic Kaleckian model is amended by a productivity growth equation (or a productivity regime). Labour productivity growth is assumed to depend positively on the institutional environment (i.e. government investment in education and R&D, learning by doing conditions, entrepreneurial attitudes, etc.) and demand or capital stock growth, following Kaldor (1957, 1966). Furthermore a positive effect of the wage share (or of real wage growth) on productivity growth is added, because, in line with Marx (1867), a (potential) squeeze of profits will stimulate capitalists' efforts to protect the profit share by introducing labour saving technological change. From the interaction of demand and growth regime with the productivity regime, the overall regime – and thus potential growth – will be definitely wage-led if the demand and growth regime is wage-led (Table 2). However, if the demand and growth regime is profit-led, the overall regime may be wage- or profit-led, or intermediate, depending on the relative strengths of the effects of re-distribution on aggregate demand and productivity growth, which will now be in opposite directions.[13]

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[12] These models are related to Veblen's (1899) 'conspicuous consumption', Duesenberry's (1949) 'relative income hypothesis' and the 'expenditure cascades' proposed by Frank et al. (2014). For different types of PK/Kaleckian macroeconomic models including interdependent consumption and financing norms, see Belabed et al. (2018), Detzer (2018), Kapeller and Schütz (2014, 2015), Prante et al. (2022), Setterfield and Kim (2017) and Setterfield et al. (2016), for example, partly also analysing the potentials for long-run financial (in)stability.

[13] See, for example, Hein and Tarassow (2010) and Hein (2014, Chapter 8) for a derivation of the precise conditions for overall wage- and profit-led regimes. Hartwig (2013, 2014), Hein and Tarassow (2010) and Naastepad (2006) have presented estimations on productivity regimes and overall regimes finding mostly wage-led results.

Table 2: Overall effects of a change in the profit share on the long-run growth regime				
	Wage-led demand regime: $\dfrac{\partial u^*}{\partial h} < 0, \dfrac{\partial g^*}{\partial h} < 0$	Profit-led demand regime: $\dfrac{\partial u^*}{\partial h} > 0, \dfrac{\partial g^*}{\partial h} > 0$		
$\dfrac{\partial u^{**}}{\partial h}$	–	–	+	+
$\dfrac{\partial g^{**}}{\partial h}$	–	–	+	+
$\dfrac{\partial \hat{y}^{**}}{\partial h}$	–	–	–	+
Growth regime	Wage-led	Wage-led	Inter-mediate	Profit-led

Finally, an employment regime can also be determined within these models by the joint effects on employment growth of distributional changes via output growth, on the one hand, and via productivity growth, on the other hand (Storm and Naastepad 2013). Even with a wage-led demand and productivity growth regime, in which potential growth is positively affected by a rise in the wage share, employment growth may still respond negatively, and may thus be profit-led, if the negative employment effect of a rise in the wage share via productivity growth exceeds the positive employment effect via output growth.[14]

2.1.2 Finance, distribution and demand and growth regimes

Another distributional dimension affecting demand and growth regimes in Kaleckian models has been introduced by explicitly considering the role of credit and finance and thus the distribution between rentiers, i.e. creditors and shareholders, on the one side, and firms or corporations, on the other side. In these models, the long-term rate of interest is viewed as an exogenous parameter, determined by central bank policies regarding the short-term money market rate and by liquidity preferences and risk assessments of banks and financial wealth holders, which determine the spread between short-term and long-term rates (Hein 2023, Chapter 4, Lavoie 2022, Chapter 4).

For a given debt-capital ratio and with a given mark-up in firms' pricing in the goods market determining the wage and overall profit shares, variations in the long-term rate of interest thus affect distribution of profits between rentiers and firms. Interest payments are costs for firms and have a negative impact on firms' retained profits and their investment, because retained profits improve creditworthiness of firms in incompletely competitive credit markets and calm down firms' fear for insolvency, according to Kalecki's (1937) 'principle of increasing risk'. However, interest payments of firms are also income for rentiers with a positive effect on rentiers' consumption. Including these opposite effects on investment and

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[14] Also other dimensions of wage and wealth inequality, like gender inequality and gender pay-gaps, have been explored in a similar vein, i.e. examining the effects on overall distribution, consumption, investment and productivity growth and generating gender equality-led and –burdened regimes (Hein 2020, Onaran et al. 2022a, 2022b, Seguino 2020).

consumption into neo- or post-Kaleckian models, has led Lavoie (1995) to distinguish between 'normal' and 'puzzling' cases (or regimes). In the normal case, a rise in the long-term rate of interest (i) will have contractive effects on equilibrium demand, capacity utilisation, the rate of profit, capital accumulation and growth, because the depressing effects on investment are larger than the positive impacts on rentiers' consumption (Table 3). In the puzzling case, however, the positive effects on rentiers' consumption dominate the directly negative effects on firms' investment. The type of regime will thus mainly depend on the rentiers' propensity to consume and on the effects of interest payments – via internal means of finance – on firms' investment, as well as on the response of investment to aggregate demand and capacity utilisation. Also an 'intermediate' case has been derived, in which a higher interest rate raises aggregate demand, capacity utilisation and the rate of profit, but lowers equilibrium capital accumulation, because the accelerator effect in the investment function is weak (Hein 2014, Chapter 9). Introducing a medium- to long-run interest-elastic mark-up into the model, and making functional income distribution between aggregated profits and wages a function of the interest rate, modifies the regimes depending on whether aggregate demand is profit- or wage-led.[15]

Table 3: Normal, intermediate and puzzling cases (regimes) in Kaleckian distribution and growth models with interest and credit			
	$\dfrac{\partial u^*}{\partial i}$	$\dfrac{\partial g^*}{\partial i}$	$\dfrac{\partial r^*}{\partial i}$
Normal case (regime)	−	−	−
Intermediate case (regime)	+	−	+
Puzzling case (regime)	+	+	+

As shown in Hein (2014, Chapter 9), the conditions providing a puzzling case or regime will also generate a 'debt-led' growth regime, in which a rising debt-capital ratio of firms will raise the equilibrium rates of capacity utilisation, capital accumulation and growth.[16] The direct distribution effects of higher interest payments associated with a higher debt-capital ratio and a given long-term interest rate will be more favourable for rentiers' consumption than for firms' investment. The normal case or regime conditions will therefore be associated with a 'debt-burdened' regime, a higher firms' debt-capital ratio will mean lower equilibrium rates of capacity utilisation, capital accumulation and growth.

Some slight extensions allow us to make use of this modelling framework to address some basic features of finance-dominated capitalism and to derive potential regimes (Hein

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[15] See also Hein (2007, 2008, 2014, Chapter 9) for detailed analysis. Hein and Schoder (2011) have provided some empirical estimations of normal or puzzling cases or regimes taking interest rate effects on profit and wage shares into account, and have found the normal case for both Germany and the USA.

[16] This assumes that the debt-capital ratio of the corporate sector is an exogenous variable under the control of the firm sector, which, however, is not the case, in particular if we take a long run perspective. In the respective models, therefore, the debt-capital ratio is then endogenised in the long-run analysis and its stability is analysed (Lavoie 1995, Hein 2014, Chapter 9). It is shown that only the puzzling case generates long-run stable corporate debt-capital ratios, whereas normal and intermediate cases are associated with long-run unstable corporate debt-capital ratios. However, reviewing this in detail is beyond the scope of the current paper.

2010, 2012, Chapter 3, 2014, Chapter 10). First, it is assumed that firms do not only pay interest to rentiers but also dividends. Instead of the rate of interest as the distribution parameter, the rentiers' rate of return on equity and bonds, a composite of the rate of interest and the dividend, is treated as such a parameter. Shareholder value orientation of management, as a main corporate feature of finance-dominated capitalism, will mean a rise of this rentiers' rate of return in order to boost share prices and shareholder value – share buybacks fulfil the same purpose. This has thus depressing effects on firms' investment through the internal means of finance channel, but it raises rentiers' income and hence consumption. In the medium to long run, the mark-up in firms' pricing in the goods market may become elastic with respect to the rentiers rate of return, which will then also affect wage and profit shares. Second, with financialisation and increasing shareholder value orientation, non-financial corporations' managements' animal spirits regarding real investment in the capital stock may get depressed, because of imposed preference for short-term profits by means of financial investment instead of long-term profits by means of expanding the capital stock.[17]

Through the internal means of finance and the preference channels, increasing shareholder power (Ω) may thus generate a contractive 'finance-burdened' regime with depressing effects on equilibrium rates of capacity utilisation, capital accumulation and profit (Table 4). For this regime it is sufficient that the normal case conditions regarding the effect of the rentiers' rate of return prevail. If the puzzling case conditions dominate and the effect of shareholder value orientation on animal spirits is weak, we may see a 'finance-led' demand and growth regime with positive effects of increasing shareholder power on the macroeconomic variables. In between, we have a 'profits without investment' regime, which will be generated if the intermediate case conditions are given and the effect of rising shareholder power on managements' animal spirits are weak. In this regime, the effects of increasing shareholder power generate a higher rate of capacity utilisation and a higher rate of profit, but a lower rate of capital accumulation.

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[17] For the PK theory of the firm under the conditions of finance-dominated capitalism, see Dallery (2009), Hein and van Treeck (2010a), and on the micro-macro relationship – and potential fallacies of composition – see Hein and van Treeck (2010b).

Table 4: Demand and growth regimes in finance-dominated capitalism with increasing shareholder power					
	Effect via management's animal spirits (preference channel)	Effect via rentiers' rate of return (internal means of finance channel)	$\dfrac{\partial u^*}{\partial \Omega}$	$\dfrac{\partial g^*}{\partial \Omega}$	$\dfrac{\partial r^*}{\partial \Omega}$
Finance-burdened demand and growth regime	weak/strong	Normal case	−	−	−
Profits without investment regime	Weak	Intermediate case	+	−	+
Finance-led demand and growth regime	Weak	Puzzling case	+	+	+

As will be seen below, the profits without investment regime, initially pointed out by Cordonnier (2006), is of particular interest for the regime analysis in finance-dominated capitalism. In the simple closed private economy model of Hein (2010, 2012, Chapter 3, 2014, Chapter 10) with only corporate debt but no household debt, this regime requires a low propensity to save out of rentiers' income and a stable or only slightly falling wage share, such that consumption demand is boosted while investment in the capital stock remains depressed. However, in models with potential household debt and with an external sector, profits without investment regimes and thus profit-led demand (but not profit-led accumulation and growth), can also be generated by workers' households' credit financed consumption or by net exports and thus foreign sector deficits (Hein 2014, Chapter 10). This should also be clear from our outline of different channels for profit-led demand above.

The conditions for profits without investment regimes also become clear making use of Kalecki's (1954, Chapter 3) profit equation derived from national income accounting, including government deficit spending but ignoring taxation in our case:

(1) $\Pi = I + C_R + G + X - M - S_W,$

with Π representing profits, I private investment, C_R rentiers' consumption out of distributed profits (interest and dividends), G government deficit expenditures, X exports, M imports and $S_W = W - C_W$, saving out of wages as the difference between wages (W) and consumption out of wages (C_W). Dividing by the capital stock (K) yields:

(2) $r = g + \dfrac{C_R}{K} + \dfrac{G}{K} + \dfrac{X - M}{K} - \dfrac{S_W}{K}.$

Depressed investment and a depressed accumulation rate (g = I/K) in finance-dominated capitalism may thus be associated with high profits and a high profit rate (r = Π/K), if consumption out or rentiers income, government deficit expenditures, net exports and/or

consumption out of wages rise (and thus saving out of wages fall), each also normalised by the capital stock.

2.2 The Sraffian supermultiplier growth models: autonomous demand-led growth regimes
Another variant of PK growth theories relevant for current research on growth regimes is the Sraffian supermultiplier model driven by autonomous non-capacity creating demand, originally proposed by Serrano (1995).[18] In these models, the autonomous growth rate of a non-capacity creating component of aggregate demand, i.e. autonomous consumption, residential investment, exports or government expenditures, determines long-run growth. They are considered autonomous in the sense that they are neither financed out of current income nor directly determined by current income. Investment is viewed as fully induced in the long run and has thus no independent role to play for the long-run growth regime. The rates of capital accumulation and output growth will thus adjust towards the autonomous growth rate determining the growth rate of the system. The same is true for other induced parts of aggregate demand, like income-financed consumption as well as imports determined by domestic income growth.

Different from the Kalecki-Steindl PK distribution and growth models, the rate of capacity utilisation is assumed to converge to the firms' target rate, the normal rate, in the long run. Only in the short run may capacity utilisation diverge from the normal rate, and capital accumulation from the autonomous growth rate. But in line with the Kalecki-Steindl version, functional income distribution is viewed to be exogenous for long-run demand and growth dynamics, determined by socio-institutional factors and power variables. Therefore, in this demand-led growth approach, saving neither adjusts to investment through changes in capacity utilisation in the long run, as in the Kalecki-Steindl strand, nor through variations in functional income distribution, as in the Kaldor-Robinson strand of PK growth theory not discussed here. The adjustment towards the long-run equilibrium growth rate determined by autonomous expenditure growth rather takes place through a variable autonomous expenditure-capital ratio, which makes the saving-capital ratio endogenous, too (Hein 2023, Chapter 7).

In this model, changes in income distribution have no effect on the long-run growth rate of the economy – growth regimes are thus not distribution-led. However, changes in income distribution will affect the traverse towards the long-run growth equilibrium and may thus have an impact on the level of income and thus on the growth path – short-run demand may hence be distribution-led. Therefore, growth regime analysis can focus on the political economy determination of the different components of autonomous demand determining the long-run growth rate, and on the multiplier affecting the level of output and thus the growth path. Starting from national income accounting and distinguishing autonomous and domestic income-induced parts of demand, we get:

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[18] For an introduction to the supermultiplier model and a comparison to other PK distribution and growth models, see Freitas and Serrano (2015, 2017), Blecker and Setterfield (2019, Chapter 7), and Hein (2023, Chapter 7).

(3) $\quad Y = C + I + G + X - M = C_a + cY + I_a + \beta Y + G_a + X_a - mY,$

with Y for income, C for consumption, C_a for autonomous consumption, c for the propensity to consume out of income, I for investment, I_a for residential investment, β for the inducement to invest by domestic income, G for government expenditures assumed to be fully autonomous from domestic income, hence G_a, X for exports also assumed to be fully autonomous from domestic income, hence X_a, M for imports, and m for the propensity to import from domestic income. We hence obtain the following supermultiplier equation:

(4) $\quad Y = \mu Z,$

with autonomous demand $Z = C_a + I_a + G_a + X_a$ and the supermulitiplier $\mu = \dfrac{1}{1 - c - \beta + m}$.
For the respective growth rates, equation (4) becomes:

(5) $\quad \hat{Y} = \hat{\mu} + \hat{Z}.$

With a constant multiplier ($\hat{\mu} = 0$) in long-run equilibrium, the autonomous growth rate ($\hat{Z}$) thus determines output growth ($\hat{Y}$). Changes in the multiplier, i.e. changes in the propensities to consume, to invest and/or to import, will temporarily affect output growth, unless these propensities grow or fall permanently, which is quite unlikely. Therefore, the saving paradox is only valid for the level of income and thus the growth path, but not for the growth rate. An improvement in firms' animal spirits and the inducement to invest will also only have short-run level effects, but no long run growth impact. The same is true for changes in income distribution affecting the average propensity consume, which will have a short-run effect on output, but no long-run effect on the growth rate. Furthermore, if the components of autonomous demand grow at different rates, the autonomous demand component with the highest growth rate will dominate autonomous demand growth, and its share in autonomous demand will converge to unity in the very long run, whereas the share of the other component will converge to zero.[19] This will then give rise to autonomous consumption-led, residential investment-led, government expenditures-led or export-led growth regimes – or, as long as long-run equilibrium has not been reached, some combinations of these regimes, maybe moderated by changes in the supermultiplier.

2.3 Implications for the macroeconomics of growth regime research
Summing up, following the Kalecki-Steindl approach, long-run growth is investment-driven, and positively affected by firms' growth/sales and profitability expectations, with the latter mainly affected by capacity utilisation, as well as profit shares in some models. Financing conditions, the autonomous part of technological progress, as well as the effect of

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[19] Models with more than one autonomous growth rate have been provided by Allain (2022), Freitas and Christianes (2020), Hein and Woodgate (2021), and Morlin (2022).

technological progress on investment, will also have positive effects, while the growth rate is negatively affected by the propensities to save out of different types of income. Furthermore, as Kalecki (1971, Chapter 13) has pointed out, growth is also affected by the dynamics of 'external sources' of demand, i.e. government deficits and export surpluses, which have positive effects on firms profits and profit rates, as shown above. Income distribution plays a major role in this approach, and there are several ways of integrating distribution-led growth: the capital-labour conflict leading to wage- vs. profit-led regimes, as well as the rentiers-management distribution conflict leading to normal or puzzling cases, and, under the condition of finance-dominated capitalism, to finance-burdened, profits without investment, or finance-led regimes. Of course, there can be introduced several other lines of distribution and respective regimes, for example regarding gender distribution. It should be clear that these regimes describe effects of changes in distributional model parameters on equilibrium capacity utilisation/demand and capital accumulation/growth. They do not imply that, for example, in a country with a wage-led demand and growth regime pro-labour distributional policies are applied, or that in a country with a finance-led growth regime pro-rentiers/shareholder policies are indeed implemented.[20] Demand and growth regime analysis based on the Kalecki-Steindl approach would thus have to focus on growth of the 'external sources' of demand, the determinants of investment and saving, and on the different dimensions of distributional change.

The Kalecki-Steindl approach has been criticised for assuming a variable rate of capacity in the long-run growth equilibrium, which implies that there should be an equilibrium, in which firms have not reached their target rate of capacity utilisation (Hein 2014, Chapter 11, Hein et al. 2012, 2013). This may be a problem for a long-run growth equilibrium in pure theory. However, it is not necessarily a problem for medium- to long-run growth regime analysis, because a long-run equilibrium in which firms operate at a constant and given normal rate of capacity utilisation might never be reached – and may thus not be present in the observable data. Alternatively, the target or normal rate of utilisation may be time varying and (partly) endogenous to the goods market equilibrium (or actual) rate of utilisation.[21]

From the Sraffian Supermultiplier approach, we get that growth is driven by non-capacity creating autonomous demand growth. Changes in income distribution and saving behaviour or in the inducement to invest or to import have only short-run level effects and have thus an impact on the growth path, but not the growth rate. The latter will be driven by the component of autonomous demand with the highest growth rate in the very long run. Growth regime analysis would thus have to focus on explaining growth of the different components of autonomous demand, while the analysis of distribution and the behavioural

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[20] See Lavoie and Stockhammer (2013) for a discussion of the difference between wage- or profit-led demand and growth regimes, on the one hand, and the applied policy stance with the likely outcomes, on the other hand.

[21] For the defence of the Kaleckian notion of an endogenous rate of utilisation beyond the short run, see the reviews in Hein (2014, Chapter 11) and in Hein et al. (2011, 2012). For recent contributions to the 'utilisation controversy', see, for example, Franke (2020), Girardi and Pariboni (2019), Nikiforos (2013, 2016, 2021), Setterfield (2019), and Setterfield and Avritzer (2020).

coefficients regarding consumption, investment and imports is shifted to the backseat with only short-run level effects, at least in theory.

However, the Sraffian supermultiplier growth theory has also faced some criticism (Nikoforos 2018, Skott 2019). First, the assumption that investment is fully induced in the long run may not pay sufficient attention to firms' animal spirits and expectations in a fundamentally uncertain world. Second, it remains somewhat unclear whether any component of autonomous demand is really fully autonomous from income dynamics in the long run. Third, the assumption that firms operate the capital stock at the target or normal rate of utilisation may be a requirement for a consistent long-run growth equilibrium, which, however, in the real world may never be reached – or the target rate may be time varying and partly endogenous. Therefore, empirical demand and growth regime analysis should also have an eye on the dynamics of the different inducements and propensities to spend out of current income determining the supermultiplier, and thus also on changes in income distribution.

Both the Kalecki-Steindl and the Sraffian supermultiplier variants of PK growth theory, face the further critique that they are treating income distribution as exogenous for the analysis of aggregate demand and growth dynamics (Skott 2017, 2019). However, on the one hand, there have been several Kaleckian models that endogenise distribution dynamics into their (rather short-run) macro models (Hein 2017a). On the other hand, treating distribution as exogenous in long-run growth theory opens up these approaches towards the integration of socio-institutional and power relationships affecting distribution. Institutions—i.e. 'the rules, laws, and customs that define acceptable social behaviour' (Cornwall and Cornwall 2001, p. 8)—and power relations also affect the behavioural coefficients in investment, consumption/saving and import functions. Therefore, in our view, the two PK approaches provide some sound theoretical macroeconomic foundations for historical empirical medium- to long-run growth regime analysis, reviewed in the following section.

3. The macroeconomics of finance-dominated capitalism and the co-existence of different demand and growth regimes

3.1. The macroeconomics of finance dominated capitalism

The changes in the structure, institutions and power relationships in modern finance-dominated capitalism have been reviewed and summarised in Guttmann (2016), Palley (2009, 2012, 2013, 2021a, 2021b), Sawyer (2013/14) and van der Zwan (2014), for example. From a PK macroeconomic perspective, these changes have had important implications for (1) income distribution, (2) investment in the capital stock, (3) consumption and (4) the build-up of global and regional (e.g. European) current account imbalances, as explained in Hein (2012, 2014, Chapter 10) and Hein and van Treeck (2010a), for example.[22]

1. With regard to distribution, financialisation has been conducive to a rising gross profit share, including retained profits, dividends and interest payments, and thus a falling labour income share, on the one hand, and to increasing inequality of wages and top management salaries and thus of wage dispersion and of personal or household incomes, on

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[22] See also Hein (2019, 2022), Hein and Mundt (2012, 2013), Stockhammer (2010, 2012, 2015), van Treeck and Sturn (2012, 2013), the contributions in Hein et al. (2015a, 2016), and several others.

the other hand (Hein 2012, Chapter 2, 2015). The features of finance-dominated capitalism have contributed to the falling labour income share since the early 1980s through three main channels: the falling bargaining power of trade unions, rising profit claims imposed in particular by increasingly powerful rentiers/shareholders, and a change in the sectoral composition of the economy in favour of the financial corporate sector at the expense of the non-financial corporate sector or the public sector with higher labour income shares (Dünhaupt 2017, Dünhaupt and Hein 2019, Hein et al. 2017a, 2017b, 2018, Kohler et al. 2019).

2. Regarding investment in the capital stock, financialisation has meant increasing shareholder power vis-à-vis firms and workers, the demand for an increasing rate of return on equity held by rentiers, and an alignment of management with shareholder interests through short-run performance-related pay schemes, such as bonuses, stock option programmes, and so on. On the one hand, this has imposed short-termism on management and has caused a decrease in management's animal spirits with respect to real investment in the capital stock and long-run growth of the firm and an increasing preference for financial investment, generating high profits in the short run. On the other hand, it has drained internal means of finance available for real investment purposes from non-financial corporations, through increasing dividend payments and share buybacks in order to boost stock prices and thus shareholder value. These 'preference' and 'internal means of finance' channels each have partially negative effects on firms' real investment in capital stock (Dallery 2009, Stockhammer 2004, 2005/6, Davis 2017, Orhangazi 2008, Onaran et al. 2011, Tori and Onaran 2018, and van Treeck 2008)

3. Regarding consumption, financialisation has generated an increasing potential for wealth-based and debt-financed consumption in some countries. This created the potential to compensate for the depressing demand effects of financialisation, which have been imposed on the economy via re-distribution and income-financed consumption and via the depressing impact of shareholder value orientation on real investment. Stock market and housing price booms have each increased notional wealth against which households were willing to borrow. Changing financial norms, new financial instruments (credit card debt, home equity lending), deterioration of creditworthiness standards, triggered by securitisation of mortgage debt and 'originate and distribute' strategies of commercial banks, made credit increasingly available to low-income, low-wealth households, in particular. This potentially allowed for consumption to rise faster than median income and thus to stabilise aggregate demand. But it also generated increasing debt-income ratios of private households (Barba and Pivetti 2009, Cynamon and Fazzari 2008, Guttmann and Plihon 2010, Kim 2013, 2016, Kim et al. 2015, van Treeck and Sturn 2012, 2013, van Treeck 2014).

4. The liberalisation of international capital markets and capital accounts in the period of finance-dominated capitalism has allowed for rising and persistent current account imbalances at the global, but also at the regional levels, in particular within the Eurozone (Akcay et al. 2022, Hein 2012, Chapter 6, 2014, Chapter 10, Hein and Martschin 2020, Hein and Mundt 2012, 2013, Stockhammer 2010, 2012, 2015, van Treeck and Sturn 2012, 2013). These rising current account imbalances were accompanied by rising foreign indebtedness of

the current account deficit countries, speculative capital movements, exchange rate volatilities and potential (and actual) currency crises.

The macroeconomic effects of finance-dominated capitalism through the first two channels, the distribution and investment channels, should be contractive, in particular in economies with a wage-led demand and growth regime. This would then generate finance-burdened regimes. However, the third and fourth channel, with expansionary effects via credit-financed consumption and residential investment, or, alternatively, via net exports and current account surpluses, may compensate for these depressing effects. This will then lead to profits without investment or even finance-led regimes, and hence to (seemingly) profit-led demand or even profit-led demand and growth regimes, dominated by debt-led private demand or export-led mercantilist dynamics. Government deficits may fulfil a similar role.[23]

3.2 The national income and financial accounting decomposition approach: sources and financing of demand and growth determining the different regimes

A first attempt at classifying demand and growth regimes under the conditions of the dominance of finance, income re-distribution at the expense of labour and low income households, and weak investment in the capital stock, which gives rise to profits without investment and seemingly profit-led demand regimes (but not profit-led growth regimes), is a national income and financial accounting decomposition approach. It looks at the sources of demand and at the way demand is financed. The approach was introduced by Hein (2011a, 2011b) and has then been used in several studies with slightly differing labelling of regimes for the period before the Global Financial Crisis and the Great Recession (2007-9).[24] In these studies, the following regimes have been distinguished: (1) an export-led mercantilist (ELM) regime, (2) a weakly export-led (WEL) regime, (3) a domestic demand-led (DDL) regime, and (4) a debt-led private demand (boom) (DLPD) regime. Empirically, these demand and growth regimes have been assessed by considering, first, the financial balances of the main macroeconomic sectors. These are:

- the private sector financial balance ($\mathrm{FB_P = S - I}$), as the difference between private saving (S) and private investment (I), and with the private household sector, the financial and non-financial corporate sectors as sub-sectors;

- the government sector financial balance ($\mathrm{FB_G = T - G}$), as the difference between tax revenues and social security contributions (T) and government expenditures (G), and

- the external sector financial balance ($\mathrm{FB_E = M - X + FI^{net}}$), as the difference of domestic imports (M) generating foreign sector revenues and domestic exports (X) which are equivalent to foreign sector expenditures. The external sector balance also includes the net revenues from the cross-border payments for factors of production,

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[23] See Hein (2012, 2014, Chapter 10, 2023, Chapter 8) for derivations of these regimes making use of small scale analytical Kaleckian distribution and growth models. For stock-flow consistent numerical simulation models see, for example, Belabed et al. (2018), Detzer (2018) and Prante et al. (2022).

[24] See also Hein (2012, Chapters 6 and 8, 2013/14) and Hein et al. (2012b). Morlin et al. (2022, p. 7) are thus wrong arguing that Baccaro and Pontusson (2016) have stimulated the PK research on growth models or regimes in advanced capitalist economies before and after the 2007-09 crises.

that is, wages and capital incomes, as well as cross-border transfers, which may be positive or negative for the external sector, of course (FI^{net}).

The sectoral financial balances of a country should sum up to zero, apart from statistical discrepancies, because a positive financial balance of one sector needs a respective negative financial balance of another sector – a creditor needs a debtor and vice versa:

(6) $FB_P + FB_G + FB_E = 0$

The second step in the determination of demand and growth regimes involves examining the growth contributions of the main demand aggregates. These are the growth contributions of private consumption (C), public consumption (G), as well as private and public investment (I), which sum up to the growth contribution of domestic demand, and finally the growth contribution of the balance of goods and services, i.e. of net exports (NX = X - M). The growth contributions of the demand aggregates should sum up to real GDP growth of the respective country:

(7) $\hat{Y}_t = \dfrac{dY_t}{Y_{t-1}} = \dfrac{dC_t}{Y_{t-1}} + \dfrac{dG_t}{Y_{t-1}} + \dfrac{dI_t}{Y_{t-1}} + \dfrac{dNX_t}{Y_{t-1}}.$

Therefore, looking at these two sets of indicators provides some information on the main sources of demand and growth, on how demand is financed, and countries can be allocated to the regimes applying the criteria summarised in Table 5.

Some recent studies have examined the shift of regimes from the period before the Global Financial Crisis and the Great Recession to the period after these crises for developed capitalist economies, as summarised in Table 6.[25] The following pattern has been found: Most ELM countries before the 2007-09 crises have maintained this regime or have become WEL in the course of and after the crises, and most WEL regimes before the crises kept this regime or even became ELM. Several DDL regimes before the crises moved towards WEL or even ELM regimes after the crises, with a few exception. Finally, DLPD countries before the crisis either shifted to WEL or even ELM regimes after the crisis. Alternatively, they turned towards DDL regimes stabilised by high government deficits. This polarisation of post-crisis regimes in the developed OECD countries, with ELM or WEL regimes, on the one hand, and DDL regimes stabilised by government deficits, on the other hand, has been accompanied by a tendency of major emerging capitalist economies to remain DDL or even move towards DLPD regimes, (Table 7).

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[25] Different allocations of countries to regimes across the studies are due to different time periods and slightly changing specifications of criteria.

Table 5: Classification of demand-led growth regimes according to sources and financing of demand components	
Export-led mercantilist (ELM)	• positive financial balances of the private sector, and the private household sector, • negative financial balances of the external sector, • positive balance of goods and services, • positive growth contributions of net exports.
Weakly export-led (WEL)	Either • positive financial balances of the private sector, • negative financial balances of the external sector, • positive balance of goods and services, • negative growth contributions of net exports. Or • negative but improving financial balances of domestic sectors, • positive but declining financial balances of external sector, • negative but improving net exports, • positive growth contributions of net exports.
Domestic demand-led (DDL)	• Positive financial balances of the private household sector and positive or balanced financial balances of the private sector as a whole, • balanced or positive financial balances of the external sector, • growth is almost exclusively driven by domestic demand, • around zero growth contribution of net exports.
Debt-led private demand boom (DLPB)	• negative or close to balance financial balances of the private sector, • positive financial balances of the external sector, • significant growth contributions of domestic demand, and private consumption demand in particular, • negative growth contributions of net exports.
Source: Based on Dünhaupt and Hein (2019, p. 458).	

Table 6: Shift of demand and growth regimes according to five studies on developed capitalist economies (DCEs) making use of the national income and financial accounting decomposition approach					
		Post 2007-09 crisis			
		Debt-led private demand (boom) (DLPD)	**Domestic demand-led with high public sector deficits (DDL)**	**Weakly export-led (WEL)**	**Export-led mercantilist (ELM)**
Pre-2007-09 crisis	**Debt-led private demand (boom) (DLPD)**		New Zealand (Hea) UK (Dea, H, Hea) USA (Dea, H, Hea) South Africa (Dea)	Australia (Hea) Greece (Dea, Hea, H/M) Portugal (Hea) Slovakia (Hea) Spain (Hea)	Estonia (Dea, D/H, Hea) Hungary (Hea) Ireland (Hea, H/M) Latvia (D/H) Spain (H, H/M)
	Domestic demand led (DDL)	Turkey (Dea)	France (Dea, H, Hea, H/M)	Italy (Dea, Hea) Poland (Dea, Hea) Portugal (Dea, H/M)	EA-12 (H, H/M) Italy (H/M) Hungary (Dea)
	Weakly export-led (WEL)		Canada (Hea)	Czech Rep. (Hea) Iceland (Hea) Norway (Hea)	Denmark (D/H, Hea) Slovenia (Hea)
	Export-led mercantilist (ELM)		Finland (Hea, H/M)	Austria (Hea) Belgium (H/M) Japan (Dea, Hea) Sweden (Dea, H, Hea)	Austria (H/M) Belgium (Hea) Germany (Dea, H, Hea, H/M) Korea (Hea) Luxembourg (Hea) Netherlands (Hea, H/M) Switzerland (Hea)
Notes: Dea: Dodig et al. (2016), 2001-08, 2008-14; H: Hein (2019), 1999-2007, 2008-16; D/H: Dünhaupt and Hein (2019), 1995-2008, 2009-16; Hea: Hein et al. (2021), 2000-08, 2009-16; H/M: Hein and Martschin (2020), 2001-09, 2010-19. Source: Based on Akcay et al. (2022, p. 83)					

Table 7: Shift of demand and growth regimes in emerging capitalist economies from 2000-2008 to 2009-2019, making use of the national income and financial accounting decomposition approach					
		Second period (2009-2019)			
		Debt-led private demand (DLPD)	Domestic demand-led with high public sector deficits (DDL)	Weakly export-led (WEL)	Export-led mercantilist (ELM)
First period (2000-2008)	Debt-led private demand (DLPD)	South Africa			
	Domestic demand led with high public sector deficits (DDL)	Turkey	India	Mexico	
	Weakly export-led (WEL)		Brazil		Russia
	Export-led mercantilist (ELM)		Argentina	China	
Source: Based on Akcay et al. (2022, p. 87)					

Although very basic, the national income and financial accounting decomposition approach is associated with several important insights for demand and growth regime research. First, it allows for the analysis of the structure of demand dynamics behind output dynamics (or the lack thereof) and to discover related imbalances, both nationally within countries and internationally between countries. Second, it has an eye on financial balances and thus on related debt dynamics, which may not be sustainable and lead to financial crisis, as in 2007-09. Third, taking these two dimensions together, global or regional imbalances are put into focus. It has been shown that the polarisation of current account deficit DLPD and current account surplus ELM economies was associated rising current account imbalances at the global scale, which has contributed to the severity of the Global Financial Crisis and the Great Recession. Furthermore, it has been pointed out that the post-crises period with the polarisation of DDL regimes, and partly DLPD regimes in emerging capitalist economies, on the one side, and WEL and ELM regimes, on the other side, is still related with considerable global current account imbalances – with severe risks for the global economy (Akcay et al. 2022, Hein 2019). Fourth, the demand and growth regime approach based on the decomposition of national income and financial accounting has been used to link finance-dominated capitalism with the post-crises stagnation tendencies, pointing out that each of the pre- and post-crises regimes has been a 'profits without investment' regime with weak capital

stock growth and productivity growth – and thus low potential growth (Hein 2019, 2022). Of course, in principle, this approach can be extended to include investment-led regimes, with high growth contributions of investment in the capital stock, as have been found in the recent decades in some emerging capitalist economies (Mertens et al. 2022).

The national income and financial accounting decomposition approach as such does not provide a theory of growth drivers. Since it is based on accounting conventions, it is compatible with different theories about growth drivers. However, it has to be pointed out that the authors applying this approach have usually embedded it into a theory of the macroeconomics of finance-dominated capitalism, as outlined in this paper, and have provided or referred to empirical indicators of the related growth drivers in their work, like distribution indicators, private household sector indebtedness, share and house price indices, indicators of international competitiveness, as can be seen, for example, already in the initial papers by Hein (2011a, 2011b), and which are compatible both with implications of the Kalecki-Steindl and the Sraffian supermultiplier PK demand-led growth theories.

3.3 A Sraffian supermultiplier growth decomposition: distinguishing between autonomous and induced demand dynamics

A step towards a systematic analysis of growth drivers has been provided by several authors making use of the Sraffian supermultiplier distribution and growth model outlined in Section 2. The empirical analysis thus applies the distinction between autonomous components of aggregate demand, i.e. credit-financed autonomous consumption, residential investment, government expenditures and exports, and the induced components, i.e. consumption out of income, investment and imports. GDP growth can then be decomposed into the direct and indirect contributions of the autonomous parts and the contributions of changes in the supermultiplier. Equations (4) or (5) can thus be rewritten and become:

(8) $\qquad \hat{Y}_t = \dfrac{dY_t}{Y_{t-1}} = \mu_t \dfrac{dZ_t}{Y_{t-1}} + d\mu_t \dfrac{Z_t}{Y_{t-1}}$,

with autonomous demand Z and the multiplier μ defined as in Section 2, and with $dZ_t = dC_{at} + dI_{at} + dG_{at} + dX_{at}$ and $d\mu_t = \dfrac{\mu_{t-1}\left(dc_t + d\beta_t - dm_t\right)}{1 - c_{t-1} - \beta_{t-1} + m_{t-1}}$. Such kind of growth decompositions have been used to explain the political economy of demand and growth dynamics of individual countries over time, like Freitas and Dweck (2013) for Brazil, Girardi and Pariboni (2016) for the USA, and Labat and Summa (2022) for Spain. Comparative multi-country studies have been presented by Morlin et al. (2022) for Germany, Japan, Sweden and the USA, by Passos and Morlin (2022) for five Latin American countries, Argentina, Bolivia, Brazil, Chile and Mexico, and by Campana et al. (2022) for Brazil, Russia, India and China, the BRICs countries, in which also pre- and post-2007-09 crises periods are distinguished and compared. As pointed out in Section 2, this approach provides the grounds for a systematic inclusion of institutional and power factors which affect the dynamics of the autonomous demand components, but also the supermultiplier. Indeed, these studies have found that also

in a medium- to long-run perspective, the values of the supermultiplier are not constant and may show some trends driven by changes in income distribution and behaviour parameters. Also the relative importance of the different components of autonomous demand changes over time, and, of course, varies among countries.

With this kind of analysis the sources of demand and growth derived from the national income and financial accounting decomposition approach can be further decomposed into changes in autonomous and induced demand components – and the forces behind the changes in demand and growth regimes derived by the basic accounting approach can be traced, as shown in Campana et al. (2022) for example. We thus we view these two approaches as complementary and not as competitive or contradictory.

Furthermore, each of the studies mentioned above has discussed changes in institutions and power relationship to explain the variations in dynamics of autonomous and induced components of demand for the examined countries, albeit in more or less complete ways which require extensions. What is missing so far, furthermore, is a larger scale analysis which allows for exploring differences and similarities among countries and country groups, as well as exploring some regional or global patterns, and relating these to those found by the basic national income and financial accounting decomposition approach.

3.4 Focussing on demand/growth drivers
A third type of PK demand and growth regime studies have explicitly focussed on growth drivers. Different lenses have been applied in this context.

3.4.1 The type of redistribution and the presence/absence of relative income concerns for consumption determine the regime
Behringer and van Treeck (2018, 2019) have made use of the traditional VoC approach in order to explain debt-led consumption-driven and export-driven regimes, with a focus on the period before the 2007-09 crises. In their view, it is the type of redistribution, rooted in the institutional structure of an economy, which then determines the demand and growth regime. Coordinated market economies (CME), with organised labour markets, relatively strong trade unions, more regulated bank-based financial systems with tighter creditworthiness standards, an important role of public provision of positional goods (education, health, housing), typically Germany, have seen a fall in the wage share in the context of wage moderation, but only small increases in household income inequality and only slight increases in top income shares, and have generated export-led regimes with current account surpluses. Liberal market economies (LME), with flexible labour markets and weak trade unions, more deregulated market-based financial systems with loose creditworthiness standards, little relevance of public provision of positional goods, typically the USA, have seen considerable increases in top income shares, and a more stable functional income distribution, because high management salaries enter into the wage share. They have generated current account deficits and the dominance of a debt-financed consumption-led regime. The latter is explained by the dominance of relative rather than absolute income concerns for the determination of households' consumption expenditures, i.e. 'expenditure cascades' (Frank et al. 2014) in the middle and upper-middle

income class, as we have explained in Section 2. They thus generate profits without investment regimes (and seemingly profit-led demand regimes) driven by debt-financed consumption expenditures.

Although we see the merits in looking at the type of redistribution in order to explain the different demand regimes and to link this with the social and institutional structures of the economy, we feel that Behringer and van Treeck's (2018, 2019) line of reasoning is somewhat incomplete and too narrow. The inherent instabilities, both within debt-financed consumption and export-led regimes, have received little attention. Endogenous collapses of and changes in regimes have not been considered. Furthermore, while Behringer and van Treeck (2018) provide panel econometric support for their main claims, estimating current account equations and equations for the private households sector financial balances, other PK authors did not find support for direct effects of personal income inequality on private consumption or on household debt (Moore and Stockhammer 2018, Stockhammer and Wildauer 2016, 2018).

3.4.2 FDI- and tax competition-led growth regimes and strategies in commercialised states
Another lens assessing in particular growth drivers and also growth strategies of small open economies, exposed to foreign direct investment (FDI) inflows, profit shifting of multinational corporations (MNCs) and tax competition of 'commercialised states', has been proposed by Woodgate (2020, 2021a).[26] Woodgate (2021a), making use of a simple demand-led model driven by autonomous expenditures, shows that foreign-targeted state aid (i.e. lower tax rates or subsidies for MNCs) may lead to a kind of beggar-thy-neighbour, 'FDI-led' demand and growth regime in a single economy under certain conditions. In particular there has to be little policy competition from other countries. Therefore, such regimes seem to be exceptional cases, mainly in those countries and special economic zones that apply state aid in order to attract MNCs first, benefitting from first mover advantages. State aid for the attraction of MNCs is thus unlikely to be an effective growth strategy under the conditions of intense state competition for MNCs. Woodgate (2020) makes as similar argument introducing the notion of a 'tax-competition-led' demand and growth regime. In theory, an economy can be tax-competition-led', when lowering the effective corporate tax rate increases demand through higher MNC investment over-compensating for the negative effects of lower tax revenues on government expenditures. Again, a tax-competition-led regime suffers from a fallacy of composition: If applied by only a single country it may stimulate growth in that country, but applied by several countries, it will lead to a race to the bottom, undermining demand and growth in all the countries involved. We will thus see a 'paradox of tax competition'. Woodgate's contributions amend the PK demand-led growth approaches by a theory – and empirical applications – of production location (see also Woodgate 2022). This seems to be relevant in particular for the assessment of demand and growth regimes of small open economies, dominated by FDI inflows and MNCs' profit shifting.

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[26] Woodgate (2021b) also shows that for such economies dominated by MNEs and FDI, like Ireland, national income and financial accounting data may give misleading results when used for wage-/profit-led demand and growth regime estimations or for identifying DLPD, DDL, WEL or ELM regimes.

3.4.3 Regime shifts and growth drivers

As pointed out above, the authors making use of the national income and financial accounting decomposition approach have usually embedded this approach into the consideration of growth drivers, too, looking at income distribution, housing and financial asset prices, private households' debt-income ratios, international competitiveness indicators, etc.. This is also true for those studies concerned with the regime shifts in the course of and after the 2007-09 crises. Hein (2019), Hein and Martschin (2020) and Hein et al. (2021) have argued that the type of shift of the previously DLPD economies has depended, on the one hand, on the requirements of private sector deleveraging after the financial crisis, and, on the other hand, on the ability and willingness to run deficit-financed and stabilising fiscal policies. Hein et al. (2021) have also related these shifts of macroeconomic regimes to the welfare models approach based on Esping-Andersen (1990) and Hay and Wincott (2012), who distinguish between the Anglo-Saxon/liberal, the Continental European/cooperative, the Scandinavian, the Central and Eastern European, and the Mediterranean welfare models. According to these contributions, the institutional constraints imposed on national fiscal policies in the Eurozone, the absence of relevant fiscal policies at the Eurozone level, and the turn towards austerity policies when the Eurozone crisis started in 2010, including substantial downsizing of welfare provision in some crisis countries, explain to a large extent, why in particular European DLPD countries turned WEL or ELM after the Global Financial Crisis and the Great Recession. The collapse of domestic demand caused by the requirements for the private sectors to deleverage was reinforced by austerity policies of the public sector, which made imports collapse, net exports rise and the current account in these countries improve, and in several cases even turn positive. Those DLPD countries before the crisis, which were able to make use of expansionary deficit-financed fiscal policies, in particular the UK and the USA, however, compensated private deleveraging by rising public deficits. This stabilised aggregate demand in their countries, and through the import channel also in the global economy.[27]

Kohler and Stockhammer (2022) have provided a more systematic cross-country analysis of the underlying growth drivers before and after the 2007-09 crises in 30 OECD countries. To explain the emergence of the post-crises patterns, they consider the requirements of deleveraging in the context of a financial boom-bust cycle, the role of fiscal policies and the relevance of price and non-price competitiveness for exports. Generalising the claims being made in Hein (2019), Hein and Martschin (2020), and Hein et al. (2021), they find that the former two drivers have had a major role to play, i.e. the need for deleveraging generated by high private debt and the (lack of) expansionary deficit-financed fiscal policies. They also find that differences and changes in international price competitiveness are not systematically related to growth performance and thus have been overstated in some of the previous CPE literature on macroeconomic regimes. Furthermore, taking the regime distinction in the national income and financial accounting decomposition approach as

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[27] See Hein (2023, Chapter 8) for modelling these regime shifts in making use of a small scale analytical Kaleckian distribution and growth model. For regime shifts in stock-flow consistent numerical simulation models see, for example, Prante et al. (2022).

referring to growth drivers, they abandon this regime distinction, which had been developed for the pre-crisis period, and rather focus on the distinction of the different growth drivers for the clustering of countries in the post-crises period.

Jungmann (2021) has extended and applied the growth driver approach by Kohler and Stockhammer (2022) to a set of 19 emerging capitalist economies, including indicators for income distribution as well as commodity price dynamics as further determinants of GDP growth. The study has found mixed results. This seems to be in line with the findings of Akcay et al. (2022) regarding the different pattern of regime changes of emerging capitalist economies as compared to advanced capitalist economies referred to above.

While the selection of potential growth drivers by Kohler and Stockhammer (2022) and Jungmann (2021) can surely be justified on PK theoretical grounds, they cannot be considered to be comprehensive, neither from a Kalecki-Steindl nor from a Sraffian supermultiplier growth theory perspective. The approach could thus be expanded and include a set of potential growth drivers consistent with these variants of PK distribution and growth theory.

3.4.4 Macroeconomic policy regimes and demand and growth regimes
Hein and Martschin (2021) have kept the typology for macroeconomic regimes in finance-dominated capitalism, based on the national income and financial accounting decomposition approach, and have focussed on macroeconomic policies as growth drivers. In an attempt at understanding the role of macroeconomic policies for regime shifts of the big four Eurozone countries, Germany, France, Italy and Spain, and extending the policy dimension of the research by Kohler and Stockhammer (2022), they have linked this approach with the PK notion of macroeconomic policy regimes developed and applied in the early 2000s (Hein and Truger 2005, 2009, Herr and Kazandziska 2011).[28]

The concept of a 'macroeconomic policy regime' has been used to assess international and intertemporal comparative differences in macroeconomic performances of countries or regions. It describes the set of monetary, fiscal, and wage or income policies, as well as their coordination and interaction, against the institutional background of a specific economy, including the degree of openness and the exchange rate regime. This concept supposes that macroeconomic policies and aggregate demand have not only short-run effects on economic performance, as in the NCM, but also have a long-run impact on output, income, employment, inflation, distribution and growth, through various channels, as in the PK distribution and growth models presented in Section 2. The PK macroeconomic policy mix proposed by Hein (2023, Chapter 6) and Hein and Stockhammer (2010), based on Kalecki-Steindl PK models, is used as a benchmark supporting a stable DDL regime, whereas deviations from this benchmark contribute to moving to the long-run unstable DLPD or WEL regimes with detrimental long-run effects on macroeconomic performance.

For assessing the effect of monetary policies of the central bank, the focus is on the relationship between long-term real interest rates and real GDP growth. Monetary policy conducive to employment and growth and to a stable DDL regime should target a nominal

[28] Herr and Priewe (2005), Kazandziska (2019) and Priewe and Herr (2005) have extended this approach to emerging capitalist economies, including further features, like the financial system or industrial policies

long-term interest rate (i) slightly above the rate of inflation ($\hat{p}$) but below nominal GDP growth ($\hat{Y}^n$), or a slightly positive real rate of interest ($i_r = i - \hat{p}$) below real GDP growth ($\hat{Y} = \hat{Y}^n - \hat{p}$) – in the Eurozone for the respective countries:

(9) $\hat{p} \le i \le \hat{Y}^n \qquad \Leftrightarrow \qquad 0 \le i_r \le \hat{Y}$.

If this target is achieved, real financial wealth of rentiers is protected while deficit sectors, the corporations and the state are not forced to run primary surpluses, and to squeeze wages or retained profits in the case of the corporations or to use tax revenues in order to stabilise the respective debt-income ratios.

Wage policies conducive to a stable DDL regime would have to stabilise the inflation rate, as well as functional income distribution. Therefore, it is checked whether unit labour costs have grown at the target rate of inflation, the ECB target rate for the Eurozone as a whole. This means that nominal wages (w) should rise according to the sum of long-run average or trend growth of labour productivity ($\hat{y}$) for the (Eurozone member country) economy as a whole plus the target rate of inflation ($\hat{p}^T$), so that nominal unit labour costs ($nulc = w/y$) grow at the target rate of inflation:

(10) $\hat{w} = \hat{y} + \hat{p}^T \qquad \Leftrightarrow \qquad \hat{w} - \hat{y} = \hat{p}^T$.

Furthermore, it is taken into account that rising or falling nominal unit labour cost growth will not proportionally affect the rate of inflation because of incomplete pass-through. Therefore, also changes in functional income distribution, i.e. in the labour income share, are considered. For the assessment of the effects of wage policies via functional income distribution, the type of distribution-led demand and growth regime is taken into account.

For fiscal policy, which should stabilise aggregate demand at non-inflationary full employment in a stable DDL regime, government financial balances and the financial balances of the other sectors can be examined, as indicated by equation (6). However, since this equation is an accounting identity, it does not allow us to draw clear conclusions regarding deliberate and discretionary fiscal policy interventions, as included in the PK macroeconomic policy mix for real government expenditures (G_r):

(11) $G_r = G_{r0} + G_{r1}\left(e^T - e\right), \qquad G_{r0} \ge 0, G_{r1} > 0$,

with G_{r0} as the expenditure level to reach a target employment rate e^T associated with non-inflationary full employment, and G_{r1} as the reaction coefficient towards deviations of the employment rate from the target rate. Hein and Martschin (2021) use the changes of the cyclically adjusted budget balance-potential GDP ratio (CBR) of the government and relate this to the change in the output gap to assess the short-run discretionary responsiveness of fiscal

policies.[29] Furthermore, the share of public investment in GDP as an indicator for the growth orientation of fiscal policies is considered.

Finally, Hein and Martschin (2021) also consider the open economy conditions, since they will have an impact on the effectiveness of domestic macroeconomic policies, on the one hand, and will also directly affect the demand and growth regime, as explained in Section 2. They look at the degree of openness measured by export and import shares of GDP, the development of price competitiveness, measured by real effective exchange rates, as well as an economic complexity index as indicator for non-price competitiveness.

Applying these indicators, Hein and Martschin (2021) have shown how the macroeconomic policy regimes in the four Eurozone countries, Germany, France, Italy and Spain, have contributed to the respective demand and growth regimes before and after the 2007-09 crises. Ianni (2022) has recently provided a similar analysis for Argentina, Klassen (2022) for Canada, and Kühnast (2022) for Hungary and Poland. A larger scale analysis that allows for exploring differences and similarities among countries and country groups, as well as exploring some regional or global patterns, is missing so far for the macroeconomic policy regime approach.

3.5 Links between the different levels of PK comparative demand and growth regime analysis

We would argue that these three levels of analysis presented in this section, the national income and financial accounting as well as the Sraffian supermultiplier growth accounting decomposition approaches and the different lenses of looking at growth drivers, in principle, are not mutually exclusive or even contradictive, but that they rather complement each other. Both the national income and financial accounting decomposition and the Sraffian supermultiplier growth decomposition approaches as such do not include an analysis of growth drivers and can thus be linked with the different types of growth driver lenses. For the latter, on the one hand, some more model-guided and comprehensive approaches would be helpful, as would be more multi-country analyses to detect regional and global patterns, for instance. On the other hand, the applied growth driver lens may depend on the research question at hand and narrow approaches may thus be justified, too. However, they should be based on the more basic income and financial accounting decomposition approaches to avoid unnecessary accounting inconsistencies.

4. Conclusions

In this paper we have reviewed PK contributions to demand and growth regime analysis. We have distinguished the Kalecki-Steindl and the Sraffian supermultiplier approaches as relevant theoretical foundations for demand and growth regime research. In the Kalecki-Steindl theories demand and growth are investment-driven and distribution-led in several respects.

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[29] Hein and Martschin (2021) are not directly examining equation (11) and do not identify potential output with the target full employment level of output, because of the well-known empirical measurement problems and endogeneity features of potential output (Heimberger and Kapeller 2017). Therefore, they do not look at the levels of CBRs and output gaps, but only at the annual changes.

We have outlined the distinction between wage-/profit-led (and 'seemingly' profit-led regimes) demand and growth regimes, as well as wage-/profit-led productivity and overall growth regimes. Explicitly integrating credit and finance, normal/puzzling cases with respect to interest rate changes, and with shareholder dominance, finance-led/finance-burdened demand and growth regimes, with the profits without investment regime as an important intermediate case. In the Sraffian supermultiplier theories, long-run growth is driven by autonomous growth of non-capacity creating components of aggregate demand, i.e. autonomous consumption, residential investment, government expenditures and/or exports. Investment dynamics and changes in distribution may only affect short-run demand and output and thus the traverse towards the long-run growth equilibrium and hence the growth path. We have argued that although there are substantial differences between both approaches regarding the determination of long-run equilibrium growth, when it comes to assessing out of equilibrium growth episodes, these approaches have a lot in common and can be used as macroeconomic foundations for the analysis of demand and growth regimes.

Based on these theoretical foundations, we have reviewed different ways of historical empirical analyses of the co-existence of different demand and growth regimes in the current period of neoliberal and finance-dominated capitalism. We have distinguished, first, a basic national income and financial accounting decomposition approach, second, a Sraffian supermultiplier inspired growth decomposition approach focussing on autonomous and induced components of demand, and, third, several lenses of looking at growth drivers, i.e. the type of re-distribution and the relevance of relative income effects on consumption, FDI and tax competition, requirements of deleveraging in the context of a financial boom-bust cycles, the role of fiscal policies and the relevance of price and non-price competitiveness for exports, amended by redistribution trends and commodity price cycles, and finally the full macroeconomic policy regime, i.e. the stance of monetary, fiscal and wage/incomes policies, their interaction and the international environment.

We have argued that these three levels of analysis are, in principle, not mutually exclusive or even contradictive, but that they rather complement each other. Both the national income and financial accounting and the Sraffian supermultiplier growth decomposition approaches as such do not include an analysis of growth drivers and can thus be linked with different lenses of looking at growth drivers. For the latter, on the one hand, some more model-guided and comprehensive approaches, based on the behavioural functions of the Kalecki-Steindl or the Sraffian supermultiplier models would be helpful, as would be more multi-country analyses to detect regional and global patterns, for instance. On the other hand, the applied growth driver lens may depend on the research question at hand and narrow approaches may thus be justified, too. In particular the PK analysis of growth drivers provides several links with CPE and IPE approaches, when it comes to the introduction of the political economy dimension, like social blocs, growth coalitions, changes in institutions favouring certain type of redistribution and economic policies, etc. (Amable 2016, 2018, Baccaro and Pontusson 2019, 2022), while the national income and financial accounting, as

well as the Sraffian supermultiplier growth accounting decomposition approaches provide the consistent macroeconomic foundations for such syntheses.[30]

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[30] See Akcay and Jungmann (2022), Campana et al. (2022), Kühnast (2022), Mertens et al. (2022), and Stockhammer et al. (2016) as some recent examples for such cross-over work of PKE and CPE/IPE.

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