Financialisation, varieties of macroeconomic regimes and stagnation tendencies in a stylised Kaleckian model

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Abstract

In this contribution, we review the research on the variety of macroeconomic demand and growth regimes in finance-dominated capitalism, on the regime shifts in the course of and after the 2007-09 crises, the drivers of these shifts and on the emerging stagnation tendencies. Results of this research are integrated into a stylised Kaleckian distribution and growth model, which allows to derive the pre-crisis regimes and the following regime shifts. By means of endogenising productivity growth into that model, we also show that post-crises stagnation tendencies – and falling potential growth – can be explained by those financialisation features generating low capital stock growth, i.e. depressed animal spirits of management of non-financial corporations, high propensities to save out of the different types of income after the crises, low government expenditure and deficit rates, in particular in the export-led mercantilist countries, and high profit shares. The latter has an independent depressing effect on innovation activities of firms and on productivity growth, too, which is also negatively affected by falling government expenditures on R&D and education.

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1. Introduction

Tom Palley was among the first to link financialisation, the Global Financial Crisis and the Great Recession 2007-09 with the following stagnation tendencies in US-type capitalism, several years before the issue of 'secular stagnation' was re-introduced to mainstream macroeconomics by Summers (2014, 2015). In his book *From Crisis to Stagnation: The Destruction of Shared Prosperity and the Role of Economics* addressing a broader audience, Palley (2012) explains that financialisation and the crises are rooted in the neoliberal growth model that has dominated since the late 1970s/early 1980s and succeeded the Keynesian virtuous circle growth model of the golden age period of the 1950s and 1960s. From his 'structural Keynesian' perspective, in this neoliberal policy model, workers were 'boxed' and squeezed by shrinking government intervention, abandonment of full employment policies, increasing labour market flexibility and globalisation of goods and financial markets (Palley 2012, p. 39). This caused income redistribution at the expense of labour and low and middle income households and harmed income-financed demand generation. Together with the liberalisation and deregulation of the financial sector, debt-financed private demand became the major source for demand and growth, generating the well-known indebtedness problems that triggered the 2007-09 crises. This is analysed in more detail in Palley's (2013) book on *Financialisation: The Economics of Finance Capital Formation* targeting the academic specialists' audience. When then the crises 2007-09 hit and the debt bubbles burst, the stagnation tendencies incorporated in the neoliberal policy model dominated again. What is contained in Tom's work is very much in line with my own post-Keynesian assessment of the *Macroeconomics of Finance-dominated Capitalism* (Hein 2012), although I have to admit that I made the immanent post-crises stagnation tendencies contained in that approach only explicit somewhat later in Hein (2016, 2019).

Both Tom and I agree that financialisation or finance-dominated capitalism is closely linked with or based on the neoliberal economic policy project that has dominated the advanced capitalist economies since the late 1970s. It can thus be viewed as a particular variety of capitalism (VoC), as Tom calls it the introduction to his *Neoliberalism and the Road to Inequality and Stagnation* (Palley 2021, p. 3). In his work, Tom has focussed more on the historical succession of the VoCs leading to the neoliberal stage, with a focus on the US economy, as explicitly pointed out also already in Palley (2009). He has also addressed some specific macroeconomic policy problems contained in the institutional setup of the Eurozone in some of his papers, for example in Palley (2011, 2017). However, he does not provide a systematic analysis of the varieties and complementarities of macroeconomic regimes within finance-dominated capitalism, linked to the varieties of financialisation. That is what other post-Keynesian authors, like Engelbert Stockhammer (2012, 2015) and myself, have focussed on more intensively (Hein 2011, 2012, Chapters 6 & 8, Hein and Mundt 2013, Hein et al. 2012). In the more recent work, the focus has then turned to the change of regimes in the course and after the 2007-09 crises and the related tendencies towards stagnation (Dodig et al. 2016, Dünhaupt and Hein 2019, Hein 2019, Hein and Martschin 2020, 2021, Hein et al. 2021).

In my contribution to this well-deserved Festschrift for Tom Palley, I provide an account of this line of research, which I see as complementary to Tom's work. In Section 2, I briefly

introduce the concept of demand and growth regimes in finance-dominated capitalism and the typology of regimes used in the following sections. Section 3 then contains a condensed review of the empirical results on demand and growth regimes before the 2007-09 crises, the shift of regimes in the course and after the crises, and the underlying drivers of regime shifts. In Section 4, I will present a stylised Kaleckian distribution and growth model, which allows us to derive the different regimes, the regimes shifts and the emanating tendency towards stagnation. In Section 5, I will briefly summarise.

2. The concept of demand and growth regimes in finance-dominated capitalism

According to Palley (2013, p. 1), 'financialization corresponds to financial neo-liberalism which is characterized by domination of the macro economy and economic policy by financial sector interests' and he adds that 'financialization is a particular form of neoliberalism.' As explained and summarised in my own work (Hein 2012, 2014, Chapter 10), from a macroeconomic perspective, the dominance of finance has 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.

With respect to income distribution, financialisation has been associated with falling wage shares, rising top income shares and rising inequality of household incomes in general.[1] Furthermore, financialisation has caused lower investment in the real capital stock. Shareholder power vis-à-vis firms and workers increased, shifting managers' objectives from long-run growth of the firm to boosting short-term profitability through financial activities, on the one hand. On the other hand, raising share prices through dividend payments and share buybacks constrained internal funds available for real investment purposes.[2] These two features of finance-dominated capitalism have each had partially negative effects on aggregate demand and growth; directly through the decrease in investment in the capital stock, and indirectly through the re-distribution of income to groups with lower propensities to consume in mostly wage-led economies.[3]

Against this background two extreme regimes have developed. In some countries, the shortfall in investment and income-financed consumption has been compensated by wealth-based and debt-financed consumption, which has been facilitated by the deregulation of the financial sector, as has been analysed in detail in Palley (2012, 2013) for the US, among several others. Other countries facing rising income inequality and dampened real investment have been relying on net exports to generate growth, such as, for example, Germany (Detzer et al. 2017, Detzer and Hein 2016). The current account deficits of the debt-led model have been matched by the current account surpluses of the export-driven model. Financialisation

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[1] See Hein (2015) and Kohler et al. (2019) for overviews on the empirical evidence of the effects of financialisation on income distribution.

[2] See Davis (2017) for a recent review of empirical evidence on the effects of financialisation on investment in the capital stock.

[3] Econometric research based on demand-driven post-Kaleckian distribution and growth models applying the single equation estimation approach has shown that most of developed capitalist economies tend to be wage-led, that is a falling wage share will dampen aggregate demand and growth (Hartwig 2014, Hein 2014, Chapter 7, Onaran and Galanis 2014).

contributed to these developments, because the deregulation and liberalisation of international capital markets and capital accounts has allowed current account imbalances to persist and deficits to be financed over longer periods.

The variety of demand and growth regimes under finance-dominated capitalism can be analysed by looking at the sources of demand and at the way demand is financed, as introduced by Hein (2011), and then used in several studies, among them those reviewed in Section 3. First, the financial balances of the main macroeconomic sectors are considered, i.e. the private sector financial balance with the private household sector, the financial and non-financial corporate sectors as sub-sectors, the government sector financial balance and the external sector financial balance. The sectoral financial balances of a country should sum up to zero, 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. Second, the growth contributions of the main demand aggregates are examined. These are the growth contributions of private consumption, public consumption, as well as private and public investment, which sum up to the growth contribution of domestic demand, and finally the growth contribution of the balance of goods and services. The growth contributions of the demand aggregates should sum up to real GDP growth of the respective country. The following regimes have been distinguished:

The 'debt-led private demand boom (DLPD)' regime is characterised by deficits of the private domestic sectors as a whole, which are, on the one hand, driven by corporate deficits and, on the other hand, by negative or close to zero financial balances of the private household sector. The latter implies that major parts of the private household sector have negative saving rates out of current income and finance these deficits by increasing their stock of debt or by decreasing their stock of assets. The deficits of the private domestic sectors are usually mirrored by positive financial balances of the external sector, i.e. by current account deficits of the domestic economy. Growth is mainly driven by private domestic demand, and private consumption demand in particular, to a large degree financed by credit, while the balance of goods and services negatively contributes to growth.

The 'export-led mercantilist (ELM)' regime shows positive financial balances of the private domestic sectors as a whole, which are mainly matched by negative financial balances of the external sector, indicating current account surpluses. There are high growth contributions of the positive balance of goods and services, and thus, rising net exports and current account surpluses, and small or even negative growth contributions of domestic demand.

The 'weakly export-led (WEL)' regime either shows positive financial balances of the domestic sectors, negative financial balances of the external sector, and hence current account surpluses, but negative growth contributions of the balance of goods and services and thus falling net exports and current account surpluses. Alternatively, we may have negative financial balances of the domestic sectors, positive financial balances of the external sector, and hence current account deficits, but positive growth contributions of the balance of goods and services, and thus improving net exports and hence falling current account deficits.

The 'domestic demand-led (DDL)' regime is characterised by positive financial balances of the private household sector, while the government and, to some extent, the corporate sector are running deficits. The external sector is usually roughly balanced. Domestic demand contributes positively to growth (without being driven by credit-financed private consumption) and there are slightly negative or positive growth contributions of the balance of goods and services.

3. Demand and growth regimes before the 2007-09 crises, the change in regimes in the course of and after these crises, and the tendency towards stagnation

Whereas the initial studies on demand and growth regimes in finance-dominated capitalism focussed on the variety of regimes leading up to the 2007-09 crises, some recent studies have examined the shift of regimes from the period before the crises to the period after these crises for developed capitalist economies:[4] Dodig et al. (2016) for 15 OECD countries, Dünhaupt and Hein (2019) for three Baltic Sea countries, Hein (2019) for six OECD countries and the initial Eurozone (EA-12), Hein and Martschin (2020) for 11 initial Eurozone countries and the EA-12 as a whole, and Hein et al. (2021) for 30 OECD countries. The following pattern has been found, as shown in Table 1: ELM countries before the 2007-09 crises have mainly maintained this regime or have become WEL in the course of and after the crises. The only exception is Finland, which turned DDL. WEL regimes before the crises kept this regime or even became ELM, Canada being the exception, which moved towards DDL, stabilised by government deficits. DDL regimes before the crises moved towards WEL or even ELM regimes after the crises. The only exceptions are France, which remained DDL, and Turkey, which has shown some indication of a DLPD regime after the crises. Finally, DLPD countries before the crisis either shifted to WEL or even ELM regimes after the crisis, or they turned towards DDL regimes stabilised by high government deficits.

As argued by Hein (2019), Hein and Martschin (2020) and Hein et al. (2021), the type of shift of the previous DLPD economies has depended on the requirement of private sector deleveraging after the financial crisis, as well as on the ability and willingness to run deficit-financed and stabilising fiscal policies. 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, therefore, explain to a large extent, why in particular European DLPD countries turned ELM (or WEL) after the crises (Hein and Martschin 2020). Those DLPD countries before the crisis, which were able to make use of expansionary deficit-financed fiscal policies, in particular the UK and the US, however, compensated private deleveraging by rising public deficits, thus stabilising aggregate demand in their countries and turning toward a domestic demand-led (DDL) regime stabilised by public deficits (Hein 2019).

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

Table 1: Shift of demand and growth regimes according to five studies on developed capitalist economies

		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) Hungary (Dea) Italy (H/M)
	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: Akcay et al. (2022, p. 83)

Kohler and Stockhammer (2022) have recently 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 different post-crises regimes, 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. They find that the former two drivers have had a major role to play, whereas differences and changes in international price competitiveness have been overstated in some of the previous literature on macroeconomic regimes. Kohler and Stockhammer (2022) abandon the regime distinction, which has 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-crisis period.

Hein and Martschin (2021) have kept the typology for macroeconomic regimes in finance-dominated capitalism and have linked this approach with the post-Keynesian notion of macroeconomic policy regimes (Hein and Truger 2005, 2009, Herr and Kazandziska 2011). A 'macroeconomic policy regime' 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 or the exchange rate regime. Applying indicators for the stances of monetary and fiscal policies, for wage policies and income distribution, and for price and non-price competitiveness, Hein and Martschin (2021) have shown for the four largest Eurozone countries, France, Germany, Italy, and Spain, how the country-specific macroeconomic policy regimes have supported the shift (or non-shift) of macroeconomic regimes from the pre- to the post-crises period.

The 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, as has recently been analysed by Akcay et al. (2022). As a result, from a global perspective, the huge current account imbalances before the 2007-09 crises have been slightly reduced in and after these crises. However, they are still much more pronounced than in the 1990s and the early 2000s (Figure 1). The high current account surpluses by the ELM countries, Germany, Italy, Spain, and the Eurozone as a whole, Sweden, Japan, but also China and Russia, are matched by current account deficits of domestic demand-led economies with high public sector deficits, in particular the USA, the UK and France, and furthermore of emerging market and commodity exporting countries, like Argentina, Australia, Brazil, Canada, India, South Africa and Turkey.

The risks of the global situation which has emerged in the course and after the 2007-09 crises are obvious. If ever more economies, like currently the whole Eurozone, move towards an ELM regime, the world economy will face an aggregation problem. It will become increasingly difficult to generate the related current account deficits in other regions of the world. Stagnation tendencies are then the inescapable consequences of this failure of demand generation and demand management at the global level.

**Figure 1: Current account balance, major countries, 1991-2020, in billions of US dollars**
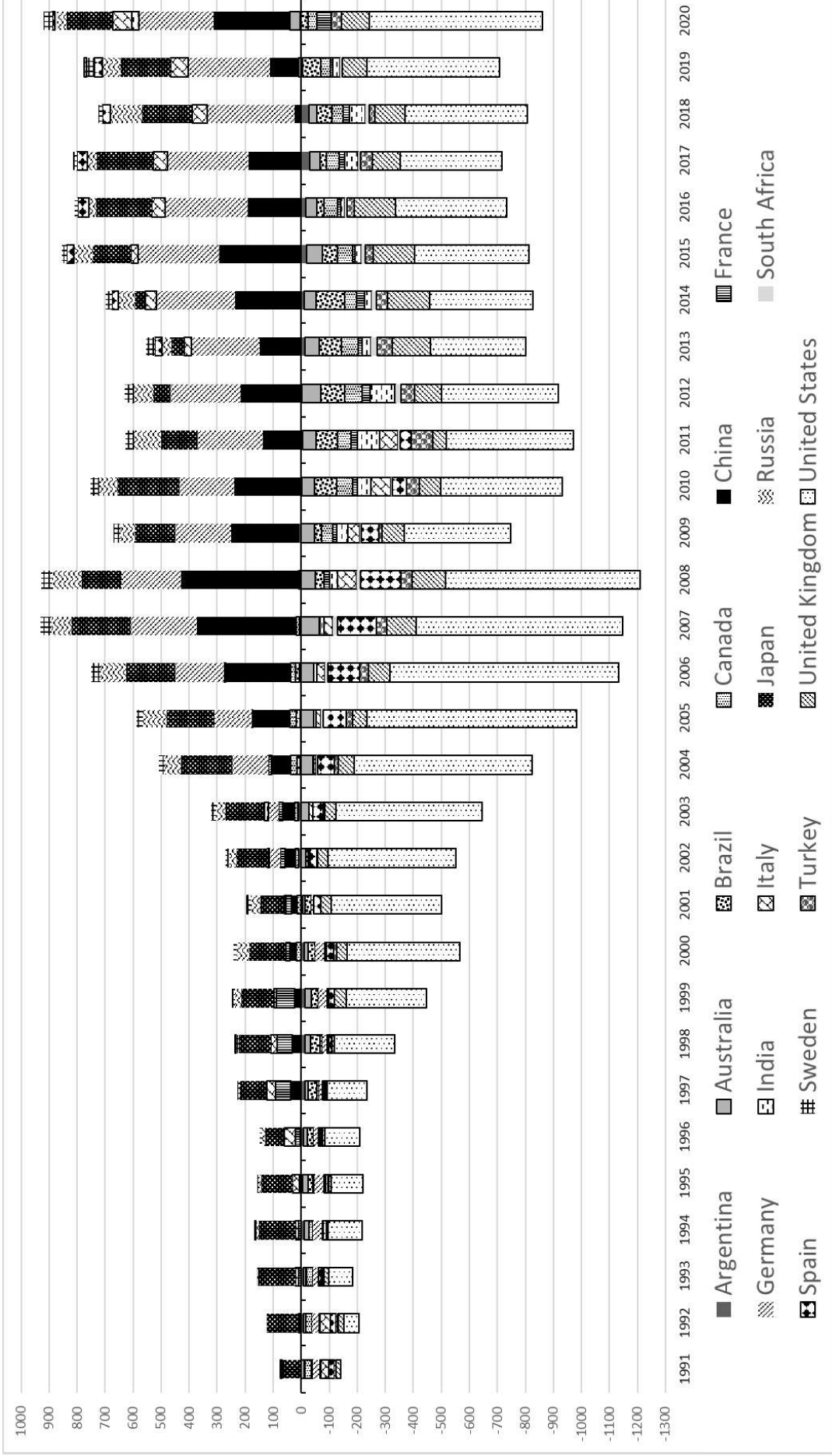
Source: IMF (2021), author's presentation

Figure 2: Growth rate of the real net capital stock (at 2015 prices), selected countries, 1961 – 2020, in per cent
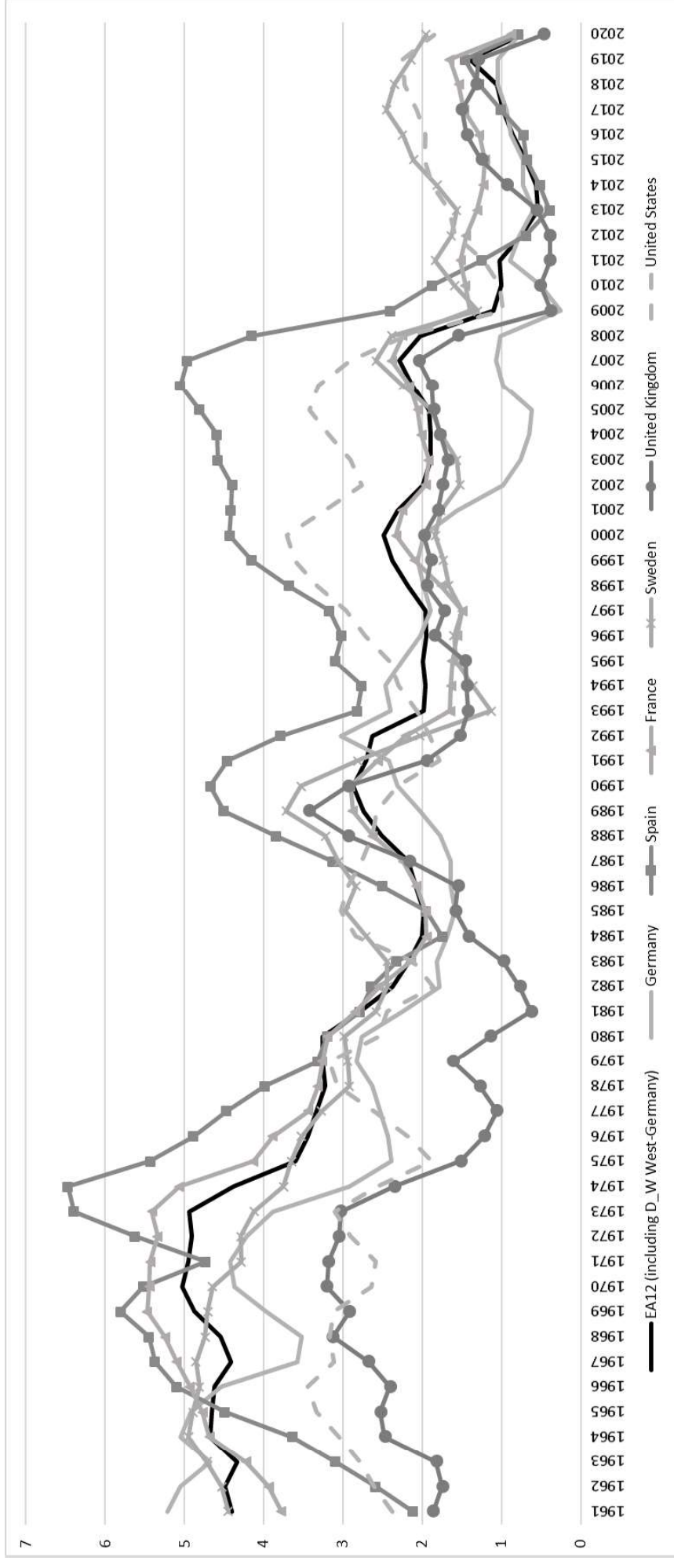
Source: European Commission (2021), author's calculations

Figure 3: Growth rate of real GDP (at 2015 prices) per person employed, selected countries, 1961 – 2020, in per cent
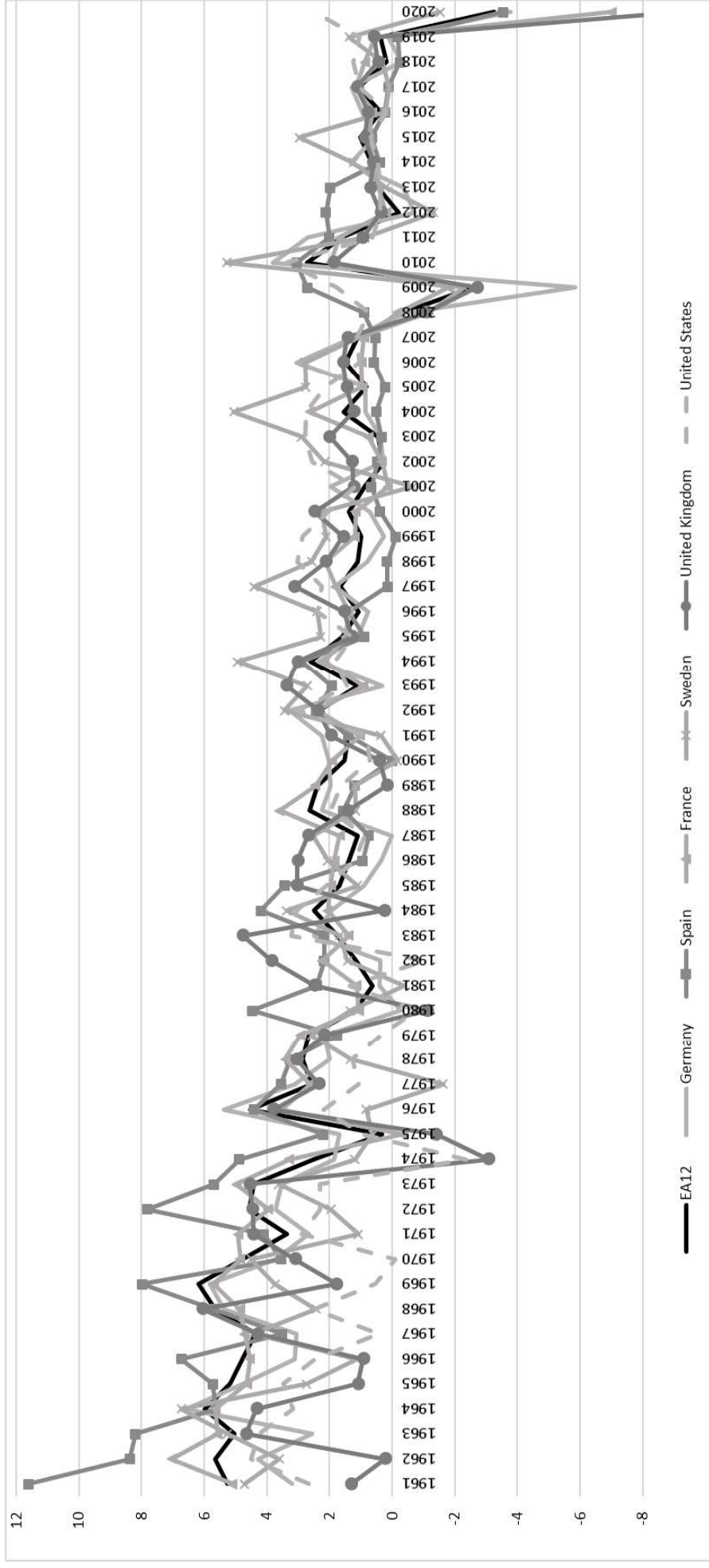
Source: European Commission (2021), author's calculations

Since global demand stabilisation has relied on public sector financial deficits in the mature DDL economies, as well as on public and private sector deficits in emerging market economies, further risks and dangers have built up. First, high government deficits and debt in mature DDL economies as stabilisers of national and global demand may be reversed for political reasons (debt ceilings, debt brakes), although there may be no risks of over-indebtedness of governments, if debt can be issued in the country's own currency and is backed by the respective central bank, as in the case of the US and the UK, for example. Second, capital inflows into emerging market economies may be unstable and face 'sudden stops' because of changes in expectations and/or over-indebtedness in foreign currency of these countries. And third, there are the risks of politically induced protection measures in order to reduce current account and net export deficits, which are considered to be too high.

Apart from these short- to medium-run problems, there arises the long-run stagnation problem, which Tom Palley was among the first to point out and which has been discussed by several authors in the mainstream and in post-Keynesian tradition. Due to the effects of financialisation on investment, as outlined above, growth contributions of investment were already weak before the 2007-09 crises and have become even weaker in the crises and post-crises period (Hein 2019, Hein and Martschin 2020, Hein et al. 2021). In a long-run perspective, capital stock growth in major developed capitalist economies has seen a downwards trend, only interrupted by the new economy boom in the second half of the 1990s, with particularly low growth rates in the period after the Great Recession (Figure 2). This has been accompanied by falling growth rates of labour productivity, which also turned particularly low after the Great Recession (Figure 3).

4. Regimes, regime changes and stagnation tendencies in a stylised Kaleckian distribution and growth model

4.1 The basic model

The macroeconomic features of finance-dominated capitalism and the emerging regimes have been modelled by applying stock-flow consistent models, either small scale analytical models or large scale numerical simulation models.[5] Here we will constrain ourselves to presenting the two extreme demand and growth regimes before the crisis, the DLPD and ELM regimes, in a stylised Kaleckian model of distribution and growth. Then the changes in the course and after the crises, leading to the replacement of the DLPD regime by a DDL regime stabilised by government deficits as (another) global counterpart to the ELM regime will be studied. Finally, we will assess the observed tendency towards stagnation accompanying these regimes and regime shifts with the help of an extension of the Kaleckian model by endogenous productivity growth.

We assume an open economy with a primitive government sector, which only appears as a deficit-spending sector drawing on money and credit generated in the financial sector, so that taxation issues can be ignored. The private sector is composed of two classes, workers and capitalists, the latter including the financial capitalists or the rentiers. Capitalists own the

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[5] See for example, Belabed et al. (2018), Detzer (2018), Hein (2012, 2014, Chapter 10), Lavoie (2008), Prante et al. (2022), Ryoo and Skott (2008), Skott and Ryoo (2008) and van Treeck (2009), among several others.

means of production and receive profits, which are partly consumed and partly saved, buying assets issued by the corporate sector, and thus the capitalists themselves, or by the government. Alternatively, parts of the saved profits may also become deposits with the banking sector, which is also owned by the capitalists and not explicitly modelled here. Capitalists control the capital stock, hire labour, organise the production process, and decide about investment and thus the expansion of the capital stock. For the latter, they draw on their own means of finance, issue stocks or corporate bonds, or draw on credit endogenously generated and granted by the financial sector. By assumption, these transactions take place within the capitalist class, and they are not modelled here. Workers offer labour power to capitalists and receive wages, which they partly use in order to purchase consumption goods and partly save. However, the propensity to save out of wages is much lower than the propensity to save out of profits, because the workers' households are the low-income households with a higher propensity to consume than the high-income capitalists' or rentiers' households. Furthermore, a part of the profits are retained within the corporate sector and are thus saved by definition.

In the model economy, a homogenous output (Y) is produced combining direct labour (N) and a non-depreciating capital stock (K) in the production process. We assume a fixed coefficients production technology with a constant labour-output ratio and a constant capital-potential output ratio ($v = K/Y^p$). The homogeneous output can be used for consumption and investment purposes. For the sake of simplicity, overhead labour, depreciation of the capital stock, as well as (imported) raw materials and intermediate products are not considered. The rate of profit (r), relating the flow of profits (Π) to the nominal capital stock (pK), can be decomposed into the profit share (h), relating profits to nominal income (pY), the rate of capacity utilisation (u), relating actual output to potential output given by the capital stock (Y^p), and the inverse of the capital-potential output ratio ($1/v$):

(1) $$r = \frac{\Pi}{pK} = \frac{\Pi}{pY}\frac{Y}{Y^p}\frac{Y^p}{K} = hu\frac{1}{v}.$$

Our assumption regarding saving translates into the following domestic saving rate (σ), which relates the flow of total domestic saving (S) to the value of the capital stock:

(2)
$$\sigma = \frac{S_\Pi + S_W + S_G}{pK} = \frac{s_\Pi \Pi + s_W W - D}{pK} = s_\Pi h \frac{u}{v} + s_W (1-h)\frac{u}{v} - \delta$$
$$= \left[(s_\Pi - s_W)h + s_W\right]\frac{u}{v} - \delta, \qquad 0 \le s_W < s_\Pi \le 1, \ \delta \ge 0.$$

Total saving is composed of saving out of profits (S_Π), saving out of wages (S_W) and government saving (S_G), which is zero or negative in our model, because we ignore taxation and only allow for government deficits ($D = -S_G \ge 0$). The government deficit is thus equivalent to government expenditures. The saving rate is determined by the propensities to

save out of profits (s_Π) and out of wages (s_w), by the components of the profit rate from equation (1), as well as by the government deficit or expenditure rate (δ), which relates government deficits and expenditures to the capital stock, and which is treated as a long-run exogenous policy parameter.

In the Kaleckian distribution and growth models, the rate of capacity utilisation is treated as a medium- to long-run endogenous variable. The profit share, and thus functional income distribution, is mainly determined by the mark-up (m) in firms' pricing in imperfectly competitive markets:

(3) $\qquad h = h(\overline{m}), \qquad \dfrac{\partial h}{\partial m} > 0$.

The mark-up itself is affected by several factors, such as the degree of price competition in the goods market, the bargaining power of workers and also by unit overhead costs, which are all treated as exogenously given here. The capital-potential output ratio is also considered as an exogenous variable determined by technology, which does not systematically respond to distribution and activity variables in the model:

(4) $\qquad v = \overline{v}$.

With the profit share and the capital-potential output ratio as exogenously given variables, the rate of capacity utilisation becomes the variable adjusting the profit rate (equation 1) to its equilibrium value required by the goods market equilibrium. As principle determinants in the investment function in Kaleckian models, we have firms' or managements' animal spirits (α), sometimes taken to represent the firms' assessment of the long-run growth trend of the economy. Furthermore, the (expected) rate of profit is of relevance, because it indicates the internal means of finance required for attracting external investment finance, according to Kalecki's (1937) 'principle of increasing risk'. Also the dynamics of demand as a determinant of investment are reflected in the rate of profit through changes in capacity utilisation. Apart from animal spirits, we can thus include the three principle determinants of the profit rate from equation (1) into the Kaleckian accumulation function:

(5) $\qquad g = g(\alpha, h, u, v), \qquad \dfrac{\partial g}{\partial \alpha} > 0, \dfrac{\partial g}{\partial h} \geq 0, \dfrac{\partial g}{\partial u} > 0, \dfrac{\partial g}{\partial v} = 0$.

Investment decisions will thus positively depend on the profit share and the rate of capacity utilisation, because each increase the (expected) rate of profit, cet. par. Neo-Kaleckians, however, would insist that the partial effect of a change in the profit share is irrelevant for firms' decisions to invest, and hence that $\partial g / \partial h = 0$. In order to simplify the further

exposition, but also for empirical reasons, this view is followed here.[6] Regarding exogenous changes in the capital-potential output ratio through technical change, the partial effects on investment decisions are not clear in general. On the one hand, a higher capital-potential output ratio means a lower rate of profit, which should dampen investment. On the other hand, however, a higher capital-potential output ratio means that a certain increase in demand-determined output requires a higher increase in the capital stock, which should boost investment. The sign of the sum of these two opposing effects is not clear ex ante, so that any direct effect of changes in the capital-potential output ratio on investment is disregarded in what follows. We treat the capital potential-output ratio as a constant, even in the face of technical change.

The net export rate (b) is given by the relationship between net exports (NX), as the difference between exports (pX) and imports ($p_f aM$) in domestic currency, and the capital stock. It is negatively affected by domestic demand and capacity utilisation, which lead to rising imports, and positively affected by foreign income and capacity utilisation (u_f), which generate rising exports. Also, the real exchange rate ($a_r = ap_f/p$), given by the nominal exchange rate (a), the foreign price level (p_f) and the domestic price level (p), may have a positive effect on net exports, if exports and imports are price sensitive and the Marshall-Lerner condition holds. We assume here that the real exchange rate is positively related to the profit share:[7]

$$(6) \qquad b = \frac{pX - p_f aM}{pK} = \frac{NX}{pK} = b\left[u, u_f, a_r(h)\right], \qquad \frac{\partial b}{\partial u} < 0, \frac{\partial b}{\partial u_f} > 0, \frac{\partial b}{\partial a^r} \geq 0, \frac{\partial a_r}{\partial h} > 0.$$

Finally, equation (7) provides the goods market equilibrium condition for the open economy:

$$(7) \qquad g^* + b^* = \sigma^*.$$

Next, an export and current account deficit economy, as well as an export and current account surplus economy are presented in Figure 4. In the right-hand quadrants we have the determination of the long-run goods market equilibrium from equation (7), with the domestic saving rate from equation (2), the accumulation rate from equation (5) and the net export rate from equation (6). The goods market equilibrium then determines the equilibrium rates of capital accumulation, domestic saving (with the government deficit rate as an exogenous component), net exports, as well as the equilibrium rate of capacity utilisation and, for a given profit share and capital-potential output ratio, also the equilibrium rate of profit in the left-hand quadrants.

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[6] Most of the empirical estimations of the post-Kaleckian model applying the single equations estimation approach find only little or no significant effects of profitability variables on investment (Hartwig 2014, Onaran and Galanis 2014).

[7] See Hein (2014, Chapter 7) for a more detailed open economy Kaleckian distribution and growth model.

Figure 4: A basic Kaleckian distribution and growth approach

a) An export and current account deficit economy
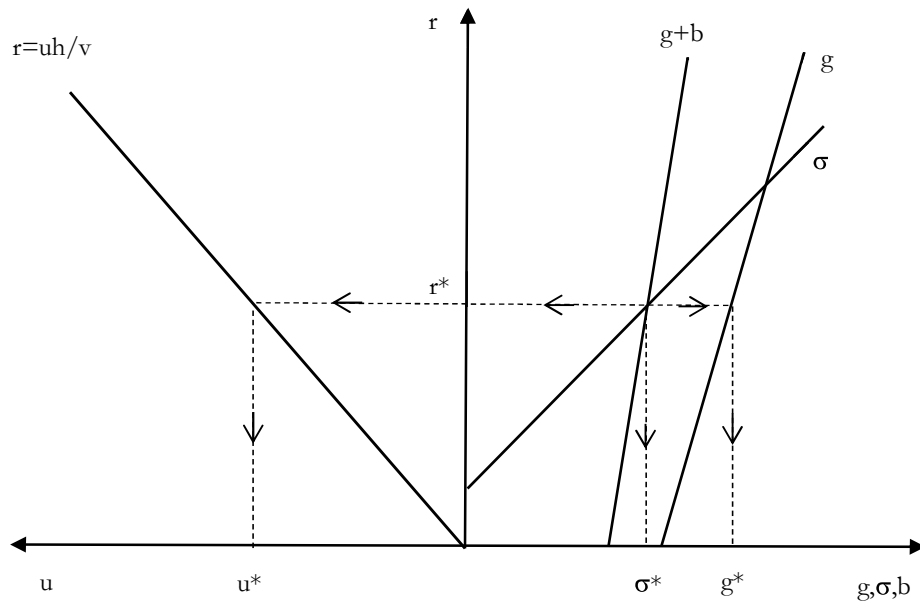
b) An export and current account surplus economy
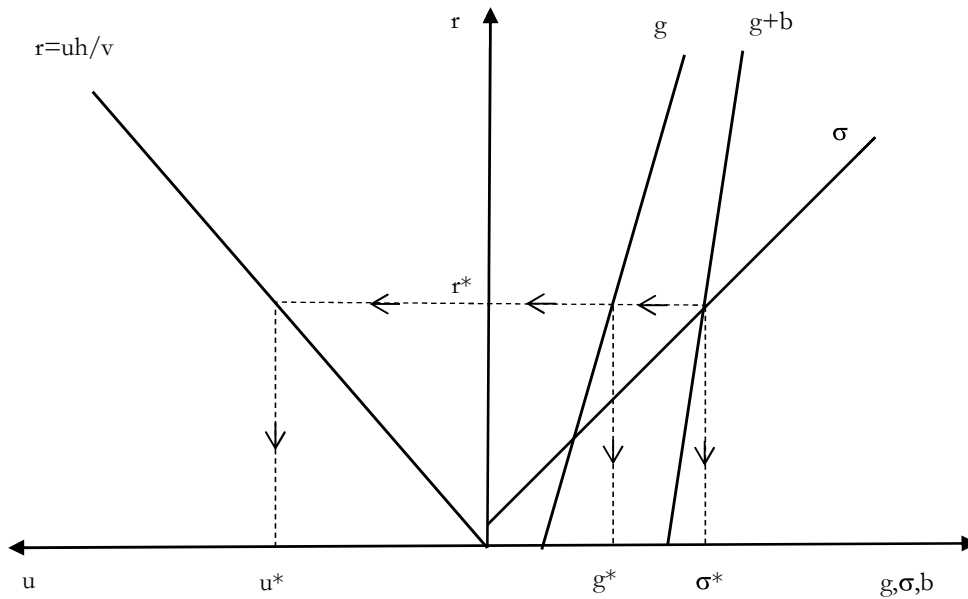
The model shows the usual properties of Kaleckian distribution and growth models: An improvement of animal spirits has expansionary effects, whereas an increase in the propensities to save or a decrease in the government deficit and expenditure rate have contractionary effects.

Any rise in the profit share will affect both the r-function in the left quadrant and also the g-function in the right quadrant, as can be seen in Figure 5. On the one hand, a higher
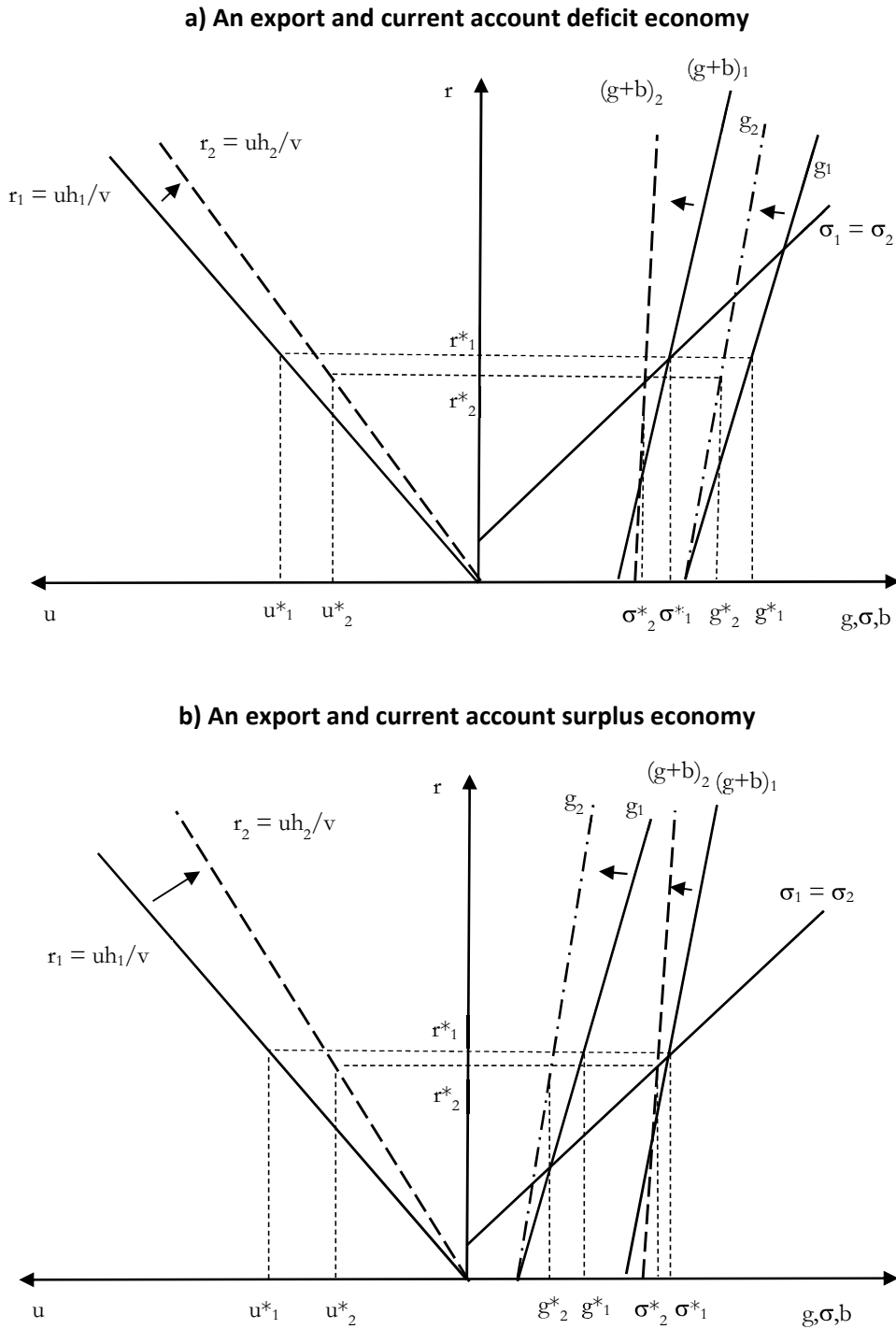
profit share causes a clockwise rotation of the r-function. On the other hand, the change in the profit share will also affect the g- and the $g + b$-functions. With a strong responsiveness of investment towards utilisation ($\partial g / \partial u$) and a very weak or zero reaction towards the profit share ($\partial g / \partial h$), as assumed in the neo-Kaleckian model, a higher profit share and thus a lower rate of utilisation for every rate of profit triggers a counter-clockwise rotation the g- and thus also the $g + b$-functions in the right quadrants of Figure 5. Every rate of profit is now associated with a lower rate of utilisation, and firms' investment responds accordingly.

Finally, if the rise in the profit share takes place in a single country in isolation, net exports will slightly improve, because we have assumed that the increase in the profit share is associated with an improvement of international price competitiveness, so that the change of the $g + b$-curve slightly deviates from the change of the g-curve. We assume here that the net export effect of redistribution is weak, and, therefore, taking the effects together, we can see that both countries in Figure 5 are wage led: A rise in the profit share, cet. par., will lead to a fall in the equilibrium rates of capacity utilisation, profit, and capital accumulation. This is in line with much of the empirical literature on estimating the wage-/profit-led regimes applying the single equations or structural estimation approach. These studies find wage-led demand regimes, with some exceptions for small very open economies and for emerging and commodity exporting countries.[8] The equilibrium net export rates ($b^* = \sigma^* - g^*$) in our model will rise in both regimes, assuming that the increase in the profit share and the concomitant improvement of price competitiveness, which raises exports, and the fall in domestic capacity utilisation, which dampens imports, take place in isolation. Obviously, if the rise in the profit share takes place globally, thus in both regimes, neither will relative price competitiveness be improved nor will the respective export markets remain constant, so that an improvement of net exports cannot be taken for granted any more for individual countries and, of course, is impossible for all the countries taken together.[9]

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[8] See for recent multi-country studies Hartwig (2014) and Onaran and Galanis (2014). For reviews of the results of single equations estimations studies, see Hein (2014, Chapter 7) and Stockhammer and Onaran (2013).

[9] See Onaran and Galanis (2014) for supportive estimation results showing that globally simultaneous hikes of the profit share drastically reduce potentially positive effects on net exports and thus make overall wage-led results even more likely.

Figure 5: A rising profit share in isolation in a basic neo-Kaleckian approach

a) An export and current account deficit economy

b) An export and current account surplus economy

4.2 DLPD and ELM regimes before the 2007-09 crises

In order to generate the DLPD and the ELM regimes before the crisis in Figure 6, further effects of financialisation, as already outlined above, have to be taken into account. Regarding investment in the capital stock, financialisation has meant increasing shareholder power vis-à-vis firms and workers. 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 increasing preference for financial investment,

generating high profits in the short run. On the other hand, paying out dividends and buying back shares in order to satisfy shareholders, has drained internal means of finance available for real investment purposes from non-financial corporations and thus required a higher total rate of profit to execute a certain rate of capital accumulation. The 'preference' and the 'internal means of finance' channel thus cause a leftwards shift and a counter-clockwise rotation of the g-function in both regimes.

Regarding the effects on consumption the two regimes have to be distinguished. In the DLPD regime we have increasing credit-financed consumption in particular. This has been due to relative income concerns ('keeping up with the Joneses'), the requirements to sustain necessary consumption in the face of falling wages, considerable wealth effects on consumption associated with stock price and housing price booms, and improved access to consumption credit due to financial innovations and liberalisation, reinforced by stock price and housing booms. A rising profit share and higher income inequality are thus associated with lower propensities to save out of wages and out of profits, as well as with a lower differential between the two propensities. We observe thus a counter-clockwise rotation in the domestic saving function of Figure 6a, assuming little change in the government deficit rate. In the ELM regime, any expansionary effects on consumption have been absent for several, partly different reasons in different countries: a more developed welfare state providing basic consumption and public goods, absence of housing price booms, a less deregulated credit market, etc. For the sake of simplicity, the σ-function in Figure 6b has not been changed, ignoring potentially contractionary effects of rising inequality in personal and household incomes.

Regarding net exports and the current account balance, we can ignore the effects of re-distribution on relative price competitiveness, because profit shares and rates have improved globally in both types of regimes. Therefore, the b-function is mainly affected by relative demand dynamics and non-price competitiveness. In the DLPD economy, low foreign demand from ELM countries and high domestic demand dynamics decrease net exports and increase current account deficits; the $g + b$-function in Figure 6a thereby shows a more pronounced leftward shift than the g-function. In the ELM economy, low domestic demand dynamics due to regressive redistribution dampens imports, and high foreign demand dynamics, particularly from the DLPD economies, raises exports, so that we have rising net exports and current account surpluses. In Figure 6b, therefore, although the accumulation function is shifted leftwards, the $g + b$-function gets slightly shifted to the right.

Figure 6: Distributional and behavioural changes before the crisis generating the DLPD and the ELM regimes

a) The DLPD regime: rising profit share, falling average propensity to save due to relative income effects and credit-financed consumption, and rising current account deficits
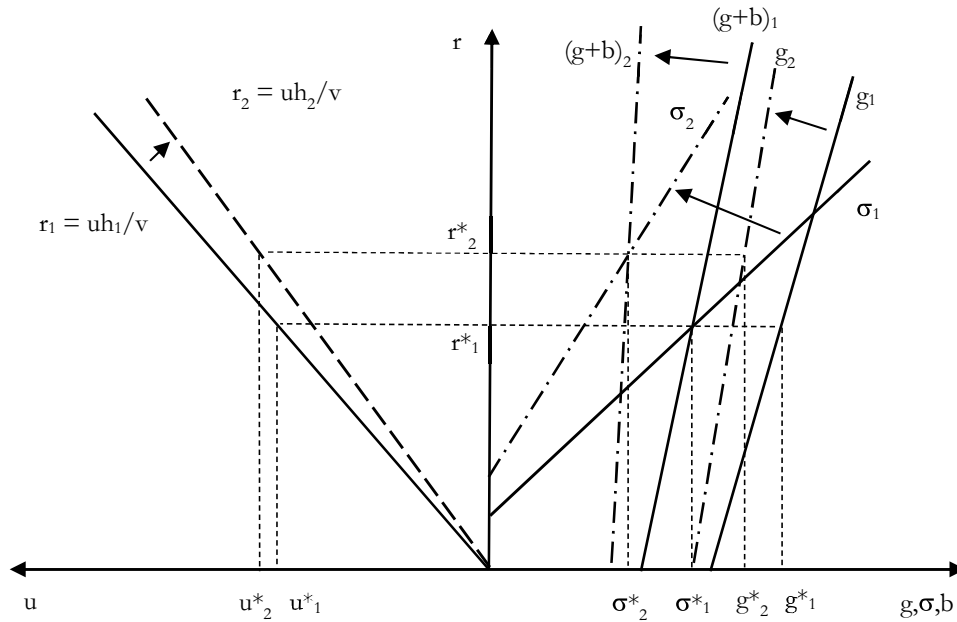
b) The ELM regime: rising profit share, rising average propensity to save due to higher profit share, and rising current account surpluses
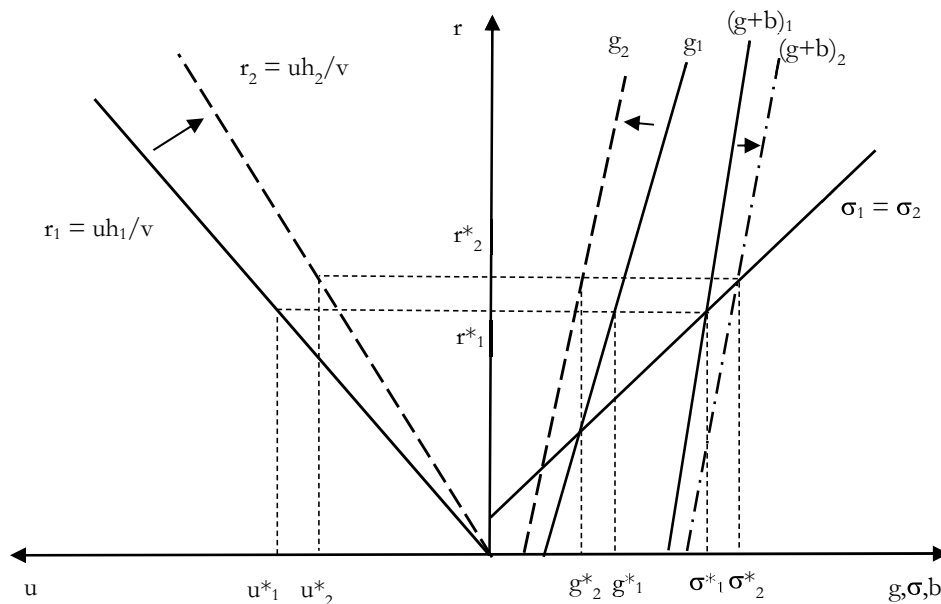
As can be seen in Figure 6, redistribution and changes in economic behaviour under the conditions of financialisation lead to the following changes in medium- to long-run equilibrium positions in the two regimes. A higher profit share raises the equilibrium profit rates in both

regimes. This is accompanied by a fall in equilibrium capital stock growth, which means that we have 'profits without investment' regimes in both cases, as argued in the theoretical and empirical literature on the macroeconomics of finance dominated capitalism (Hein 2014, Chapter 10). However, in the DLPD case in Figure 6a this is accompanied by a rise in the equilibrium rate of capacity utilisation. Demand thus turns 'seemingly profit-led' (Hein and Prante 2020). High domestic demand dynamics in this regime also cause lower net exports and thus rising current account deficits. The ELM regime in Figure 6b displays a fall in equilibrium capacity utilisation, and thus remains wage-led, but shows higher net exports and current account surpluses.

4.3 The shift of demand and growth regimes in the course of and after the 2007-09 crises

The core macroeconomics behind the regime shift in the developed capitalist economies in the course and after the 2007-09 crises can also be analysed with the help of our simple model. Whereas several pre-crises ELM countries stayed ELM also after the crises, and hence continue to be represented by Figure 6b, the DLPD regimes turned towards DDL regimes stabilised by government deficits or towards ELM regimes. These shifts are shown in Figure 7. We focus here on the most important changes that trigger the shift in regimes in order to keep the figures clearly arranged and ignore minor, and country-specific changes. For example, for both regime shifts in the course of and in the period after the crises we keep functional and personal income distribution constant, although empirical analysis tells us that some indicators of income inequality have worsened also after the crises, in particular in several pre-crises DLPD countries (Hein et al. 2017, 2018).
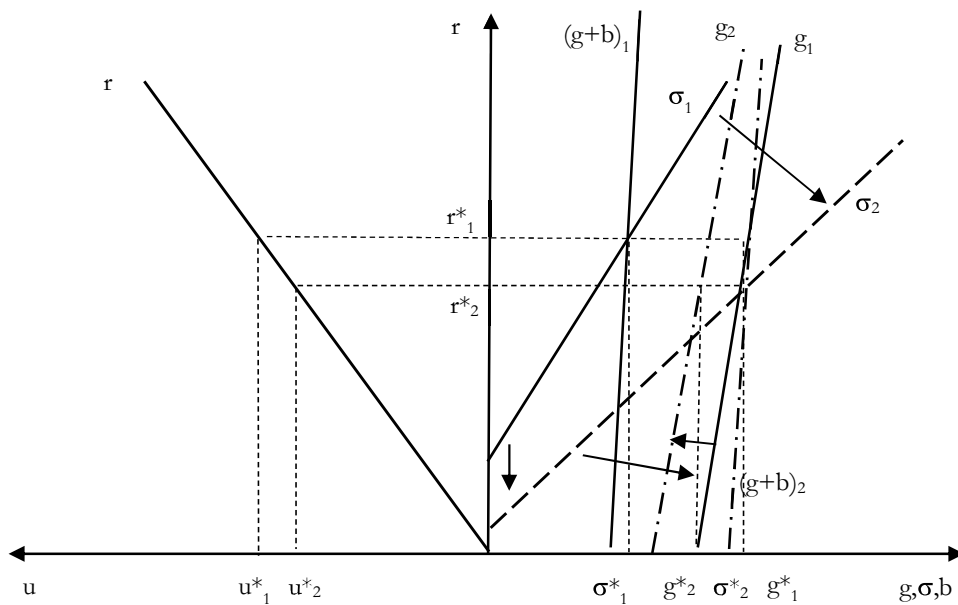
Furthermore, for the shift from the DLPD to the DDL regime stabilised by government deficits shown in Figure 7a, we ignore further changes in the parameters of the accumulation and net export functions. The change in regime is thus only triggered by the change in the saving function. The requirement for deleveraging of private households in the course of and after the crisis, rising uncertainty and precautionary saving, together with tightened credit standards have increased the propensity to save out of profits and out of wages and thus rotated the σ-function counter clockwise in Figure 7a. Furthermore, higher government deficits in order to stabilise the economy during and after the crises have shifted this function upwards – in Figure 7a to such an extent that the original pre-crisis equilibrium is maintained, but this is just for simplification and should not be taken for granted. As a result, we get that the private household deficit is substituted by a higher government sector deficit without changing any other features of the regime: considerable net export or current account deficits, weak capital accumulation, but rates of capacity utilisation and profit are kept stable.

Figure 7: Regime shifts in the course and after the 2007-09 crises

a) From the DLPD regime to the DDL regime stabilised by government deficits: constant profit share and inequality, higher propensity to save out of wage and profit income, higher government deficits, constant current account deficits
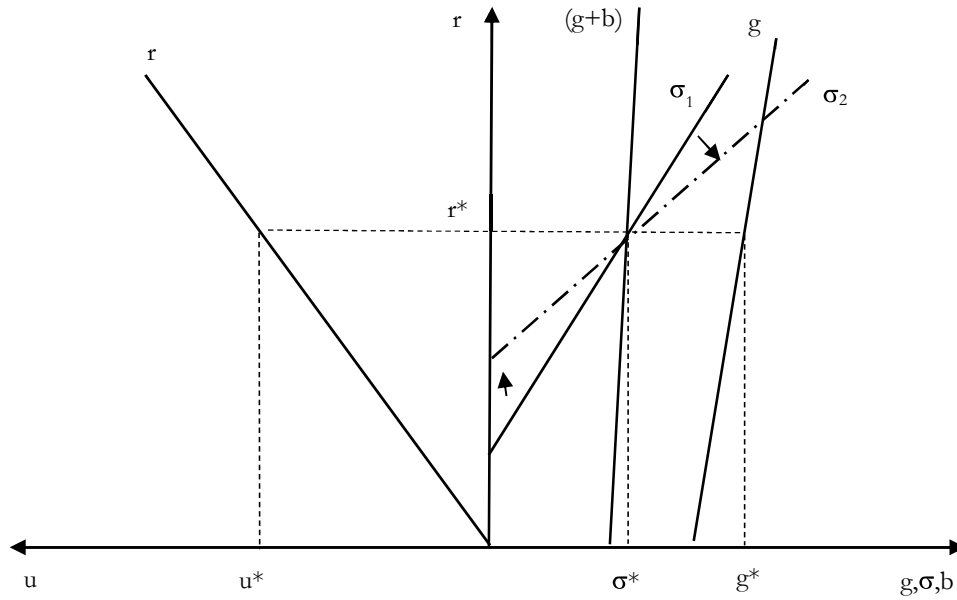
b) From the DLPD to the ELM regime: constant profit share and inequality, higher propensity to save out of income, lower government deficits, reduced animal spirits, improved international price competitiveness and positive net exports and current account

For the shift from the DLPD to the ELM regime shown in Figure 7b, we take into account shifts in the accumulation and the net export functions, too. For the saving function we have again an increase in the propensities to save out wages and out of profits, for the same reasons as mentioned above, which lead to a clockwise rotations of the σ-curve. Furthermore, government austerity policies, which reduce the government deficit-capital ratio, shift the σ-curve down. Austerity policies and depressed overall demand also reduce firms' animal spirits and shift the g-function to the left. The depressive effects of lower private and public consumption and lower investment are partly compensated for by improved net exports. These are generated by depressed domestic demand relative to higher foreign demand (from DDL economies stabilised by government deficits and from some previous ELM countries which have become less export oriented after the crises) and by improved international price competitiveness. The latter has been associated with further redistribution at the expense of labour and low income households, which we ignore here in the graphical presentation for the sake of simplicity. Together, these changes cause a rightward shift of the $g+b$-function with b now being positive. These changes lead to a fall in the equilibrium rates of capital accumulation, profit and capacity utilisation, and a rise of the equilibrium net export-capital rate – which is now positive, as can be seen in Figure 7.b.

4.4 Stagnation tendencies after the 2007-09 crises

Finally, we can also address the long-run stagnation problem associated with the persisting 'profits without investment' patterns in the post-crises regimes in our model. Following the procedure of integrating productivity growth into Kaleckian distribution and growth models in Hein (2014, Chapter 8), in the first step, we introduce exogenous productivity growth into the determination of the equilibrium rate of capital accumulation and growth. We assume that capital accumulation is positively affected by productivity growth, because of capital-embodied technological change, in particular. Firms have to invest in new capital stock in order to benefit from technological inventions. Taking into account the exogenous parameters determining the goods market equilibrium rate of accumulation derived above, we arrive at the following equation for equilibrium capital accumulation:

(9)
$$g^* = g^*\left(\hat{y}, \alpha, h, s_W, s_\Pi, \delta, u_f, a_r\right),$$
$$\frac{\partial g^*}{\partial \hat{y}} > 0, \frac{\partial g^*}{\partial \alpha} > 0, \frac{\partial g^*}{\partial h} < 0, \frac{\partial g^*}{\partial s_W} < 0, \frac{\partial g^*}{\partial s_\Pi} < 0, \frac{\partial g^*}{\partial \delta} > 0, \frac{\partial g^*}{\partial u_f} > 0, \frac{\partial g^*}{\partial a_r} > 0.$$

Productivity growth, animal spirits, the government deficit-capital rate, foreign capacity utilisation and the real exchange rate have positive effects on the goods market equilibrium rate of capital accumulation, whereas the profit share, as well as the propensities to save out of wages and out of profits have negative effects.

Relying on Kaldor's (1957) technical progress function, labour productivity growth is assumed to be positively affected by capital stock growth due to capital-embodied technological change. Following Marx (1867), a higher real wage rate or a higher wage share

induces capitalists to speed up the implementation of labour augmenting technological progress in order to protect the profit share. We thus obtain for long-run productivity growth:

$$(10) \quad \hat{y} = \hat{y}\left(g^{*}, h, x_{i}\right), \qquad \frac{\partial \hat{y}}{\partial g^{*}} > 0, \frac{\partial \hat{y}}{\partial h} < 0, \frac{\partial \hat{y}}{\partial x_{i}} > 0 \,,$$

with x_{i} representing a set of further institutional factors determining productivity growth, like government technology policies and R&D expenditures, the education system, etc..

Equations (9) and (10) describe a Kalecki-Steindl-Kaldor-Marx demand-determined endogenous growth model. Figure 8 presents the long-run equilibrium values for capital accumulation (g_{1}^{**}) and productivity growth ($\hat{y}_{1}^{**}$), and thus the endogenous potential or 'natural' growth grate. The fall in the goods market equilibrium rate of capital accumulation which he have seen for the DLPD and the ELM regimes before the crises, which then has persisted in the post-crises DDL and ELM regimes, causes a leftward shift in the g^{*}-curve and thus lower long-run equilibrium rates of capital accumulation and productivity growth. Furthermore, since the demand and growth regimes in finance-dominated capitalism have also seen a fall in the wage and a rise in the profit share, this has had an independent effect on long-run productivity growth, shifting the $\hat{y}$-curve down. The latter may also be affected by a fall in government expenditures on R&D and education associated with post-crises austerity policies. With these shifts, the long-run growth equilibrium falls from $g_{1}^{**}, \hat{y}_{1}^{**}$ to $g_{2}^{**}, \hat{y}_{2}^{**}$.

Figure 8: Stagnation in a Kalecki-Steindl-Kaldor-Marx endogenous growth model
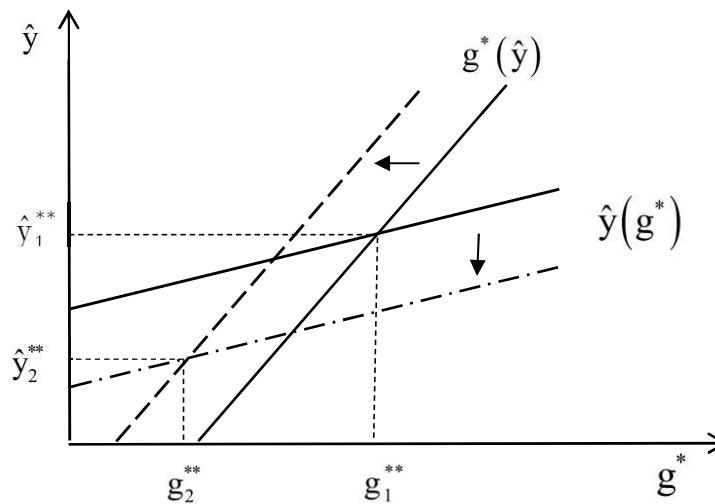
5. Conclusions

In this contribution, we have reviewed the research on the variety of macroeconomic demand and growth regimes in finance-dominated capitalism, on the regime shifts in the course of and after the 2007-09 crises and the emerging stagnation tendencies. Whereas the pre-2007-09 crises period was dominated by the polarisation of DLPD and ELM demand and growth regimes, which generate rising global current account imbalances, the post-crises period has seen some severe regime shifts that are still associated with high global current account imbalances. Whereas pre-crises ELM countries kept this regime, pre-crises DLPD countries moved towards ELM or DDL regimes stabilised by government deficits. The type of regime shift has been mainly determined by the pre-crisis indebtedness of the private household sector and the requirements to deleverage, and by the macroeconomic policy responses, in particular the willingness and ability to run stabilising fiscal deficits beyond the short run. These stylised facts have been integrated into a stylised Kaleckian distribution and growth model, which allowed us to derive the pre-crisis regimes and the following regime shifts. By means of endogenising productivity growth in that model, we have shown that post-crises stagnation tendencies – and falling potential growth – can be explained by those financialisation features that generate low capital stock growth, i.e. depressed animal spirits of management of non-financial corporations, high propensities to save out of the different types of income after the crises, low government expenditure and deficit rates (in particular in the ELM countries), and high profit shares. Moreover, rising profit shares have an independent depressing effect on the innovation activities of firms and on productivity growth, too, which is also negatively affected by falling government expenditures on R&D and education. Several of these determinants of stagnation are thus affected by economic policies, which induced Steindl (1976, 1979) to focus on 'stagnation policy' in order to explain long-run stagnation trends in modern capitalism (Hein 2016, 2018). I assume that Tom Palley would not disagree.

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