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# **Kaleckian economics after Kalecki – a survey**

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## **Abstract**

This contribution reviews key developments in Kaleckian economics after Kalecki, with a focus on its application to mature capitalist economies. Rather than revisiting interpretations of Kalecki's original work, the contribution highlights subsequent theoretical and empirical extensions. It begins with Josef Steindl's foundational role in shaping Kaleckian economics, and then explores two major areas: distribution and growth models, and conflict inflation models, which have evolved considerably since the 1970s. The survey demonstrates that Kaleckian economics, as major strand of post-Keynesian economics, provides a coherent and consistent alternative to mainstream approaches, grounded in the principles of effective demand and distributional conflict, with a wide range of applications. While comprehensive within its chosen scope, the paper does not address Kaleckian contributions in areas such as pricing beyond Steindl, development economics, or post-capitalist economics, which would merit separate treatments.

**Key words:** Kaleckian economics, post-Keynesian economics, Josef Steindl, distribution and growth, conflict inflation

**JEL code:** B22, B59, E12, E31

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## 1. Introduction

As is well known, Kalecki (1932, 1933) can be seen as the co-inventor of the principle of effective demand, even slightly before Keynes (1933, 1936).<sup>1</sup> According to Kalecki (1954, 1971), economic activity and employment, in the short and the long run, are determined by aggregate demand, and the capitalist economy usually displays the underutilisation of the capital stock and of labour, i.e. involuntary unemployment. Investment determines saving and is itself affected by the expected level of economic activity and by expected profitability, as well as internal means of finance. Saving is thus not a pre-requisite of investment for the economy as a whole; what firms need in order to invest is access to finance. Finance, money and credit are endogenous variables to economic activity, i.e. created out of nothing, and adjust to the requirements of expenditures. The rate of interest is an exogenous variable, with the short-term rate in the money market determined by central bank policies and the long-term rate in the credit market also affected by liquidity preference of creditors. The long-term rate of interest has little impact on investment and aggregate demand. Income distribution between capital and labour (in the industrial and service sectors of the economy) is mainly determined by mark-up pricing (on constant unit variable costs up to full capacity output) in oligopolistic or monopolistic goods markets. The 'degree of monopoly', or the mark-up, is hence the main determinant of the profit share, and is itself affected by industrial concentration, the relevance of price competition, overhead costs, and the bargaining power of labour. Analytically, Kalecki thus separates the determinants of relative prices and functional income distribution, on the one hand, from the determinants of economic activity and employment, on the other hand. Of course, there are then several feedbacks between pricing and distribution, on the one side, and aggregate demand and employment, on the other, which Kalecki (1954, 1971) analysed in a dynamic context, generating economic cycles with semi-exogenous trends. While Kalecki's (and Keynes's) economics clearly point out how economic policies can generate and sustain full employment in a capitalist economy, Kalecki (1943) identified several political obstacles to full employment rooted in the power aspirations of the ruling class, generating a 'political business cycle'.<sup>2</sup>

In this contribution, we will review some of the developments of Kaleckian economics, based on the foundations provided by Kalecki himself.<sup>3</sup> Nowadays, Kaleckian economics is viewed as a major (or the main) strand of post-Keynesian economics (Lavoie 2022, chap. 1, Hein 2023a, chap. 2), with cost-plus pricing, class conflict, effective demand, income distribution and growth as major themes. According to Lavoie (2022, p. 45), main authors of this Kaleckian strand have been, apart from Kalecki himself, the younger Joan Robinson and Joseph Steindl, then Amit Bhaduri, Tom Asimakopulos, Donald Harris and Lance Taylor, and nowadays in particular Robert Blecker, Amitava Dutt, Eckhard Hein, Steve Fazzari, Özlem

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<sup>1</sup> For a broad overview of Kalecki's economics, see Sawyer (1985). For summaries of Kalecki's approach to pricing, distribution, aggregate demand and growth, see Hein (2014, chap. 5). For intellectual biographies of Kalecki, see Feiwel (1975), Lopez G. and Assous (2010), and Toporowski (2013, 2018).

<sup>2</sup> On Keynes and Kalecki on the political economy of full employment in a globalised economy, see recently Hein and Krämer (2025) and the references provided therein.

<sup>3</sup> For a more detailed review of the development and state of post-Keynesian economics, with Kaleckian economics as a major strand, see Hein (2017a).

Onaran, Malcolm Sawyer, Stephanie Seguino, Engelbert Stockhammer and Jan Toporowski. Several of their contributions, as well as those of further Kaleckians, will therefore be touched upon in what follows. In this review, we will not focus in depth on presentations and interpretations of Kalecki's work by modern Kaleckians, as they can be found in the books by Sawyer (1985) on the economics of Kalecki in general, and, more specifically, by Kriesler (1987) on Kalecki's microanalysis, by Osiatynski (1988) on Kalecki's work on a socialist economy, by Mott (2010) on Kalecki's principle of increasing risk, or recently by Toporowski (2022) on Kalecki's monetary economics.<sup>4</sup> The focus will rather be on the developments and applications of Kaleckian economics during the recent decades. Several of these have made it (as major parts) into (text)books on post-Keynesian economics more generally, or on Kaleckian economics more specifically, like Lavoie (2006a), King (2015), and Laski (2019) at an introductory level,<sup>5</sup> or Bhaduri (1986), Reynolds (1987), Taylor (1991, 2008), Lavoie (1992, 2022), Hein (2014, 2023a), and Blecker and Setterfield (2019) at a more advanced level.

We will start our review with the contributions by Josef Steindl as the main foundational contributor to Kaleckian economics, besides Kalecki himself, in Section 2. Then, we will touch upon important developments and contributions in Kaleckian economics, the Kalecki-Steindl distribution and growth models and its various developments and applications in Section 3, and the Kaleckian models of conflict inflation in Section 4. Section 5 will briefly summarise and conclude.

## 2. Josef Steindl's major contributions to pricing, distribution and growth<sup>6</sup>

The link between Kalecki and modern Kaleckian/post-Keynesian economics is provided by the works of Josef Steindl.<sup>7</sup> Steindl collaborated with Kalecki during their respective exile periods in the Oxford Institute of Statistics from 1940 until 1945. Then Kalecki moved on to the UN, finally to New York, and then to Poland in 1955, while Steindl stayed and then returned to Austria in 1950. Steindl's contributions were mainly in the areas of pricing, distribution, and macroeconomic dynamics – but also in some other areas, like technology and education or stochastic processes (Steindl 1990, Guger and Walterskirchen 2012). Here we will focus on the former areas.

With regard to pricing and distribution, different from Kalecki (1954, p. 1, 1971, chap. 6), in Steindl's magnum opus *Maturity and Stagnation in American Capitalism*, focussing on the pre-World War II US economy, the important distinction is not between demand and cost

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<sup>4</sup> See also numerous journal papers and book chapters on interpreting Kalecki's work, like Harris (1974) or Asimakopulos (1975), partly comparing it to other great economic thinkers, like Marx and/or Keynes. Several of these contributions can be found in special issues of academic journals on Kalecki, like the *Oxford Bulletin of Economics and Statistics*, 1977, 39 (1), and the *Review of Political Economy*, 1999, 11 (3), and 2020, 32 (4), as well as in edited books on Kalecki's work by Sebastiani (1989), Blaug (1992), King (1996), Sawyer (1999), Sadowski and Szeworski (2004), and recently Rochon et al. (2022).

<sup>5</sup> See also the recent paper by Blecker (2025) on a Kaleckian macroeconomic model for undergraduate teaching.

<sup>6</sup> This section partly draws on Hein (2014, chap. 5).

<sup>7</sup> On Steindl's life and work see Harcourt (1994a, 1994b), Rothschild (1994) and Guger and Walterskirchen (2012). On Steindl's economics, see, for example, Shapiro (1988, 2012), King (1995, 2008, 2018), and the contributions in the edited book by Mott and Shapiro (2005), as well as in the special issues of the *Review of Political Economy*, 1994, 6 (4), *Metroeconomica*, 2006, 57 (3), and *PSL Quarterly Review*, 2012, 65 (261).

determined prices, but between pricing in competitive industries with plenty of small producers and pricing in oligopolistic industries composed of a few large firms (Steindl 1952, pt. I).<sup>8</sup> In the competitive industries, profit is treated as differential rent accruing to the more productive firms in the industry, usually the bigger firms because technological progress is embodied in the capital stock. In competitive industries, capacity utilisation is said to adjust to some normal or planned level in the long run by means of capital moving in and out, depending on the state of demand. If the industry is hit by a negative demand shock, marginal firms are squeezed out by downward price adjustments. Innovations temporarily increase profits of the innovative firm, but then the diffusion of the innovation reduce profits towards some normal level, which is mainly determined by the internal means of finance required for the expansion of the industry. In the process of the diffusion of innovations and the associated increase in output and lowering of output prices, marginal firms are again squeezed out. These processes in competitive industries increase the market shares of the innovative and most productive firms and thus lead to 'absolute concentration' and a tendency towards oligopolistic industries.

In oligopolistic industries, negative demand shocks or technological innovations does not cause prices to fall and marginal firms to be squeezed out, because these firms earn above normal profits due to barriers to entry given by the minimum capital to be advanced in order to start production in the respective industry, and due to strategic price setting of incumbent firms. Prices remain rigid in these industries, and a decline in demand means lower rates of capacity utilisation. Because of downward price rigidities, labour-saving technological progress will increase mark-ups or profit margins. Furthermore, other types of competition will be applied, in particular marketing efforts and product differentiation.

The tendencies towards oligopoly discovered at the microeconomic level causes a tendency towards stagnation at the macroeconomic level (Steindl 1952, pt. II). In his new introduction to the second edition of his book, Steindl (1976, p. xv) summarises his main arguments in *Maturity and Stagnation in American Capitalism* as follows: '(1) Oligopoly brings about a maldistribution of funds by shifting profits to those industries which are reluctant to use them. [...] (2) Oligopoly leads to a decline in the degree of utilisation, either by a tendency to increase markups or by a rigidity of the markup in face of a decline in investment'. These two developments cause a problem of effective demand for the economy as a whole, which will be self-reinforcing and thus cause long-run stagnation. Because of excess capacity, oligopolies will be increasingly reluctant to invest in their industries, even if profits are constant or rising ('incomplete re-investment' of retained profits), and firms in competitive industries will lack the internal funds required to expand and to compensate for the stagnative tendencies imposed by oligopolistic industries. Steindl (1976, p. xv) acknowledges that the 'maldistribution of funds' argument per se is not a strong argument for lower private investment and growth, in the face of multi-branch activities of larger firms, which could invade competitive industries and invest there. However, low rates of capacity utilisation on

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<sup>8</sup> On Steindl's pricing and distribution theory see more extensively, for example, Shapiro (1988), Lee (1998, chap. 10), and Bloch (2000, 2006).

a broader scale as deterrent to investment are considered to be the important argument for the maturity and stagnation hypothesis.<sup>9</sup>

As Steindl (1985) explains, lower growth of aggregate demand would require a lower propensity to save, and thus lower profit margins and profit rates, in order to avoid the rate of capacity utilisation falling below the normal or target level and hence to cause a further slowdown in growth. In other words, it would require redistribution from gross profits to wages, assuming the propensity to save out of wages falls short of the propensity to save out of gross profit.<sup>10</sup> However, this does not happen because of the price rigidity in oligopolistic industries. Therefore, in the case of the dominance of oligopolies, a fall in the rate of capacity utilisation can only be prevented by an increase of 'external' sources of demand, hence in the government deficit or the export surpluses, as Steindl (1985) points out.

Technical progress and innovations are absent from Steindl's (1952) model. However, in his later publications, Steindl admits that innovations are able to generate a growth trend. Consequently, the exhaustion of a long technological wave can contribute to the explanation of stagnation (Steindl 1976, 1979, 1981, 1989).

In Steindl (1979) we find four main reasons why the stagnation tendencies postulated in his (1952) book did not materialise in the golden age period of modern capitalism in the 1950s and 1960s:<sup>11</sup>

- First, public spending increased tremendously after World War II, financed to a great extent by taxes on profits, which increased capacity utilisation and fed back positively on firms' decisions to invest in capital stock.
- Second, technological competition between East and West had a strong impact on public R&D expenditures and education expenditures, which spilled over to the private sector, boosting investment and productivity growth.
- Third, the post-war tensions triggered close cooperation between the western countries under the leadership of the USA (Bretton Woods, Marshall Plan, etc.), which provided the conditions for an increase in international trade, which contributed to keeping profit margins within limits and to stabilising wage shares.
- Fourth, European countries benefited from technological backwardness with respect to the USA making use of the 'catching-up' factor in economic growth.

The faltering of the golden age and the following stagnation starting in the mid-1970s is related to the reduction of tensions between the superpowers, an increase in internal rivalries among the capitalist economies, a decay of US leadership and the collapse of the Bretton

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<sup>9</sup> Another argument, which is put forward in later publications (Steindl 1976, 1985), does not relate to oligopoly in particular but to big business in general and says 'that the preference for safety increases with size, and that profit is bartered for safety, with a resulting reluctance to go into debt and a consequent weakening of the incentive to invest' (Steindl 1976, p. xv).

<sup>10</sup> Dutt (2005) has pointed out, that Steindl (1952) did not focus on the distinction between workers' household income (wages) and capitalists' or rentiers' households income (distributed profits). He rather made the distinction between firms' retained profits, which are saved by definition, and distributed income to households (wages and distributed profits) which are partly consumed and partly saved. In later publications, however, Steindl (1979, 1985, 1989) used Kalecki's distinction of workers and capitalists and their respective incomes, that is wages vs. gross profits (including retained and distributed profits).

<sup>11</sup> Further factors are discussed in Steindl (1976, 1989).

Woods international financial system, indicating an absence of the willingness and the ability to international co-operation (Steindl 1979). Further factors contributing to the re-emergence of stagnation were, according to Steindl:

- the tendencies towards increasing capital productivity, reducing the required amounts of net investment to increase productive capacities,
- a trend towards an increasing marginal propensity to save from disposable income in prospering economies weakening aggregate demand, capacity utilisation, investment and growth,
- the fading out of the catching-up potential of Europe towards the USA associated with abnormal high rates of productivity growth in Europe over the post-war period,
- and increasing environmental and energy problems, with increasing energy prices putting upwards pressure on inflation rates and raising uncertainty with respect to future technological development.

However, the most important factor which explains the re-emergence of stagnation tendencies, according to Steindl (1979), was 'stagnation policy'. In this context he refers to Kalecki's (1943) 'Political aspects of full employment', in which Kalecki argued that, although governments might know how to maintain full employment in a capitalist economy, they will not do so, because of capitalists' opposition. Whereas in Kalecki, the opposition of the capitalist class towards full employment policies will give rise to a 'political business cycle', Steindl (1979, p. 9) argues that business opposition towards full employment policies gives rise to a 'political trend', causing or contributing to stagnation. In the course of the 1970s, governments, facing full employment, high exchange rate volatility and increasing rates of inflation, moved away from targeting full employment by means of active demand management towards targeting price stability and containing public deficits and debt, using higher rates of unemployment as an instrument. In Bhaduri and Steindl (1985) these policies are associated with 'the rise of monetarism as a social doctrine', because monetarism is inherently linked with restrictive fiscal and monetary policies, which are supported by banks and the financial sector (or the rentiers). The application of monetarist policies thus indicates a shift of powers from industry to banks, or from the non-financial sector to the financial sector, which occurred in the course of national and international financial liberalisation and rapidly increasing financial activity in the 1970s and early 1980s.

Under the conditions of the dominance of oligopolies, these stagnation policies therefore set into force again the immanent tendencies towards stagnation in mature capitalism, which Steindl had already discovered in the early 1950s. Starting in the 1980s, these tendencies towards weak investment in capital stock and stagnation were then amplified by a shift of the interest of corporations and their managers from production towards finance and an increasing role of financial investment in comparison to real investment. This tendency towards financialisation has been discovered at very early stage by Bhaduri and Steindl (1985) and Steindl (1989).

Steindl's work has had a major impact on the Kaleckian strand of post-Keynesian economics. Several of his considerations on distribution and growth, which have been modelled by Dutt (1995, 2005) and Flaschel and Skott (2006), have turned to the main

foundations of the Kalecki-Steindl distribution and growth models, which have gained prominence since the 1980s and which we will discuss in more detail in the following section. But also Steindl's notion of stagnation policy has been applied by Guger et al. (2006) to the economic policy stance in the European Union, and they have outlined policy alternatives in order to boost aggregate demand, employment and growth along Kaleckian/Steindlian lines. Hein (2016, 2022a) and King (2018) have argued that Steindl's 'stagnation policy' approach is theoretically superior to the recent mainstream models and views of 'secular stagnation', and Hein (2018a) has applied this approach to the recent stagnation in the Eurozone and has also provided an alternative policy approach based on Kaleckian/Steindlian foundations.

### **3. The Kalecki-Steindl distribution and growth models<sup>12</sup>**

In the 1950s and 1960s Cambridge post-Keynesians were mainly concerned with extending Keynes's and Kalecki's principle of effective demand from the short period, with given productive capacities, to the long period applying it to distribution and growth issues (Harcourt 2006, Pasinetti 2007). From this perspective, in a monetary production economy, investment by firms is independent of prior saving and is the driving force of the growth process, because firms have access to finance independently of any prior saving in the economy. For the macro-economy, saving will have to adjust to investment also in the long run. Historically, we can distinguish two approaches applying the principle of effective demand to long-run growth and distribution.<sup>13</sup> The first generation post-Keynesian distribution and growth models by Nicholas Kaldor (1955, 1957) and Joan Robinson (1956, 1962) rely on flexible prices in the goods market and full utilisation of productive capacities given by the capital stock in the long run, or even also on full employment (Kaldor). In these models, saving adjusts to investment in the long run through changes in income distribution. The profit share becomes endogenous with respect to capital accumulation, assuming that the propensity to save out of profits exceeds the saving propensity out of wages and that prices in the goods market are more flexible than nominal wages in the labour market (or nominal unit labour costs).

Alternatively, in the second generation of post-Keynesian models based on Kalecki (1954, 1971) and Steindl (1952), the independence of capital accumulation of firms from saving at the macroeconomic level is connected with a determination of income distribution by relative economic powers of capital and labour, mainly through firms' mark-up pricing on constant unit labour costs up to full capacity output in imperfectly competitive goods markets. Functional income distribution and hence the profit share are thus explained by relative economic powers of capital and labour affecting the mark-up in firms' pricing. The rate of capacity utilisation, as an accommodating variable in the long run, is determined by aggregate demand growth and hence by investment, consumption, government expenditures and net exports.

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<sup>12</sup> Parts of this section draw on Hein (2023a, chap. 7).

<sup>13</sup> For a detailed presentation and discussion of post Keynesian distribution and growth models, among them the Kaleckian distribution and growth model with its variations and extensions, see Hein (2014), Blecker and Setterfield (2019), and Lavoie (2022, chap. 6).



The Kalecki-Steindl approach to distribution and growth was developed independently by Rowthorn (1981) and Dutt (1984, 1987), as explained by Dutt in an interview (Hein and Lavoie 2020).<sup>14</sup> In their closed economy models, in the basic version without saving out of wages, a re-distribution at the expense of the wage share generates uniquely depressing effects on the rates of capacity utilisation, capital accumulation, growth and profit. Since there is no direct effect of the profit share on firms' investment decisions, demand and growth are hence uniquely wage-led, i.e. a higher wage share generates higher utilisation and growth rates. The model also contains a paradox of costs, i.e. a higher wage share generates a higher equilibrium profit rate. This comes on top of the Keynesian paradox of thrift, i.e. a higher propensity to save out of profits or out of wages generates lower equilibrium rates of capacity utilisation, growth and profit. An open economy version of this 'neo-Kaleckian' distribution and growth model, in which net exports are positively related to the profit share via improved international price competitiveness, however, may also generate profit-led utilisation and growth rates, as shown by Blecker (1989). A similar result is obtained by the 'post-Kaleckian' closed economy model proposed by Bhaduri and Marglin (1990) and Kurz (1990, chap. 10), who introduced a direct profitability effect in the investment function. Therefore, also the closed economy version of this model is able to generate different regimes of demand and growth, hence positive or negative effects of a lower wage share on capacity utilisation, capital accumulation, growth and the rate of profit.<sup>15</sup> These regimes depend on the relative weights of the accelerator and profitability terms in the investment function and on the propensities to save from profits and from wages.

The differences between these, and other approaches to distribution and growth, can be explained in a simple closed private economy, one good modelling framework, following Hein (2017b, 2023a, chap. 7). By definition, the rate of profit ( $r$ ) is given by the profit share, the rate of capacity utilisation ( $u$ ), and the capital-potential output ratio ( $v$ ):

$$(1) \quad r = \frac{\Pi}{K} = \frac{\Pi}{Y} \frac{Y^r}{Y^p} \frac{Y^p}{K^r} = hu \frac{1}{v},$$

with  $K$  for the nominal capital stock,  $K^r$  for the real capital stock,  $Y$  for nominal output,  $Y^r$  for real output, and  $Y^p$  for potential output given by the capital stock. With a fixed coefficient production technology (or with Harrod-neutral technical change) the capital-potential output ratio is a constant ( $v = \bar{v}$ ), which does not systematically respond to changes in functional income distribution or in accumulation/growth.

The Kalecki-Steindl distribution and growth models assume that also in the long run, functional income distribution and hence the profit share ( $h$ ) are mainly determined by mark-up pricing ( $m$ ) of firms in the goods market:

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<sup>14</sup> For early formulations, see also Taylor (1985) and Amadeo (1986). For an early review of Kaleckian distribution and growth models and their various extensions, see Blecker (2002).

<sup>15</sup> For the history of the discussion on wage- vs. profit-led demand and growth see Lavoie (2017). For recent debates on the post-Kaleckian model by Bhaduri and Marglin (1990), see also the contributions to the four consecutive special issues of the *Review of Keynesian Economics*, 2016, 4 (4), 2017, 5 (1), 5 (2) and 5 (3).

$$(2) \quad h = h(m).$$

The mark-up itself is affected by several factors, as the degree of competition in the goods market, the bargaining power of workers and unit overhead costs. Assuming the propensity to save out of wages to be zero, saving (S) only draws on profits and we obtain for the saving-capital ratio or the saving rate ( $\sigma$ ):

$$(3) \quad \sigma = \frac{S}{K} = s_{\pi} \frac{\Pi}{K} = s_{\pi} h u \frac{1}{v}, \quad 1 \geq s_{\pi} > 0.$$

The saving rate is thus determined by the propensity to save out of profits ( $s_{\pi}$ ) and the profit rate, and hence its components.

Investment decisions are determined positively by animal spirits ( $\alpha$ ), 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 demand dynamics, and also internal means of finance required for attracting external investment finance, following Kalecki's (1937) 'principle of increasing risk'. In the investment function the components of the profit rate from equation (2) are explicitly considered:<sup>16</sup>

$$(4) \quad g = g(\alpha, h, u, v), \quad \frac{\partial g}{\partial \alpha} > 0, \frac{\partial g}{\partial h} \geq 0, \frac{\partial g}{\partial u} > 0, \frac{\partial g}{\partial v} = 0.$$

With an independent investment function, we need the equality of the accumulation rate and the saving rate as long-run equilibrium condition:

$$(5) \quad g = \sigma,$$

This means that in the Kaleckian distribution and growth models the rate of capacity utilisation becomes the endogenous variable adjusting saving to investment and the rate of profit to its equilibrium value in the long run.

Figure 1 shows the Kalecki-Steindl demand-led growth model, here with a wage-led demand and growth regime. The  $g$ - $\sigma$  equilibrium includes the determination of the equilibrium saving rate, accumulation rate, profit rate, and rate of capacity utilisation. A positive shift in animal spirits, which would show as rightwards shift of the  $g$ -function, and a reduction in the propensity to save out of profits, which would show as a clockwise rotation of the  $\sigma$ -function, are expansionary and increase the equilibrium accumulation and growth rate, as well as the profit rate and the rate of capacity utilisation. On top of the paradox of saving, the Kalecki-Steindl model thus also allows for the paradox of costs in long-run growth,

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<sup>16</sup> The effect of a rise of the capital-potential output ratio on the profit rate is negative and the effect on capital accumulation should thus be negative, too. But a rising capital-potential output ratio also means that for a targeted potential output increase higher capital investment would be required. Therefore, we have included  $\partial g / \partial v = 0$  in equation (4) – and we do not consider any change in  $v$  anyway.

as shown in this figure. A lower profit share, and thus a higher wage share, cause a counter clockwise rotation of the  $r$ -function in the left part of Figure 1. The ‘neo-Kaleckian’ variant, proposed by Rowthorn (1981) and Dutt (1984), includes a strong effect of the rate of capacity utilisation and neglects a direct effect of the profit share on investment decisions ( $\partial g/\partial h = 0$ ). Therefore, any fall in the profit share will rotate the  $g$ -function clockwise, because each profit rate will then be associated with a higher rate of capacity utilisation. As an overall result of a lower profit share, we get a higher rate of accumulation and growth, a higher rate of profit, and a higher rate of capacity utilisation in the new equilibrium. The paradox of costs is fully valid, and demand (capacity utilisation) and growth (capital accumulation) are unambiguously wage-led.

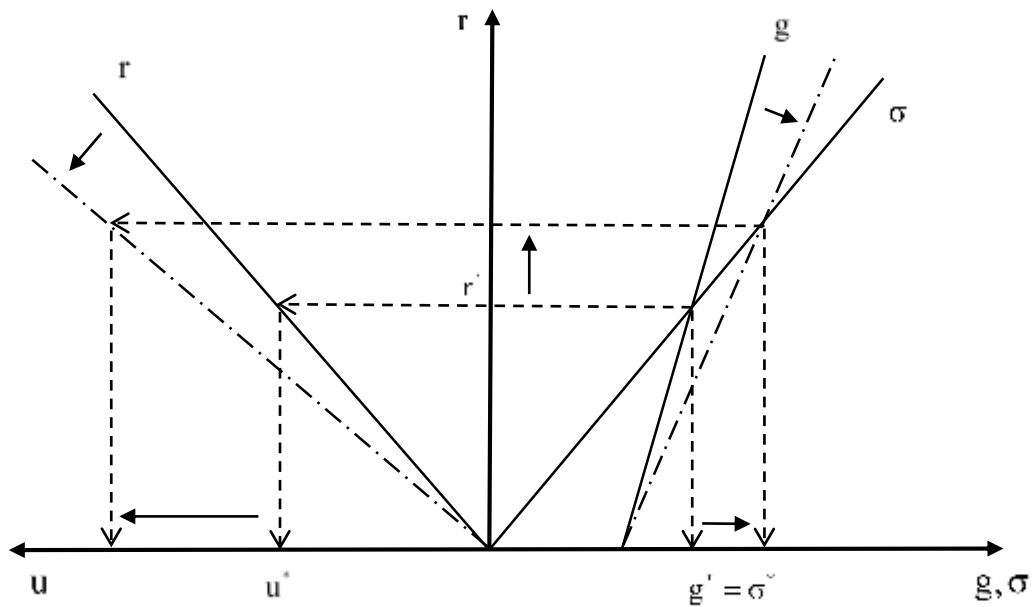
In the post-Kaleckian model, suggested by Bhaduri and Marglin (1990) and Kurz (1990, chap. 10), however, these results may change, because the profit share has a positive direct effect in the investment function. This will dampen the redistribution-induced rotation of the  $g$ -function and may even reverse it. Therefore, different regimes may emerge, depending on the relative importance of capacity utilisation and profitability in the investment function, and on the propensity to save out of profits, which co-determines the slope of the  $\sigma$ -function. We may still get a wage-led demand and wage-led growth regime, as shown in Figure 1, or an intermediate regime with wage-led demand and profit-led growth, or a profit-led demand and profit-led growth regime, as shown in Figure 2 (Hein 2014, chap. 6, 2023a, chap. 7).

As already pointed out, Blecker (1989) presented an open economy version of the neo-Kaleckian model, which may also generate profit-led demand and growth. Bhaduri and Marglin (1990) included open economy consideration in their model, and Hein and Vogel (2008), as well as Hein (2014, chap. 7) have systematically developed the conditions for different types of regimes within the post-Kaleckian distribution and growth model.<sup>17</sup> Generally, including the relationship between distribution, international price competitiveness and net exports, a profit-led regime becomes more likely, but wage-led regimes are not impossible.

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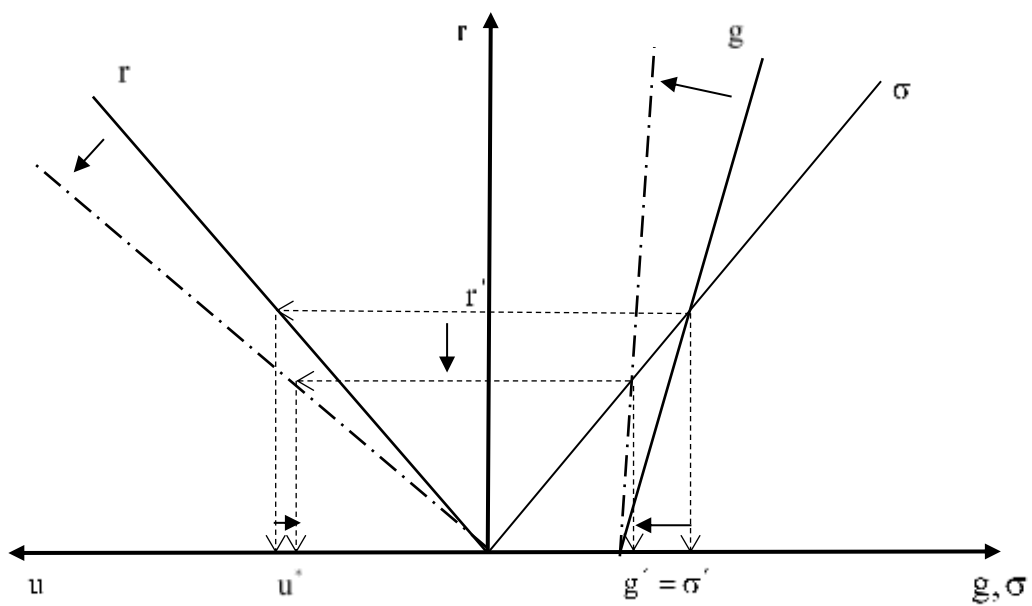
<sup>17</sup> For extensions of Kaleckian open economy models, including issues like capital flows, FDI, etc., see Rezai (2015), Kohler (2017, 2019), and Woodgate (2023). Extensions including conflict inflation will be referred to in the next section on Kaleckian models of conflict inflation.

**Figure 1: The Kalecki-Steindl post-Keynesian distribution and growth model:  
wage-led demand and growth**



Note: The rotations of the  $r$ -curve and the  $g$ -curve show the effect of a fall in the profit share.

**Figure 2: The Kalecki-Steindl post-Keynesian distribution and growth model:  
profit-led demand and growth**



Note: The rotations of the  $r$ -curve and the  $g$ -curve show the effect of a fall in the profit share.

Starting with Bowles and Boyer (1995), several empirical studies on the type of the distribution-led regime in open economies have been presented, using different estimation techniques and yielding partly contradictive results, as has been reviewed by Stockhammer and Onaran (2013), Blecker (2016), and Stockhammer (2017), for example. The literature applying the single equations or structural estimation approach tends to find wage-led demand and growth regimes also for open economies, with some exceptions for small very open economies and for emerging and commodity exporting countries, which are frequently found to be profit-led. In this estimation approach, functional income distribution is considered to be exogenous and the effects of changes of the profit share (or the wage share) on the components of aggregate demand, consumption, investment, exports and imports, are estimated separately, controlling for other influences, and are then summed up. Multi-country studies applying this approach have been presented by Naastepad and Storm (2007), Hein and Vogel (2008), Hartwig (2014), Onaran and Galanis (2014), Onaran and Obst (2016), Stockhammer and Wildauer (2016), Bengtsson and Stockhammer (2021), and de Oliveira and Souza (2021).<sup>18</sup>

Studies using an aggregative or systems estimation approach, however, tend to find profit-led results. These studies directly estimate the effect of changes in the profit share (or wage share) on economic activity, and take into account the feedback effect of GDP (growth) on distribution. It has been applied to the US economy by Barbosa-Filho and Taylor (2006), Diallo et al. (2011), Carvalho and Rezai (2016), Petach (2020), Barrales-Ruiz et al. (2023), and by Kiefer and Rada (2015) to a set of OECD countries. Some of these proponents claim to find a Goodwin cycle relationship with a profit-squeeze distribution relationship and a profit-led demand regime.

The major reasons for these different findings with regard wage- or profit-led demand and growth seem to be, according to Blecker (2016) and Stockhammer (2017), that the Kaleckian authors applying the single equations or structural approach are looking for medium- to long-run effects of changes in functional income distribution on aggregate demand, capital accumulation and growth. Goodwinian proponents of the aggregative or systems approach, however, are focussing on short-run interdependencies between distribution and economic activity.<sup>19</sup> Furthermore, the Goodwinian authors finding positive effects of the profit share on capital accumulation and economic activity do not seem to properly take into account the short-run endogeneity of the profit share with respect to economic activity in the presence of overhead labour costs, as Lavoie (1995a, 2009, 2017) has frequently pointed out.<sup>20</sup>

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<sup>18</sup> For reviews of the results of structural or single equations estimations studies, see Stockhammer and Onaran (2013), Hein (2014, chap. 7), and Stockhammer (2017), for example, and for more recent reviews focussing on emerging capitalist economies, see Akcay et al. (2022), for example. Some more recent studies, not included in these reviews, are Jetin and Kurt (2016), Kurt (2021), Woodgate (2022), and Marsellou (2024).

<sup>19</sup> For empirical support, see Charpe et al. (2020).

<sup>20</sup> For a critique of the empirical findings of neo-Goodwinian models, see Stockhammer and Stehrer (2011), Stockhammer (2017), Stockhammer and Michell (2017), Rolim (2019), Blecker et al. (2022) and Cauvel (2023). See also Blecker and Setterfield (2019, pp. 205–207).

While the debates on the empirics of wage- vs. profit-led demand and growth regimes has received a lot of attention, the Kalecki-Steindl distribution and growth approach has also been extended and applied to several other areas. Already in Rowthorn (1981), we find the integration of endogenous productivity growth via Verdoorn's law, that is a positive feedback of output growth (in manufacturing) on productivity growth, and thus a full demand-led endogenous growth model. Casetti (2003) has furthermore included a cost-push effect, i.e. a negative impact of the mark-up, into the productivity growth equation, while Dutt (2006a) and Ederer and Rezai (2022) have included labour market conditions as a determinant of labour productivity growth. You (1994), Lima (2004, 2012), Sasaki (2016, 2025), Kemp-Benedict and Kim (2021) and Lima et al. (2021) have suggested a variety of models for the interaction of functional distribution and productivity growth. Naastepad (2006), Hein and Tarassow (2010), and Hartwig (2013, 2014) have empirically estimated productivity regimes with Verdoorn demand and Marx/Hicks cost-push effects for several countries.<sup>21</sup> Within this kind of approach, also profit- or wage-led employment regimes have been generated and estimated (Storm and Naastepad 2017), taking into account the relative effects of distributional change on output growth, on the one hand, and on productivity growth, on the other.

Monetary variables, like a rate of interest and the stock of debt, and the distribution conflict between rentiers, capitalists (managers) and workers have been included into Kalecki-Steindl distribution and growth models since Taylor (1985), Dutt (1990a, 1995), Lavoie (1993, 1995b), Lima and Meirelles (2003), and Hein (2007, 2008), among others, making use of the post-Keynesian horizontalist view of exogenous interest rates and endogenous credit and money (Lavoie 1984, 1996a).<sup>22</sup> In several of these models, cost and income effects of interest payments have been considered. They follow Lavoie's (1995b) distinction between contractionary ('normal') and expansionary ('puzzling') cases/regimes in the face of rising interest rates, and Taylor's (2008, chap. 8.5) between 'debt-burdened' and 'debt-led' regimes given the effects of rising debt.<sup>23</sup> Furthermore, conditions for long-run financial stability as well as for the macroeconomic 'paradox of debt' (Steindl 1952, pp. 113–122) have been examined (Hein 2012a, 2013, Sasaki and Fujita 2012, Nishi 2013, Franke 2016, Parui 2022). Furthermore, Lima and Meirelles (2007), Charles (2008a, 2008b, 2008c), Nishi (2012a), Ryoo (2013a, 2013b), Sasaki and Fujita (2014), Nikolaidi (2017), Nikolaidi and Stockhammer (2017), and Stockhammer (2019) have linked Kaleckian distribution and growth models with Minsky's financial instability hypothesis and different types of finance (hedge, speculative, Ponzi).

Fiscal policies have been integrated into Kaleckian models initially with a focus on tax policies and distribution assuming balanced public budgets beyond the business cycle (Mott and Slaterry 1994, Laramie and Mair 1996, 2003). However, the focus has shifted to include government deficit and debt dynamics for different policy strategies (You and Dutt 1996, Dutt 2013, Palley 2013, 2022, Hein 2018b, Ribeiro and Lima 2019, Obst *et al.* 2020, Hein and

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<sup>21</sup> For a review, see Hein (2014, chap. 8).

<sup>22</sup> For a review see Hein (2014, chap. 9).

<sup>23</sup> For empirical studies based on Kaleckian models of interest rates, distribution, demand and accumulation, see Hein and Schoder (2011), Onaran et al. (2011), and Kurt (2024).

Woodgate 2021, Parui 2021a, 2024, Nishi and Okuma 2025). Furthermore, the effects of tax competition via FDI have been analysed applying Kaleckian models, too (Woodgate 2020, 2025a).

The explicit consideration of monetary variables in Kaleckian models has also provided the grounds for studying the macroeconomics of finance-dominated capitalism, or financialisation (Lavoie 2008, Ryoo and Skott 2008, Skott and Ryoo 2008, van Treeck 2009, Hein 2010, Hein and van Treeck 2010a, 2010b, Isaac and Kim 2013, Dutt 2016). In Hein (2012b), we find four macroeconomic channels through which the increasing dominance of finance affects the macroeconomy.<sup>24</sup>

- First, 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. On the other hand, inequality of wages and top management salaries and thus of wage dispersion and of personal or household incomes has increased (Hein 2015, Dünhaupt 2017, Hein *et al.* 2017, 2018, Kohler *et al.* 2019).
- Second, financialisation has meant increasing shareholder power vis-à-vis management and workers. This 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, higher dividend payments and share buybacks, which have reduced the internal means of finance of corporations. Each has had dampening effects on firms' investment (Stockhammer 2004a, 2005, Orhangazi 2008, van Treeck 2008, Dallery 2009, Onaran *et al.* 2011).
- Third, regarding consumption, financialisation has generated an increasing potential for wealth-based and debt-financed consumption. This created the potential to compensate for the depressing demand effects of financialisation, which have been exerted via re-distribution and income-financed consumption and via the depressing impact of shareholder value orientation on real investment. However, it increased household debt and financial fragility (Dutt 2006b, Cynamon and Fazzari 2008, Hein 2012c, Nishi 2012b, Kim 2013, 2016, van Treeck 2014, Kapeller and Schütz 2015, Kim *et al.* 2015, Setterfield *et al.* 2016).
- Fourth, at the international level, the liberalisation of international capital markets has allowed for rising and persistent current account imbalances at the global, but also at the regional levels. This was accompanied by rising foreign indebtedness of the current account deficit countries, speculative capital movements, exchange rate volatilities and potential (and actual) currency crises (Stockhammer 2012, 2015, Hein and Mundt 2013, Akcay *et al.* 2022).<sup>25</sup>

Based on these channels, different demand and growth regimes have been derived making use of numerical simulations in stock-flow consistent models (Belabed *et al.* 2018, Detzer

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<sup>24</sup> For a review, see also Hein (2014, chap. 10).

<sup>25</sup> The effects of financialisation on productivity growth – and thus on long-run potential growth – in a Kaleckian model have been explored by Hein (2012d), and the effect on stagnation tendencies have been discussed by Hein (2019, 2022b) and Parui (2021b).

2018, Prante *et al.* 2022, Hein *et al.* 2023), with the debt-led private demand boom regime on the one extreme and the export-led mercantilist regime on the other, with several comparative empirical studies, as reviewed in Hein (2023a, chap. 8). This Kaleckian/post-Keynesian research has received some attention in comparative and international political economy, starting with Baccaro and Pontusson (2016). Hein (2023b) has recently reviewed post-Keynesian contributions to the ‘varieties of growth regimes’ discussion, while Kohler and Stockhammer (2022) have compared post-Keynesian and comparative growth regime analysis, and Stockhammer (2023) has outlined a post-Keynesian structuralist approach for the analysis of peripheral growth regimes.

While Kaleckian distribution and growth models initially focussed on the functional distribution between wages and profits, recently issues of wage inequality, gender wage gaps, and wealth dynamics have also been tackled. The effects of rising wage inequality have been studied by Lavoie (1995a, 1996b, 2009), Kapeller and Schütz (2014, 2015), Palley (2014, 2015, 2017a), Carvalho and Rezai (2016), Setterfield *et al.* (2016), Dutt (2017), Setterfield and Kim (2017), Prante (2018), Barbieri Goes (2020), Parui (2021c), and Fujita (2023), partly in conjunction with explicit consideration of overhead-labour costs, partly with the relative income hypothesis (Duesenberry 1949, Frank *et al.* 2014). Gender pay gaps, social reproduction and other gender related issues in Kaleckian models have been explored by Blecker and Seguino (2002), Braunstein (2011, 2020), Seguino (2019, 2020), Hein (2020), Onaran *et al.* (2022a, 2022b), Onaran and Oyvat (2023), and Setterfield (2023a, 2024). Wealth distribution and wealth dynamics in Kaleckian models have been in the focus of Dutt (1990b), Lavoie (1998), Palley (2012a, 2017a, 2017b), Ederer and Rehm (2020a, 2020b, 2021) and Hein *et al.* (2025).

Kaleckian approaches, including the Kalecki-Steindl distribution and growth models and stock-flow consistent simulation models with Kaleckian features, have also been used to explore challenges of climate change and limits to growth, including the stability of zero and even de-growth paths (Fontana and Sawyer 2013, 2016, 2022, Cahen-Fourot and Lavoie 2016, Dafermos *et al.* 2017, Jackson and Victor 2020, Hein and Jimenez 2022, Oberholzer 2023, Kemp-Benedict 2025)

The Kaleckian distribution and growth models have also received some critique. In particular, the treatment of the rate of capacity utilisation as a long-run endogenous variable has been criticised by Marxian and Harrodian authors. The critics, like Duménil and Lévy (1999), Shaikh (2009), Skott (2010, 2012), Girardi and Pariboni (2019), Haluska (2020), and Gahn (2023), have argued that the Kaleckian notion of an endogenous rate of capacity utilisation beyond the short run is not sustainable. Kaleckian models are thus potentially facing the problem of Harrodian instability, i.e. cumulative divergence of actual capacity utilisation from the normal or the target rate of utilisation of firms, and the Kaleckian results of the paradox of saving and a potential paradox of costs, and hence wage-led demand and growth, cannot necessarily be validated beyond the short run. As has been reviewed by Hein *et al.* (2011, 2012), Hein (2014, chap. 11) and Lavoie (2022, chap. 6.5), Kaleckian authors have defended their model by downgrading the relevance of a long-run equilibrium, in which the goods market equilibrium rate of utilisation equals the firms’ target rate, by arguing that the



normal or target rate of utilisation in the face of fundamental uncertainty is a corridor, or by showing that target rate of utilisation may turn endogenous with respect to the goods market equilibrium rate in the long run via various channels.<sup>26</sup>

Alternatively, starting with Allain (2015) and Lavoie (2016), several Kaleckian authors have accepted an exogenous normal or target rate of capacity utilisation for the long-run growth equilibrium and have turned towards introducing a Sraffian supermultiplier process into their models of distribution and growth (Nah and Lavoie 2017, 2019a, 2019b, Allain 2019, 2021, Dutt 2019, 2020, Palley 2019, Lavoie and Nah 2020, Hein and Woodgate 2021). Initially a Sraffian supermultiplier model driven by autonomous demand was proposed by Serrano (1995a, 1995b). 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. Under the condition that Harroldian instability in the investment function is not too strong, the models generate a stable adjustment towards the normal rate of capacity utilisation in the long run. A change in the propensity to save or in the profit share will have no effect on the long-run growth rate, but will affect the traverse and thus the long-run growth path. The paradox of saving and the possibility of a paradox of costs from the short run thus disappear with respect to the long-run growth rate, but they remain valid with respect to the long-run growth path.

The medium- to long-run Kaleckian distribution and growth models reviewed so far have taken functional income distribution to be exogenous for growth and to be determined by socio-institutional factors (via the mark-up and its determinants, the relationship between unit material costs to unit labour costs and the industrial composition of the economy). This has been criticised by some authors, like Skott (2017). However, as reviewed by Dutt (2012), there are several feedback channels of the dynamics of economic activity on income distribution from a Kaleckian perspective, which have been integrated into Kaleckian models in various ways (Stockhammer 2004b, Cassetti 2006, 2012, Raghavendra 2006, Bhaduri 2008, Sasaki 2011, Schütz 2012, Assous and Dutt 2013). Several of them are linked with the interaction of the dynamics of economic activity, distribution conflict and inflation, to which we turn in the next section.

#### **4. Kaleckian models of distribution conflict and inflation<sup>27</sup>**

From a Kaleckian/post-Keynesian perspective *'inflation is always and everywhere a conflict phenomenon in the sense that it can only be generated if the claims on real income by different groups persistently exceed real output'* (Hein 2024, p. 203). Inflation as a persistent process thus requires inconsistent claims of the main group of actors, i.e. workers, capitalists, the state or the foreign sector, which may then be modified by inflation expectations. The foundations for the Kaleckian conflicting claims theory of inflation were laid by Rowthorn (1977) and Dutt

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<sup>26</sup> See, in particular, Dutt (1990c, pp. 58–60, 1997, 2010), Lavoie (1992, pp. 327–332, 417–422, 1995a, 1996c, 2010), Hein (2006a, 2006b, 2008, chaps 15–16), Dallery and van Treeck (2011), Sasaki (2011), Nikiforos (2013, 2016, 2021, 2023), Schoder (2012, 2014), Franke (2015, 2020), Setterfield (2019), Kemp-Benedict (2020), and Setterfield and Avritzer (2020).

<sup>27</sup> This section draws on Hein (2023a, chap. 5, 2024).

(1987). According to Hein (2023a, chap. 5, 2024), two variants of modelling have made it into post-Keynesian textbooks, the Blecker and Setterfield (2019, chap. 5) and Lavoie (1992, chap. 7, 2022, chap. 8) (BSL) approach, based on Dutt (1987), and the Hein and Stockhammer (2009, 2011) and Hein (2023a, chap. 5) (HS) approach, based on a foundation laid by Rowthorn (1977).<sup>28</sup> We will briefly review the basic closed economy variants of the modelling approaches.<sup>29</sup>

In the BSL variant, the basic model by Dutt (1987) has been followed by more elaborate variants by Dutt (1992), Cassetti (2002, 2003), Palley (2007, 2012b), Rochon and Setterfield (2007, 2012), Lima and Setterfield (2008), Setterfield (2009, 2023b), and Bastian and Setterfield (2015), among others. The main features, distinguishing this approach from the HS alternative, are that inflation expectations have no or only incomplete effects in the wage and price inflation equations of the models (incomplete ‘indexation’). Inconsistent claims generate constant inflation or deflation and constant functional distribution at any rate of employment, and there is no Robinsonian inflation barrier (Robinson 1956, pp. 48–50). Consistent claims generate zero inflation.

Closed economy textbook versions of this approach can be found in Blecker and Setterfield (2019, chap. 5) and Lavoie (1992, chap. 7, 2022, chap. 8). While Lavoie refrains from relating workers’ target real wage rate or wage share to the employment rate and rather prefers the growth rate of the employment rate as a determinant, Blecker and Setterfield (2019, chap. 5) have the workers’ targets affected by the level of economic activity. For the sake of comparability with the alternative approach, we follow their model in the short-run reformulation by Hein (2023a, chap. 5). Therefore, we have workers’ bargaining power and their target wage share ( $\Omega^T_w$ ) depending on the structure of the labour market and the social benefit system (union density, wage bargaining coverage, wage bargaining co-ordination, employment protection legislation, minimum wages, unemployment benefits, etc.) and positively affected by the level of economic activity and hence the employment rate ( $e$ ):

$$(6) \quad \Omega^T_w = 1 - h^T_w = \Omega_0 + \Omega_1 e, \quad 1 > \Omega_0 > 0, \Omega_1 \geq 0,$$

with  $\Omega_0$  and  $\Omega_1$  representing the structural features of the labour market, the wage bargaining and the social benefits system. The firms’ target profit share ( $h^T_F$ ) and thus their target wage share ( $\Omega^T_F$ ) is given by the constant mark-up in pricing, and thus the respective determinants of the mark-up, all included in  $h_0$ :

$$(7) \quad \Omega^T_F = 1 - h^T_F = 1 - h_0, \quad 1 > h_0 > 0.$$

<sup>28</sup> Rowthorn (1977) discusses different inflation regimes and also includes a low inflation regime in which workers’ wage setting does not fully respond to expected inflation, which then also generates a usual stable Phillips curve as in the BSL-approach.

<sup>29</sup> A systematic comparison of the two textbook approaches generating various model variants has been provided by Hein and Häusler (2024). See also Serrano et al. (2024). For an attempt at synthesis see Woodgate (2025b). For Kaleckian open economy conflict inflation models, see Cassetti (2002, 2012), Vera (2010, 2014), Blecker (2011), Sasaki et al. (2013), Charles and Marie (2016), Bortz et al. (2018, 2022), Bastian and Setterfield (2020), Lavoie (2022, chap. 8), and Hein (2023a, chap. 5, 2024). A review can be found in Jungmann et al. (2025).

Workers' wage inflation is determined by the deviation of the past period wage share from their target and by past period inflation, which is assumed to be usually incompletely 'indexed' (Lavoie 2022, p. 601):<sup>30</sup>

$$(8) \quad \hat{w}_t = \varphi_1 (\Omega_W^T - \Omega_{t-1}) + \varphi_2 \hat{p}_{t-1}, \quad \varphi_1 > 0, 1 \geq \varphi_2 \geq 0.$$

Firms' price inflation is determined by the deviation of their target wage share from past period's wage share and by current wage inflation, which is assumed to be usually incompletely passed through to current price inflation:<sup>31</sup>

$$(9) \quad \hat{p}_t = \pi_1 (\Omega_{t-1} - \Omega_F^T) + \pi_2 \hat{w}_t, \quad \pi_1 > 0, 1 \geq \pi_2 \geq 0.$$

From equations (6) – (9), we obtain for equilibrium price and wage inflation and the equilibrium wage share:

$$(10) \quad \hat{p}^* = \hat{w}^* = \frac{\varphi_1 \pi_1 (\Omega_0 + \Omega_i e + h_0 - 1)}{\varphi_1 (1 - \pi_2) + \pi_1 (1 - \varphi_2)},$$

$$(11) \quad \Omega^* = \frac{\frac{\varphi_1}{1 - \varphi_2} (\Omega_0 + \Omega_i e) + \frac{\pi_1}{1 - \pi_2} (1 - h_0)}{\frac{\varphi_1}{1 - \varphi_2} + \frac{\pi_1}{1 - \pi_2}}.$$

The assumptions of incomplete or no 'indexation' of workers in the wage inflation equation together with incomplete pass-through of wage inflation to price inflation thus generates a stable Phillips curve in equation (10) with  $\frac{\partial \hat{p}^*}{\partial e} > 0$  and a stable profit-squeeze distribution

curve in equation (11) with  $\frac{\partial \Omega^*}{\partial e} > 0$ . For a closed economy, we can add a wage-led demand regime, as usually found in empirical research applying the Kaleckian structural estimation approach referred to above, and, with constant labour productivity, hence a wage-led employment regime:

$$(12) \quad e = e(\Omega), \quad \frac{\partial e}{\partial \Omega} > 0.$$

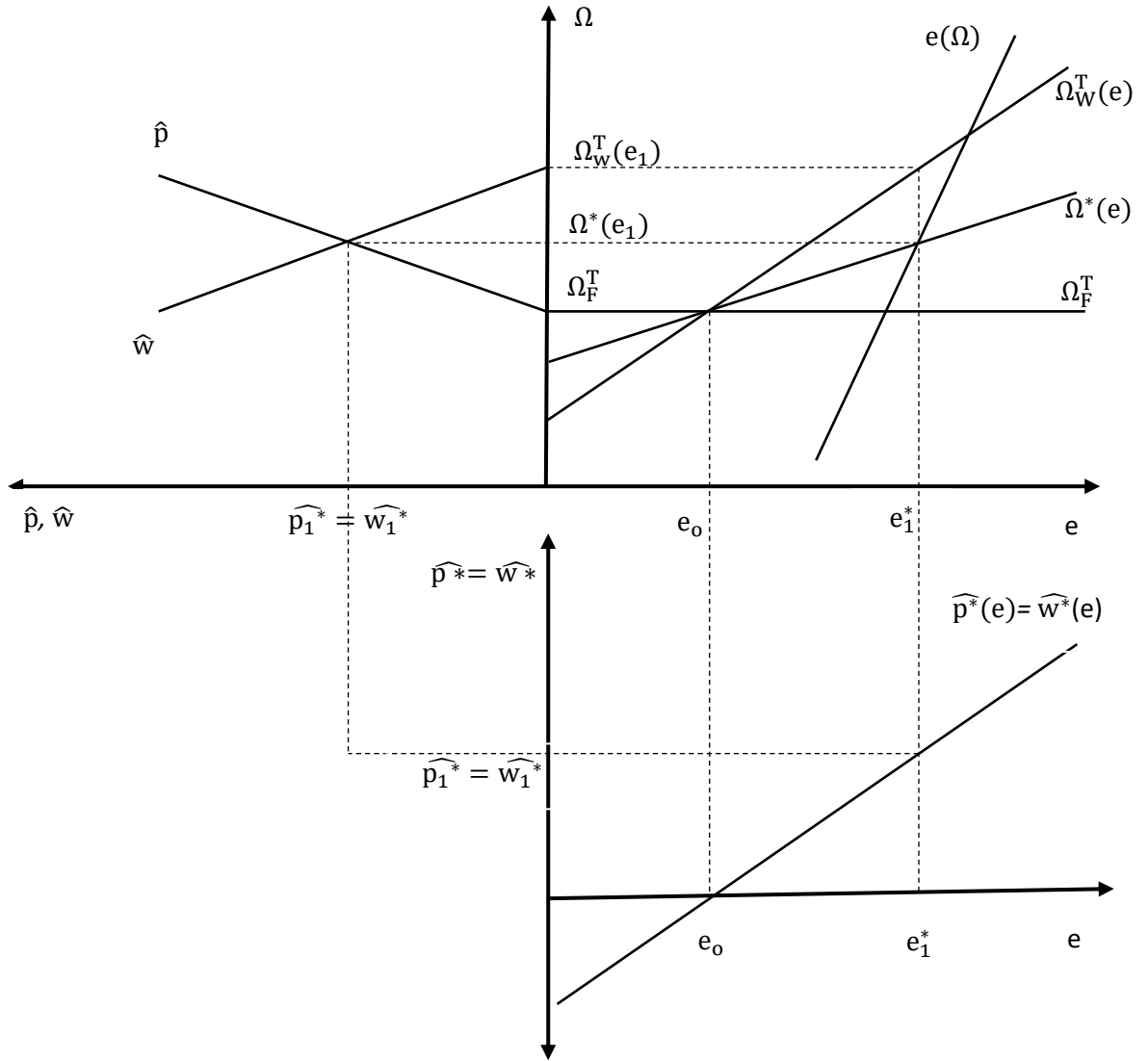
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<sup>30</sup> Also corner cases with full indexation  $\varphi_2 = 1$  or no indexation  $\varphi_2 = 0$  are discussed but are seen as little relevant.

<sup>31</sup> Also corner cases with full indexation  $\pi_2 = 1$  or no indexation  $\pi_2 = 0$  are discussed but are seen as little relevant.

The full model is displayed in Figure 3. In the upper-left quadrant we have the wage and price inflation equations (8) and (9). In the upper-right quadrant, the target wage shares of workers and firms from equations (6) and (7) are shown, as well as the profit-squeeze distribution curve from equation (11) and the wage-led employment curve from equation (12). The lower-right quadrant shows the Phillips curve from equation (10). As shown by Blecker and Setterfield (2019, chap. 5), the stability of the model equilibrium requires the employment curve in the upper-right quadrant to be steeper than the distribution curve. Such an equilibrium, given by the intersection of wage-led employment curve and profit-squeeze distribution curve, is shown in  $e_1^*, \Omega^*(e_1), \widehat{p}_1^* = \widehat{w}_1^*$ .

**Figure 3: The Blecker/Setterfield-Lavoie Kaleckian conflict inflation textbook model**



A structural improvement of workers' bargaining power, i.e. a rise in  $\Omega_0$  or  $\Omega_1$  in equation (6), will lead to an upwards shift/rotation of the workers' target wage share curve, the profit-

squeeze distribution curve (11), the wage inflation curve (8) and the Phillips curve (10). As a result, we will get higher equilibrium wage and price inflation, a higher equilibrium wage share and a higher equilibrium employment rate.

A higher target profit share of firms will shift their target wage share curve (7), the profit-squeeze distribution curve (11), and the price inflation curve (9) down each, and the Phillips curve (10) will shift up. We will get a lower equilibrium wage share and a lower employment rate, and depending on the slope of the employment curve, we may get higher or lower inflation in the new equilibrium.

As argued by Hein (2023a, chap. 5), it remains somewhat unclear why in the BSL models workers should aim at a higher wage share and hence raise wage inflation without fully taking into account expected price inflation. It implies that they systematically underestimate future inflation, if for the latter adaptive expectations are assumed. However, if past inflation in the wage inflation equation is meant to represent workers' attempt at making up past failures to reach their target real wage rates or wage shares, it seems to be redundant. This determinant of current wage inflation is already included in the wage share or real wage gap term of the equation, as pointed out by Hein and Häusler (2024) and Serrano et al (2024). Generally, it is unclear how power affects the different determinants in particular in the wage inflation equation of these models in a coherent way.

An alternative approach of modelling conflict inflation has been based on Rowthorn (1977), and was also applied by Sawyer (1997, 2002, 2006), Arestis and Sawyer (2005), Hein (2006a), Lavoie (2006b), Stockhammer (2008), Hein and Stockhammer (2010), for example, and presented in textbook frameworks by Hein and Stockhammer (2009, 2011) and Hein (2023a, chap. 5). The main feature of this HS approach, as compared to the BSL variant presented above, is the focus on adaptive inflation expectations of workers in the wage inflation equation. Inconsistent distribution claims generate unexpected, or unanticipated (Rowthorn 1977), (dis-)inflation and changes in distribution at any rate of employment. Only with consistent claims are constant inflation and constant distribution generated. There is hence always an inflation barrier, a 'non-accelerating inflation rate of unemployment' (NAIRU) or a 'stable inflation rate of employment' (SIRE). However, this SIRE is not a strong attractor of demand determined employment in the short run (Sawyer 2002). And in the long run, it is endogenous to aggregate demand and to economic policies through various channels: labour market persistence, endogenous aspirations, capital stock, real interest rate, tax rate and real exchange rate effects on target wage shares or real wage rates of firms and workers (Hein and Stockhammer 2010, Hein 2023a, chap. 5).

Closed economy textbook versions of this approach have been presented by Hein and Stockhammer (2009, 2011) in a Kaleckian growth model framework and Hein (2023a, chap. 5) in a short-run level framework. Here we follow the latter. Workers' and firms' target wage shares are given as in equations (6) and (7) above, from which a consistent claims rate of employment, the SIRE ( $e^N$ ), can be derived:

$$(13) \quad e^N = \frac{1 - h_0 - \Omega_0}{\Omega_1}$$

With  $e > e^N$ , we have a positive aspiration gap, i.e. workers' target wage share exceeds the firms' target, and workers try to improve the wage share, for given labour productivity by raising nominal wage inflation above expected price inflation. For the latter adaptive expectations are assumed, i.e.  $\hat{p}_t^e = \hat{p}_{t-1}$ . With  $e < e^N$ , we have a negative aspiration gap, i.e. workers' target wage share falls short of the firms' target, and workers are too weak to keep wage inflation in line with expected price inflation. We thus get:

$$(14) \quad \hat{w}_t = \omega(e_t - e^N) + \hat{p}_{t-1}, \quad \omega \geq 0.$$

Firms' price inflation in the aggregate can only partially pass-through the excess of wage (dis-)inflation given by the (un-)favourable employment rate, as Kalecki (1971, chap. 14), Rowthorn (1977) and Sylos Labini (1979) have argued:

$$(15) \quad \hat{p}_t = \vartheta \omega(e_t - e^N) + \hat{p}_{t-1}, \quad 1 \geq \vartheta \geq 0.$$

Unexpected inflation ( $\hat{p}^u$ ) in each period is thus given by:

$$(16) \quad \hat{p}_t^u = \hat{p}_t - \hat{p}_{t-1} = \vartheta \omega(e_t - e^N).$$

The excess of wage inflation over expected price inflation ( $w^x$ ) exceeds unexpected inflation in equation (16) because of the incomplete pass-through in the price inflation equation (15):

$$(17) \quad w^x = \hat{w}_t - \hat{p}_t^e = \hat{w}_t - \hat{p}_{t-1} = \omega(e_t - e^N).$$

Because of rising wage inflation with rising employment rates and incomplete pass-through to price inflation, we also obtain a profit-squeeze distribution curve:

$$(18) \quad \Omega = \Omega(e), \quad \frac{\partial \Omega}{\partial e} > 0.$$

For the closed economy model, we also have a wage-led demand regime, and with given labour productivity, a wage-led employment curve, as explained above. Furthermore, in a monetary production economy with creditor-debtor relationships between rentiers and firms, real debt effects of unexpected inflation have expansionary implications, if the 'normal case' (Lavoie 1995b) of real interest rate effects on aggregate demand and a 'debt burdened regime' prevail (Hein 2014, chap. 9):

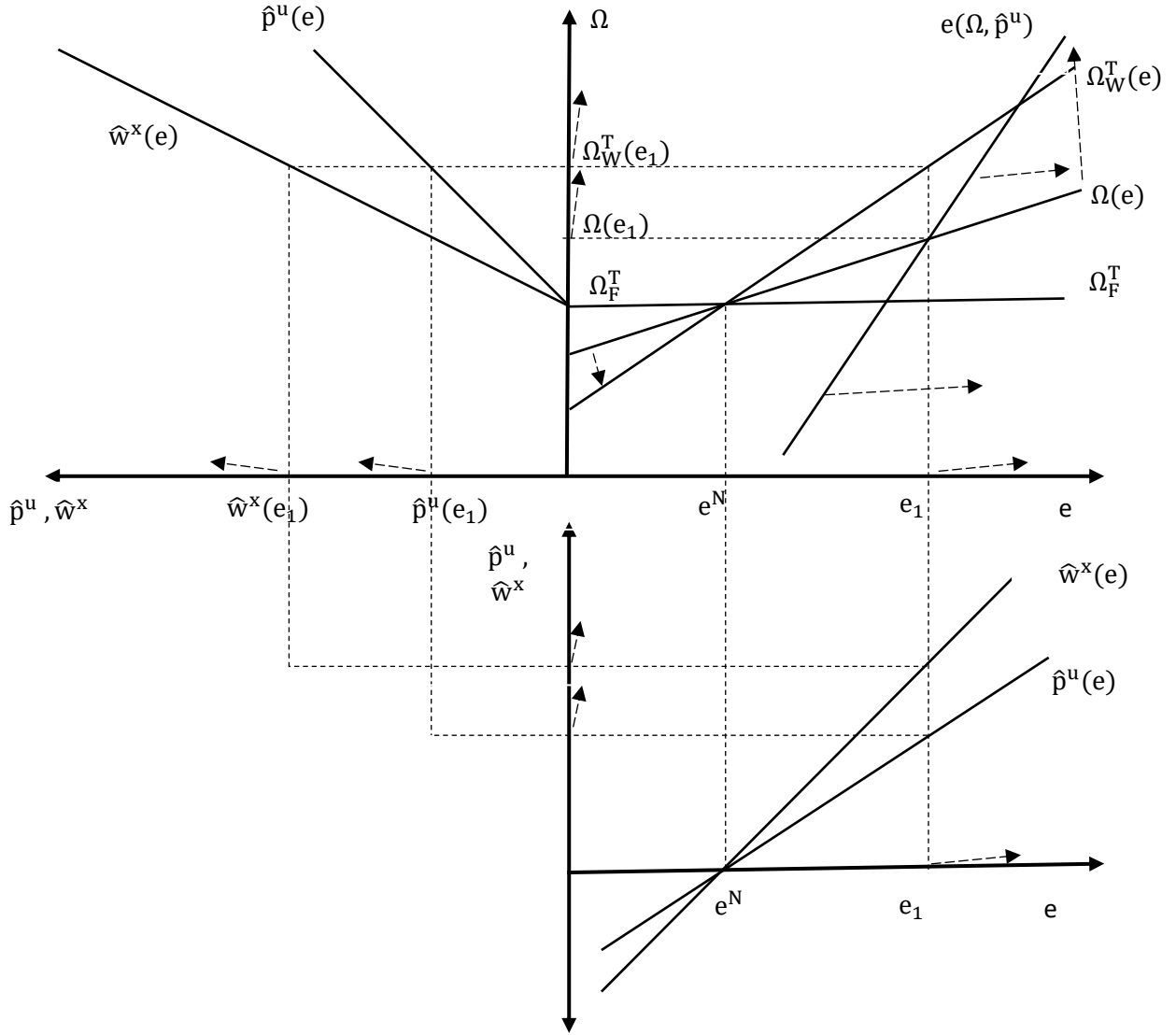
$$(19) \quad e = e(\Omega, \hat{p}^u), \quad \frac{\partial e}{\partial \Omega} > 0, \quad \frac{\partial e}{\partial \hat{p}^u} > 0.$$

The full model is shown in Figure 4. In the upper-right quadrant, we have the workers' and the firms' target wages shares from equations (6) and (7), the profit-squeeze distribution curve from equation (18) and the wage-led employment curve from equation (19). The upper-left quadrant and the lower-right quadrant show the unexpected inflation curve from equation (16) and excess wage inflation from equation (17). The model does not generate a stable Phillips curve. Only at the SIRE ( $e^N$ ) will wage and price inflation be equal and constant, unexpected price inflation and excess wage inflation will be zero, generating constant functional distribution, too. Any employment rate  $e \neq e^N$  will be associated with unexpected price (dis-)inflation and excess wage (dis-)inflation, and hence with rising or falling wage shares, which make the profit-squeeze distribution curve rotate towards the workers' target wage share curve. The intersection of profit-squeeze distribution and wage-led employment curve in  $e_1$  thus does not generate a stable equilibrium, because the distribution curve will rotate counter clockwise while the employment curve will shift to the right because of real debt effects of unexpected inflation. The employment rate will rise beyond  $e_1$  in this process and thus move even farther away from  $e^N$ . The SIRE/NAIRU is thus 'not a strong attractor' (Sawyer 2002) in the short run, and any deviation will lead to a cumulatively unstable process, with rising employment rates, rising unexpected inflation and rising excess wage inflation, the latter exceeding the former, and hence rising wage shares. The distribution claims equilibrium at the SIRE thus needs to be stabilised by adequate economic policies, as we will explain further below. Furthermore, beyond the short run, the SIRE turns endogenous with respect to actual employment and macroeconomic policies through various channels, like labour market persistence (hysteresis), endogenous wage aspirations, capital stock effects on pricing, interest rate and tax rate effects on wage share targets (Hein and Stockhammer 2010, 2011, Hein 2023a, chap. 5).<sup>32</sup>

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<sup>32</sup> For labour market persistence, see Stockhammer and Sturn (2012), Stockhammer et al. (2014). For wage aspirations based on conventional behaviour, see Skott (2005), Setterfield and Lovejoy (2006), Stockhammer (2008, 2011), and Nishi and Stockhammer (2020). For the effect of the capital stock, see Rowthorn (1995, 1999), Sawyer (2002), and Arestis and Sawyer (2005). For the interest cost channel, see Hein (2006a) and Lima and Setterfield (2010, 2014).

**Figure 4: The Hein/Stockhammer Kaleckian conflict inflation textbook model**



A structural improvement of workers' bargaining power, i.e. a rise in  $\Omega_0$  or  $\Omega_1$  in equation (7), will lead to an upwards shift/rotation of the workers' target wage share curve (7) and of the profit-squeeze distribution curve (18). The wage-led employment curve (19) will shift to the right because of higher unexpected inflation. In the lower-right quadrant, the unexpected inflation curve (16) and the excess wage inflation curve (17) will shift up. As a result, we will get a lower SIRE, but a higher employment rate, higher unexpected inflation, higher excess wage inflation and a higher wage share in the new temporary position.

A higher target profit share of firms will shift their target wage share curve (7) and the profit-squeeze distribution curve (18) down. The wage-led employment curve (19) will shift to the right because of higher unexpected inflation. In the lower-right quadrant, the unexpected inflation curve (16) and the excess wage inflation curve (17) will shift up. As a result, we will get a lower SIRE. The temporary effects on the other variables are undetermined. With a weak real debt effect on the shift of the employment curve, the employment rate will fall, and with



a flat employment curve, also unexpected inflation and excess wage inflation may go down in the new temporary position. However, then the rotation of the distribution curve and the shift of the employment curve will raise the employment rate and drive up unexpected inflation and excess wage inflation again.

These basic Kaleckian conflict inflation models have gained prominence and attention again since the early 2020s, with the increase in inflationary pressure in the course of the recovery from the Covid-19 crisis and the Russian war on Ukraine. Several authors, starting from either variant, have generated more refined Kaleckian models and empirical applications, like Setterfield (2023b), Wildauer et al. (2023), Charles et al. (2024), Gallo and Rochon (2024), Hein (2024), Lavoie (2024a, 2024b), Matamaros (2024), Nikiforos et al. (2024), Rolim (2024a, 2024b), Rolim and Marins (2024), and Sawyer (2024). One of the issues has been to specify the conditions under which we may see the simultaneous rise in inflation and profit shares, as in the recent inflationary processes, and whether this is always an indication of ‘seller’s inflation’ (Weber and Wasner 2023), in the sense that greedy firms have increased mark-ups. Kaleckian models show that this is only one channel through which the observed phenomenon may occur. Inflation and profit shares may rise simultaneously, even if mark-ups remain constant, if (imported) raw material and semi-finished product prices rise, if the sectoral composition of the economy shifts in favour of high mark-up sectors, and due to unit fixed cost digression in an economic recovery (Hein 2024, Lavoie 2024a).

When it comes to tackling conflict inflation and stabilising demand and employment at stable inflation rates, Kaleckians have rejected the economic policy mix advocated by new consensus macroeconomics (NCM). According to the NCM, central banks should apply inflation targeting interest rate policies, assuming that this will affect employment in the short run but only inflation in the long run. Labour market institutions and wage bargaining should provide flexible nominal and real wages, and thus a low NAIRU, and fiscal policies should support monetary policies in attaining the inflation target by balancing the budget over the cycle. As explained in Arestis and Sawyer (1998, 2013a), Sawyer (2009, 2020), Hein and Stockhammer (2010), Arestis (2013, 2015), and Hein (2023a, chap. 6), for example, Kaleckian/post-Keynesians rather rely on organised labour markets, coordinated wage bargaining and incomes policies aligning the claims of the different actors in order to provide stable inflation and stable functional income distribution. Functional finance fiscal policies should manage aggregate demand at non-inflationary full employment levels, both in the short and the long run, and should make use of progressive income and wealth taxes for reducing inequality. Monetary policies should target low long-term interest rates, below long-run GDP growth (either in real or nominal terms), and should stabilise the financial sector by other tools than the interest rate (credit controls, creditworthiness standards, reserve requirements, etc.).<sup>33</sup>

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<sup>33</sup> For applications of such a policy model to the institutional conditions of the Eurozone, see, for example, Arestis and Sawyer (2013b), Sawyer (2013), Hein and Detzer (2015), and Hein and Martschin (2020).

## 5. Conclusions

In this contribution we have reviewed the development of Kaleckian economics after Kalecki. We have refrained from reviewing the rich literature on presenting and interpreting Kalecki's work, but the focus has been on the developments and applications of Kaleckian economics during the recent decades. For this purpose, we first reviewed the contributions by Josef Steindl as the main foundational contributor to Kaleckian economics, besides Kalecki himself. Then we touched upon two important areas of modern Kaleckian economics, which have seen many ramifications since the 1970s. First, we reviewed the literature on the Kalecki-Steindl distribution and growth models and its various developments and applications to different areas. Then we looked into the Kaleckian models of conflict inflation, their recent applications and the associated macroeconomic policy implications.

We hope to have shown that Kaleckian economics, as a major strand of post-Keynesian economics, provides a coherent and consistent alternative to modern mainstream economics, based on the notion of distributional struggle and the relevance of the principle of effective demand, both in the short and the long run. Of course, it goes without saying that although quite comprehensive in the chosen areas, our review is far from complete in the sense of providing a full picture of Kaleckian economics after Kalecki. The review has been on Kaleckian economics as applied to mature capitalist economies – and here the focus has been on macroeconomics. We have had little to say on developments in Kaleckian (or post-Keynesian) analysis of pricing beyond Steindl's contributions, for example. Furthermore, we have not shed any light on Kaleckian development economics, or on Kaleckian economics applied to post-capitalist economies. This has to be left to other reviewers better equipped for these areas.

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