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Inflation is always and everywhere … a conflict phenomenon: Post-Keynesian inflation theory and energy price driven conflict inflation

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Inflation is always and everywhere ... a conflict phenomenon: post-Keynesian inflation theory and energy price driven conflict inflation

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Inflation is always and everywhere ... a conflict phenomenon: post-Keynesian inflation theory and energy price driven conflict inflation, distribution, demand and employment

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Abstract

This paper reviews the post-Keynesian theory of inflation against the background of the simultaneous rise in inflation and profit shares in the course of the Covid-19 recovery and the Russian war in Ukraine. It distinguishes between the Keynes, Kaldor, Robinson, and Marglin tradition, and the Kalecki, Rowthorn, and Dutt tradition. Two prototype models in the latter tradition—the Dutt, Blecker/Setterfield and Lavoie variant, and the Rowthorn and Hein/Stockhammer variant—are discussed. The paper applies the latter to elucidate recent inflation trends propelled by increasing imported energy prices and then rising mark-ups. The effects of inflation-targeting central bank interest policies versus a post-Keynesian alternative macroeconomic policy approach are evaluated. It is argued that from a post-Keynesian perspective *inflation is always and everywhere a conflict phenomenon*, with different potential triggers. Adequate policies should thus focus on moderating distribution conflict by incomes policies, complemented by central banks targeting low long-term real interest rates, functional finance fiscal policies and international coordination of inflation targets.

JEL code: E12, E25, E31, E61

Key words: conflict inflation, post-Keynesian models, imported energy inflation shock

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1. Introduction

With the rise in inflation since 2021, the debate on the causes of inflation is back on the agenda, in economic research and in economic policies. Several empirical studies have argued that the rise in inflation in the course of the recovery from the Covid-19 crisis and the Russian war in Ukraine has been associated with rising profits or rising profit shares in several countries, not only in the USA (Bivens 2022, Dullien et al. 2023, Ferguson/Storm 2023, Konczal/Lusiani 2022, Matamaros 2023, Stiglitz/Regmi 2023, Ragnitz 2022, Storm 2022a, 2022b, Tölgyes/Piecek 2023). Several causes for this have been put forward: higher import prices, higher energy prices, bottlenecks due to disruptions in global value chains in the production of goods, higher mark-ups of firms for several reasons, and changes in the structure of demand. Weber/Wasner (2023) have probably been most prominent in arguing the current inflation can best be understood as profit-driven inflation or as ‘sellers’ inflation’, as opposed to (government spending driven) excess aggregate demand driven or excess money supply driven inflation. They have distinguished three stages of the process towards rising inflation rates:

(1) Rising prices in systemically significant upstream sectors due to commodity market dynamics or bottlenecks create windfall profits and provide an impulse for further price hikes. (2) To protect profit margins from rising costs, downstream sectors propagate, or in cases of temporary monopolies due to bottlenecks, amplify price pressures. (3) Labor responds by trying to fend off real wage declines in the conflict stage. (Weber/Wasner 2023: 183)

Of course, these observations contradict the monetarist explanation of inflation, based on Milton Friedman’s (1970: 24) famous saying that ‘(i)nflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output’. In this contribution, we will thus discuss how the recent observations of rising inflation and rising profits or profit shares can be interpreted from the perspective of the post-Keynesian theory of inflation. In opposition to the monetarist view, the post-Keynesian approach can be summarised by arguing that *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*.¹

As will be explained from different post-Keynesian perspectives in this paper, inflation as a persistent process thus requires inconsistent claims of the main group of actors, which may then be modified by inflation expectations. These can be broadly distinguished as follows: (1) capitalists’ claims, including firms, rentiers and landowners, on unit profits or the profit share, including retained profits, interest, dividends, and rents; (2) workers’ claims on the real wage or the wage share; (3) government’s claims in terms of net tax revenues; and (4) the external sector’s claim via the value of imports of the domestic economy. Inflation may thus

¹ Also in some recent and not so recent variants of orthodox economics, inflation has been modelled as conflict inflation. See, for example, the textbook presentations in Blanchard (2017) and Carlin/Soskice (2009, 2015), and recently Bernanke/Blanchard (2023) and Lorenzoni/Werning (2023).

be triggered by an increase in claims of one or more of these groups of actors, which is not matched by a decline of the claims of any other group of actors. Inflation may hence be generated (1) by an increase in capitalists' real profits or profit share claims, triggered by excess demand, changes in the degree of price competition, or higher interest or dividend claims, which will generate profit-driven conflict inflation. It may be generated (2) by an increase in workers' real wage or wage share claims, triggered by changing bargaining conditions in the labour market (employment, wage bargaining and labour market institutions), which will give rise to wage-driven conflict inflation. It may be generated (3) by an increase in government claims, executed by a change in taxes, social transfers and subsidies, which will generate tax-driven conflict inflation. Finally, it may be generated (4) by a change in the claims of the external sector, hence rising import prices or a nominal depreciation of the domestic currency, which will generate external cost/import price driven conflict inflation. If the claims of any actor rise, this will only lead to a rise in relative price/wage levels. If other actors accept the related change in income distribution, no persistent inflation will emerge, but just an increase in relative price/wage levels. Only if other actors do not accept the distribution effects of the change in claims, inflation will arise as a persistent process. In this sense, *inflation is always and everywhere a conflict phenomenon*, and the distinction between different types of inflation (demand-pull, cost-push, imported, etc.), also quite widespread in the post-Keynesian literature, can only relate to the trigger but not to the essence of inflation.

In what follows we will elaborate on this post-Keynesian view on inflation. We will start by distinguishing two traditions of post-Keynesian inflation theory according to the different determination of the profit share claims of the capitalists. In Section 2, we will outline the Keynes, Kaldor, Robinson and Marglin tradition, in which the profit share claims are affected by excess demand in the goods market, assuming normal rates of utilisation of productive capacities and demand determined prices in this market. Section 3 will then turn to the Kalecki, Rowthorn and Dutt tradition, in which the rate of capacity utilisation is variable beyond the short run, industrial and service sector prices are cost-determined and the profit share claims are hence affected by the determinants of the mark-up and the structure of inputs. In this section, we will outline two prototype post-Keynesian/Kaleckian inflation models. The first is the Dutt, Blecker/Setterfield and Lavoie variant, which derives a stable upwards sloping Phillips curve and a stable profit-squeeze distribution curve. The second is the Rowthorn and Hein/Stockhammer variant, in which inflation and distribution are only constant at the employment rate providing consistent income claims, while inconsistent claims generate changes in inflation and distribution, with destabilising feedback effects on aggregate demand and employment. Section 4 will then introduce the effect of rising imported energy prices into the Rowthorn, Hein/Stockhammer variant and discuss different economic policy responses. Section 5 will summarise and conclude.

2. Post-Keynesian theory of inflation I: The Keynes, Kaldor, Robinson tradition and Marglin's reconciliation of real wage resistance and the principle of effective demand

The first strand of post-Keynesian theories of inflation goes back to Keynes (1930, 1936), Kaldor (1955/56, 1957) and Robinson (1956, 1962), and has then been modelled in Marglin's (1984) synthesis of Keynesian and Marxian elements in the theory of distribution and growth. It is assumed that firms operate at the normal or target rate of utilisation of productive capacities given by the capital stock and that changes in demand thus trigger changes in prices. Target profit shares of firms are thus affected by excess demand in the goods market. With the economy operating at the normal or target rate of utilisation, flexible prices in the goods market relative to sticky nominal wages allow saving to adjust to investment through a variation in income distribution, if the propensity to save out of profits exceeds the propensity to save out of wages. The increase in prices will then be a temporary equilibrium adjustment phenomenon. Inflation as a persistent process only arises if workers resist re-distribution, as Kaldor (1959: 292, emphasis in original) has pointed out:

Without a continued rise in money wages inflation could not go on as a *process* in time - since whatever forces were present in the economy making for a rise in prices, they could only have caused a once-and-for-all rise in prices which would in itself have served to eliminate the excess demand that gave rise to it.

2.1 Keynes: income and profit inflation

The roots of this approach can be found in Keynes's (1930: ch. 10) 'fundamental equations for the value of money' in *A Treatise on Money*. There, the price level in a closed economy is determined by 'the rate of efficiency earnings' (costs of production including normal capital costs) and the difference between investment and saving per unit of output, i.e. excess demand in the goods market:²

$$(1) \quad p = \frac{W + \Pi_n}{Y} + \frac{pI - S}{Y} = \frac{w}{y} + r_n v + \frac{pI - S}{Y},$$

with p for the price level, W for wages, Y for real output, Π_n for normal profits at the goods market equilibrium ($pI = S$), I for real investment, S for nominal private saving, w for the nominal wage rate ($w = W/L$), y for labour productivity ($y = Y/L$), L for labour input, r_n for the normal rate of profit at the goods market equilibrium ($r_n = \Pi_n/K$), related to the normal rate of utilisation assumed to be equal to unity here ($u_n = Y/Y^P = 1$), v for the capital-potential output ratio ($v = K/Y = K/Y^P$), K for the capital stock and Y^P for potential output given by the capital stock. Keynes (1930: 155) then distinguishes between 'income inflation' and 'profit inflation'. While income inflation (or deflation) is caused by changes in the rate of efficiency

² Keynes (1930: ch. 10) presents this separately for consumption and investment goods, but here we assume just one hybrid good.

earnings, profit inflation (or deflation) is caused by the inequality of saving and investment and hence by excess demand in the goods market.

In the chapter on ‘the theory of prices’ in the *General Theory*, Keynes (1936: ch. 21) makes a similar distinction. Here, he refers to ‘semi-inflation’, caused by discontinuous increases in wage units below full employment, determined by the psychology of workers and by policies of employers and trade unions, and to ‘absolute (true) inflation’, triggered by an increase in effective demand at full employment, i.e. by excess demand, causing rises in prices and money wages (Keynes 1936: 301-302).

Keynes’s (1930: ch. 10) fundamental equation for the value of money can be extended to the open economy with a government (Heine/Herr 2023: ch. 9), assuming that the domestic economy imports raw materials and semi-finished products from the rest of the world. These enter domestic production which is then partly exported:

$$(2) \quad p = \frac{W + ap_f M + \Pi_n}{Y} + \frac{pI - S + G - T + pEx - ap_f Im}{Y}$$

$$= \frac{w}{y} + ap_f \mu + r_n v + \frac{pI - S + G - T + pEx - ap_f Im}{Y},$$

with a for the nominal exchange rates (units of domestic currency per unit of foreign currency), p_f for the foreign price level, M for imported raw materials and semi-finished products, G for nominal government expenditures, T for nominal tax revenues, Ex for real exports, Im for real imports, and μ for the raw material and semi-finished input-output ratio ($\mu = M/Y$). As can be seen from equation (2), a domestic currency depreciation or a rise in import prices has an ambiguous effect on the domestic price level and hence inflation. It raises the equilibrium price level through an increase in costs, but it lowers the disequilibrium price component through a leakage of demand and hence through lowering excess demand. However, the interaction between income and profit inflation in Keynes’s work, or between semi- and absolute inflation, remains somewhat unclear. So far, we only have a distinction between different causes for a change in the price level, which might generate inflation.

2.2 Kaldor and Robinson: flexible prices provide long-run equilibrium adjustment with real wage resistance leading to an inflation barrier

In Kaldor’s (1955/56) ‘Keynesian theory of distribution’, changes in the price level relative to nominal unit labour costs, and hence changes in functional income distribution, eradicate excess demand and return the system to an I-S growth equilibrium in the long run, provided that the propensity to save out of profits exceeds the propensity to save out of wages. Robinson (1956, 1962) has put forward similar models. While Kaldor assumed normal utilisation of productive capacities given by the capital stock and full employment, Robinson only assumed the former but not the latter. Both approaches show that Keynes’s principle of effective demand, i.e. that investment is independent of saving and the latter adjusts to the former, is also valid for long-run growth models.

A basic textbook version of the Kaldor-Robinson post-Keynesian distribution model is presented in Figure 1.³ It is assumed that in the long run the rate of capacity utilisation is at the firms' target or normal rate (u_n). With given technical conditions of production and a given capital-potential output ratio (v), the rate of profit (r) and the wage share (Ω) are thus inversely related, as shown in the upper-left quadrant. In the upper-right quadrant we find the rate of capital accumulation as determined by animal spirits and the rate of profit ($g = I/K = \alpha + \beta r$). Assuming the propensity to save out of wages to be zero, the saving rate is determined by the propensity to save out of profits and the profit rate ($\sigma = S_n/K = s_n r$). The equilibrium of accumulation rate and saving rate determines the firms' target rate of profit (r^T_F) and equilibrium distribution, i.e. the equilibrium profit rate (r^*) and the related equilibrium wage share (Ω^*), which is equal to the firms' target wage share (Ω^T_F), as well as equilibrium accumulation and growth (g^*). Higher animal spirits lead to higher equilibrium accumulation and growth, a higher equilibrium profit rate and a lower wage share. A higher propensity to save out of profits has the adverse effects, hence lower equilibrium accumulation and growth, a lower profit rate and a higher wage share. The paradox of saving is thus valid in the long run, too. The adjustment towards the long-run growth equilibrium is shown in the lower-right quadrant: It takes place via price inflation (\hat{p}) if $g > \sigma$ and via price deflation if $g < \sigma$, assuming rigid wages and nominal unit labour costs. Inflation and deflation are thus equilibrium adjustment phenomena.

The adjustment towards such a long-run distribution and growth equilibrium can be blocked, if workers resist lowering the real wage rate and the wage share below some conventional level. Such a real wage resistance may then lead to an inflation barrier, as pointed out by Robinson (1956: 48-50, 1962: 58-59) and shown in Figure 2.⁴ The target profit rate of firms (r^T_F), given by the goods market equilibrium, and the target profit rate of workers (r^T_W), given by their target wage share (Ω^T_W), are inconsistent. Therefore, the goods market equilibrium cannot be attained, and we will get a price-wage-price spiral fed by persistent excess demand in the goods market, which generates price inflation, and real wage resistance of workers in the labour market, which generates wage inflation (\hat{w}). If there is real wage resistance of workers, a price-wage-price spiral may also be triggered by currency devaluations, as pointed out by Robinson (1938) in her explanation of the great German inflation 1922-23, or by rising prices of imported commodities, as pointed out by Kaldor (1976), as a cause for rising price and wage inflation in the developed capitalist economies in the early/mid 1970s.

³ For more extensive presentations of the Kaldor-Robinson first generation post-Keynesian distribution and growth models, see Blecker/Setterfield (2019: ch. 3), Hein (2014: ch. 4), and Lavoie (2022: ch. 6), for example.

⁴ Kaldor (1959) has endogenised workers' wage share targets, arguing that high profits may induce workers to try to share in rising profits, triggering a profit-wage-price spiral.

Figure 1: The post-Keynesian Kaldor-Robinson distribution and growth model

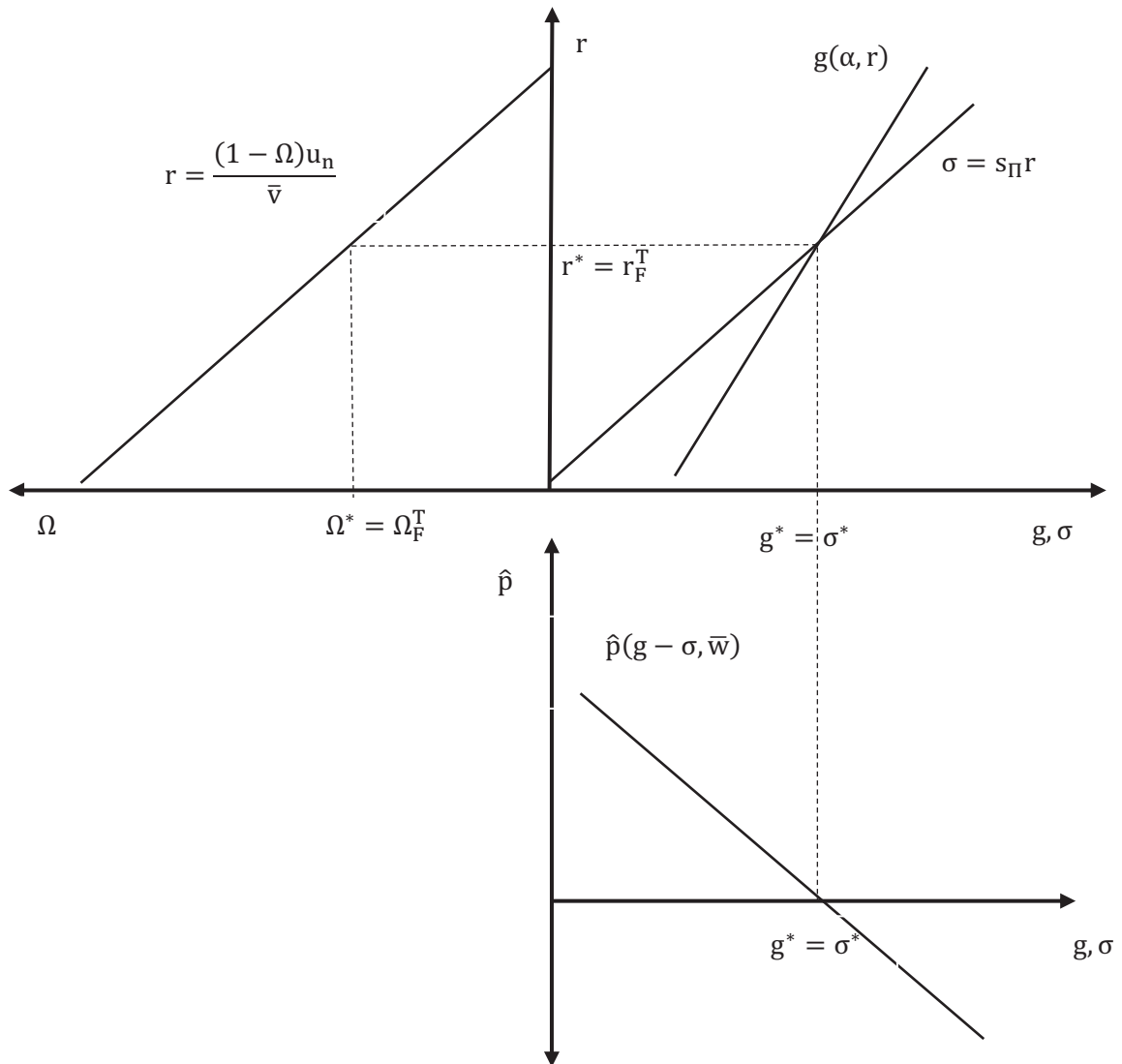
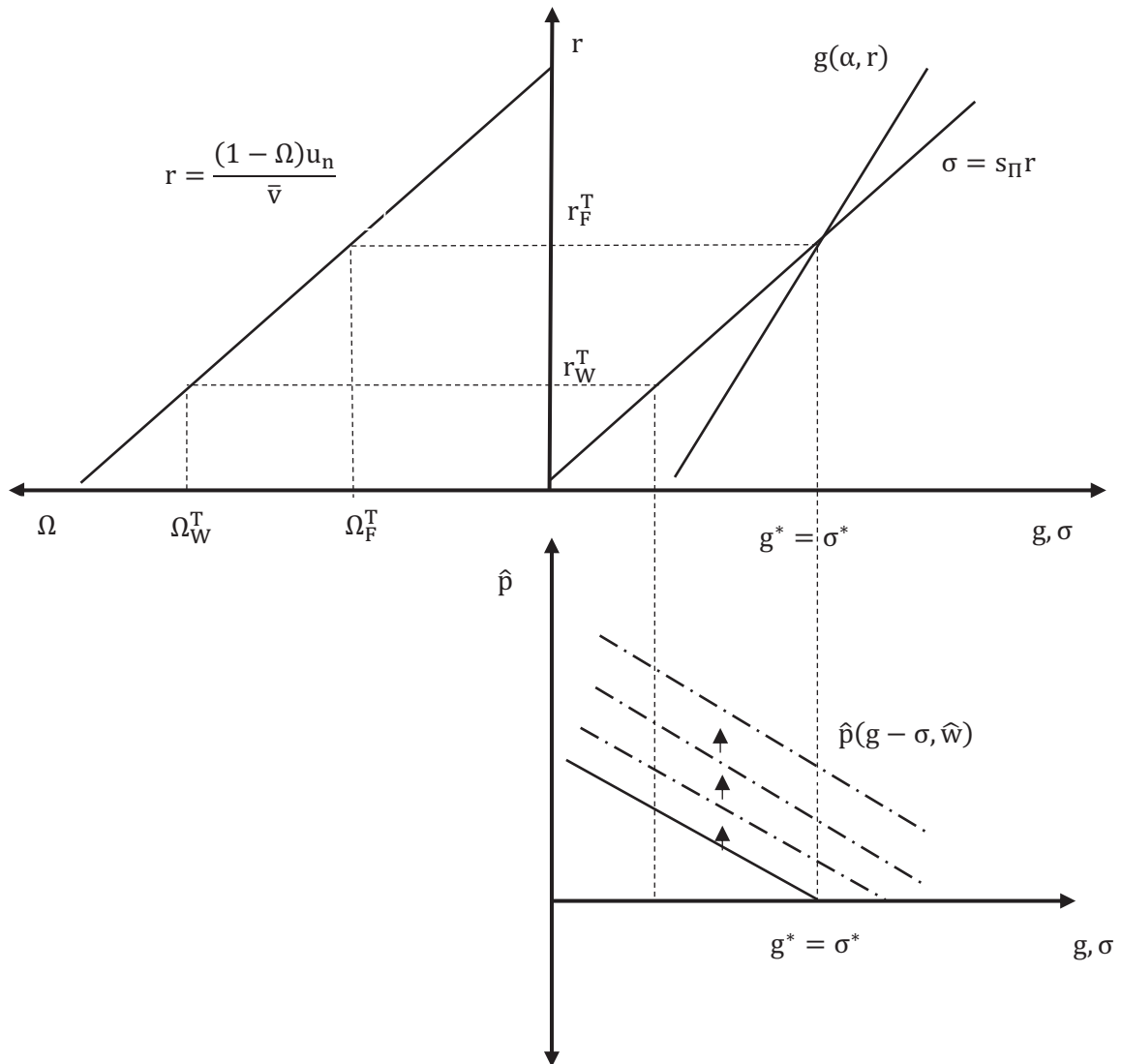


Figure 2: The post-Keynesian Kaldor-Robinson distribution and growth model: the inflation barrier



2.3 Marglin: the reconciliation of real wage resistance and the principle of effective demand in a hybrid model

While inconsistent distribution targets of workers and firms in the Kaldor-Robinson post-Keynesian distribution and growth model lead to price-wage-price spirals and hence to rising rates of inflation, Marglin (1984) has provided a version of the model which generates constant inflation if targets of workers and firms are inconsistent. He calls this model a hybrid model with Marxian features, workers try to defend a target real wage rate or wage share, and post-Keynesian features, capitalists' target profit rate is determined by aggregate demand in the Kaldor-Robinson way. This overdetermined model is presented in Figure 3. The assumption of the economy operating at the normal rate of capacity utilisation and the determinants of investment and saving are the same as in the upper quadrants of Figure 2, which represents the textbook version of the post-Keynesian Kaldor-Robinson distribution and growth model. The crucial change can be found in the lower-right quadrant, where it is assumed that wage inflation depends positively on the distance of the wage share from the workers' target or on the distance of the workers' target profit rate from the realised profit rate [$\hat{w}(r - r_W^T)$], while price inflation depends positively on the deviation of the rate of profit from the firms' target rate [$\hat{p}(r_F^T - r)$]. With this modification, Marglin derives an 'equilibrium' of wage and price inflation ($\hat{w} = \hat{p}$), at which income distribution is thus constant, while neither firms nor workers reach their targets, and firms are unable to realise their investment plans. In this model, a higher propensity to accumulate, and thus a higher target profit rate of firms, leads to higher wage and price inflation, a higher profit rate and a higher accumulation rate. The relationship between economic activity and inflation will thus be in line with the Phillips curve. A higher target wage share of workers leads to higher wage and price inflation, a lower profit rate and a lower accumulation rate, hence the opposite of the Phillips curve relationship between economic activity and inflation. Furthermore, as Marglin (1984) shows, the paradox of thrift is no longer generally valid in this model and only holds when the accumulation function is very profit rate elastic.

Introducing the effects of an imported energy price shock in Figure 4, we can follow Harcourt's (2006: ch. 6) application of the Marglin (1984) model to post-World War II growth episodes in the developed capitalist economies. According to Harcourt, the oil price shock of the early/mid 1970s lead to an increase of the workers' target wage share in domestic income in order to protect their real wages, and thus to a lower target profit rate of workers. Furthermore, firms' animal spirits were dampened, and, extending the model towards open-economy features, the export surplus declined because of rising import prices. This lowered aggregate demand in the goods market and hence the firms' target profit rate. In the case shown in Figure 4, this generated lower accumulation, a lower profit rate, a higher wage share and higher inflation, hence stagflation, as in the 1970s. With a stronger negative effect on aggregate demand and hence on the firms' target profit rate, or a weaker negative effect on the workers' target profit rate, also a combination of lower accumulation, lower profit rate, higher wage share and lower inflation would be possible, and hence a disinflationary or deflationary slowdown or recession.

Figure 3: Marglin's (1984) reconciliation of real wage resistance and the principle of effective demand

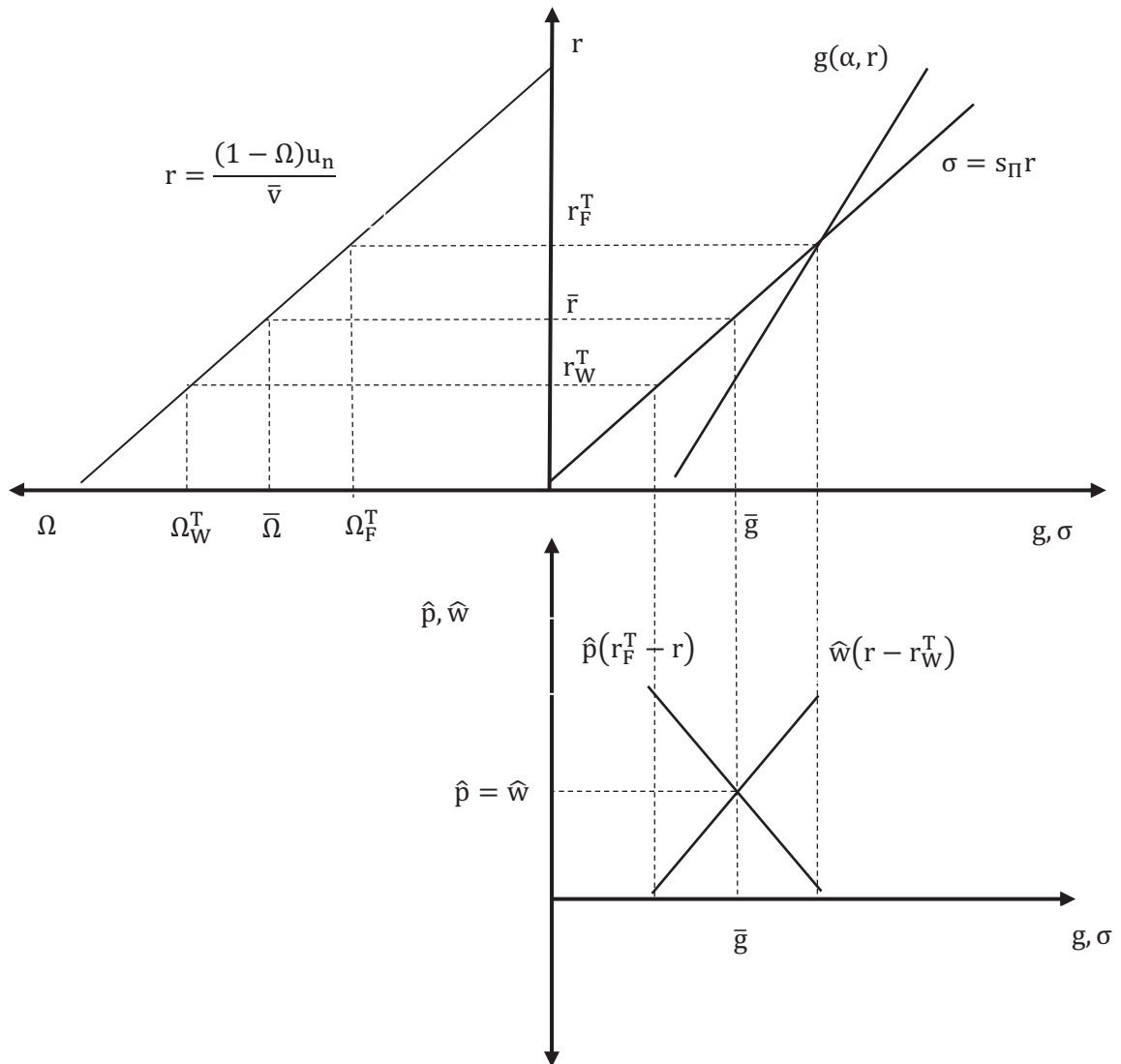
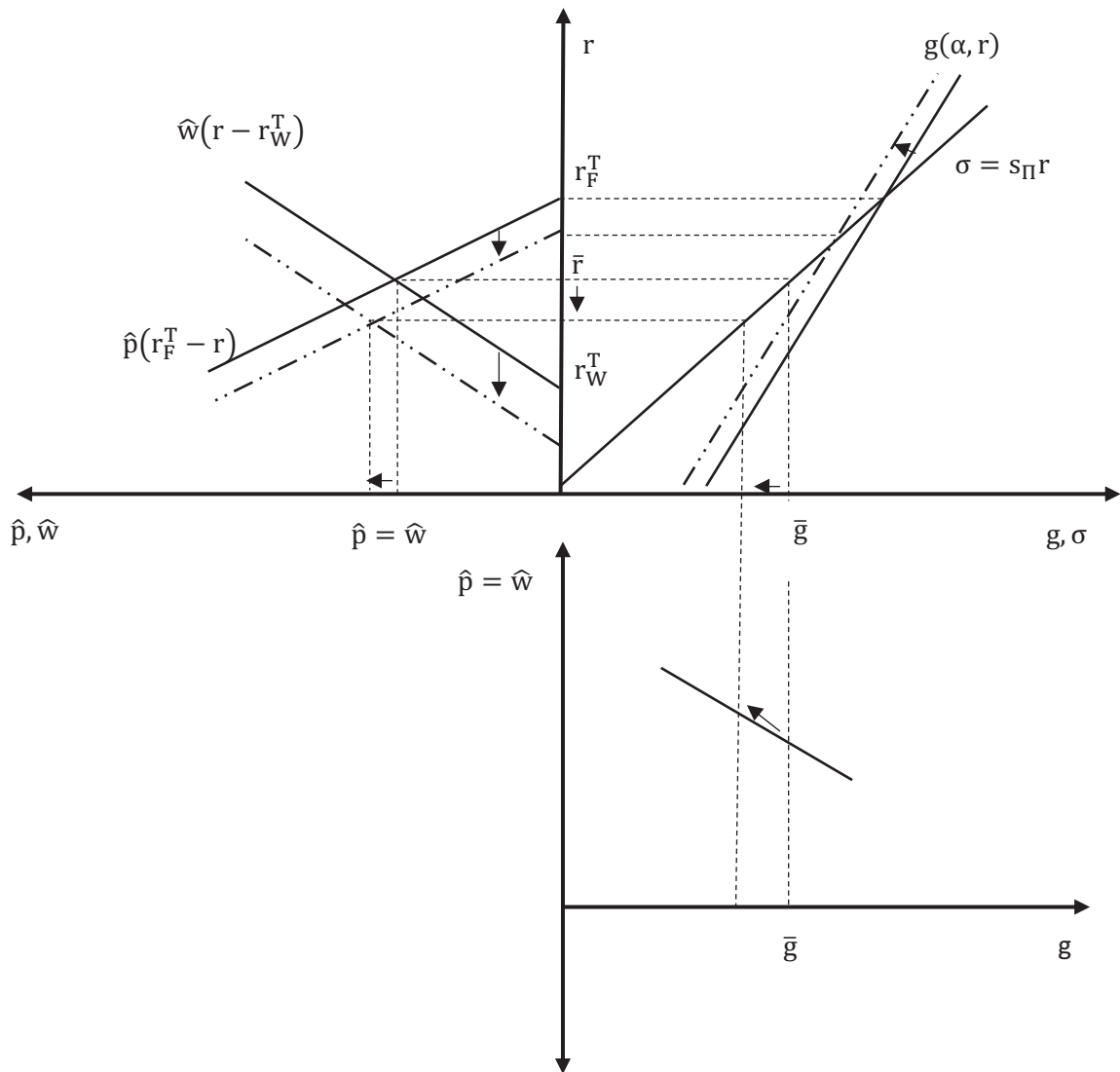


Figure 4: An increase in imported energy prices in Marglin's (1984) model



The Marglin (1984) model has been criticised by Dutt (1987) and Nell (1985) because it assumes permanent normal utilisation of productive capacities, which rules out quantity adjustment towards changes in demand. Increases in the workers' target wage share are always contractionary, and wage-led demand and growth regimes are thus impossible. Increases in energy prices have no direct effect on the firms' target profit rate, and the indirect effects via excess demand are negative, which means that rising energy prices and rising profit rates or profit shares are impossible. Finally, the assumption regarding the wage and price inflation equations seems to be quite specific – the further away from the respective target the higher is wage or price inflation. Furthermore, wage and price inflation equations do not take into account inflation expectations and thus do not allow for inflation persistence.

3. Post-Keynesian theory of inflation II: The Kalecki, Rowthorn, Dutt tradition and the modern textbook presentations in the Blecker/Setterfield and Lavoie and in the Hein/Stockhammer variant

Different from the Keynes, Kaldor, Robinson, Marglin tradition, the Kalecki (1954, 1971), Rowthorn (1977) and Dutt (1987) tradition in post-Keynesian inflation theory allows for variable rates of capacity utilization beyond the short run, and changes in demand thus cause changes in output and capacity utilization.⁵ Prices in oligopolistic or monopolistic industry and service sectors are set by firms following some cost-plus pricing strategy. Only in the primary sector with inelastic supply, changes in demand trigger changes in prices. Target profit shares of firms are thus mainly affected by those factors, which determine their cost-plus pricing in the goods market.⁶

3.1 Kalecki: Mark-up pricing, inflation and distribution

According to Kalecki (1954, chs. 1-2, 1971, chs. 5-6), firms in industry and services set prices by a mark-up on constant unit variable costs. The mark-up is determined by the degree of price competition, overhead costs, and the bargaining power of trade unions. Changes in the real rate of interest may have an impact on the mark-up through the overhead cost effect.⁷ In a basic open economy version of this model, in which the domestic economy imports raw materials and intermediate products and exports part of its final output (Hein/Vogel 2008), prices are thus set as:

$$(3) \quad p = [1 + m(i_r)] \left(\frac{W}{Y} + p_r a \frac{M}{Y} \right) = (1 + m) \left(\frac{w}{y} + p_r a \mu \right), \quad m > 0, \quad \frac{\partial m}{\partial i_r} \geq 0,$$

⁵ For presentations of the Kalecki-Steindl post-Keynesian distribution and growth models, see Blecker/Setterfield (2019: ch. 4), Hein (2014: chs. 5-11), and Lavoie (2022, ch. 6).

⁶ Weintraub's (1979, 1981/82) theory of prices and distribution has some similarities with Kalecki's theory, generating that the wage-cost mark-up k is the determinant of functional income distribution, which is assumed to be historically constant. Price inflation is thus caused by and equal to nominal wage inflation. The latter has no distributional effects, different from Kalecki's claim, as we will see below.

⁷ A potentially interest-elastic mark-up provides a link of the Kaleckian approach with Classical-Keynesian or neo-Ricardian monetary theories of distribution and inflation, as for example outlined by Stirati (2001).

with p for domestic prices, m for the mark-up, i_r for the real rate of interest, W for nominal wages, Y for real output, a for the nominal exchange rate, M for imported raw materials and semi-finished products, p_f for prices of imported foreign goods in foreign currency, w for the nominal wage rate, y for labour productivity, and μ for the raw material/semi-finished products-output ratio. Defining the ratio z of unit material to unit labour costs as:

$$(4) \quad z = \frac{p_f a \mu}{\frac{w}{y}},$$

the profit share (h), including overhead costs, in domestic value added is given by:

$$(5) \quad h = \frac{\Pi}{pY} = \frac{\Pi}{\Pi + W} = \frac{m \frac{w}{y} (1+z)}{m \frac{w}{y} (1+z) + \frac{w}{y}} = \frac{m(1+z)}{m(1+z)+1} = \frac{1}{\frac{1}{m(1+z)} + 1}.$$

The domestic profit share including overheads, and hence the domestic wage share of direct labour ($\Omega = 1-h$), thus depend on:

- the mark-up and its determinants, i.e. the degree of price competition, overhead costs and the bargaining power of trade unions, with a potentially positive effect of the real interest rate via overhead costs,
- the ratio of unit imported raw material costs to unit direct wage costs, i.e. the nominal exchange rate, the foreign price level, and the domestic wage rate or nominal unit labour costs, and
- the firm composition of industries and the sectoral composition of the domestic economy, because mark-ups and z -ratios will vary across firms and sectors.

With given technical conditions of production (constant y and μ), domestic prices and profit shares will thus rise simultaneously, if the mark-up, the nominal exchange rate, or the foreign price level rise, or if the firm and sectoral composition shifts towards high profit share firms and sectors. If the increase in the profit share is caused by a fall in the nominal wage rate, it will be associated with a fall in the domestic price level.

Even with a constant mark-up, a rise in the profit share is thus possible through a real devaluation of the domestic currency (falling nominal wages, rising foreign prices, nominal devaluation) or through a change in the firm and sectoral composition of the domestic economy towards high profit share sectors and firms. Furthermore, with overhead labour and mark-up pricing on constant unit variable costs (or target rate of return pricing on unit normal costs), the profit share excluding overhead labour salaries varies pro-cyclically with output (Hein 2023: 77-78, Lavoie 2022: ch. 3.6, ch. 5.5). The total wage share for direct and overhead labour thus moves counter-cyclically, and the overhead labour share in total compensation of employees varies counter-cyclically, too.

Rising workers' bargaining power and rising money wages can affect distribution at a given level of output through two main channels. First, even with a constant mark-up rising nominal wages will raise the domestic wage share by means of lowering the z-ratio, but also increase the domestic price level, however less than the domestic wage rate (or domestic unit labour costs, if we take into account rising labour productivity). Second, as pointed out by Kalecki (1971: ch. 14) in 'class struggle and distribution of national income', and in line with the determinants of the mark-up listed above, an increase in money wages may squeeze the mark-up, and we will see an increase in the wage share and in the price level or in inflation:

A redistribution of national income from profits to wages will take place then. But this redistribution is much smaller than that which would obtain if prices were stable. The rise in wages is to a great extent „shifted to consumers“. (...) (T)he day-by-day bargaining process is an important co-determinant of the distribution of national income. (Kalecki 1971: 162-164)

Sylos Labini (1979) has provided some microeconomic foundations for such an effect of changes in money wages on distribution and prices, taking into account some heterogeneity among firms and thus some differentials in unit labour cost growth within industries.⁸ With nominal wages rising, only firms with the highest productivity growth can fully pass wage increases to prices, while firms with lower productivity growth have to reduce the mark-up to remain price competitive – the average industry mark-up thus falls. With nominal wages falling, the firms with lowest productivity growth have to fully pass this on to prices, while firms with higher productivity growth do not have to – the average industry mark-up rises. Such an incomplete pass-through of changes in domestic nominal wages or unit labour costs to prices for the industry as a whole will be reinforced, if the industry is faced with foreign competitors who are not exposed to the change in domestic wages, as pointed out by Blecker (1989).

In the next sections, we will present two basic ways of modelling distribution conflict, inflation, distribution and employment in a Kaleckian framework, a variant which is based on Dutt (1987) and an alternative variant inspired by Rowthorn (1977).⁹

3.2 The Dutt, Blecker/Setterfield and Lavoie approach of modelling distribution conflict, inflation, distribution and employment in a post-Keynesian/Kaleckian framework

The first approach of modelling distribution conflict, inflation, distribution, demand and employment in a post-Keynesian/Kaleckian framework is based on Dutt's (1987) critique of Marglin's (1984) model, and it has provided the foundations for later, more elaborate work by

⁸ Tarling/Wilkinson (1985) have presented an alternative explanation for distributional effects of nominal wage setting based on lags between wage and price setting.

⁹ A more detailed presentation of the two basic post-Keynesian/Kaleckian models of distribution conflict, inflation, distribution and employment can be found in Hein (2023: ch. 5). Hein/Häussler (2023) provide a set of intermediate model versions and results in between these two prototypes, depending on the specification of targets and of inflation expectations.

Cassetti (2002, 2003), Dutt (1992), Palley (2007, 2012), Rochon/Setterfield (2007), Setterfield (2009, 2023), and others. The main features, distinguishing this approach from the alternative based on Rowthorn (1977) to be discussed below, 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. Consistent claims generate zero inflation.

Dutt (1987) has criticised Marglin (1984) for excluding below full capacity equilibria and thus the possibility of wage-led growth. But he follows Marglin (1984) in modelling wage inflation as a positive function of the difference between the workers’ target real wage rate and the actual real wage rate, with labour productivity given and constant and price inflation as a positive function of the difference between the actual real wage rate and the firms’ target real wage rate, given by their mark-up in pricing. In Dutt (1987), respective targets are exogenous and are affected by relative bargaining powers, while in Dutt (1992) target real wages of workers and firms are endogenised and depend on the level of economic activity, the employment rate for workers’ target real wage rate and the rate of capacity utilisation for firms’ target.¹⁰ A rise of workers’ bargaining power leads to higher real wages and a higher wage share, higher inflation, and will stimulate growth in a wage-led economy. We thus have a Phillips curve relationship between economic activity and inflation. A fall of capitalists’ power will also lead to higher real wages and a higher wage share, but to lower inflation, associated with higher demand and growth in a wage-led economy, i.e. the opposite of a Phillips curve relationship between economic activity and inflation. Inflation expectations are not explicitly discussed.

Closed economy textbook versions of this approach can be found in Blecker/Setterfield (2019: ch. 5) and Lavoie (1992: ch. 7, 2022: ch. 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/Setterfield (2019: ch. 5.2.3) 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 (2023: ch. 5.2.1). Therefore, we have workers’ bargaining power and their target wage share (Ω^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) and positively affected by the level of economic activity and hence the employment rate (e):

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

¹⁰ Dutt (1992) also distinguishes below and full capacity utilisation and thus combines the approaches by Marglin (1984) and Dutt (1987). Price inflation in that model then depends on the divergence of the actual real wage rate from the firms’ target and also on excess demand in the goods market.

with Ω_0 and Ω_1 representing the structural features of the labour market, the wage bargaining and the social benefits system. The firms' target profit share (h_F^T) and thus their target wage share (Ω_F^T) is given by the constant mark-up in pricing, and thus the respective determinants outlined above and included in h_0 :

$$(7) \quad \Omega_F^T = 1 - h_F^T = 1 - h_0, \quad 1 > h_0 > 0.$$

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 incompletely 'indexed' (Lavoie 2022: 601):

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

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 incompletely passed through to current price inflation:

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

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

$$(10) \quad \hat{p}^* = \hat{w}^* = \frac{\varphi_1 \pi_1 (\Omega_0 + \Omega_1 e + h_0 - 1)}{\varphi_1 (1 - \pi_2) + \pi_1 (1 - \varphi_2)},$$

$$(11) \quad \Omega^* = \frac{\frac{\varphi_1}{1 - \varphi_2} (\Omega_0 + \Omega_1 e) + \frac{\pi_1}{1 - \pi_2} (1 - h_0)}{\frac{\varphi_1}{1 - \varphi_2} + \frac{\pi_1}{1 - \pi_2}}.$$

The assumptions of incomplete or no 'indexation' and hence of constant or sticky inflation expectations 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,¹¹ and, with constant labour productivity, hence a wage-led employment regime:

¹¹ For empirical multi-country results on the distribution-led nature of demand and growth, which make use of the structural or single equation estimation approach, and which find wage-led demand results for domestic

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

The full model is displayed in Figure 5. 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 (8) 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/Setterfield (2019: ch. 5.3), 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 $e_1^*, \Omega^*(e_1), \widehat{p}_1^* = \widehat{w}_1^*$.

A structural improvement of workers' bargaining power, i.e. a rise in Ω_0 or Ω_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.

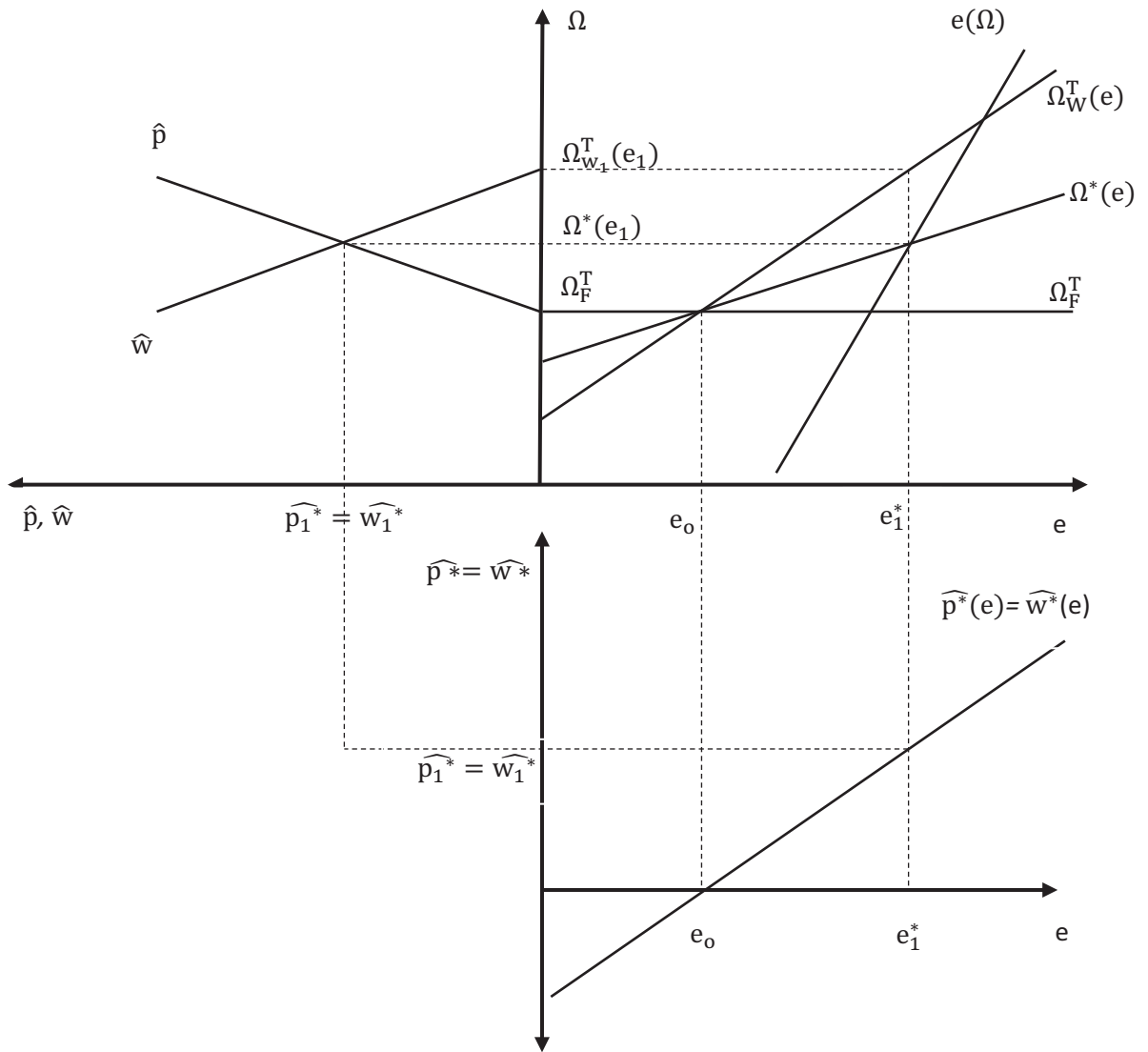
A higher target profit share of firms will shift their target wage share curve (7), the profit-squeeze distribution curve (11), and the price inflation curve (9) down each, and the Phillips curve (10) will shift up. We will get a lower equilibrium wage share and a lower employment rate, and depending on the slope of the employment curve, we may get higher or lower inflation in the new equilibrium.¹²

As argued by Hein (2023a: ch. 5), it remains somewhat unclear why in the Blecker/Setterfield and Lavoie model 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. A similar argument holds for the firm sector and the price inflation equation. It is not clear why firms not fully incorporate current period wage inflation into price inflation if they are sufficiently powerful to aim at a higher profit share and hence a lower wage share.

demand throughout, i.e. excluding the effect of distributional changes on net exports, see Hartwig (2014), Onaran/Galanis (2014) and Onaran/Obst (2016).

¹² A very flat wage-led employment curve, i.e. a strong effect of the decline in the wage share on the employment rate, may over-compensate the upwards shift in the Phillips curve, such that we get a decline in equilibrium inflation in this case.

Figure 5: Conflicting claims, distribution and inflation in the Dutt, Blecker/Setterfield and Lavoie framework



3.3 The Rowthorn and Hein/Stockhammer approach of modelling distribution conflict, inflation, distribution and employment in a post-Keynesian/Kaleckian framework

An alternative approach of modelling inflation, distribution and employment in a post-Keynesian/Kaleckian framework can be based on Rowthorn (1977). Similar approaches have later been used by Arestis/Sawyer (2005), Hein (2006), Hein/Stockhammer (2010), Lavoie (2006), Sawyer (2002), and Stockhammer (2008), for example. The main feature of this approach, as compared to the first variant presented above, is the focus on adaptive inflation expectations of workers in the wage inflation equation. Inconsistent distribution claims generate unexpected (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, although ‘(...) there is a NAIRU at any point in time, (...) it is neither exogenous nor is it a strong attractor for actual unemployment’, as pointed out by Stockhammer (2008: 500-501). The consistent claims equilibrium is thus endogenous to aggregate demand and to economic policies through various channels, endogenous aspirations, labour market persistence, capital stock, real interest rate, tax rate and real exchange rate effects on targets (Hein/Stockhammer 2010, Hein 2023: ch. 5).

Rowthorn (1977) has laid the foundations for this approach. Assuming that distribution targets of workers and firms depend on unemployment and capacity utilisation, i.e. on surplus labour and surplus capacity, he has argued that an aspiration gap, i.e. inconsistent targets of workers and firms, generates unanticipated inflation, hence accelerating inflation if the aspiration gap remains. Rowthorn thus generates a Philips curve for unanticipated inflation with the claims of the government, net taxes, and the claims of the foreign sectors, import prices, as shift factors. Only if inflation is very low, past inflation determining workers’ inflation expectations may not enter wage inflation and a Phillips curve for inflation may arise as in the Dutt, Blecker/Setterfield and Lavoie approach. Furthermore, the pass-through of wage inflation to price inflation is incomplete, therefore:

The working class can shift distribution in its favour by fighting more vigorously for higher wages, although the cost of such militancy is a faster rate of inflation, as capitalists try, with only partial success to protect themselves by raising prices. Likewise, capitalists can shift distribution in their favour by pursuing a more aggressive profits policy, but workers fight back, so that once again the rate of inflation rises. The former shifts distribution in favour of wages and the latter in favour of profits. (Rowthorn 1977: 224)

Closed economy textbook versions of this approach have been presented by Hein/Stockhammer (2009, 2011) in a growth model framework and Hein (2023: ch. 5.2.2) 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:

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

For the reasons put forward by Sylos Labini (1979), firms' price inflation in the aggregate can only partially pass-through the excess of wage (dis-)inflation given by the (un-)favourable employment rate:

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

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 1995) of real interest rate effects on aggregate demand and a 'debt burdened regime' prevail (Hein 2014: ch. 9):

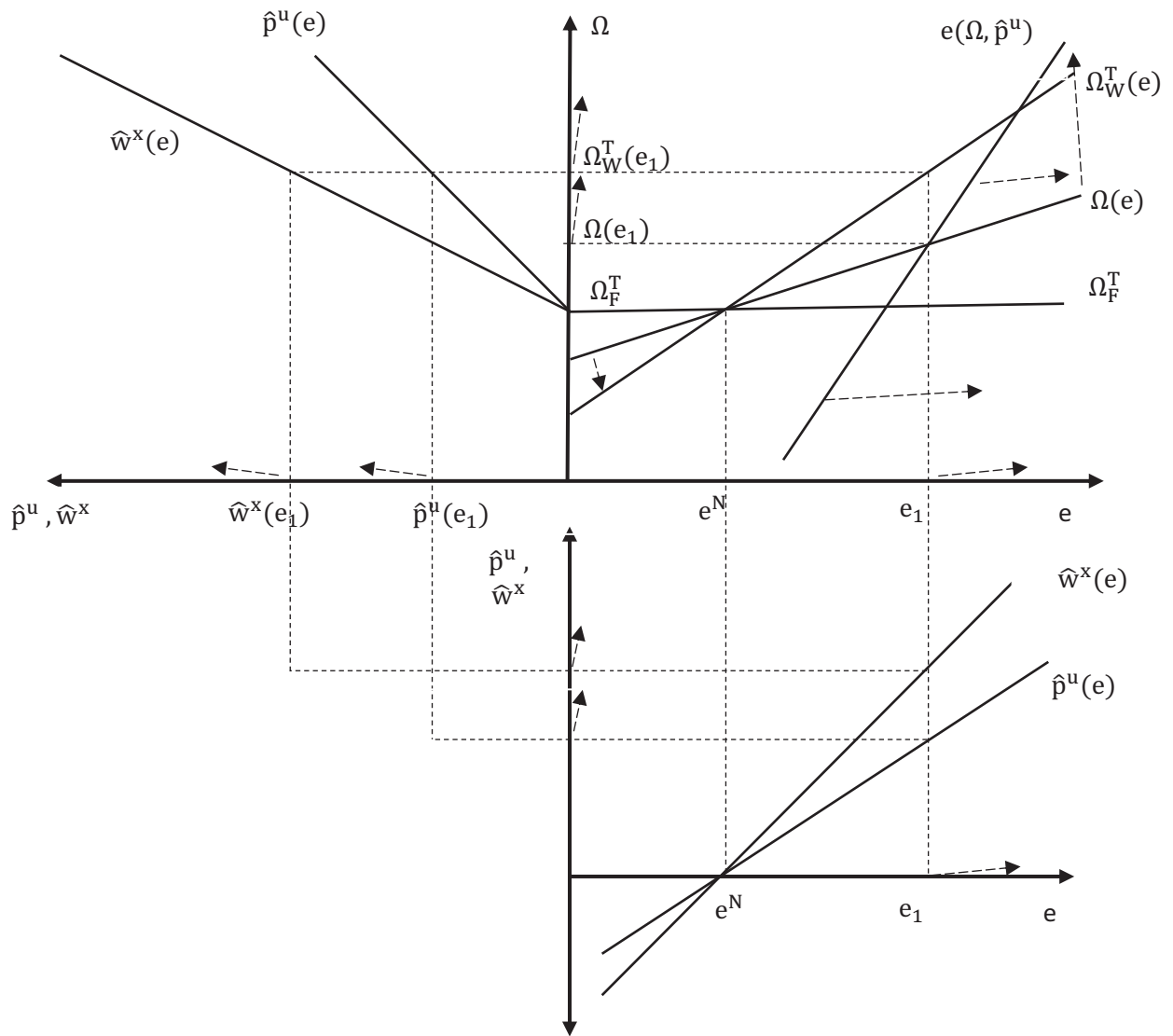
$$(19) \quad e = e(\Omega, \hat{p}^u), \quad \frac{\partial e}{\partial \Omega} > 0, \quad \frac{\partial e}{\partial \hat{p}^u} > 0.$$

The full model is shown in Figure 6. 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 makes 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, since excess wage inflation will exceed unexpected price inflation, and 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), 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.

A structural improvement of workers' bargaining power, i.e. a rise in Ω_0 or Ω_1 in equation (6), will lead to an upwards shift/rotation of the workers' target wage share curve (6) 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.

Figure 6: Conflicting claims, changes in distribution and unexpected inflation in the Rowthorn and Hein/Stockhammer framework



4. Effects of an imported energy price increase and policy implications in the Rowthorn and Hein/Stockhammer approach

The effects of an increase in imported energy prices can now be discussed in an open economy extension of the Rowthorn and Hein/Stockhammer approach.¹³ We will present a four-step qualitative graphical analysis:

1. An increase in imported energy prices and hence in the real exchange rate hits the domestic economy starting from a SIRE distribution equilibrium.
2. Firms take advantage of supply constraints and increase mark-ups.
3. An inflation-targeting central bank drives long-term real interest rate up.
4. A Post-Keynesian alternative policy approach will be outlined.

For our analysis, we assume that workers only buy from domestic firms, such that their distribution target does not change,¹⁴ and we can thus keep equation (6) for the workers' target wage share, equation (14) for wage inflation and equation (17) for excess wage inflation. From equation (5) for the profit share in the open economy, it follows that the firms' target profit/wage share is now determined by their target mark-up and the ratio z of unit material to unit wage costs from equation (4). For a constant technology, i.e. constant labour productivity (y) and a constant raw material/semi-finished product-output ratio (μ), this ratio is affected by foreign inflation relative to domestic wage and price inflation, and by the nominal exchange rate. Therefore, we can take the firms' target profit share and their target wage share to be co-determined by the real exchange rate, as in the open economy conflict inflation models by Bastian/Setterfield (2020), Blecker (2011), and Lavoie (2022: ch. 8.):

$$(20) \quad \Omega_F^T = 1 - h_F^T = 1 - h_0 - h_1 a_r, \quad h_0, h_1 > 0.$$

An increase in imported energy prices (or inflation), relative to domestic nominal wages and prices (or inflation), thus raises the real exchange rate and lowers the firms' target wage share.¹⁵ Therefore, for the open economy, we get the following consistent claims rate of employment, the SIRE, from equations (6) and (20):

¹³ Here, we follow Hein (2023: ch. 5.7) with one exception. While in Hein (2023: ch. 5.7) it is assumed that changes in the real exchange rate only affect firms' target wage share with some lags and firms' only pass through persistent changes in prices for imported raw materials and semi-finished products, we now assume that this pass-through is immediate. For post-Keynesian open economy models of conflict inflation in the Dutt, Blecker/Setterfield and Lavoie tradition, see Bastian/Setterfield (2020), Blecker (2011), Lavoie (2022: ch. 8), Sasaki et al. (2013), and Vera (2014), for example. For a similar approach from a Classical-Keynesian or neo-Ricardian monetary perspective, see Morlin (2023).

¹⁴ This is different from the models by Bastian/Setterfield (2020) and Lavoie (2022: ch. 8), where the real exchange rate also enters the workers' target wage share, and from Blecker (2011), where it is not included into the workers' target, but into the wage inflation equation, which has rightly been criticised by Bastian/Setterfield (2020).

¹⁵ While in our short-run model the nominal exchange rate is exogenous and the real exchange rate is fully endogenous to the inflation differential between the domestic and the foreign economies, Bastian/Setterfield (2020), Blecker (2011), Lavoie (2022: ch. 8.) and Vera (2014), for example, have linked this with real exchange rate targeting by nominal exchange rate policies. However, it remains somewhat unclear what exactly these policies are supposed to be. See Hein (2023: ch. 6) for a discussion.

$$(21) \quad e^N = \frac{1 - h_0 - h_1 a_r - \Omega_0}{\Omega_1}$$

For price inflation, we can now even assume complete pass-through of total wage inflation without changing the qualitative results. Based on the pricing equation (3), with a constant mark-up (m) and constant technology (y, μ), we get for price inflation:

$$(22) \quad \hat{p}_t = \xi_1 \hat{w}_t + \xi_2 (\hat{p}_t + \hat{a}_t) = \xi_1 [\omega (e_t - e^N) + \hat{p}_{t-1}] + \xi_2 (\hat{p}_t + \hat{a}_t),$$

with $\xi_1 = \frac{(1+m)w/y}{p}$, $\xi_2 = \frac{(1+m)p_f a \mu}{p}$, and hence $\xi_1 + \xi_2 = 1$. Even if fully passed through, wage

inflation will exceed price inflation, if foreign inflation plus the growth rate of the nominal exchange rate fall short of domestic wage inflation. Unexpected inflation is given by:

$$(23) \quad \hat{p}_t^u = \hat{p}_t - \hat{p}_{t-1} = \xi_1 \omega (e_t - e^N) + \xi_2 (\hat{p}_t + \hat{a}_t - \hat{p}_{t-1}).$$

If the expected real exchange rate is constant and hence $a_r^e = \hat{p}_t + \hat{a}_t - \hat{p}_{t-1} = 0$, unexpected price inflation will fall short of excess wage inflation, and we also get the profit-squeeze distribution curve from equation (18). Furthermore, at any employment rate the distribution curve will rotate towards the workers' target wage share.

For the reason pointed out above, we assume a wage-led domestic demand regime, and with constant labour productivity, employment is assumed to be wage-led, too. Unexpected inflation has a positive effect on the employment rate because of real debt effects. Furthermore, the real exchange has positive effects on aggregate demand and employment, if the Marshall-Lerner condition holds and net exports are positively affected by a rise in the real exchange rate, i.e. by a real depreciation of the domestic currency:

$$(24) \quad e = e(\Omega, \hat{p}^u, a_r), \quad \frac{\partial e}{\partial \Omega} > 0, \frac{\partial e}{\partial \hat{p}^u} > 0, \frac{\partial e}{\partial a_r} > 0.$$

To illustrate the effects of an increase in imported energy price and foreign inflation and hence in the real exchange rate in Figure 7.1, we start with an equilibrium at the SIRE at $e_1 = e_1^N, \Omega_1 = \Omega_W^T = \Omega_F^T, \hat{p}_1^u = 0$. The increase in the real exchange rate shifts the firms' target wage share curve in the upper quadrant down from Ω_{F1}^T to Ω_{F2}^T , and the profit-squeeze distribution curve moves down from $\Omega_1(e)$ to $\Omega_2(e)$. The real devaluation shifts the wage-led employment curve to the right from $e_1(\Omega)$ to $e_2(\Omega)$. The unexpected inflation curve in the lower quadrant shifts up from $\hat{p}_1^u(e)$ to $\hat{p}_2^u(e)$. We will thus get a new temporary position at $e_2 > e_2^N, \Omega_W^T > \Omega_2 > \Omega_F^T, \hat{p}_2^u > 0$, with a lower SIRE and a lower employment rate exceeding

the new SIRE. The wage share will be lower, associated with rising inflation rates (positive unexpected inflation), as observed in the studies referred to in the introduction, without firms having raised mark-ups. Interestingly, this unstable position contains some forces which move the economy back towards the initial equilibrium: Unexpected inflation lowers the real exchange rate, raises the firms' target wage share, raises the SIRE and shifts the unexpected inflation curve down. The profit-squeeze distribution curve is also shifted up, and it may rotate towards the workers' target wage share curve. The effect of unexpected inflation on the employment curve is ambiguous: a falling real exchange rate shifts the curve to the left, real debt effects of unexpected inflation shift it to the right. Taken together, positive effects on the employment rate may emerge as well.

However, these counter-stagflation forces do not become effective, if firms take the opportunity of bottlenecks and supply chain problems and increase the mark-up, as highlighted in the empirical studies referred to in the introduction. The effects are shown in Figure 7.2. An increase in the target mark-up shifts the firms' target wage share curve further down to Ω_{F3}^T , and the profit-squeeze distribution curve moves down to $\Omega_3(e)$. Rising domestic inflation and the loss of international price competitiveness shifts the wage-led employment curve to the left to $e_3(\Omega)$. The unexpected inflation curve shifts up further to $\hat{p}_3^u(e)$. The economy thus moves to a new temporary position at $e_3 > e_3^N, \Omega_W^T > \Omega_3 > \Omega_F^T, \hat{p}_3^u > 0$, with a lower SIRE and a lower employment rate exceeding the new SIRE, a lower wage share, and higher unexpected inflation, each compared to the previous position.

Figure 7.1: An increase in imported energy prices in the Rowthorn and Hein/Stockhammer framework

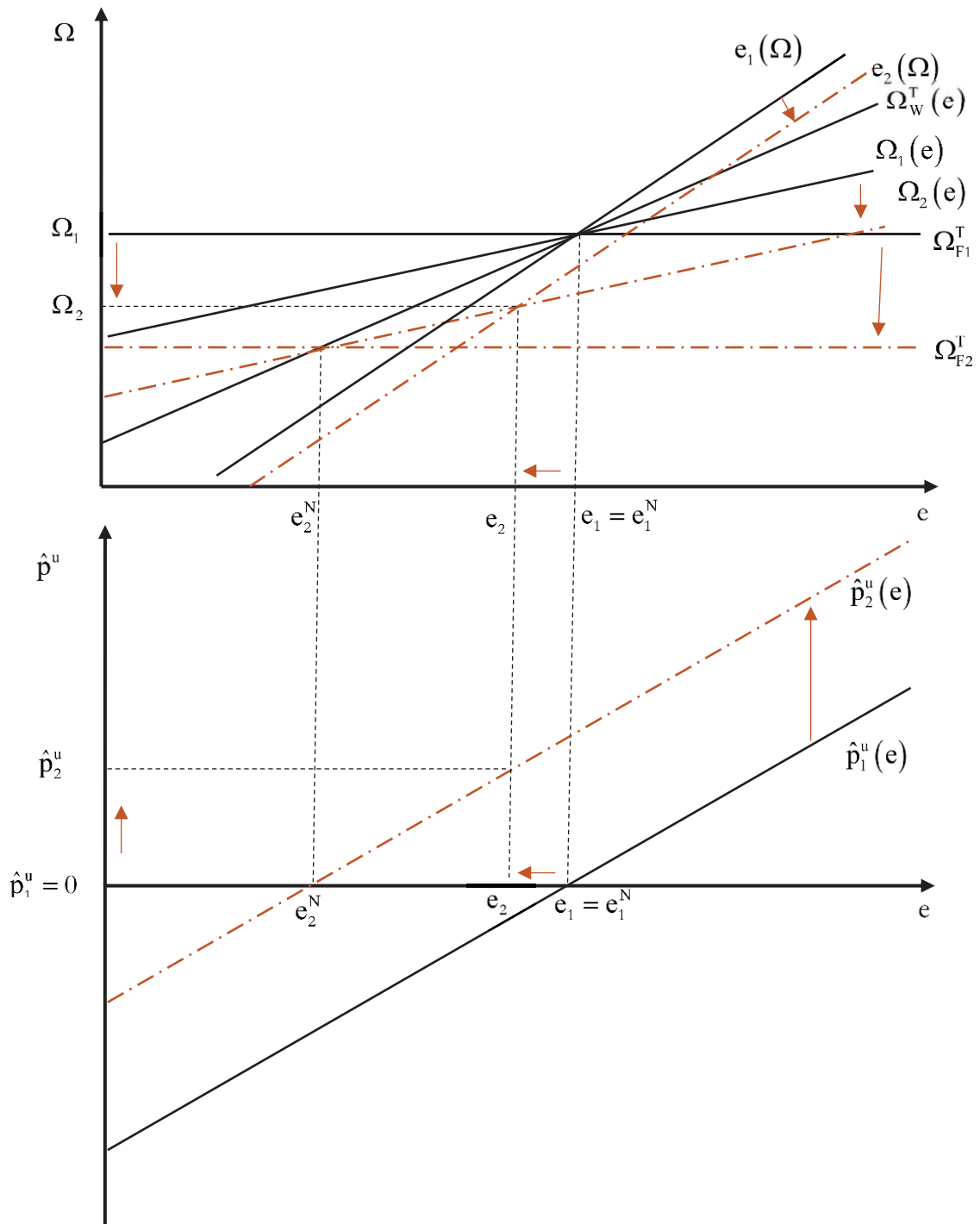
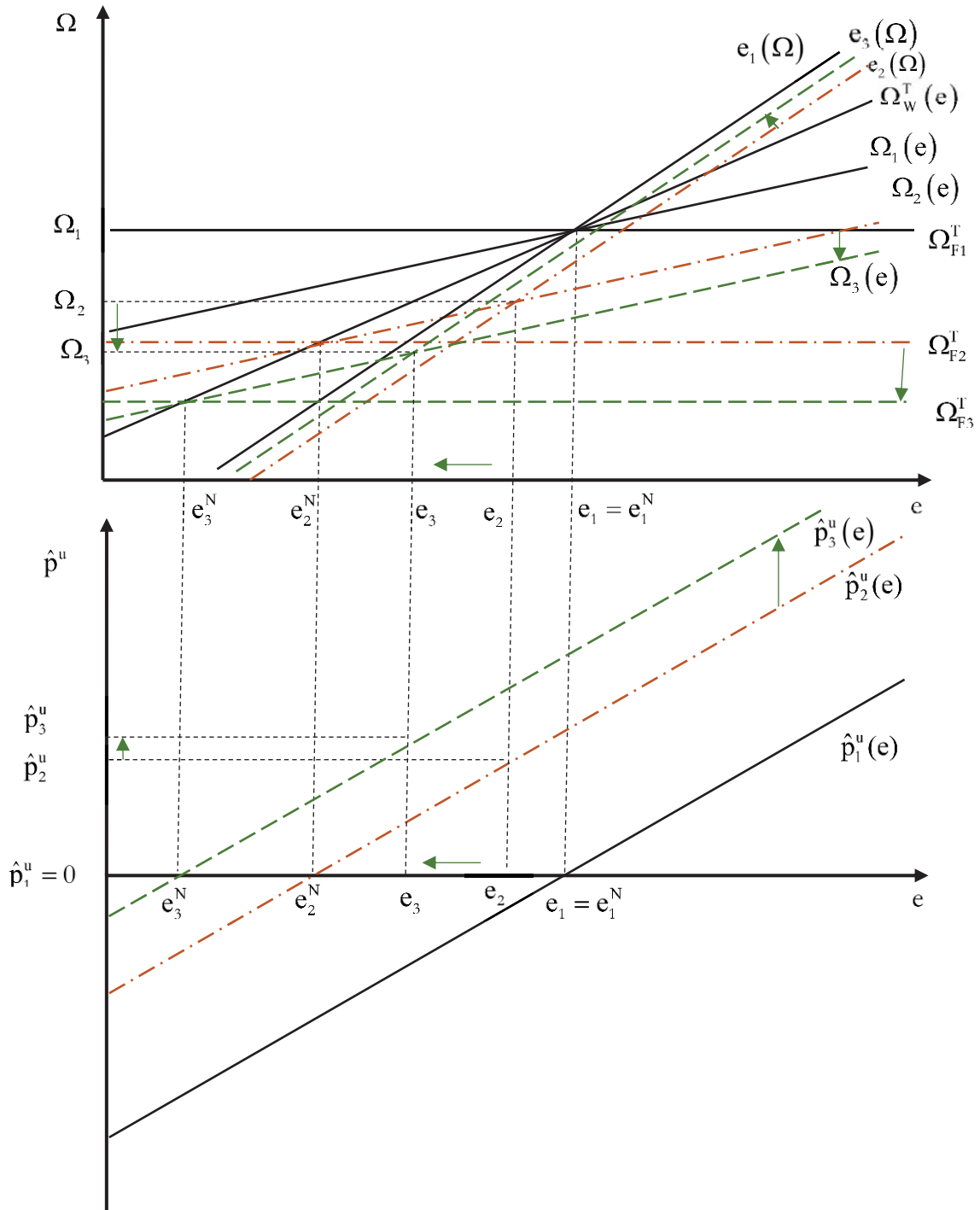


Figure 7.2: Firms take advantage of supply constraints and raise the mark-up in the Rowthorn and Hein/Stockhammer framework



Again, there are the endogenous counter-stagflation trends outlined above, which however do not become effective, if the central bank applies inflation targeting policies and drives up long-term real interest rates by means of raising short-term rates in the money market in order to fight rising inflation, as we have seen since 2022. Since higher real interest rates mean higher costs for the firms, based on the pricing equation (3), this will raise their target mark-up and the target profit share, and the interest cost channel of inflation will become effective (Cucciniello et al. 2022, Hein 2006, Hein/Schoder 2011, Levrero 2023, Lima/Setterfield 2010). The firms' target wage share now turns to:

$$(25) \quad \Omega_F^T = 1 - h_F^T = 1 - h_0 - h_1 a_r - h_2 i_r, \quad 1 > h_0 > 0, h_1, h_2 > 0.$$

Therefore, we get the new consistent claims rate of employment, the SIRE, including long-term real interest rate effects, from equations (6) and (25):

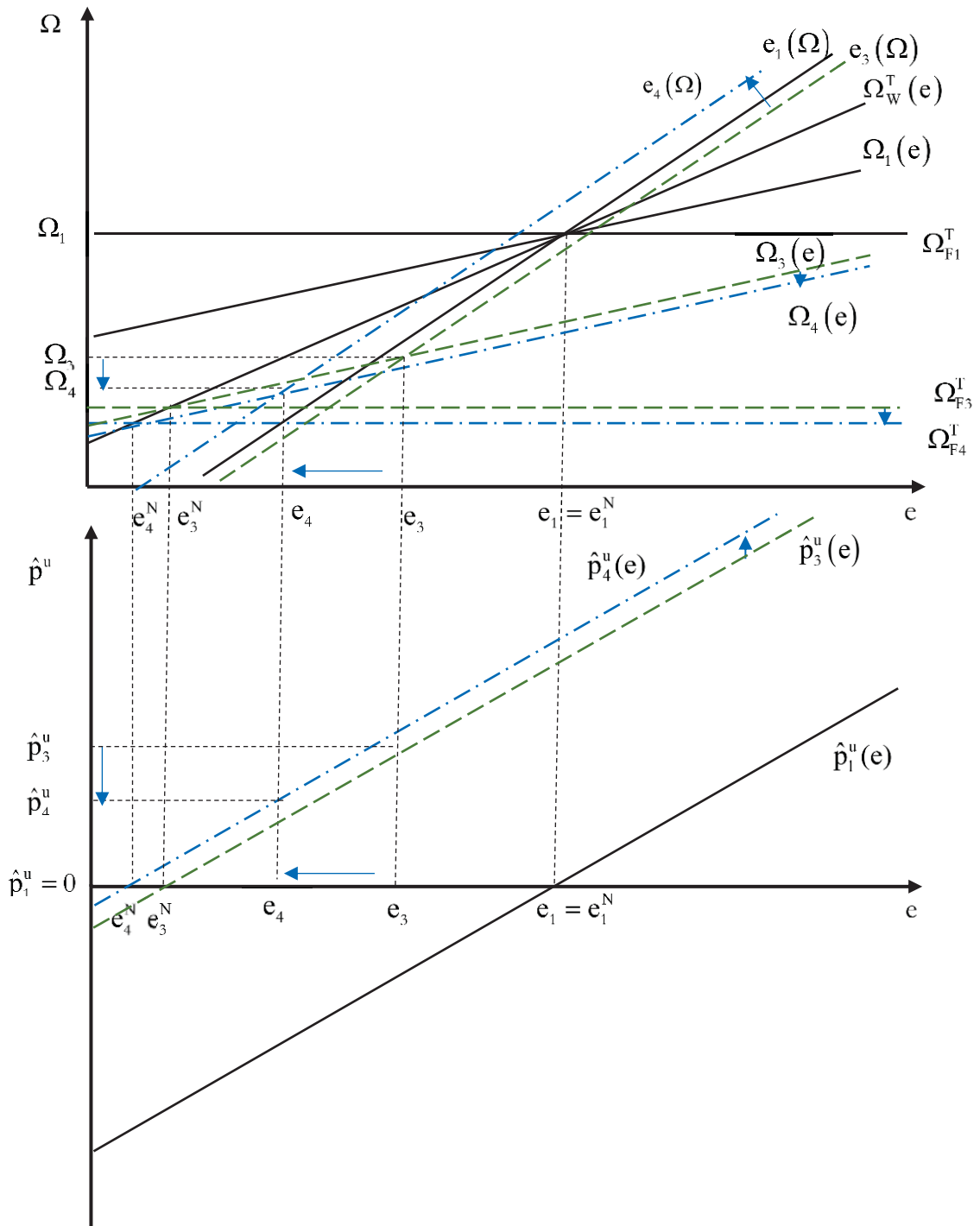
$$(26) \quad e^N = \frac{1 - h_0 - h_1 a_r - h_2 i_r - \Omega_0}{\Omega_1}$$

As shown in Figure 7.3, an increase in the real interest rate thus shifts the firms' target wage share curve further down to Ω_{F4}^T , and the profit-squeeze distribution curve moves down to $\Omega_4(e)$. With 'normal case' (Lavoie 1995, Hein/Schoder 2011) effects of rising real interest rates on aggregate demand, the wage-led employment curve turns to:

$$(27) \quad e = e(\Omega, a_r, i_r), \quad \frac{\partial e}{\partial \Omega} > 0, \frac{\partial e}{\partial a_r} > 0, \frac{\partial e}{\partial i_r} < 0.$$

An increase in the real rate of interest thus shifts this curve to the left to $e_4(\Omega)$. The unexpected inflation curve shifts up further to $\hat{p}_4^u(e)$. The economy thus moves to a new temporary position at $e_4 > e_4^N, \Omega_W^T > \Omega_4 > \Omega_F^T, \hat{p}_4^u > 0$, with a lower SIRE and a lower employment rate exceeding the new SIRE, a lower wage share, but now also lower unexpected inflation, each compared to the previous position. Central banks' inflation targeting interest rate policies can thus bring unexpected inflation down, but at the expense of an even lower employment rate and a lower SIRE. With further interest hikes, unexpected inflation may fall to zero or may become negative, but only if the effect on the employment rate is stronger than the effect on the SIRE. Different scenarios are possible, as discussed in Hein (2006), Hein/Stockhammer (2010) or in Lima/Setterfield (2014) for closed economy models. If central banks follow such an inflation targeting strategy, the endogenous counter-stagflation improvements pointed out above are again undermined.

Figure 7.3: An increase in the long-term real interest rate in the Rowthorn and Hein/Stockhammer framework



An alternative policy approach to dealing with an imported energy inflation shock can be based on the post-Keynesian macroeconomic policy mix, as proposed by Arestis (2013), Hein (2023: ch. 6), and Hein/Stockhammer (2010, 2011). According to this approach, central banks should refrain from macroeconomic fine tuning, target stable low long-term real interest rates and take care of asset price inflation and financial stability by other instruments than interest rate policies. Wage and incomes policies should be in charge of stable inflation at the target rate and contribute to stabilising income distribution. Fiscal policies should stabilise aggregate demand and employment at a maximum non-inflationary level and should reduce inequality in the distribution of disposable income. These policies should be coordinated and should jointly aim at stabilising real exchange rates and roughly balanced current accounts in the medium run.

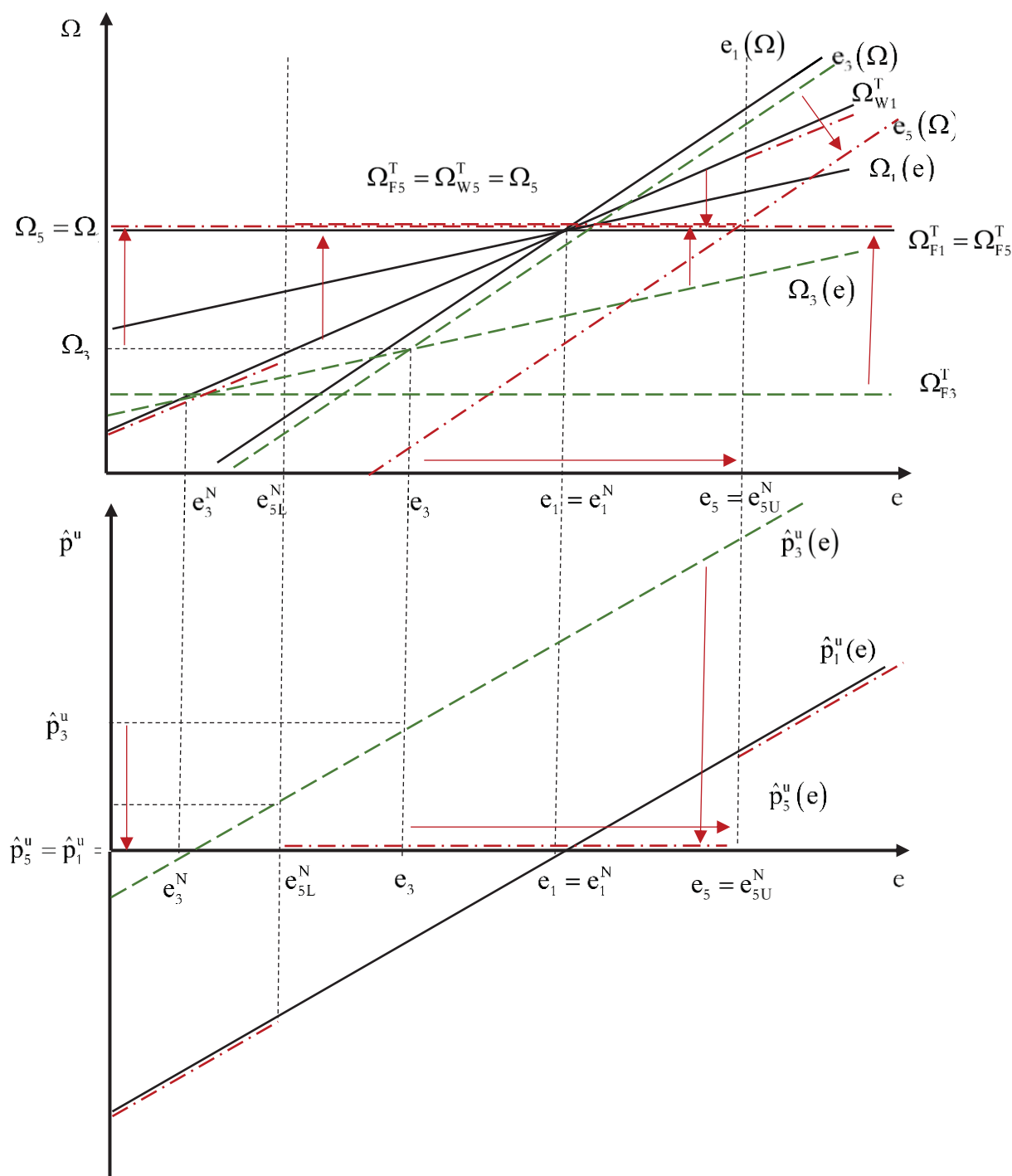
Applying such an approach in the face of rising energy prices would mean to target sharing the burden of a higher real exchange rate, and stabilising domestic distribution, inflation and aggregate demand. Since rising imported energy prices in real terms mean less domestic income in real terms, even with a constant wage share (and low or zero productivity growth) real wages and real profits may fall. Those who are most affected would thus have to be assisted by fiscal policies.

As shown in Figure 7.4, such a burden sharing would imply firms' target wage share to return to the initial equilibrium level $\Omega_{F1}^T = \Omega_{F5}^T$ by lowering the aggregate mark-up according to the rise in z-ratio, which means to shift only the increase in energy costs to prices, but not marking up these extra costs. Central bank policies targeting low long-term real interest rates, competition policies, taxing extra profits, reducing bottlenecks via public investment, etc. could contribute to lowering the firms' average mark-up on unit variable costs and raising their target wage share.

Sharing the burden would also mean to align the workers' target wage share with the feasible wage share given by firms' pricing, such that we get $\Omega_{F5}^T = \Omega_{W5}^T = \Omega_5$, so that the SIRE turns to a corridor and unexpected inflation $\hat{p}_5^u(e)$ turns zero between e_{5L}^N and e_{5U}^N . In this corridor, wage bargaining coordination prevents instability generated by unexpected inflation and redistribution in favour of debtors, and also stabilises functional income distribution. Effective wage bargaining coordination requires strong trade unions and employer associations, and also government involvement (minimum wage policies, extension clauses, etc.). Even if these institutional conditions are given, it is difficult to conceive that wage bargaining coordination will be effective with very low and very high employment rates. In the former case, competition of workers for scarce jobs will lead to falling wage and price inflation, while in the latter, competition of firms for scarce workers will lead to rising wage and price inflation. Within the corridor, however, it would be possible to follow an inflation and distribution stabilising wage norm, according to which, in the medium term, nominal wage rate growth should be equal to the target rate of inflation plus trend productivity growth for the economy as a whole. The target rate of inflation should be in line with the inflation rate of main trading partners, to contribute to constant nominal and real exchange rates and balanced current accounts and to prevent beggar-thy-neighbour policies. International

coordination is thus important. Finally, fiscal policies' demand management, following a functional finance approach, can then shift the wage-led employment curve $e_5(\Omega)$ to the maximum employment rate consistent with the target rate of inflation. Tax and social policies should reduce inequality and support lower income households in carrying the burden of higher real energy prices.

Figure 7.4: An alternative policy approach in the Rowthorn and Hein/Stockhammer framework



6. Conclusions

Against the background of empirical studies observing the simultaneity of rising inflation and rising profit shares in the course of the recovery from the Covid-19 crisis and the crisis related to the Russian war in Ukraine, we have reviewed post-Keynesian theories of inflation and distribution. We have distinguished between a Keynes, Kaldor, Robinson and Marglin tradition, on the one hand, and a Kalecki, Rowthorn and Dutt tradition, on the other hand, and we have discussed two prototype models in the latter tradition, the Dutt, Blecker/Setterfield and Lavoie variant, as well as the Rowthorn, Hein/Stockhammer variant. We have applied the latter to explain the recent inflationary tendencies generated by rising imported energy prices and rising mark-ups. Finally, we have discussed the effects of inflation targeting central banks' interest policies, on the one hand, and of a post-Keynesian alternative macroeconomic policy approach, on the other hand.

We have shown that there is broad agreement in post-Keynesian economics that the essence of inflation is distribution conflict, as recently also pointed out by Braga/Serrano (2023), with different potential triggers. From this paradigmatic perspective, inflation is thus always and everywhere a conflict phenomenon. The distinction between demand-pull, profit-claims-push, wage-cost-push, tax-push, imported goods-push, currency devaluation-push, etc. inflation can only relate to the trigger, but not to the essence of inflation. There is also broad post-Keynesian agreement that the pass-through of wage (dis-)inflation to price (dis-)inflation is incomplete and that nominal wage bargaining thus has not only inflation but also distribution effects. There are only a few exceptions, like Hein (2006), Lavoie (2006) and Setterfield (2009), which were concerned with other features of the post-Keynesian model as compared to the NCM, and some monetary post-Keynesians, like Herr (2014). There also seems to be broad post-Keynesian agreement on the required policy responses, focussing on distribution conflict moderation by incomes policies, aligning wage share targets of workers and firms. This should be complemented by monetary policies targeting low long-term interest rates, functional finance fiscal policies, including re-distribution policies towards low-income households, and international coordination in order to align inflation targets and to prevent current account imbalances and beggar-thy-neighbour strategies.

We have found that while the Keynes, Kaldor, Robinson and Marglin tradition has some difficulties in explaining the recent correlation of rising inflation and rising profit shares, according to the Kalecki, Rowthorn and Dutt tradition this correlation may have different origins, which should be carefully distinguished. It may be due to rising mark-ups on unit variable costs or on unit total costs at normal capacity utilisation, which many authors seem to have in mind when talking about profit or sellers' inflation. But with constant mark-ups at the firm level, rising profit shares may also arise because of unit overhead labour and fixed cost digression in an economic expansion, rising ratios of unit material to unit direct wage costs, changes in the firm composition of industries or changes in the sectoral composition of the economy as a whole.

Within the Kalecki, Rowthorn and Dutt tradition of post-Keynesian inflation theory, we have seen major differences in the two prototype models, the Dutt, Blecker/Setterfield and Lavoie variant, on the one hand, and the Rowthorn and Hein/Stockhammer variant, on the

other. These differences mainly relate to the different views on the role of inflation expectations for wage inflation (adaptive expectations vs. no/incomplete ‘indexation’). They then generate different implications regarding a stable price Phillips curve and a stable profit-squeeze distribution curve, and different views on the existence of an endogenous and unstable inflation barrier (SIRE, NAIRU). From these, also different views on the relevance and inclusion of real debt effects of unexpected inflation into the model emerge. A potential reconciliation of both views could follow Rowthorn (1977), Bastian/Setterfield (2015, 2020) and Charles et al. (2021), who have distinguished different inflation regimes, a (very) low inflation regime in which workers’ inflation expectation do not feed into their nominal wage claims, and a higher inflation regime, in which they fully do.

Of course, there are several limitations in what has been presented. The models in the Kalecki, Rowthorn and Dutt tradition have relied on profit-squeeze distribution curves and on wage-led demand and employment regimes. This might be contested by some post-Keynesians. However, the modelling framework is open to include wage squeeze distribution and profit-led demand and employment curves. This could lead to different combinations and regimes to be further explored. Furthermore, we concede the limits of an aggregate model when it comes to analysing energy and commodity inflation shocks, which we could only model as real exchange rate shocks. Sectoral approaches and models, as already suggested by Kaldor (1976), and recently presented by Wildauer et al. (2023), albeit only for a closed economy, should allow for more detailed insights in the inflation propagation process and in the related distributional effects.

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