Institute for International Political Economy at the
Berlin School of Economics and Law (IPE)

Hochschule für
Wirtschaft und Recht Berlin
Berlin School of Economics and Law

Money and Macroeconomics:

The principle of effective demand, distribution conflict, inflation and macroeconomic policies in a monetary economy – post-Keynesian foundations

Eckhard Hein

FMM Summer School
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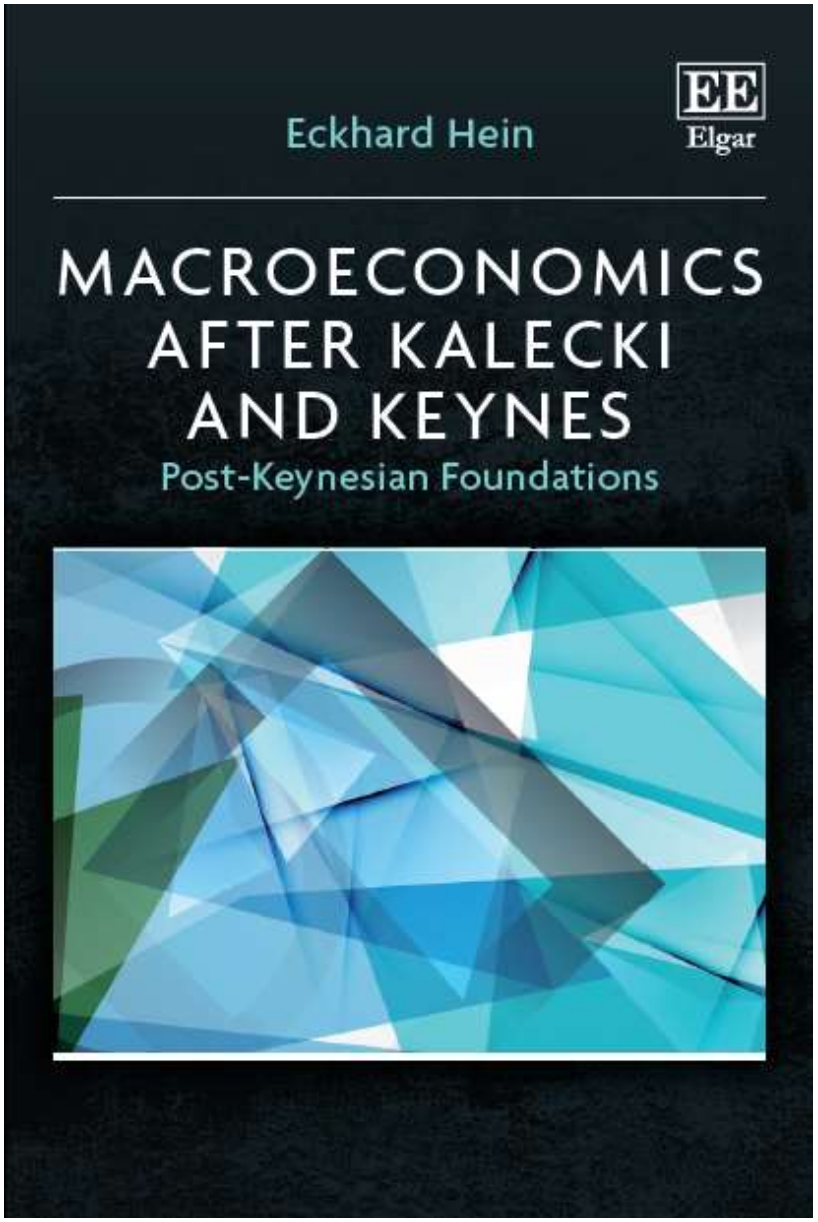

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MACROECONOMICS AFTER KALECKI AND KEYNES

Post-Keynesian Foundations

(Edward Elgar 2023)

Here: Chapters 4-6

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Chapter 5
‘POST-KEYNESIAN MACROECONOMIC MODELS WITH CONFLICT INFLATION’

5.1 INTRODUCTION

- **PK: Inflation is always and everywhere a conflict phenomenon**
- Joan Robinson (1956, 1962): inflation barrier
- Kalecki (1971): increase in money wages may squeeze mark-up
- Rowthorn (1977, p. 177): "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."
- Sylos-Labini (1979): Differentials in unit labour costs are precondition for nominal wage hikes squeezing average mark-up

➢ Distribution conflict, inflation and re-distribution

“Full” PK alternative to NCM

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- Demand driven model with creditor-debtor relationships
- distribution conflict between rentiers, firms and workers;
- short-run inflation barrier;
- distribution conflict also affects income shares;
- income generation process includes real debt and interest cost effects;
- analysis of short-run stability:
- closed economy, government, open economy;
- discussion of long-run endogeneity channels;

➢ complete PK macroeconomic policy-mix (Chapter 6)

Runs/periods:

- Within short-run/period: adjustment of output to demand, given stocks and expectations
- Between short periods: adjustment of inflation expectations, stocks still constant
- Medium to long-run: some endogeneity channels of SIRE with regard to effective demand, without fully considering stock adjustments

5.2 MODELLING CONFLICT INFLATION AND INCOME DISTRIBUTION BETWEEN CAPITAL AND LABOUR IN A CLOSED ECONOMY WITHOUT A GOVERNMENT

Start from Closed economy model from Chapter 4

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(5.1) $$p = \left[1 + m(i)\right]\frac{w}{y}, \qquad m > 0, \frac{\partial m}{\partial i} \geq 0$$

(5.2) $$\hat{p} = \left(1 + \hat{m}\right) + \hat{w} - \hat{y}\,.$$

(5.3) $$\Omega = \frac{W}{pY} = \frac{w}{py} = \frac{w_r}{y} = \frac{1}{1+m},$$

(5.4) $$h = \frac{\Pi}{pY} = 1 - \Omega = 1 - \frac{w}{py} = 1 - \frac{w_r}{y} = \frac{m}{1+m}\,.$$

(5.5) $$\hat{\Omega} = \hat{w} - \hat{p} - \hat{y}\,.$$

With a constant technology in the short run and hence zero productivity growth, the wage share of direct labour rises (falls) whenever wage inflation exceeds (falls short of) price inflation, which means that also the real wage rate will rise (fall)

➔ mark-up in (5.1) as firms' target mark-up, profit share in (5.4) as firms' target profit share, wage share in (5.3) as firms' target wage share.

- In post-Keynesian macroeconomics, we find, basically, two ways of modelling the relationship between distributional conflict and inflation.

- Marglin (1984) and Dutt (1987), Blecker and Setterfield (2019, Chapter 5), Lavoie (2014, Chapter 8) and Setterfield (2009a): stable inflation at any level of employment and stable Phillips-curve

- Hein (2006a, 2008, Chapter 16), Stockhammer (2008), Hein and Stockhammer (2010): inflation barrier, SIRE similar to NAIRU/NCM, however:

➢ deviation from SIRE has distribution & demand effects
➢ no stable adjustment to SIRE
➢ SIRE turns endogenous to effective demand

5.2.1 The Blecker, Setterfield and Lavoie approach

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

Ω_W^T: Workers' target wage share

φ_2: inflation indexation, has to be $\varphi_2 < 1$

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

Ω_F^T: firms' target wage share

Equilibrium requires:

(5.8) $$\hat{p}_t = \hat{w}_t = \hat{p}_{t-1} = \hat{w}_{t-1} .$$

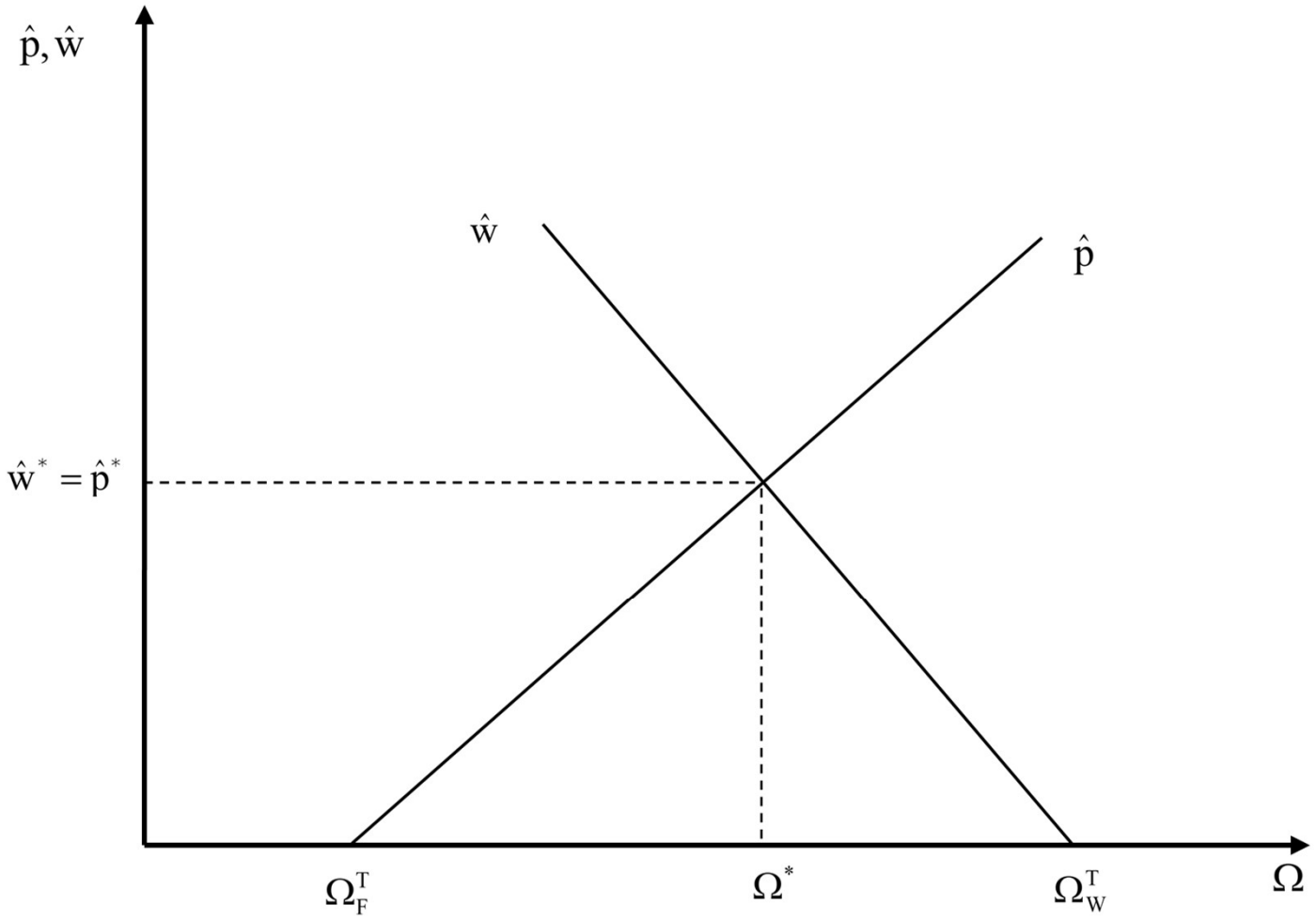
5.2.1 The Blecker, Setterfield and Lavoie approach

(5.9) $$\hat{p}^* = \hat{w}^* = \frac{\varphi_1 \pi_1 \left(\Omega_W^T - \Omega_F^T \right)}{\varphi_1 \left(1 - \pi_2 \right) + \pi_1 \left(1 - \varphi_2 \right)},$$

(5.10) $$\Omega^* = \frac{\frac{\varphi_1 \Omega_W^T}{1 - \varphi_2} + \frac{\pi_1 \Omega_F^T}{1 - \pi_2}}{\frac{\varphi_1}{1 - \varphi_2} + \frac{\pi_1}{1 - \pi_2}}.$$

No solution if $\varphi_2 = 1$ and $\pi_2 = 1$,

Figure 5.1: Conflicting claims equilibrium inflation in the Blecker, Setterfield and Lavoie approach



Blecker and Setterfield (2019, Chapter 5.2.3) and assume that workers' target wage share is positively affected by the levels of economic activity and employment:

(5.13) $$\Omega_W^T = 1 - h_W^T = \Omega_0 + \Omega_1 e, \qquad 1 > \Omega_0 > 0,\ \Omega_1 \geq 0 \ .$$

Ω_0, Ω_1 : structural features of labour market, wage bargaining, social benefits system

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

h_0 : structural features of goods market (degree of price competition)

(5.15) $$\hat{w}_t = \varphi_1\left(\Omega_0 + \Omega_1 e - \Omega_{t-1}\right) + \varphi_2 \hat{p}_{t-1}, \qquad \varphi_1 > 0, 1 \geq \varphi_2 \geq 0,$$

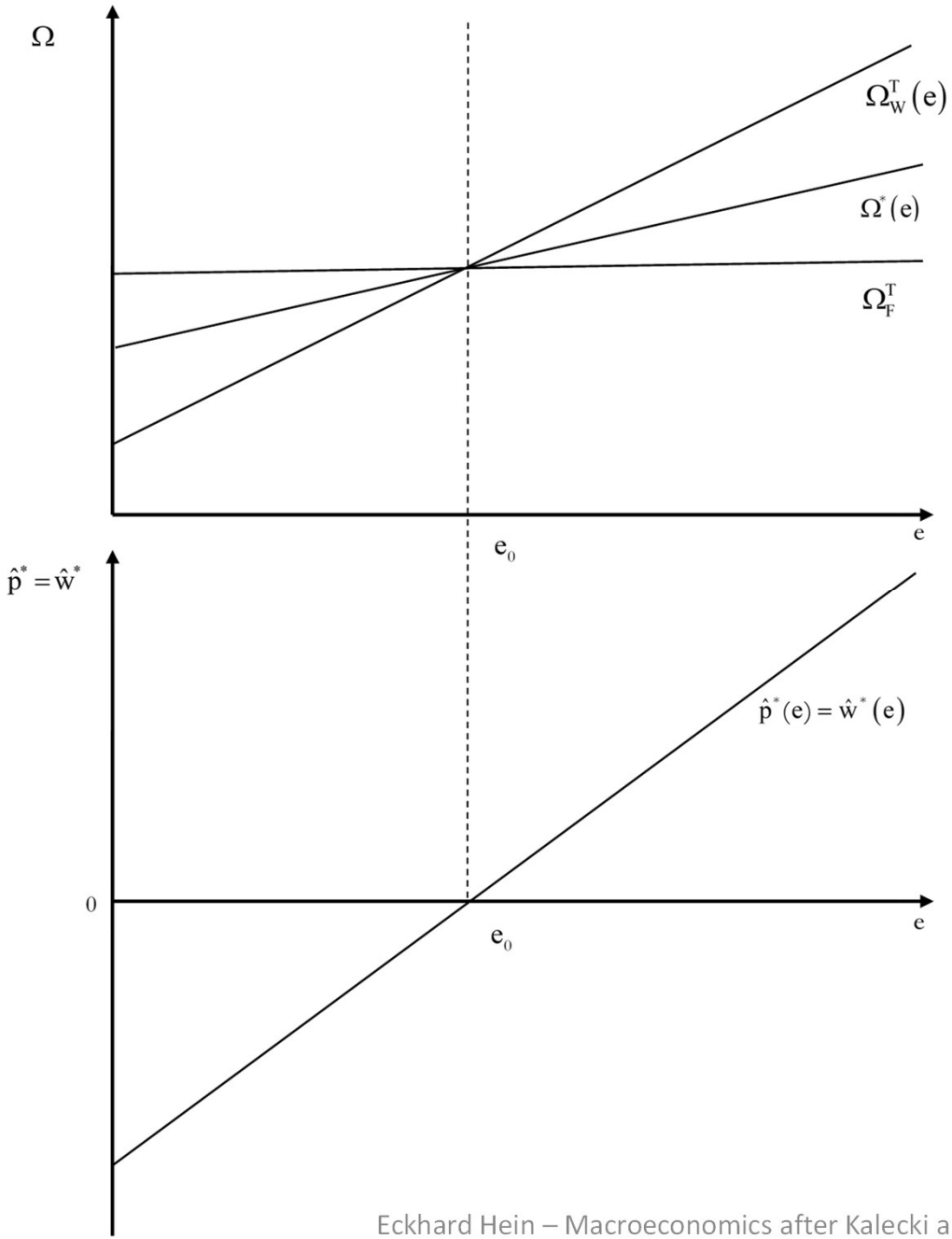
(5.16) $$\hat{p}_t = \pi_1\left(\Omega_{t-1} - 1 + h_0\right) + \pi_2 \hat{w}_t, \qquad \pi_1 > 0, 1 \geq \pi_2 \geq 0.$$

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

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

No solution if $\varphi_2 = 1$ and $\pi_2 = 1$,

Figure 5.2: Conflicting claims, distribution and inflation in the Blecker and Setterfield approach



5.2.2 The Hein and Stockhammer approach

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(5.13) $\Omega_W^T = 1 - h_W^T = \Omega_0 + \Omega_1 e, \qquad 1 > \Omega_0 > 0,\ \Omega_1 \geq 0\ .$

➔ target wage share of workers, e: rate of employment

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

➔ target gross profit share of firms

Income claims will be consistent if:

(5.19) $\Omega_W^T = \Omega_F^T \Rightarrow \Omega_W^T = 1 - h_F^T \Rightarrow \Omega_W^T + h_F^T = 1\,.$

or, if:

(5.20) $h_0 + \Omega_0 + \Omega_1 e^N = 1\,.$

e^N: employment rate at which income claims are consistent

'Consistent claims rate of employment' or a 'stable inflation rate of employment', a SIRE (e^N), related to the 'non-accelerating inflation rate of unemployment', the NAIRU ($u^N = 1 - e^N$):

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

(5.22) $$\Omega^N = \Omega_W^T = \Omega_F^T = \Omega_0 + \Omega_1 e^N = 1 - h_0.$$

If $e > e^N$, the income claims will exceed the output to be distributed, i.e. $\Omega_W^T + h_F^T > 1$.

If $e < e^N$, income claims will fall short of the output to be distributed, i.e. $\Omega_W^T + h_F^T < 1$.

Wage inflation equation with adaptive expectations $\hat{p}_t^e = \hat{p}_{t-1}$ – and still assuming productivity growth to be zero:

(5.23) $\hat{w}_t = \alpha\left(e_t - e^N\right) + \hat{p}_{t-1}, \qquad \alpha \geq 0\,.$

Price inflation in the goods market:

(5.24) $\hat{p}_t = \vartheta\alpha\left(e_t - e^N\right) + \hat{p}_{t-1}, \qquad 1 \geq \vartheta \geq 0\,.$

Unexpected inflation ($\hat{p}^u$):difference between inflation in the current period and the previous one:

(5.25) $\hat{p}_t^u = \hat{p}_t - \hat{p}_{t-1} = \vartheta\alpha\left(e_t - e^N\right).$

Coefficient ϑ in equations (5.24) and (5.25): pass-through factor for the increase in nominal unit labour cost growth to inflation:

- Carlin/Soskice (2009, 2015): $\vartheta = 1$
- Hein/Stockhammer (2009, 2010, 2011): $\vartheta < 1$

With a deviation of employment from e^N equation (4.4) turns to:

(5.26) $$h_0 - h_2\hat{p}^u + \Omega_0 + \Omega_1 e - \Omega_2\hat{p}^u = h_0 + \Omega_0 + \Omega_1 e - (h_2 + \Omega_2)\hat{p}^u = 1,$$
$$0 < h_0, \Omega_0 < 1, \quad 0 \leq h_2, \Omega_1, \Omega_2.$$

(5.27) $$\hat{p}^u = \frac{h_0 + \Omega_0 + \Omega_1 e - 1}{h_2 + \Omega_2}.$$

Realised wage share

(5.28) $$\Omega = \Omega_W^T - \Omega_2\hat{p}^u = \Omega_0 + \Omega_1 e - \Omega_2\hat{p}^u, \qquad 1 > \Omega_0 > 0,\ \Omega_1, \Omega_2 \geq 0,$$

Realised profit share:

(5.29) $$h = h_F^T - h_2\hat{p}^u = h_0 - h_2\hat{p}^u, \qquad 1 > h_0 > 0,\ h_2 \geq 0.$$

Complete pass-through: $\vartheta = 1$, $h_2 = 0$ and $\Omega_2 > 0$.

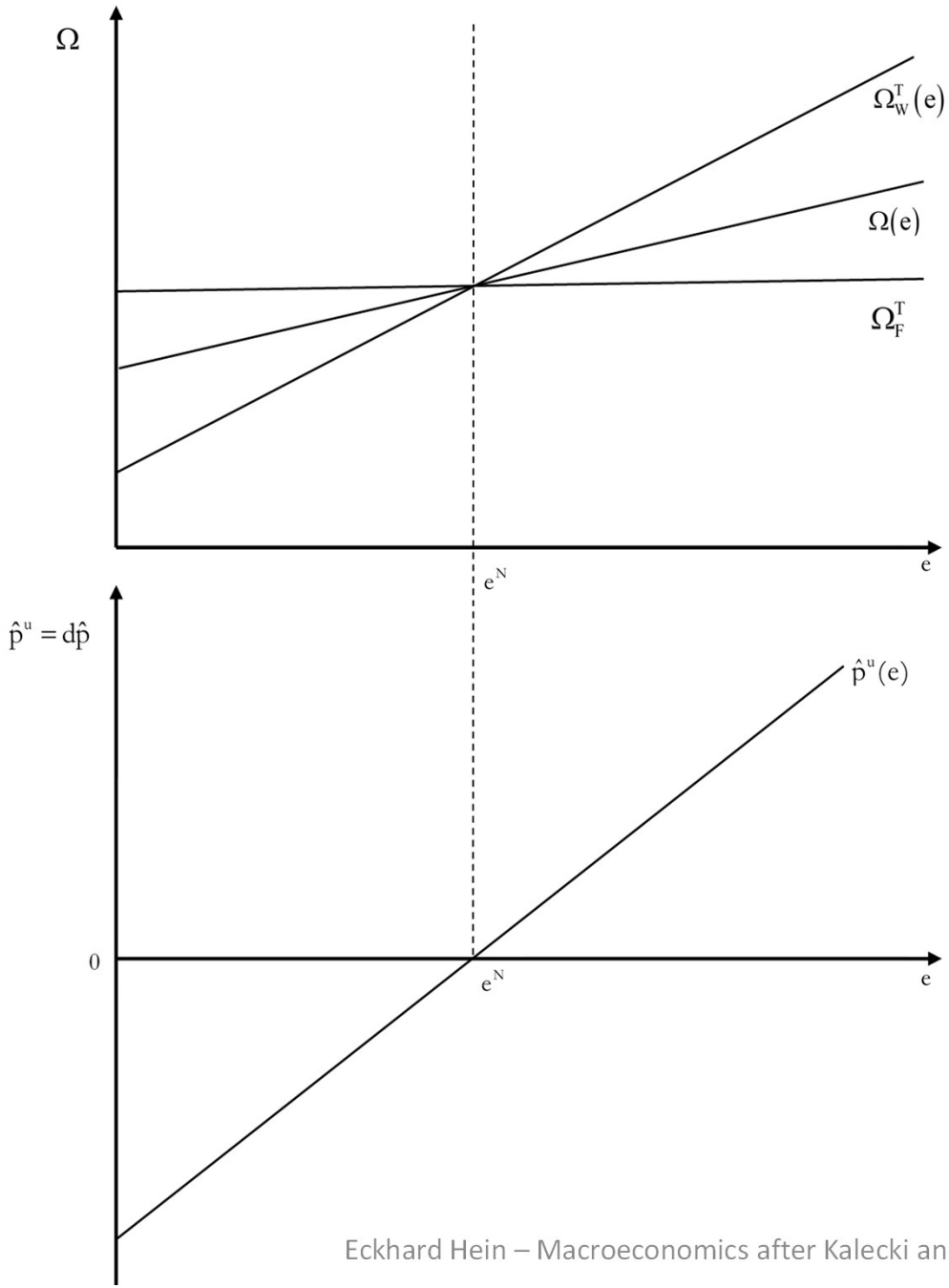
No pass-through: $\vartheta = 0$, $\Omega_2 = 0$ and $h_2 > 0$

Plugging the value for $\hat{p}_t^u$ from equation (5.27) into equations (5.28) and (5.29):

$$(5.30) \quad \Omega = \frac{(\Omega_0 + \Omega_1 e) h_2 + \Omega_2 (1 - h_0)}{h_2 + \Omega_2},$$

$$(5.31) \quad h = \frac{h_0 \Omega_2 + h_2 (1 - \Omega_0 - \Omega_1 e)}{h_2 + \Omega_2}.$$

Figure 5.3: Conflicting claims, distribution and inflation in the Hein and Stockhammer approach



5.2.3 Pro-cyclical wage share and the SIRE in the medium to long run: some notes on empirical relevance

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- Pro-cyclical profit share in the course of a trade cycle in several countries (Hein 2014b, Chapter 1, Stockhammer 2017b)
- ➢ Countercyclical unit overhead labour costs (Lavoie 2009b, 2014, Chapters 5-6), in particular (Figure 4.4 in Chapter 4)
- Medium- to long-run: high and even rising rates of inflation accompanied by rising wage shares and falling profit shares in the course of the 1970s until the early 1980s, reversed in the course of the 1980s, at least until the Great Recession 2007-09 (Glyn 2006, Hein 2014b, Chapter 1, Stockhammer 2017b, Tridico 2017).
- Medium- to long-run developments are not only generated by variations of employment and unemployment rates, but also by those structural features which determine wage and profit share targets of firms and workers, as well as the means to reach these targets.

- NAIRU and SIRE in Hein and Stockhammer approach seem to be similar to NAIRU in NCM, but they are not, as will be shown:
- First, SIRE/NAIRU are no ‚strong attractors' (Sawyer 2002); second, SIRE/NAIRU are endogenous to demand determined employment.
- ‚Structural reforms' in the labour market will have distributional effects, but positive effects on employment – in the short and in the long run – are not guaranteed at all.
- Econometric studies have had severe difficulties in finding a definite NAIRU (or SIRE), which is independent of aggregate demand and actual employment (Cross 2014, Heimberger et al. 2017, Lang et al. 2020, Stanley 2004).
- Empirical studies aiming at explaining international and/or intertemporal differences in long-run unemployment trends have had similar difficulties in uniquely relating these differences to structural features of the labour market and the social benefit system.

5.3 UNEXPECTED INFLATION AND DISTRIBUTION BETWEEN RENTIERS AND FIRMS

Division of total profits

(5.32) $\Pi = \Pi_F + R$.

The expected or the 'ex ante' real interest rate:

(5.33) $i_r^e = i - \hat{p}^e$.

The actual or 'ex post' real interest rate:

(5.34) $i_r = i - \hat{p} = i - \left(\hat{p}^e + \hat{p}^u\right) = i_r^e - \hat{p}^u$.

Rentiers income: Expected real income plus compensation for expected inflation:

(5.35) $R = iB_F = \left(i_r^e + \hat{p}^e\right)B_F = i_r^e B_F + \hat{p}^e B_F = R_r^e + \hat{p}^e B_F$.

Rentiers' 'real' ex post income:

(5.36) $R_r = \left(i - \hat{p}^e - \hat{p}^u\right)B_F = \left(i_r^e - \hat{p}^u\right)B_F = i_r B_F = R_r^e - \hat{p}^u B_F$.

Table 5.1: Inflation and distribution effects of deviations of the employment rate from the SIRE or of deviations of the unemployment rate from the NAIRU

	$\hat{p}^u$	$\Omega(e)$	$h(e)$	$\frac{\Pi_F}{\Pi}(e)$	$\frac{R}{\Pi}(e)$
$e > e^N(SIRE)$ $ue < NAIRU$	+	+	–	+	–
$e = e^N(SIRE)$ $ue = NAIRU$	0	0	0	0	0
$e < e^N(SIRE)$ $ue > NAIRU$	–	–	+	–	+

5.4 THE GOODS MARKET EQUILIBRIUM WITH DISTRIBUTION CONFLICT AND UNEXPECTED INFLATION IN A CLOSED ECONOMY WITHOUT A GOVERNMENT

Closed economy model from Chapter 4.3, including the effects of inflation

Saving in real terms:

(5.37) $S_r = hY - (1 - s_R) i_r B_F, \qquad 1 \geq s_R > 0.$

Real investment:

(5.38) $I = I_a + \beta Y - \theta i_r B_F, \qquad I_a, \beta, \theta \geq 0.$

Equilibrium at

(5.39) $I = S_r,$

Stability condition

(5.40) $\frac{\partial S_r}{\partial Y} > \frac{\partial I}{\partial Y} \Rightarrow h - \beta > 0.$

From equations (5.37) – (5.39): an 'ex ante' goods market equilibrium including the target or expected values for the profit share (h_0) and for the interest rate (i_r^e):

$$(5.41) \quad Y^e = \frac{I_a + (1 - s_R - \theta) i_r^e B_F}{h_0 - \beta} .$$

With given labour productivity ($y = Y/N$) and a given labour force (L), the employment rate ($e = N/L$) is given as:

$$(5.42) \quad e = \frac{N}{L} = \frac{N}{Y}\frac{Y}{L} = \frac{Y}{yL} = qY ,$$

$$(5.43) \quad e^e = \frac{q\left[I_a + (1 - s_R - \theta) i_r^e B_F\right]}{h_0 - \beta} .$$

➔ ‚ex ante' goods market equilibrium rate of employment

Deviaton of ‘ex ante’ goods market equilibrium rate of employment in equation (5.43) from SIRE in equation (5.21):

➔ unexpected inflation

➔ change in distribution between capital and labour and between rentiers and firms

➔ changes in consumption, saving and investment

➔ change in goods market equilibrium

Ex post goods market equilibrium rate of employment

$$(5.44) \quad e^{*} = \frac{q\left[I_a + \left(1 - s_R - \theta\right)\left(i - \hat{p}^{e} - \hat{p}^{u}\right)B_F\right]}{h_0 - h_2\hat{p}^{u} - \beta} = \frac{q\left[I_a + \left(1 - s_R - \theta\right)i_r B_F\right]}{h - \beta}.$$

Effect of unexpected inflation:

$$\text{(5.44a)}\quad \frac{\partial e^*}{\partial \hat{p}^u} = \frac{h_2 e^* - q\left(1 - s_R - \theta\right) B_F}{h_0 - h_2 \hat{p}^u - \beta} = \frac{q\left[h_2 Y^* - \left(1 - s_R - \theta\right) B_F\right]}{h - \beta}.$$

1. Redistribution from gross profits to wages is expansionary

2. Effect of redistribution from rentiers to firms is unclear
a) $1\text{-}s_R - \theta > 0$: 'puzzling case'
b) $1\text{-}s_R - \theta < 0$: 'normal case'
➔ assume 'normal case' to hold

➔ unexpected inflation will increase deviation of goods market equilibrium rate of employment from SIRE

Figure 5.4: Stable inflation rate of employment (e^N), ex ante (e^e) and ex post (e^*) goods market equilibrium rate of employment with a strong effect of unexpected inflation on employment: upwards instability

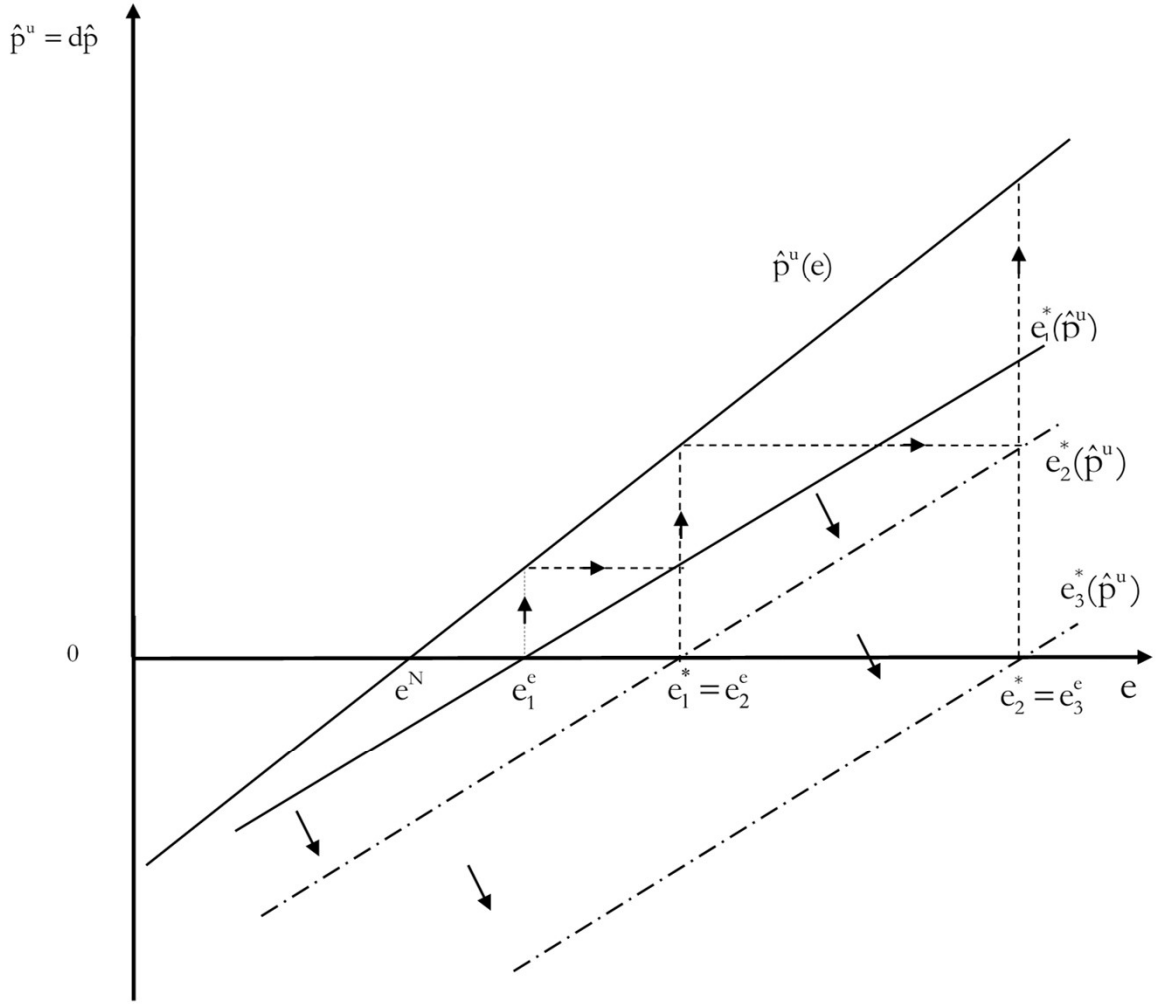


Figure 5.5: Stable inflation rate of employment (e^N), ex ante (e^e) and ex post (e^*) goods market equilibrium rate of employment with a weak effect of unexpected inflation on employment: upwards instability

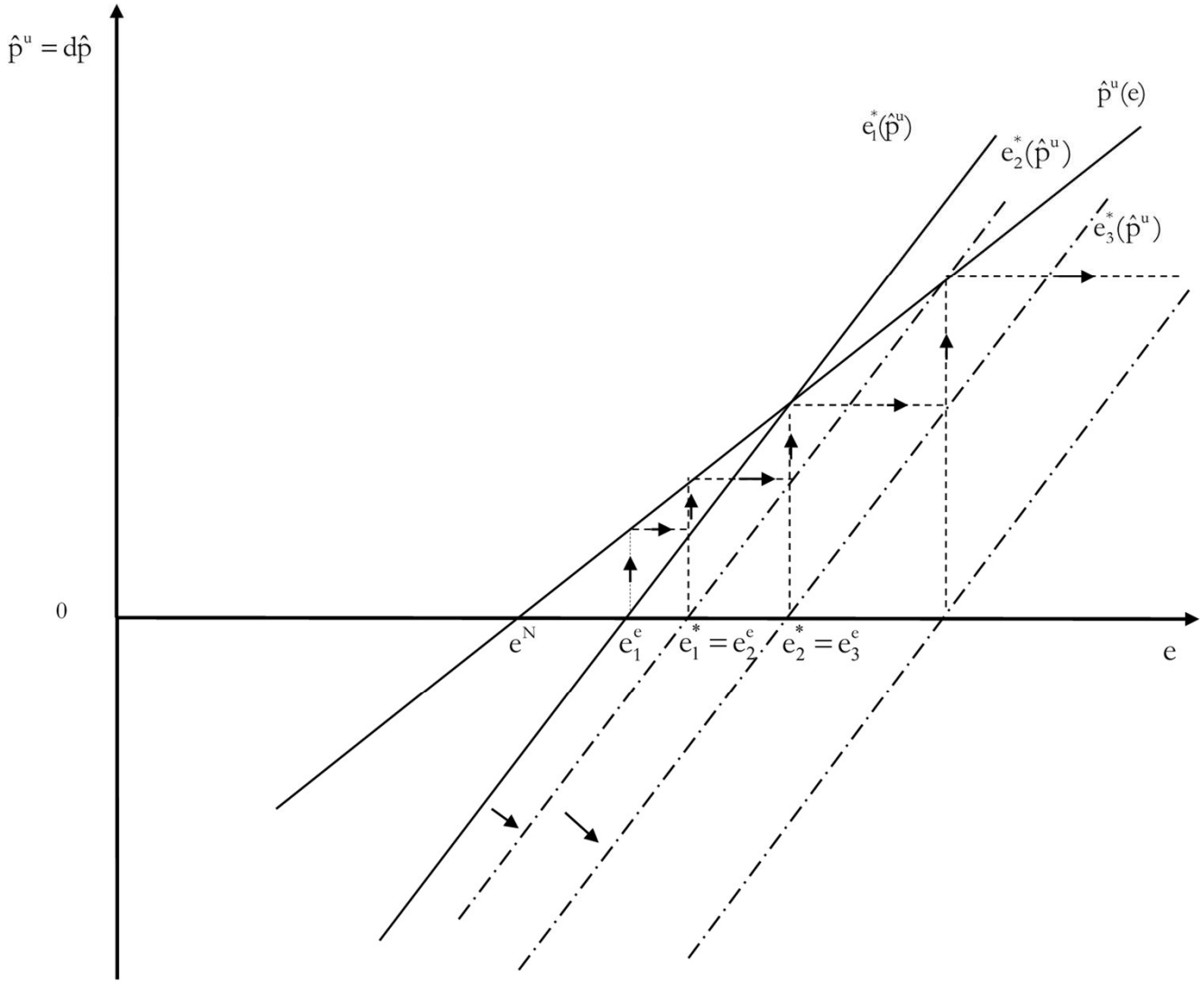
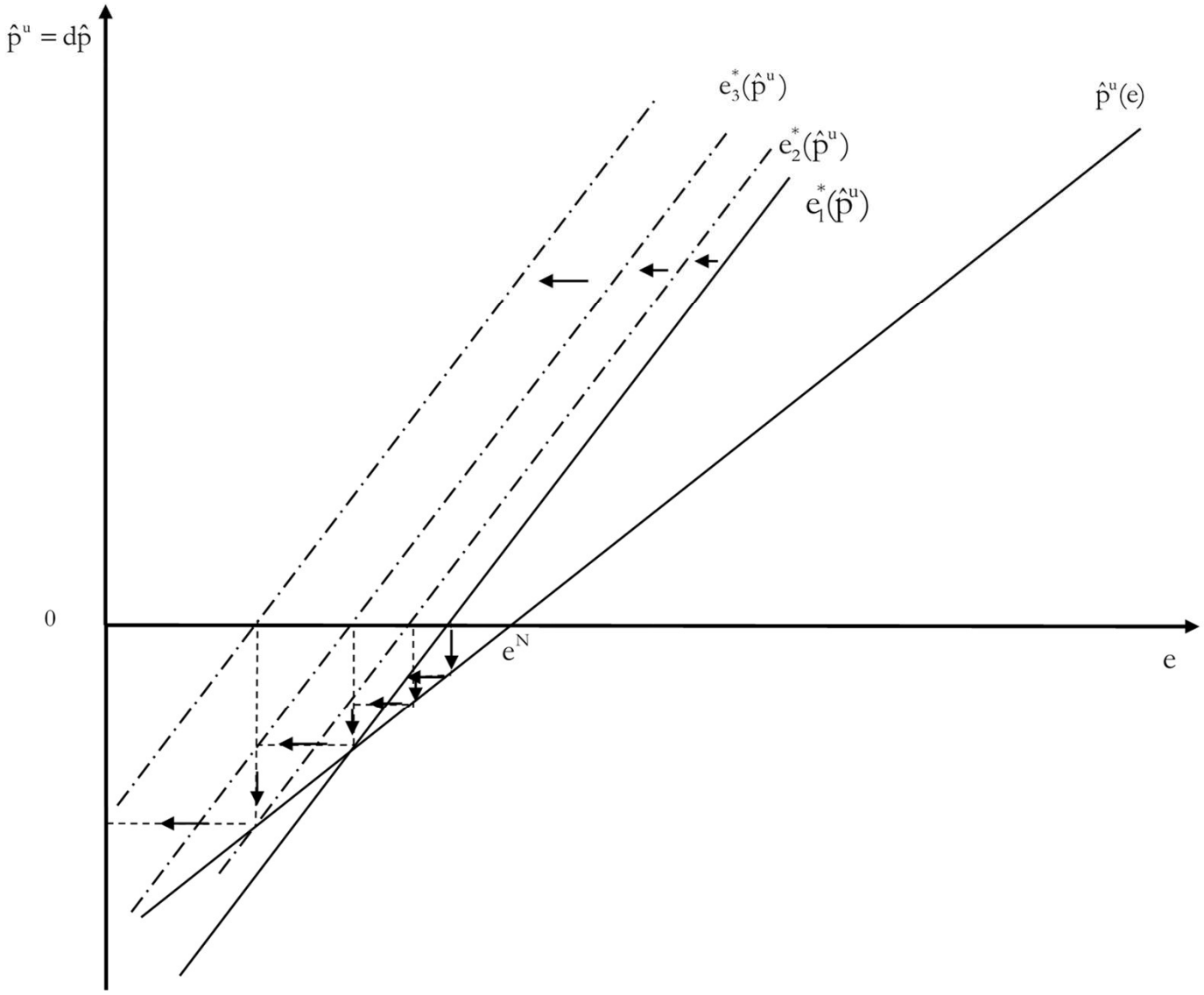


Figure 5.6: Stable inflation rate of employment (e^N), ex ante (e^e) and ex post (e^*) goods market equilibrium rate of employment: downwards instability



5.5 AN INFLATION-TARGETING CENTRAL BANK AS A STABILISER?
SHORT- AND MEDIUM-RUN EFFECTS

Central bank's inflation target equals expected inflation: $\hat{p}^T = \hat{p}^e$

Only aim of the central bank is to eliminata unexpected inflation

Central bank reaction function:

(5.45)
$$\begin{aligned} i &= i^e_{r0} + \hat{p} + \iota\left(\hat{p} - \hat{p}^T\right) = i^e_{r0} + \hat{p}^e + \hat{p}^u + \iota\left(\hat{p} - \hat{p}^e\right) \\ &= i^e_{r0} + \hat{p}^e + (1+\iota)\hat{p}^u, \quad i^e_{r0} \geq 0, \iota > 0 \end{aligned},$$

i^e_{r0} : central bank's estimation of the 'equilibrium real interest rate'

(5.44b) $$\frac{\partial e^{cb}}{\partial i} = \frac{q\left(1 - s_R - \theta\right) B_F}{h - \beta}.$$

With 'normal case' ($1-s_R-\theta<0$) ➔ inverse effect of MP on economic activity

Figure 5.7: An inflation-targeting central bank monotonically stabilising the ex post goods market equilibrium rate of employment towards the SIRE

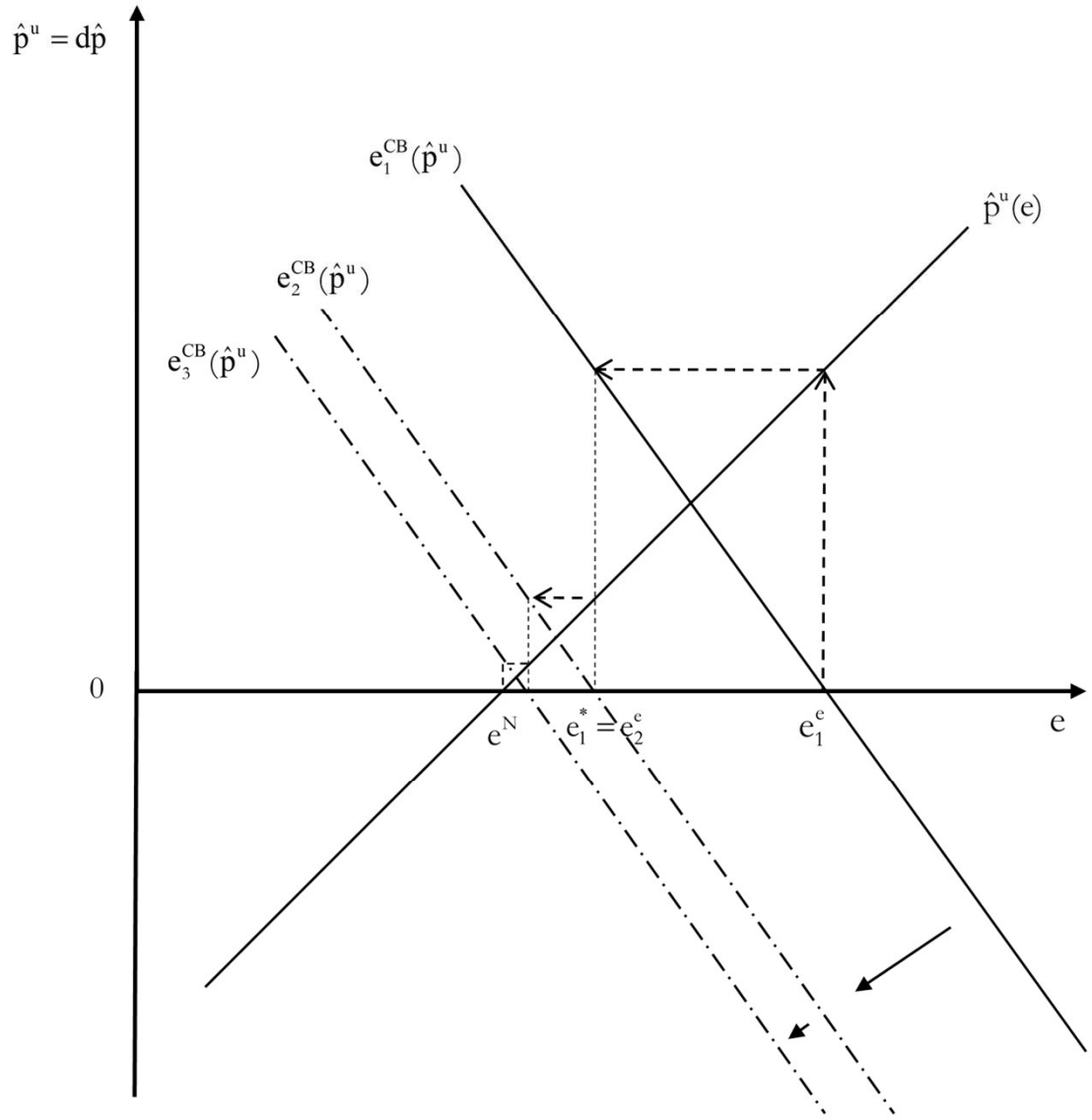


Figure 5.8: An inflation-targeting central bank cyclically stabilising the ex post goods market equilibrium rate of employment towards the SIRE

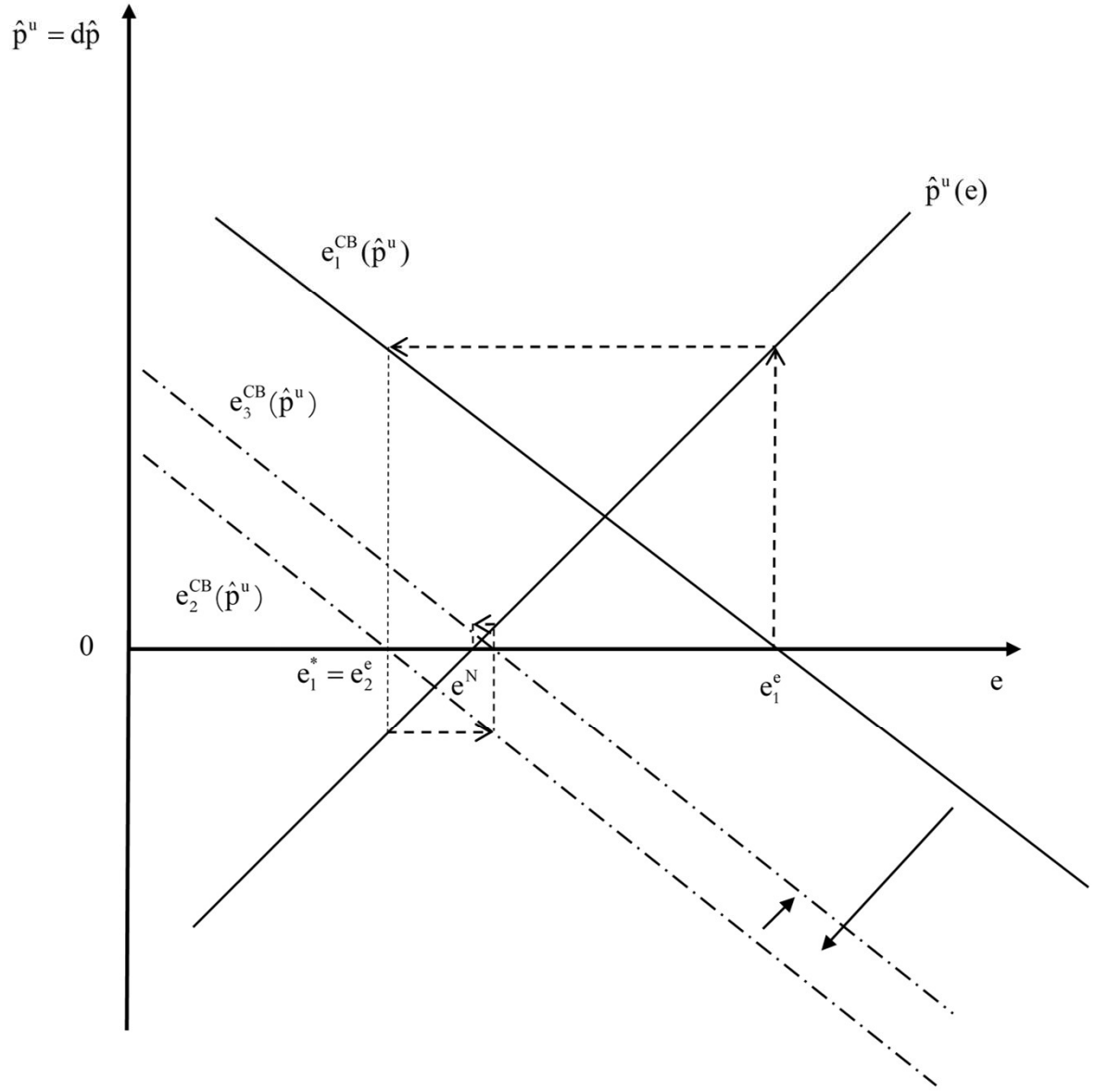
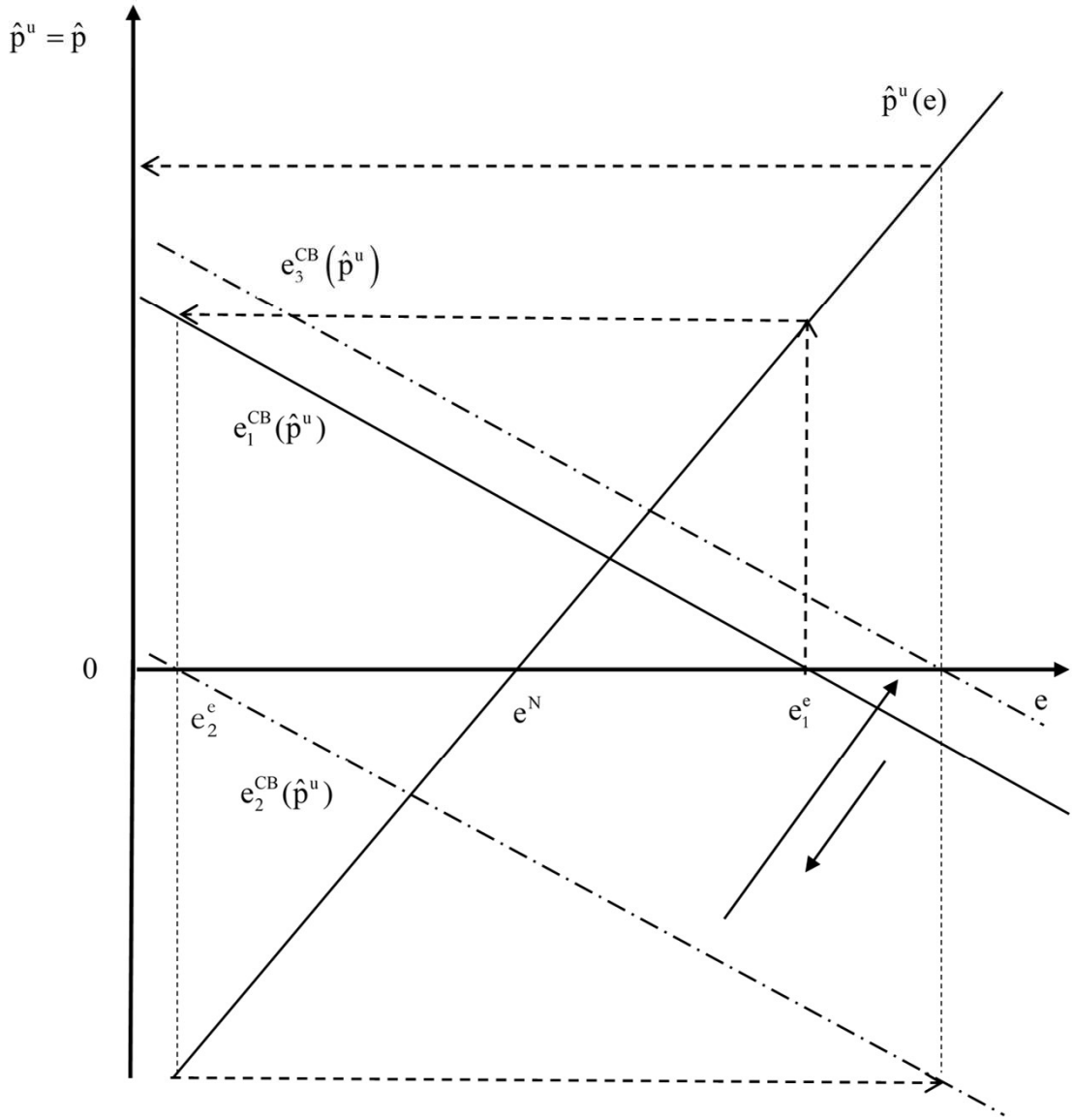


Figure 5.9: An inflation-targeting central bank de-stabilising the ex post goods market equilibrium rate of employment



Short-run problems for monetary policies as a stabiliser

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1. For a stable monotonic adjustment, as in Figure 5.7, we need a steep ('ex post') goods market equilibrium employment curve incorporating monetary policy responses (e^{cb}), which indicates only weakly contractive effects of the interest rate policy of the central bank.
➔ central banks have to be careful in their responses

2. Zero (or positive) lower bound for nominal interest rate
➔ ineffectiveness with low inflation or deflation

3. Asymmetric effects of changes in central bank rate on credit market rates
➔ potential ineffectiveness in lowering credit market rates in a crisis

4. Fall in firms' animal spirits (I_a)
➔ potential ineffectiveness in stimulating demand in a deep recession

Medium-run problems: The interest cost channel

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- With accelerating inflation, higher interest rates induced by inflation targeting central bank policies are able to adjust employment towards the SIRE
- Surviving firms are facing higher interest costs which have to be covered by the mark up
- Increase in firms' target profit share, which lowers SIRE and may generate inflation again.
- Higher target profit share also triggers changes in distribution with further feedback effects on employment and inflation

(5.46) $h_F^T = h_0 + h_3 i_r^e, \qquad h_0 > 0, h_3 \geq 0$.

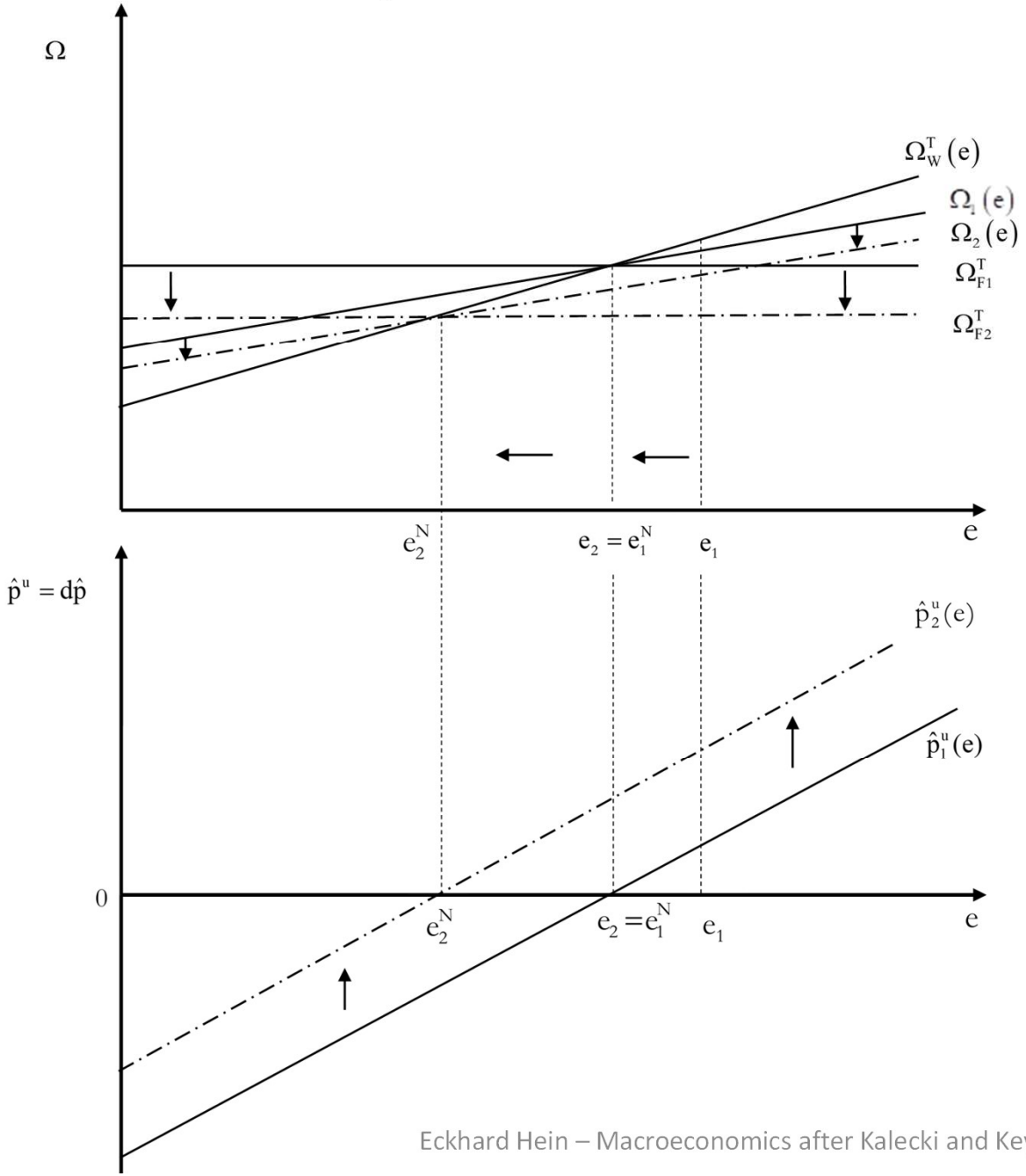
Taking into account the workers' target wage share from equation (5.13), we obtain the following stable-inflation rate of employment:

(5.47) $$e^N = \frac{1 - \Omega_o - h_0 - h_3 i_r^e}{\Omega_1} .$$

A persistent change in the 'ex ante' real interest rate will have an inverse effect on the stable-inflation rate of employment:

(5.47a) $$\frac{\partial e^N}{\partial i_r^e} = \frac{-h_3}{\Omega_1} < 0 .$$

Figure 5.10: Persistent increase in the 'ex ante' real rate of interest or in the tax rate on profits and the SIRE



With the target profit share from equation (5.46), unexpected inflation from equation (5.27) becomes:

$$(5.48)\quad \hat{p}^u = \frac{h_0 + h_3 i_r^e + \Omega_0 + \Omega_1 e - 1}{h_2 + \Omega_2}.$$

The realised profit share from equations (5.29) turns to:

$$(5.49)\quad h = h_F^T - h_2 \hat{p}^u = h_0 + h_3 i_r^e - h_2 \hat{p}^u, \qquad 1 > h_0 > 0,\ h_2, h_3 \geq 0.$$

Substituting unexpected inflation using equation (5.48), this becomes:

$$(5.50)\quad h = \frac{\Omega_2 \left(h_0 + h_3 i_r^e\right) + h_2 \left(1 - \Omega_0 - \Omega_1 e\right)}{h_2 + \Omega_2},$$

$$(5.50a)\quad \frac{\partial h}{\partial i_r^e} = \frac{\Omega_2 h_3}{h_2 + \Omega_2} > 0.$$

On top of the short-run direct effects of the increase in the interest rate in equation (5.44b), we will thus have in the medium run:

$$(5.44c)\quad \frac{\partial e^{cb}}{\partial i_r^e} = \frac{\partial e^{cb}}{\partial h}\frac{\partial h}{\partial i_r^e} = \frac{-e^{cb}}{h-\beta}\frac{\Omega_2 h_3}{h_2+\Omega_2} = \frac{-\Omega_2 h_3 e^{cb}}{(h-\beta)(h_2+\Omega_2)} < 0 .$$

⇨ Complex medium run dynamics with endogenous and stable or unstable SIRE

5.6 FISCAL POLICY AS A STABILISER: TAXES AND GOVERNMENT EXPENDITURES IN THE CLOSED ECONOMY MODEL WITH CONFLICT INFLATION

- Closed economy model with a government from Chapter 4.4.
- Government's real expenditures on goods and services (G_r) are exogenous
- Government's ex post real interest payments to rentiers are given by the real interest rate and the stock of government debt at issue prices ($i_r B_G$) and are hence affected by inflation, as are real tax revenues

(5.51) $$T_r = t_\Pi \left(hY_P - i_r B_F\right) + t_\Pi \left(i_r B_F + i_r B_G\right) = t_\Pi \left(hY_P + i_r B_G\right).$$

(5.52) $$\begin{aligned} S_r &= \Pi_{Fr}^{net} + S_{Rr} = \left(1-t_\Pi\right)\left[hY_P - i_r B_F + s_R i_r \left(B_F + B_G\right)\right] \\ &= \left(1-t_\Pi\right)\left\{hY_P - i_r\left[\left(1-s_R\right)B_F - s_R B_G\right]\right\},\ 1 \geq s_R > 0,\ 1 > t_\Pi \geq 0. \end{aligned}$$

(5.53) $$\begin{aligned} I &= I_a + \beta Y_P - \theta\left[i_r B_F + t_\Pi \left(hY_P - i_r B_F\right)\right] \\ &= I_a + \left(\beta - \theta t_\Pi h\right) Y_P - \theta\left(1-t_\Pi\right) i_r B_F,\ I_a, \beta, \theta \geq 0,\ \beta - \theta t_\Pi h > 0 \end{aligned}$$

With $\beta - \theta t_\Pi h > 0$

The equilibrium condition is:

$$(5.54)\quad I+G_r+i_rB_G=S_r+T_r,$$

and the stability condition is given as:

$$(5.55)\quad \frac{\partial S_r}{\partial Y_P}+\frac{\partial T_r}{\partial Y_P}>\frac{\partial I}{\partial Y_P}\Rightarrow(1-t_\Pi)h+t_\Pi h>\beta-\theta t_\Pi h\Rightarrow(1+\theta t_\Pi)h-\beta>0.$$

Ex ante equilibrium output and income from production:

$$(5.56)\quad Y_P^e=\frac{I_a+G_r+(1-t_\Pi)i_r^e\left[(1-s_R-\theta)B_F+(1-s_R)B_G\right]}{(1+\theta t_\Pi)h_0-\beta}$$

For total ex ante equilibrium income::

$$\begin{aligned}Y^e&=Y_P^e+i_r^eB_G\\(5.57)\qquad&=\frac{I_a+G_r+i_r^e\left\{(1-t_\Pi)(1-s_R-\theta)B_F+\left[(1-t_\Pi)(1-s_R)+(1+\theta t_\Pi)h_0-\beta\right]B_G\right\}}{(1+\theta t_\Pi)h_0-\beta}.\end{aligned}$$

Ex ante goods market equilibrium rate of employment (e^e) implied by equation (5.56):

$$(5.58) \quad e^e = \frac{q\left\{I_a + G_r + \left(1-t_\Pi\right) i_r^e \left[\left(1-s_R-\theta\right) B_F + \left(1-s_R\right) B_G\right]\right\}}{\left(1+\theta t_\Pi\right) h_0 - \beta}$$

Ex post goods market equilibrium employment rate, including the distribution effects of unexpected inflation on the profit share and on rentiers' ex post real income:

$$e^* = \frac{q\left\{I_a + G_r + \left(1-t_\Pi\right)\left(i_r^e - \hat{p}^u\right)\left[\left(1-s_R-\theta\right)B_F + \left(1-s_R\right)B_G\right]\right\}}{\left(1+\theta t_\Pi\right)\left(h_0 - h_2\hat{p}^u\right) - \beta}$$

$$= \frac{q\left\{I_a + G_r + \left(1-t_\Pi\right) i_r\left[\left(1-s_R-\theta\right)B_F + \left(1-s_R\right)B_G\right]\right\}}{\left(1+\theta t_\Pi\right)h - \beta} \tag{5.59}$$

$$\frac{\partial e^*}{\partial \hat{p}^u} = \frac{\left(1+\theta t_\Pi\right)h_2 e^* - q\left(1-t_\Pi\right)\left[\left(1-s_R-\theta\right)B_F + \left(1-s_R\right)B_G\right]}{\left(1+\theta t_\Pi\right)\left(h_0 - h_2\hat{p}^u\right) - \beta}$$

$$= \frac{q\left\{\left(1+\theta t_\Pi\right)h_2 Y^* - \left(1-t_\Pi\right)\left[\left(1-s_R-\theta\right)B_F + \left(1-s_R\right)B_G\right]\right\}}{\left(1+\theta t_\Pi\right)h - \beta} \tag{5.59a}$$

With normal case and small effects of rentiers' real income from government interest payments, $\frac{\partial e^*}{\partial \hat{p}^u} > 0$ and SIRE will be unstable again

Government expenditures have a uniquely positive effect on the ex post equilibrium levels of output, thus also on the related employment rate taking into account fiscal policy effects (e^{FP}), and can hence stabilise the SIRE:

$$(5.59b)\ \frac{\partial e^{FP}}{\partial G_r} = \frac{q}{(1+\theta t_{\Pi})h - \beta} > 0$$

Government expenditure rule of the following type:

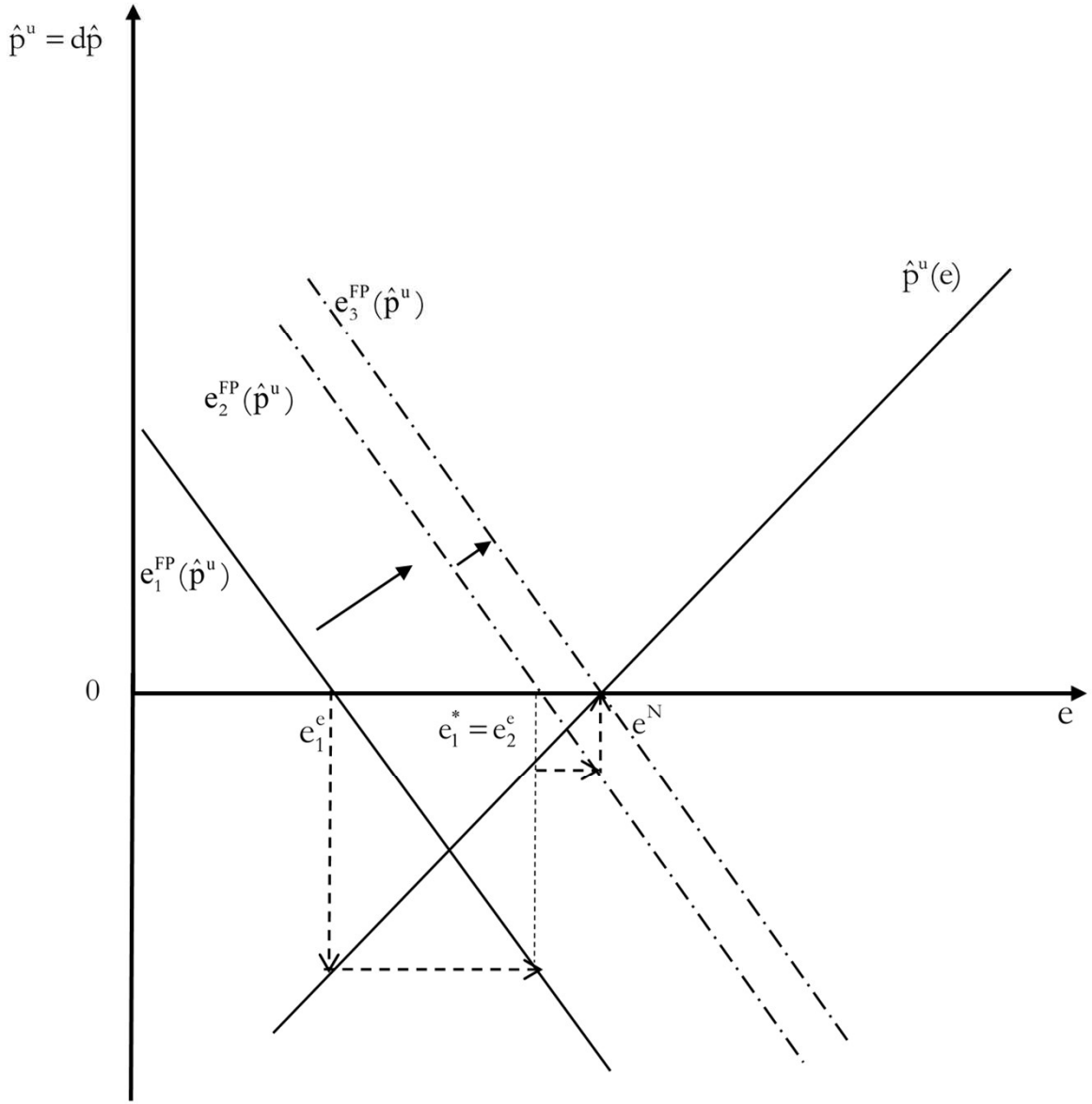
(5.60) $$G_r = G_{r0} + G_{r1}\left(e^N - e\right), \qquad G_{r0} \geq 0, G_{r1} > 0 .$$

Different from monetary policy interest rate rule, government expenditure rule

- has symmetric effects in the short run
- and no adverse effects in the long run

For given tax rate, government deficit and debt will be endogenous,
Stabilising government debt-GDP ratio without primary surpluses requires cooperation with the central bank, keeping long-term interest rate below GDP growth

Figure 5.11: Government expenditure policies stabilising the ex post goods market equilibrium rate of employment towards the SIRE



Using the tax rate (on profits) as a stabilising tool:

$$\text{(5.59c)}\quad \frac{\partial e^{FP}}{\partial t_{\Pi}} = \frac{-\theta h e^{*} - q i_r \left[\left(1 - s_R - \theta\right) B_F + \left(1 - s_R\right) B_G \right]}{\left(1 + \theta t_{\Pi}\right) h - \beta}$$

$$= \frac{-q \left\{ \theta h Y_p^{*} + i_r \left[\left(1 - s_R - \theta\right) B_F + \left(1 - s_R\right) B_G \right] \right\}}{\left(1 + \theta t_{\Pi}\right) h - \beta} < 0$$

With these results, we could also replace the central bank interest rate rule from equation (5.45) in order to stabilise inflation by a fiscal policy tax rule:

$$\text{(5.61)}\quad t_{\Pi} = t_{\Pi 0} + t_{\Pi 1}\left(e - e^{N}\right),\ t_{\Pi 0} \geq 0, t_{\Pi 1} > 0\,,$$

Problems, as with interest rate policies:

- Short-run asymmetric effects
- Medium- to long-run detrimental effects

5.7 CONFLICT INFLATION IN THE OPEN ECONOMY MACROECONOMIC MODEL

5.7.1 Inflation and distribution

Open economy model from Chapter 4.5:

$$(5.67)\quad p = \left[1 + m(i)\right]\left(\frac{w}{y} + p_f a \mu\right), \qquad m > 0, \frac{\partial m}{\partial i} \geq 0\,,$$

Potential sources of inflation in our open economy:

$$(5.72)\quad \hat{p} = \xi_1\left(\hat{w} - \hat{y}\right) + \xi_2\left(\hat{p}_f + \hat{a} + \hat{\mu}\right) + \left(\hat{1+m}\right),$$

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

With $\hat{y} = 0$, $\hat{\mu} = 0$, $\left(\hat{1+m}\right) = 0$:

$$(5.73)\quad \hat{p} = \xi_1 \hat{w} + \xi_2\left(\hat{p}_f + \hat{a}\right).$$

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

(5.75) $$h = \frac{\Pi}{pY} = \frac{\Pi}{\Pi + W} = \frac{m(1+z)}{m(1+z)+1} = \frac{1}{\frac{1}{m(1+z)}+1}.$$

(5.76) $$\Omega = 1 - h = \frac{W}{pY} = \frac{W}{\Pi + W} = \frac{1}{m(1+z)+1}.$$

(5.77) $$\hat{z} = \hat{p}_f + \hat{a} + \hat{\mu} - (\hat{w} - \hat{y}),$$

and with $\hat{y} = 0$ and $\hat{\mu} = 0$:

(5.78) $$\hat{z} = \hat{p}_f + \hat{a} - \hat{w}.$$

(5.78a) $\hat{z} = 0 \Rightarrow \hat{p}_f + \hat{a} = \hat{w} = \hat{p}.$

(5.78b) $\hat{z} > 0 \Rightarrow \hat{p}_f + \hat{a} > \hat{p} > \hat{w}.$

(5.78c) $\hat{z} < 0 \Rightarrow \hat{w} > \hat{p} > \hat{p}_f + \hat{a}.$

Different from the closed economy model, domestic wage inflation that exceeds given foreign inflation plus a given rate of depreciation of the domestic currency will raise the wage share even though wage inflation may be fully passed-through to price inflation, which we now assume for the sake of simplicity.

The target profit share is given by the constant mark-up in firms' price setting and the expectation of a constant medium-run z-ratio (adaptive expectations):

(5.79) $$a_r^e = \frac{a^e p_f^e}{p^e},$$

(5.80) $$\hat{a}_r^e = \hat{a}^e + \hat{p}_f^e - \hat{p}^e .$$

(5.81) $$h_F^T = h_0 + h_3 i_r^e + h_5 a_r^e, \qquad 1 > h_0 > 0,\ h_3, h_5 \geq 0 .$$

(5.81) $h_F^T = h_0 + h_3 i_r^e + h_5 a_r^e, \qquad 1 > h_0 > 0,\ h_3, h_5 \geq 0\ .$

(5.82) $\Omega_W^T = 1 - h_W^T = \Omega_0 + \Omega_1 e, \qquad 1 > \Omega_0 > 0,\ \Omega_1 \geq 0\ .$

Different from Blecker (2011) and Lavoie (2014, Chapter 8) workers' target wage share is not affected by real exchange rates, because workers only consume domestically produced goods

(5.83) $e^N = \dfrac{1 - \Omega_o - h_0 - h_3 i_r^e - h_5 a_r^e}{\Omega_1}\ .$

(5.84) $\Omega = \Omega_W^T - \Omega_2 \hat{p}^u = \Omega_0 + \Omega_1 e - \Omega_2 \hat{p}^u, \qquad 1 > \Omega_0 > 0,\ \Omega_1, \Omega_2 \geq 0,$

(5.85) $h = h_F^T - h_2 \hat{p}^u = h_0 + h_3 i_r^e + h_5 a_r^e - h_2 \hat{p}^u, \qquad 1 > h_0 > 0,\ h_2, h_3, h_5 \geq 0.$

(5.86) $$\hat{p}^u = \frac{h_0 + h_3 i_r^e + h_5 a_r^e + \Omega_0 + \Omega_1 e - 1}{h_2 + \Omega_2}.$$

Substituting unexpected inflation into equation (5.85):

(5.87) $$h = \frac{\left(h_0 + h_3 i_r^e + h_5 a_r^e\right)\Omega_2 + h_2\left(1 - \Omega_0 - \Omega_1 e\right)}{h_2 + \Omega_2},$$

(5.88) $$\Omega = \frac{\left(\Omega_0 + \Omega_1 e\right)h_2 + \Omega_2\left(1 - h_0 - h_3 i_r^e - h_5 a_r^e\right)}{h_2 + \Omega_2}.$$

- In the **short run**, a higher (lower) employment rate will raise (lower) the workers' target wage share according to equation (5.82), raise (lower) unexpected inflation in equation (5.86), raise (lower) the realised wage share according to equation (5.88), and lower (raise) the realised profit share in equation (5.87). Furthermore, a higher (lower) employment rate will also lower (raise) the real exchange rate, through the effects on domestic inflation, as can be seen in equation (5.80).

- In the **medium run**, a decline (increase) in the (expected) real exchange rate will lower (raise) the target profit share in equation (5.81), raise (lower) the SIRE in equation (5.83), it will lower (raise) unexpected inflation in equation (5.86), lower (raise) the realised profit share in equation (5.87) and raise (lower) the realised wage share in equation (5.88). A medium-run change in the expected real exchange rate will thus have similar effects as a change in the expected real interest rate

5.7.2 The goods market equilibrium with distribution conflict and the effects of unexpected inflation in an open economy

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(5.89) $S_r = hY - (1 - s_R) i_r B_F, \qquad 1 \geq s_R > 0.$

(5.90) $I = I_a + \beta Y - \theta i_r B_F, \qquad I_a, \beta, \theta \geq 0.$

(5.91) $NX_r = Ex - a_r Im = \psi a_r + \chi a_r Y_f - \phi Y, \qquad \psi, \phi, \chi \geq 0$

(5.92) $I + G_r + NX_r = S_r,$

(5.93) $\frac{\partial S_r}{\partial Y} > \frac{\partial I}{\partial Y} + \frac{\partial NX_r}{\partial Y} \Rightarrow h - \beta + \phi > 0.$

Ex ante equilibrium:

$$(5.94)\quad Y^e = \frac{G_r + I_a + \left(1 - s_R - \theta\right) i_r^e B_F + a_r^e \left(\psi + \chi Y_f\right)}{h_0 + h_3 i_r^e + h_5 a_r^e - \beta + \phi}.$$

$$(5.95)\quad e^e = \frac{q\left[G_r + I_a + \left(1 - s_R - \theta\right) i_r^e B_F + a_r^e \left(\psi + \chi Y_f\right)\right]}{h_0 + h_3 i_r^e + h_5 a_r^e - \beta + \phi}.$$

Ex post equilibrium

$$e^* = \frac{q\left[G_r + I_a + \left(1 - s_R - \theta\right)\left(i_r^e - \hat{p}^u\right)B_F + \left(a_r^e - a_2\hat{p}^u\right)\left(\psi + \chi Y_f\right)\right]}{h_0 + h_3 i_r^e + h_5 a_r^e - h_2\hat{p}^u - \beta + \phi}$$

(5.96)

$$= \frac{q\left[G_r + I_a + \left(1 - s_R - \theta\right) i_r B_F + a_r\left(\psi + \chi Y_f\right)\right]}{h - \beta + \phi}$$

with the following effect of unexpected inflation:

$$\frac{\partial e^*}{\partial \hat{p}^u} = \frac{h_2 e^* - q\left[\left(1 - s_R - \theta\right)B_F + a_2\left(\psi + \chi Y_f\right)\right]}{h_0 + h_3 i_r^e + h_5 a_r^e - h_2\hat{p}^u - \beta + \phi}$$

(5.96a)

$$= \frac{q\left[h_2 Y^* - \left(1 - s_R - \theta\right)B_F - a_2\left(\psi + \chi Y_f\right)\right]}{h - \beta + \phi}$$

Three channels of influence of unexpected inflation, according to (5.96a):

- First term: a rising wage share and a falling profit share associated with unexpected inflation will raise domestic demand, which is wage-led.
  ➔ destabilising
- Second term: lower real interest payments of the firms to the rentiers caused by unexpected inflation will increase effective demand and employment, if we assume the normal case to prevail ($1 - s_R - \theta < 0$) and hence the real interest effect on investment to be stronger than on rentiers' consumption.
  ➔ destabilising
- Third term: unexpected inflation will make the real exchange rate and the domestic currency appreciate in real terms. On the one hand, this lowers international price competitiveness of domestic producers. On the other hand, with given foreign income and a given foreign propensity to spend on domestic exports, this will lower foreign demand for domestic goods through this income channel.
  ➔ stabilising
- Short-run unstable SIRE: $h_2 Y^* - (1 - s_R - \theta) B_F - a_2 (\psi + \chi Y_f) > 0$ (wage-led)
- Short-run stable SIRE: $h_2 Y^* - (1 - s_R - \theta) B_F - a_2 (\psi + \chi Y_f) < 0$ (profit-led)

The case of the short-run unstable SIRE

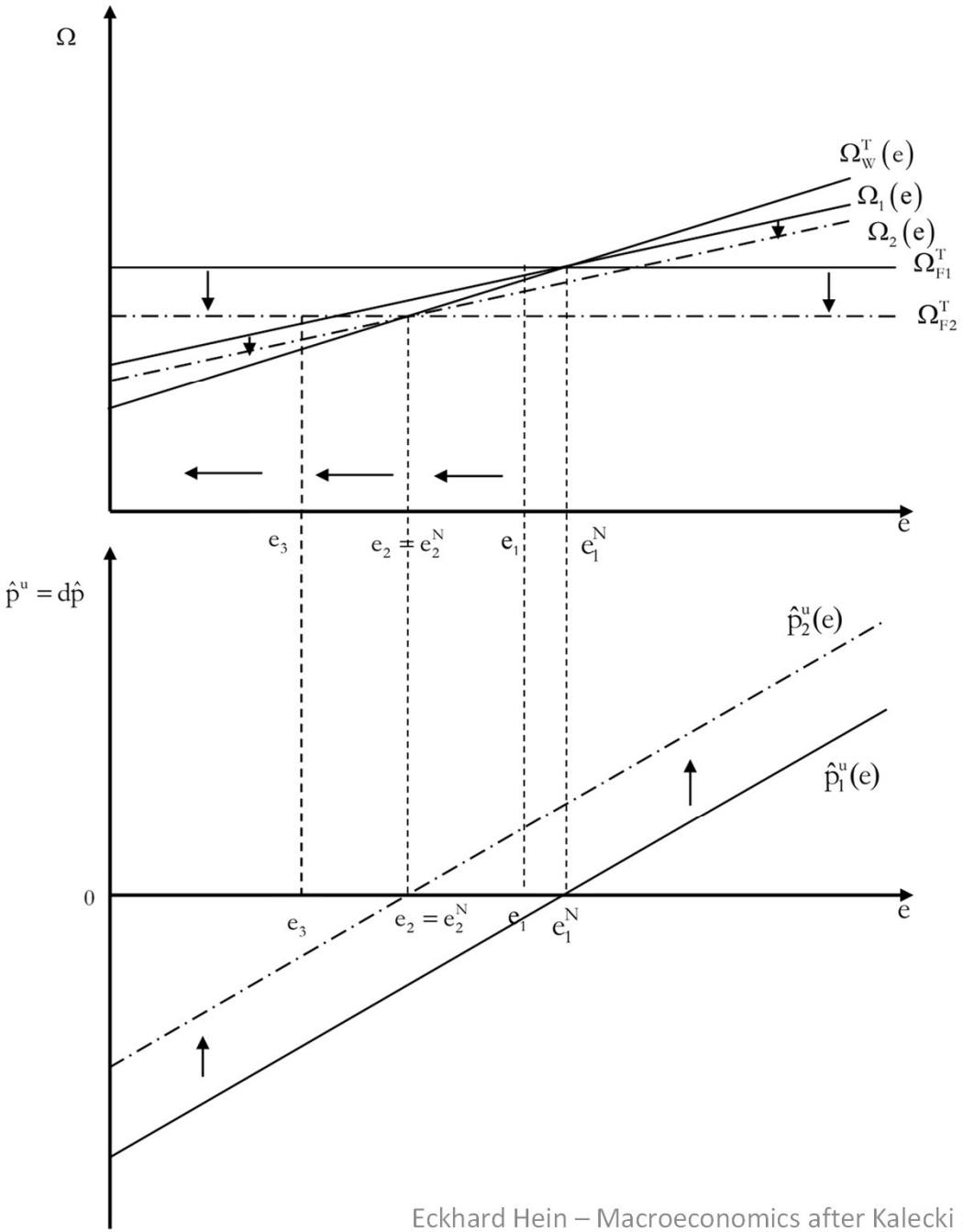
- The negative (positive) effect of positive (negative) unexpected inflation on net exports will dampen but not prevent the instability.

- In the medium run, over several periods, continuous positive (negative) unexpected inflation implies that the domestic wage and price inflation trend will exceed (fall short of) foreign inflation, which will lead to a fall (rise) in the expected real exchange rate, as well as to a fall (rise) in the ratio z of unit material to unit wage costs.

- According to equation (5.81), firms' target profit share will thus decrease (increase) and, according to equation (5.83), the SIRE will rise (fall) and follow the actual employment rate

(5.83a) $$\frac{\partial e^N}{\partial a_r^e} = \frac{-h_5}{\Omega_1} < 0 .$$

Figure 5.12: Short-run unstable and medium-run endogenous SIRE in an open economy



- Since a falling (rising) target profit share of firms also means a falling (rising) realised profit share, according to equation (5.87), the latter will further stimulate (dampen) aggregate demand, output and employment in equation (5.96).

- The medium-run effect of a change in the expected real exchange rate on the goods market equilibrium employment rate via the change in the target and the actual profit share, taking into account equation (5.87), are given as:

- (5.96b) $$\frac{\partial e^*}{\partial a_r^e} = \frac{\partial e^*}{\partial h}\frac{\partial h}{\partial a_r^e} = \frac{-e^*}{h-\beta+\phi}\frac{h_5}{h_2+\Omega_2} = \frac{-h_5 e^*}{(h-\beta+\phi)(h_2+\Omega)} < 0 \,.$$

- Due to the endogeneity of the SIRE and further demand effects of medium-run changes in the target profit share, we may thus have self-reinforcing downwards (upwards) processes of both the ex post goods market equilibrium rate of employment and the SIRE.

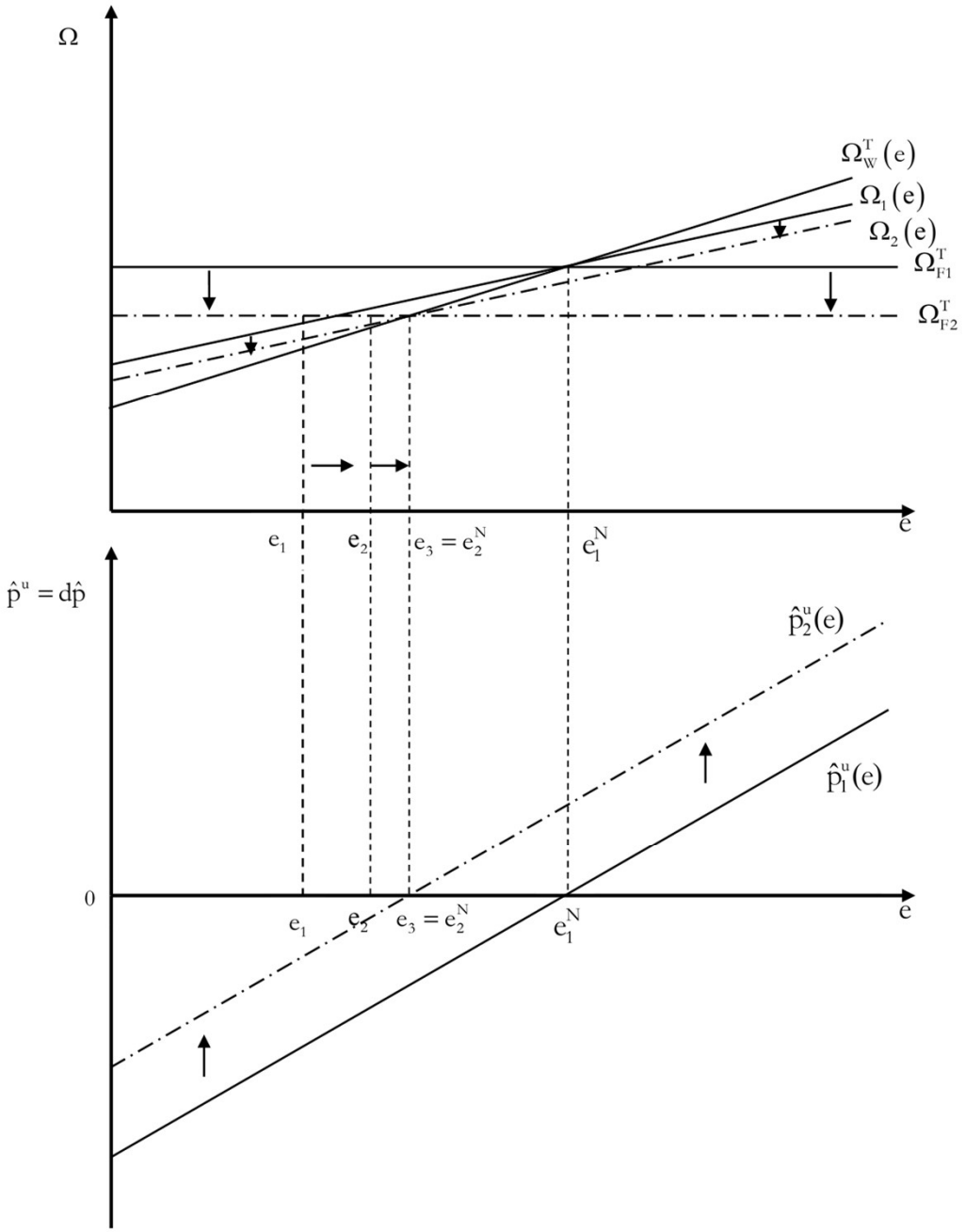
The case of the short-run stable SIRE

- In the short-run stable case, the negative (positive) effect of positive (negative) unexpected inflation on net exports will dominate over the redistributive effects on domestic demand, prevent cumulative instability and move the employment rate back towards the SIRE.

- However, unless this effect leads to an immediate return of the employment rate towards the SIRE, medium-run positive (negative) unexpected inflation effects on the expected real exchange rate also have to be considered in this case.

- These cause a change in the target profit share in equation (5.81), the SIRE in equation (5.83), the realised profit share in equation (5.87), with a second-round effect on the employment rate in equation (5.96). A potential scenario is shown in Figure 5.13.

Figure 5.13: Short-run stable and medium-run endogenous SIRE in an open economy



- Also in the open economy, different from NCM, the SIRE is far from being a strong attractor in the short run, in particular if aggregate demand remains wage-led.

- Even without adjustments of the nominal exchange rate, real exchange rate dynamics associated with unexpected (dis-)inflation feeds back on the SIRE in the medium run and make it endogenous.

- It cannot be expected to reach a high SIRE (or a low NAIRU) without macroeconomic economic policy interventions and aggregate demand management. For these, government expenditure policies seem to be the appropriate tool, also in the open economy.

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Eckhard Hein

MACROECONOMICS AFTER KALECKI AND KEYNES

Post-Keynesian Foundations

(Edward Elgar 2023)

Chapter 6
'A POST-KEYNESIAN MACROECONOMIC POLICY MIX'

6.1 INTRODUCTION

- From our post-Keynesian models presented in Chapter 5, it follows that the NCM policy framework has to be completely revised in order to achieve a high and stable medium- to long-run employment rate with stable inflation rates and inflation expectations
- The following elaborations are based on Hein and Stockhammer (2009, 2010, 2011b). A similar post-Keynesian economic policy mix has been advocated by Arestis (2010, 2013) and Arestis and Sawyer (2010a).
- Historically, it can also be found in Kalecki (1943b, 1943c, 1944, 1945) and Kalecki and Schumacher (1943).
- Applications to EMU: by Arestis (2011b), Arestis and Sawyer (2011, 2013), Hein (2018a), Hein and Detzer (2015b, 2015c), Hein and Martschin (2020), Hein et al. (2012b) and Sawyer (2013)

Table 6.1: Macroeconomic policy recommendations: New Consensus models (NCM) and post-Keynesian models (PKM) compared		
	NCM	**PKM**
Monetary policy	Inflation targeting by means of interest rate policies, which affects unemployment in the short run, but only inflation in the long run	Target low interest rates which mainly affect distribution, and stabilise monetary, financial and real sectors by applying other instruments (lender of last resort, credit controls, …)
Fiscal policy	Supports monetary policy in achieving price stability by balancing the budget over the cycle	Real stabilisation in the short and in the long run with no autonomous deficit targets; reduction of inequality
Labour market and wage/incomes policy	Determines the NAIRU in the long run and the speed of adjustment in the short run; focus should be on flexible nominal and real wages	Affects price level/inflation and distribution; focus on stable nominal wage and nominal unit labour cost growth, as well as compressed wage structure
International economic policies	Free trade, free capital flows and flexible exchange rates	Regulated capital flows, managed exchange rates, infant industry protection, regional and industrial policies
Economic policy co-ordination	Clear assignment in the long run; co-ordination at best only in the short run	No clear assignment; economic policy co-ordination required in the short and the long run, both nationally and internationally
Source: Based on Hein (2017a, p. 154)		

6.2 MONETARY POLICY

- Interest rate policies have short- and long-run real effects
- activist vs. parking it (Rochon/Setterfield 2007)
- activist: use interest rate to stabilise, but be aware of limitations
- parking it: refrain from fine tuning inflation or employment but target a constant rate of interest
- CB has responsibility for stability of financial system

➢ definition of credit standards and creditworthiness
➢ reserve requirements and capital controls to prevent bubbles
➢ 'lender of last resort' in the case of systemic crises
➢ guarantor of public debt

Parking it targets (or rules):

- zero nominal overnight rate (Kansas City rule, Wray (2007))
- (close to) zero real long-term rate of interest (Smithin rule, Smithin (2007))
- real long-term rate equal to productivity growth (Pasinetti rule, Lavoie (1996))

Central bank long-term interest rate target (i^T):

(6.1) $$i^T = i_r^T + \hat{p} = i_r^T + \hat{p}^e + \hat{p}^u ,$$

$i_r^T = \hat{y}$ given by medium-run productivity growth.

Pragmatic target long-term nominal interest rate (i^T) for central banks,:

(6.2) $$\hat{p} \leq i^T \leq \hat{Y} + \hat{p} = \hat{Y}^n \quad \Leftrightarrow \quad 0 \leq i_r^T \leq \hat{Y} .$$

Since $i = (1 + m_B) i_{CB}$, central banks also need to assess the mark-up applied by commercial banks and set the short-term rate of interest accordingly:

(6.3) $$i_{CB} = \frac{i^T}{(1 + m_B)} = \frac{i_r^T + \hat{p}}{(1 + m_B)} = \frac{i_r^T + \hat{p}^e + \hat{p}^u}{(1 + m_B)}$$

- Changes in mark-up may prevent central banks from reaching their targets
- Way out: quantitative easing, i.e. central banks purchasing government and corporate bonds, thus raising bond prices and bringing long-term interest rates on bonds down.
- May stabilise financial sector and deficit units, but may also raise risk taking and financial instability
- Little effects on economic activity in a slump

6.3 INCOMES AND WAGE POLICY

Nominal and real wage, or nulc and rulc (distribution) variations generate instability

Wage & incomes policies should target nominal stabilisation and stable distribution

➔ nominal unit labour costs should grow at a rate similar to the country's inflation target

➔ only if other distribution claims (profits, state, external sector) are reduced, redistribution via wage policy is possible without triggering unexpected inflation and instability

Target nominal wage growth:

(6.4) $\hat{w} = \hat{y} + \hat{p}^T$.

$\hat{y}$: long-run productivity growth

Flatten the Phillips curve by reducing $h_2 + \Omega_2$:

(6.5) $$\hat{p}^u = \frac{h_0 + \Omega_0 + \Omega_1 e - 1}{h_2 + \Omega_2}.$$

Introduce a horizontal part:

$$\Omega_W^T = (1-h)_W^T = (1-h)_F^T = h_0 \text{, if: } e_1^N < e < e_2^N$$

(6.4) and

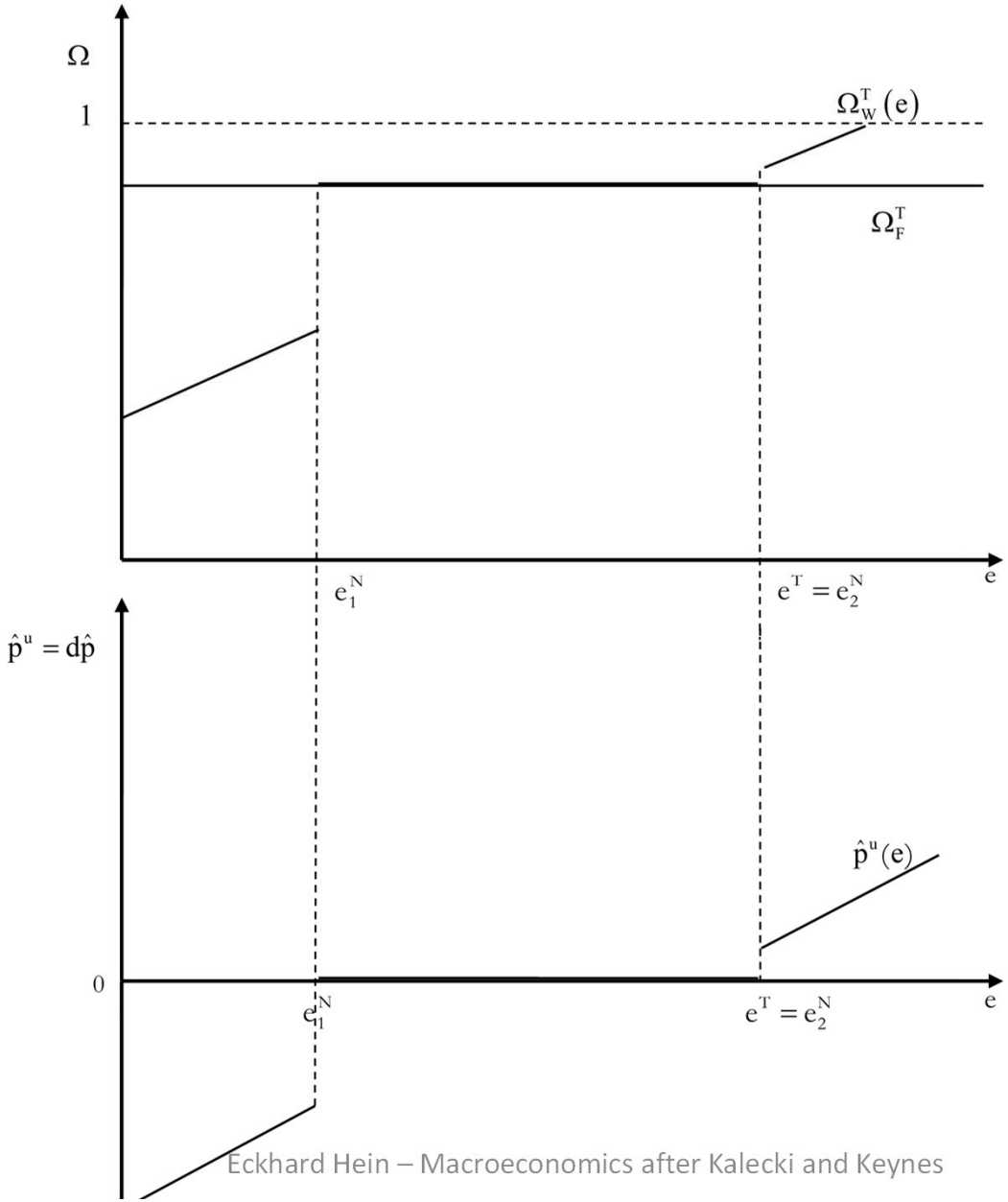
$$\Omega_W^T = (1-h)_W^T = \Omega_0 + \Omega_1 e \text{, if: } e < e_1^N \text{ or } e_2^N < e$$

$$\hat{p}_t^u = \frac{\Omega_0 + \Omega_1 e + h_0 - 1}{\Omega_2 + h_2} \text{, if: } e < e_1^N \text{ or } e_2^N < e,$$

(6.5) and

$$\hat{p}_t^u = 0 \text{, if: } e_1^N < e < e_2^N.$$

Figure 6.1: Results of a post-Keynesian macroeconomic policy mix



- With pro-cyclical target and actual profit share, wage norm is stabilising in a wage-led economy:

➢ If inflation exceeds (falls short of) target inflation, following the wage norm means lowering (raising) the wage share, aggregate demand, employment and thus inflation.

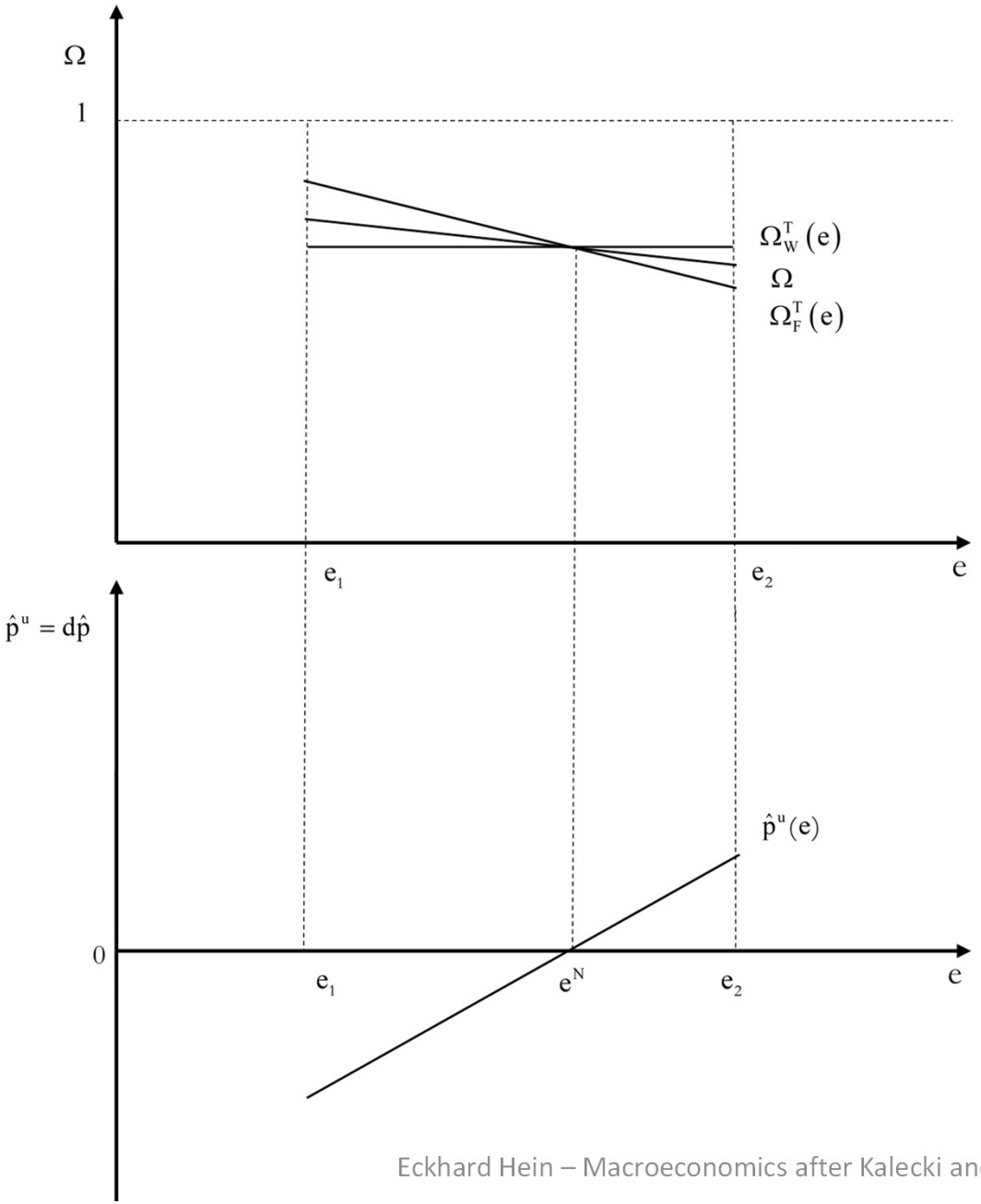
- Trend productivity growth or actual productivity growth?

➢ Following trend productivity growth is stabilising in a wage-led economy, because wage share will fall (rise) in upswing (downswing).

- National productivity growth or firm or industry productivity growth?

➢ Following economy wide productivity growth facilitates structural change

Figure 6.2: Constant target wage share of workers and pro-cyclical target profit share of firms



Institutional requirements:

- wage bargaining coordination focussing on consistent distribution targets
- ➢ high coordination at national level,
- ➢ strong trade unions and employer association,
- ➢ government involvement in bargaining
- ➢ statutory minimum wages, declaration of general applicability of bargaining results

- ➢ Phillips curve becomes (partly) horizontal
- ➢ Demand management can choose high level of employment without triggering unexpected inflation

6.4 FISCAL POLICY

Activist fiscal policy in the short and the long run:

- First, lack of aggregate demand for reaching non-inflationary full employment output levels may not only be a short-run deep recession phenomenon, but may be a medium- to long-run problem, in particular in mature monetary production economies.

- Second, fiscal policy does not only affect aggregate demand in the short and the long run, but it also has an impact on the supply conditions and thus on potential output and potential growth in the long run.

Government expenditure rule:

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

with G_{r0} as the expenditure level to reach the target employment rate and G_{r1} as the reaction coefficient towards deviation of the employment rate from the target rate.

The employment target should, of course, be the maximum employment rate achievable without triggering unexpected inflation.

This is equivalent to a 'functional finance' Lerner (1943):

(6.9) $$D = G + iB_G - T = S - pI\,.$$

Cooperation of central banks keeping interest rate low is required to stabilise government debt-capital ratio without primary surplus.

- Governments should vary expenditures and not the tax rate, to avoid short-run asymmetric and long-run detrimental effects

- Structure of tax rates, together with government social transfers, will affect the distribution of disposable income and thus aggregate demand and employment in the short and in the long run.

- Progressive tax and social benefit system improves automatic stabilisers

6.5 THE INTERNATIONAL DIMENSION

- Variations in the nominal and the real exchange rate do not have unique effects on domestic output and employment, if distributional effects are taken into account.

- Depreciation may also lead to the acceleration of conflict inflation in the domestic economy

- Thirlwall's (1979) law and empirical studies on that law: non-price competitiveness may be more relevant than price competitiveness for exports and imports in the long run.

➢ post-Keynesian macroeconomic policies should aim at stabilising or 'parking' the exchange rate at a level which is consistent with a balanced current account

Policy implications

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- Domestic macroeconomic policies aiming at domestic demand generation at SIRE levels should also be conducive to stable exchange rate
- Central banks should target domestic long-term interest rates slightly below trend GDP growth, and should thus not aim at directly manipulating the exchange rate by interest rate policy
- Wage policies should contribute to achieving a stable target inflation rate, having nominal wages grow at trend domestic productivity growth plus the domestic target rate of inflation. The latter should be in line with the target inflation rates of the main trading partners.
- Fiscal policy is then free to manage domestic demand such that the SIRE is reached – without constraints given by deficit or debt targets or ceilings.

- Policy mix should be conducive to avoiding 'beggar-thy-neighbour policies'
- To the extent that full employment at the SIRE level is associated with a current account deficit and the accumulation of debt in foreign currency, the required improvement of the current account should be gained by raising non-price competitiveness (Arestis 2010, 2013, Arestis and Sawyer 2010a, Hein and Detzer 2015b, 2015c).
- Active industrial and regional policies, linked with public investment in infrastructure, education and R&D, are essential, but also for overcoming regional and sectoral supply side bottlenecks, as Arestis (2010, 2013) and Arestis and Sawyer (2010a) have pointed out.

- International framework: system of managed exchange rates with symmetrical adjustment obligations in case of current account imbalances, in line with Keynes's (1942) proposal of an International Clearing Union (see also Davidson 1982, 2009, 2011, Chapter 17)
- Furthermore, capital controls would be needed in order to reduce speculation, uncertainty and volatility.
- Amendments towards providing stable finance of medium-run current account deficits for investment purposes in catching-up emerging capitalist economies: Kalecki and Schumacher (1943) for the post-World War II world economy, Hein and Detzer (2015b, 2015c) recently for overcoming the imbalances in the Eurozone

THANK YOU!