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A Post-Keynesian Alternative to the New Consensus Model

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1. **The post-Keynesian monetary theory of production**
2. **A post-Keynesian alternative to the New Consensus Model**
3. **NCM and PKA compared**

Literature

- Hein, E., Stockhammer, E. (2009): A post-Keynesian alternative to the New Consensus Model, in: Fontana, G., Setterfield, M. (eds.), *Macreoeconomic Theory and Macroeconomic Pedagogy*, Basingstoke: Palgrave Macmillan.

More technical versions:

- Hein, E., Stockhammer, E. (2010): Macroeconomic policy mix, employment and inflation in a post-Keynesian alternative to the New Consensus model, *Review of Political Economy*, *22* (3): 317-354.
- Hein, E., Stockhammer, E. (2011): A post-Keynesian macroeconomic model of inflation, distribution and employment, in: Hein, E., Stockhammer, E. (eds.): *A Modern Guide to Keynesian Macroeconomics and Economic Policies*, Cheltenham: Edward Elgar.

Other complete PK macro models:

- Arestis, P. (2013): Economic theory and policy: a coherent post-Keynesian approach, *European Journal of Economics and Economic Policies: Intervention*, 10 (2): 243-255.

1.

The post-Keynesian monetary theory of production

PK Hierarchy of the markets

1. *Money/Financial/Asset market*

   Central bank determines base rate of interest, and commercial banks set market rate of interest. Volumes of credit and money are endogenous.

2. *Goods market*

   Investment demand as the link between asset and goods market: I (r, i) + multiplier (1/1-c) determine aggregate demand output + employment

3. *Labour market*

   Labour demand depends on the goods market. Labour market sets the nominal wage rate and affects the price level.

Function of money:

- Standard of value for credit contracts, commodity exchange, financial assets
- Means of final payment for credit contracts and other purchase and liabilities
- Store of value: hoarding, speculation, precaution, transaction.

➔ scarcity of money is required

Central bank money is generated when banks grant credit and demand reserves from the central bank. No relation to gold or other money commodities.

Money, interest and credit

PK causality:

> ‘Money is credit-driven; loans make deposits; deposits make reserves. The supply of and the demand for credit money are interdependent. The control instrument of the central bank is not a quantity but a price, the rate of interest.’ (Lavoie 1992a, p. 170)

Central banks:

- set interest rate
- define standards for creditworthiness
- supply central bank money to commercial banks accepting securities in exchange or as collateral
- act as ‘lender of last resort’

Commercial banks

- mark-up central bank’s base rate
- check creditworthiness of firms and households
- supply credit to firms and households

➔ Credit and money are endogenously determined by economic process

➔ Interest rate is an exogenous distribution parameter for income generation and growth process

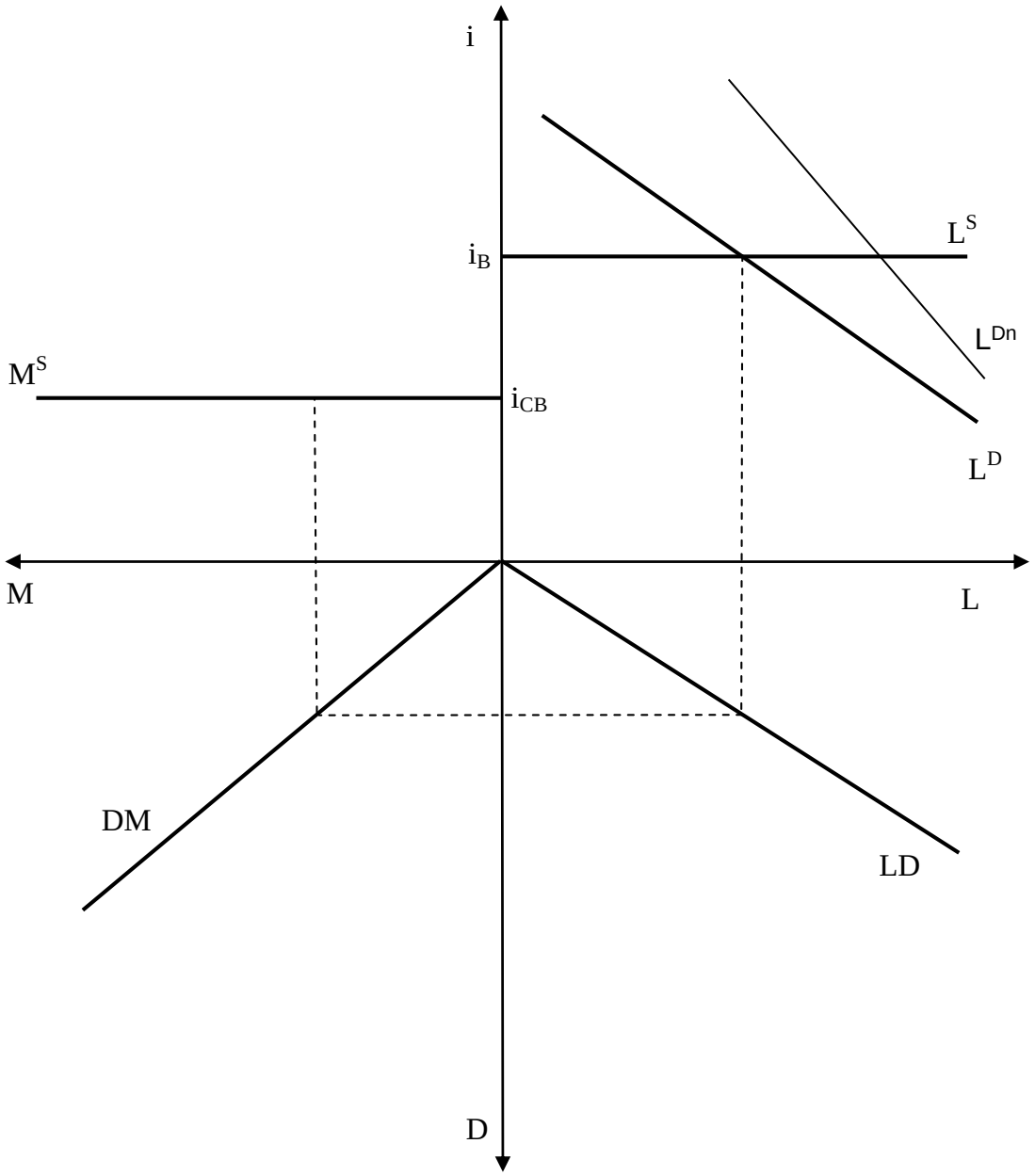


Figure I.1 The horizontalist approach of endogenous money and credit

M: central bank money

M^S: money supply

L: credit

L^S: credit supply

L^D: creditworthy credit demand

L^{Dn}: notional credit demand

D: deposits

i_{CB}: central bank interest rate in money market

i_B: interest rate in credit market

LD: Loan-deposit curve

DM: deposit-reserves curve

Source: based on Hein (2008: 45)

Results:

- Central bank controls the short-term money market rate of interest and the long-term credit market rate of interest (for the latter asymmetric control: interest rate can be increased in any case, but not decreased if commercial banks increase their mark-ups)
- Volume of credit and quantity of money are endogenously determined
- Changes in the rate of interest affect credit demand and hence the volumes of credit and money (asymmetric: reduction of credit demand by means of increasing the rate of interest is always possible, increase of credit demand by means of reducing the rate of interest is not).
- Interest rate effects on investment affect aggregate demand in the goods market, hence goods market (I=S)-equilibrium.
- Goods market equilbrium determines labour demand in the labour market. $L^S - L^D = UE$
- Labour market determines nominal wage rate and affects prices and inflation, but has no direct impact on unemployment.

2.
A Post-Keynesian alternative to the New Consensus Model

1. Production, finance, distribution and inflation generation

a. Production, finance and rentiers‘ income

Long-term investment finance is supplied by firms’ retained earnings or by long-term credit of rentiers’ households (directly or through banks).

Capital income or gross profits splits (Π) into (net) profit of enterprise (Π_F) and rentiers’ income (R).

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

Writing i_n for the nominal rate of interest, we can define the real interest rate for given inflation expectations ($\hat{p}^e$), the ‘ex ante’ real interest rate (i^e), as:

(2) $i^e = i_n - \hat{p}^e$.

The ‘ex post’ real interest rate (i) becomes endogenous to unexpected inflation ($\hat{p}^u$):

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

Firms' payments to rentiers are given by the stock of debt (B) at issue prices and the nominal rate of interest. Expected rentiers' interest income (R^e) can therefore be decomposed into a part compensating for the expected inflationary devaluation of the stock of nominal assets held by rentiers ($\hat{p}^e B$), and into expected real net income determined by the 'ex ante' real rate of interest ($i^e B$):

(4) $$R^e = i_n B = \left(i^e + \hat{p}^e\right)B = i^e B + \hat{p}^e B .$$

Firms' 'real' interest payments and rentiers' 'real' income (R) are affected whenever unexpected inflation occurs:

(5) $$R = \left(i_n - \hat{p}^u\right)B = \left(i^e + \hat{p}^e - \hat{p}^u\right)B .$$

Positive unexpected inflation therefore redistributes real income from rentiers to firms,

b. Conflicting claims, employment, unexpected inflation and distribution

The target gross profit share of firms (h_F^T), which has to cover retained earnings and interest payments to rentiers, is given by mark-up pricing on unit labour costs in incompletely competitive goods markets. In the short run, we assume the target mark-up to be constant up to full capacity output:

(6) $h_F^T = h_0, \qquad 0 < h_0 \leq 1 .$

If unexpected inflation arises, the realised profit share becomes:

(7) $h = h_0 - h_2 \hat{p}^u, \qquad 0 < h_0 \leq 1, 0 \leq h_2,$

with h_2 denoting the effect of unexpected inflation on the realised profit share.

The target wage share of workers [$\omega_W^T = (1-h)_W^T$] depends on the rate of employment (e), respectively unemployment (u), because lower unemployment improves workers' or labour unions' bargaining power.

(8) $$(1-h)_W^T = \omega_0 + \omega_1 e, \qquad 0 < \omega_0 \leq 1, \quad 0 \leq \omega_1.$$

Whenever there is unexpected inflation, the realised wage share becomes:

(9) $$(1-h) = \omega_0 + \omega_1 e - \omega_2 \hat{p}^u, \quad 0 < \omega_0 \leq 1, \quad 0 \leq \omega_1, \omega_2,$$

with ω_2 denoting the effect of unexpected inflation on the realised wage share.

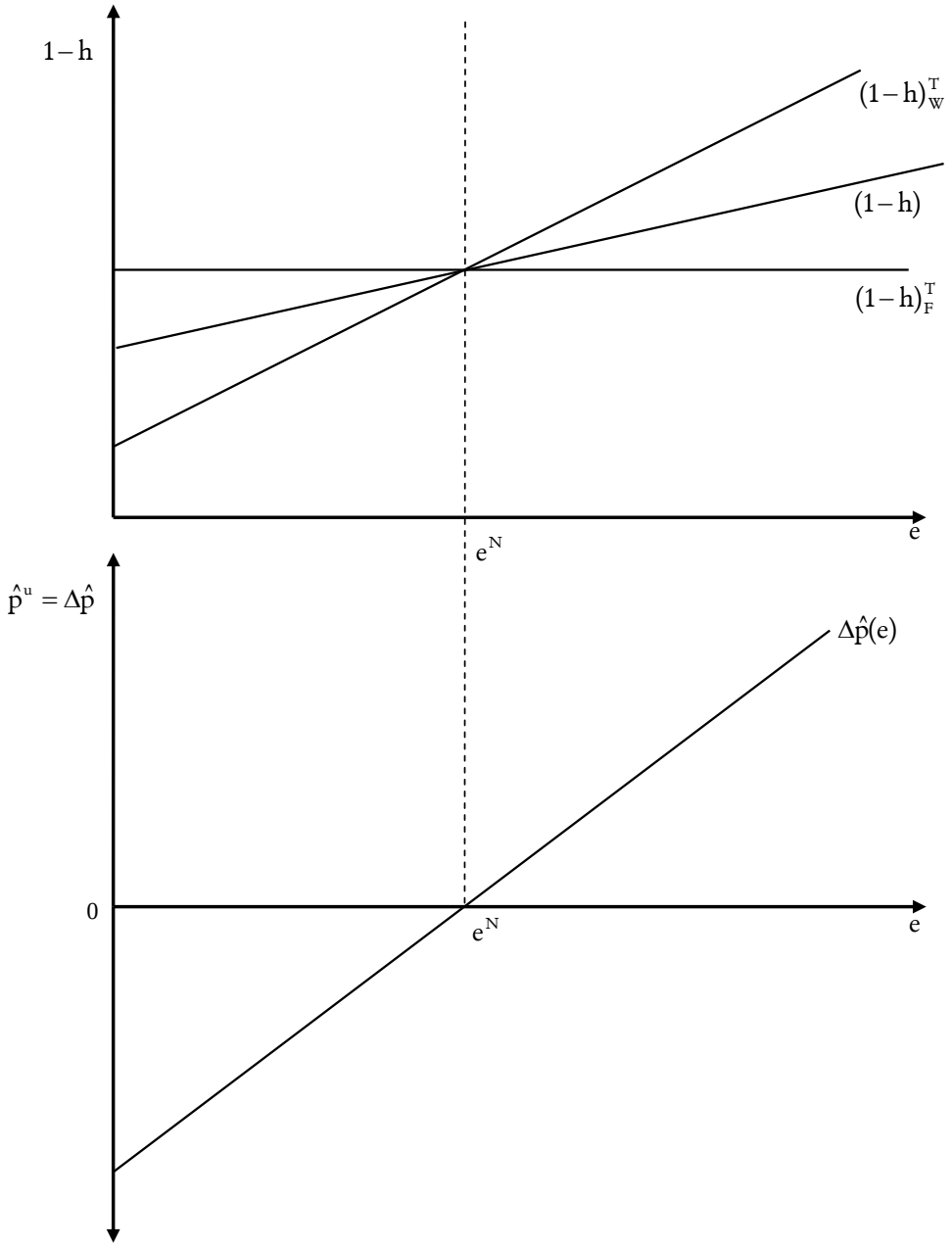
With adaptive expectations ($\hat{p}_t^e = \hat{p}_{t-1}$), we obtain the following short-run Phillips curve from equations (7) and (9):

$$(10) \qquad \hat{p}_t^u = \Delta\hat{p}_t = \hat{p}_t - \hat{p}_{t-1} = \frac{w_0 + w_1 e + h_0 - 1}{w_2 + h_2},$$

With consistent income claims: $(1-h)_W^T + h_F^T = 1$, we obtain from equations (6) and (8) for the stable inflation rate of employment (e^N) and hence the NAIRU $u^N = 1-e^N$:

$$(11) \qquad e^N = \frac{1 - w_0 - h_0}{w_1}.$$

Figure 1: Conflicting claims, inflation and distribution



Source: Hein/Stockhammer (2009: 277)

The goods market equilibrium (Y_{IS}), and hence capacity utilisation and employment, respectively unemployment, is determined by effective demand, consisting of firms' investment demand (I), rentiers' and workers' households consumption demand (C_R, C_W) and deficit financed government demand (D):

(12) $$Y_{IS} = I + C_R + C_W + D.$$

- classical saving hypothesis, i.e. labourers do not save
- profits retained by firms is completely saved by definition,
- profits distributed to rentiers' households, i.e. the interest payments, are used by those households according to their propensity to save which is assumed to be positive but below unity,
- firms' investment decisions are positively affected both by expected sales and by retained earnings,
- deficit financed government demand is taken to be exogenous in real terms.

'Ex ante' aggregate demand (Y_{IS}^{e}) will mainly depend on three variables: the nominal and hence the expected real rate of interest, the (expected) profit share and the government deficit (these are the exogenous variables of the model). The consumption propensities out of wage income, the consumption propensity out of rentiers income and the elasticities of investment with respect to retained profits and to expected sales are the important parameters of the model.

$$Y_{IS}^{e} = Y_{IS}^{e}(i_n, h, D),$$

$$\frac{\partial Y_{IS}^{e}}{\partial i_n} < 0, \frac{\partial Y_{IS}^{e}}{\partial h} < 0, \frac{\partial Y_{IS}^{e}}{\partial D} > 0. \tag{13}$$

Aggregate demand in the goods market determines the 'ex ante' goods market equilibrium and hence the 'ex ante' goods market equilibrium rate of employment (e_{IS}^{e}) when we take the labour supply as given:

$$e_{IS}^{e} = e_{IS}^{e}\left[Y_{IS}^{e}(i_n, h, D)\right],$$

$$\frac{\partial e_{IS}^{e}}{\partial Y_{IS}^{e}} > 0, \frac{\partial Y_{IS}^{e}}{\partial i_n} < 0, \frac{\partial Y_{IS}^{e}}{\partial h} < 0, \frac{\partial Y_{IS}^{e}}{\partial D} > 0. \tag{14}$$

2. The NAIRU – a strong attractor? The role of a central bank

'Ex ante' goods market equilibrium rate of employment in equation (14) may deviate from the stable inflation rate of employment determined in equation (11).

➔ unexpected inflation which will change distribution between profits and wages, on the one hand, and between firms' retained profits and rentiers' income, on the other hand.

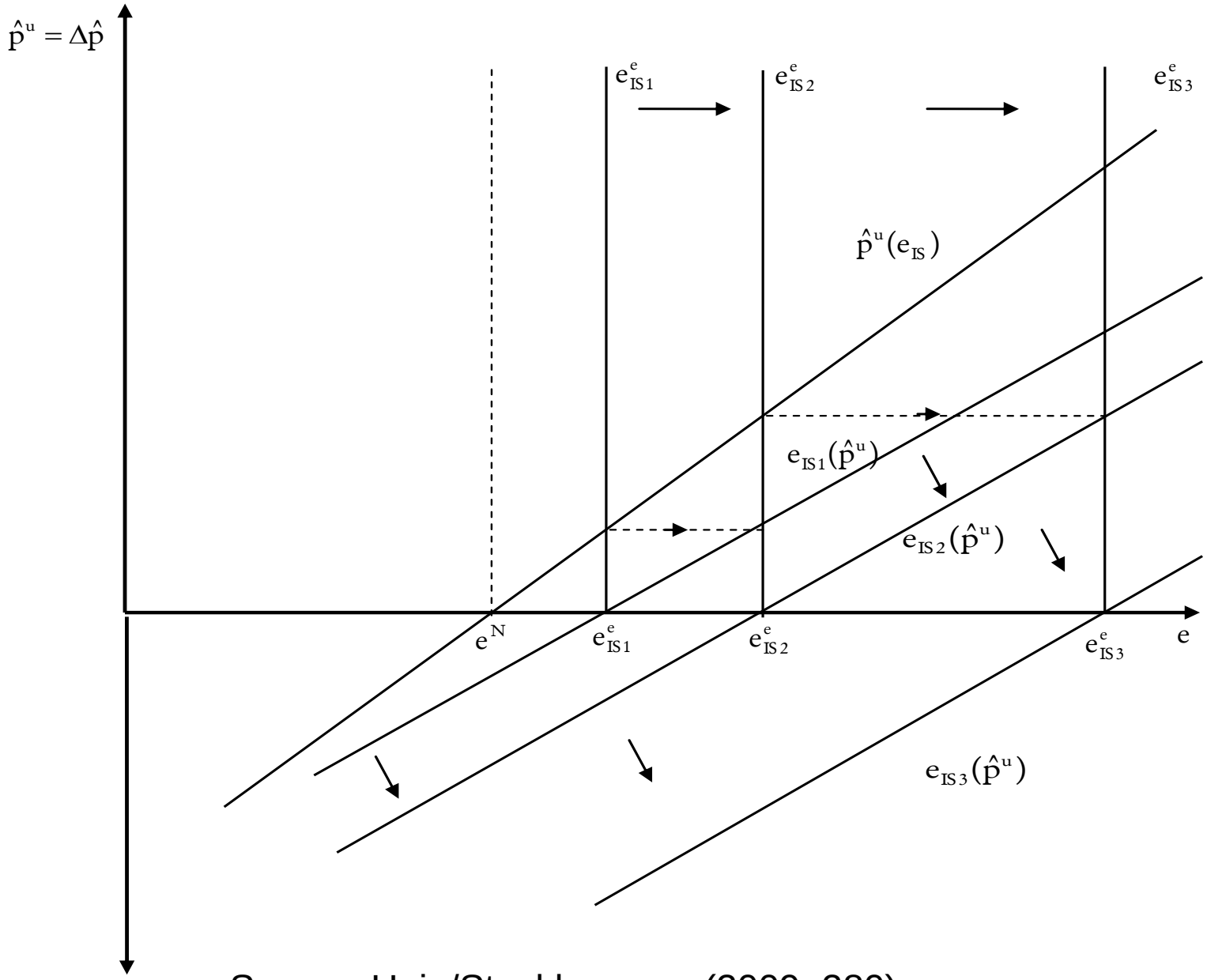
Goods market equilibrium rate of employment with unexpected inflation:

$$e_{IS} = e_{IS}\left\{Y_{IS}\left[i\left(\hat{p}^{u}\right), h\left(\hat{p}^{u}\right)\right]\right\} = e_{IS}\left(\hat{p}^{u}\right),$$

$$(15) \qquad \frac{\partial e_{IS}}{\partial Y_{IS}} > 0, \frac{\partial Y_{IS}}{\partial i} < 0, \frac{\partial Y_{IS}}{\partial h} < 0, \frac{\partial i}{\partial \hat{p}^{u}} < 0, \frac{\partial h}{\partial \hat{p}^{u}} < 0$$

$$\Rightarrow \frac{\partial e_{IS}}{\partial \hat{p}^{u}} > 0$$

Figure 2: The NAIRU - a non-attractor



Source: Hein/Stockhammer (2009: 280)

Inflation targeting central banks apply nominal interest rate tool in order to achieve some target rate of inflation ($\hat{p}^T$).
The only aim of the central bank is to erase unexpected inflation from the system: central bank's inflation target equals expected inflation ($\hat{p}^T = \hat{p}^e$).

The central bank reaction:

$$
\begin{aligned}
i_n &= i_0^e + \hat{p}^e + \hat{p}^u + i_1\left(\hat{p} - \hat{p}^T\right) \\
&= i_0^e + \hat{p}^e + \hat{p}^u + i_1\left(\hat{p} - \hat{p}^e\right) \qquad (16) \\
&= i_0^e + \hat{p}^e + \left(1 + i_1\right)\hat{p}^u,\ 0 \le i_0^e, 0 < i_1,
\end{aligned}
$$

i_0^e : the central bank's estimation of the 'equilibrium real interest rate'

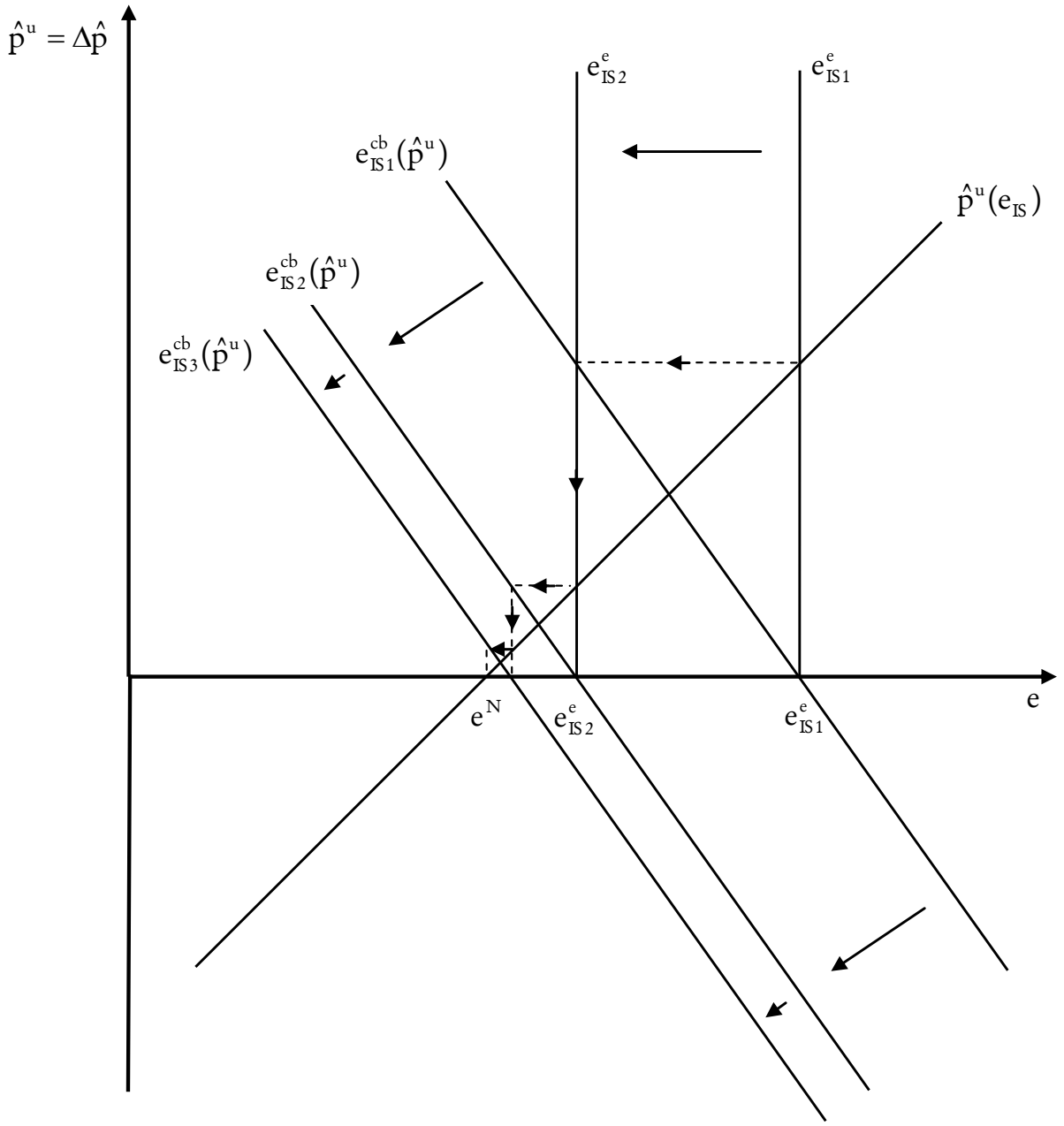
i_1: the reaction parameter with respect to unexpected inflation.

Effects of inflation targeting central bank on the goods market equilibrium rate of employment:

$$
e_{IS}^{cb} = e_{IS}^{cb}\left\{Y_{IS}^{cb}\left[i_n\left(\hat{p}^u\right), h\left(\hat{p}^u\right)\right]\right\},
$$

$$
\frac{\partial e_{IS}^{cb}}{\partial Y_{IS}^{cb}} > 0, \frac{\partial Y_{IS}^{cb}}{\partial i_n} < 0, \frac{\partial Y_{IS}^{cb}}{\partial h} < 0, \frac{\partial i_n}{\partial \hat{p}^u} > 0, \frac{\partial h}{\partial \hat{p}^u} < 0 \qquad (17)
$$

Figure 3: An inflation targeting central bank stabilising the NAIRU



Source: Hein/Stockhammer (2009: 282)

NAIRU may be returned into an attractor by inflation targeting central bank, if the effects of changes in the nominal interest rate can over-compensate the effects of unexpected inflation operating via distribution between profit and wages

➔ No problem for $u < u_N$

➔ Potential problems for $u > u_N$: zero lower bound of nominal interest rate

➔ Central banks capacities to adjust unemployment towards NAIRU are asymmetric

➔ Further problems:
- commercial banks' mark-up may vary,
- interest (in-)elasticity of firms' investment in a slump!

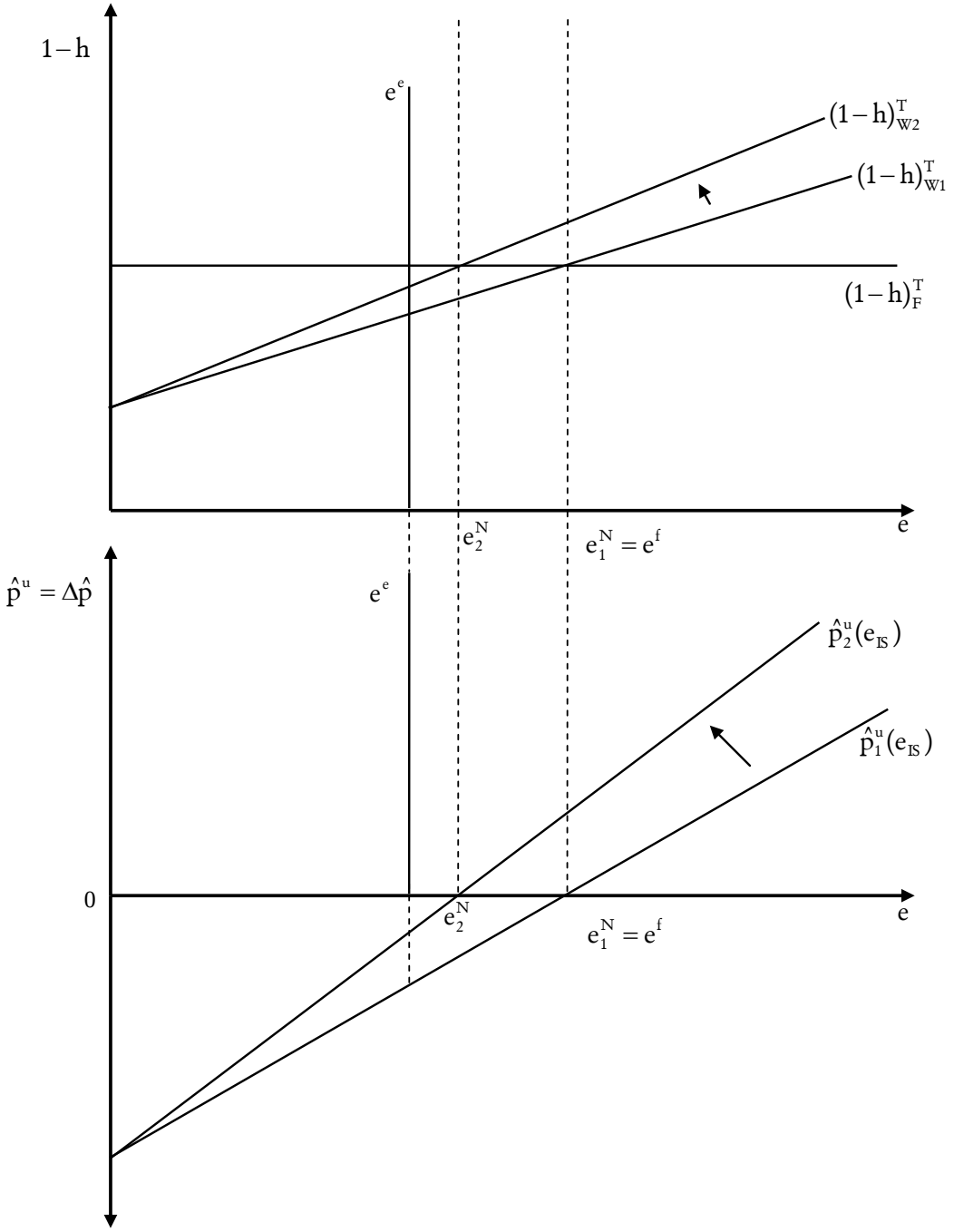
3. Medium-run endogeneity of the NAIRU

1. Persistence mechanisms in the labour market

- persistent unemployment and an increasing share of long-term unemployment in total unemployment, with the associated loss of skills and access to firms by the long-term unemployed, will decrease the pressure of a given rate of unemployment on labour unions' or insiders' target real wage share and hence on nominal wage demands
- share of the long-term unemployed in total unemployment increases when the unemployment rate exceeds some threshold, which is given by frictional unemployment caused by the 'normal' working of the labour market in the face of changing demand patterns and structural as well as regional change. The employment rate hence falls short of a 'full employment' rate (e^f) associated with this rate of unemployment

➔ workers' target wage share for a given total rate of employment will increase

Figure 4: Labour market persistence mechanisms and the NAIRU



Source: Hein/Stockhammer (2009: 284)

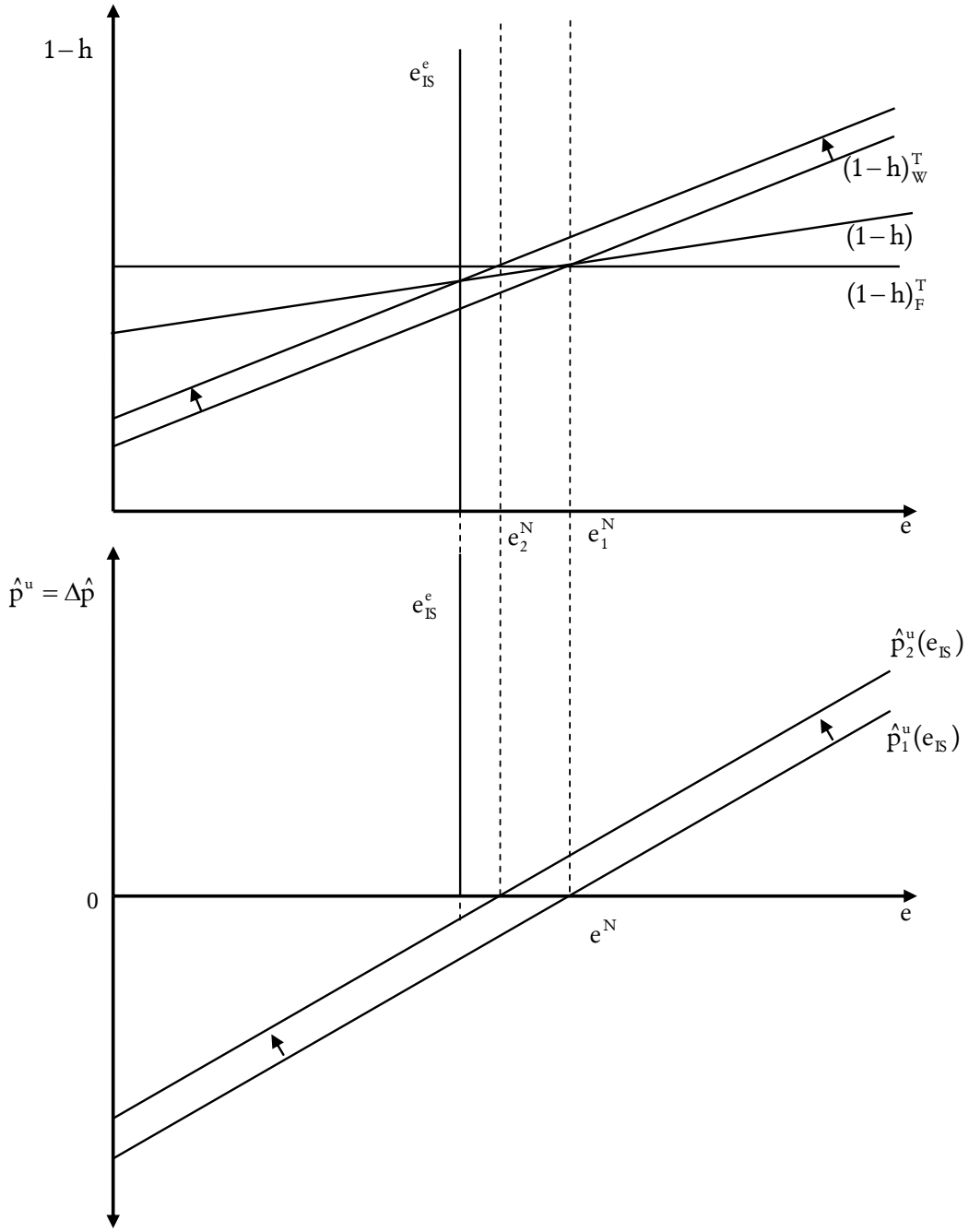
2. Wage aspirations based on conventional behaviour

- Wage earners adjust target, if actual wage rate exceeds target

➔ workers get used to actual distribution

➔ shift in workers‘ target wage share

Figure 5: Endogenous wage and profit aspirations and the NAIRU

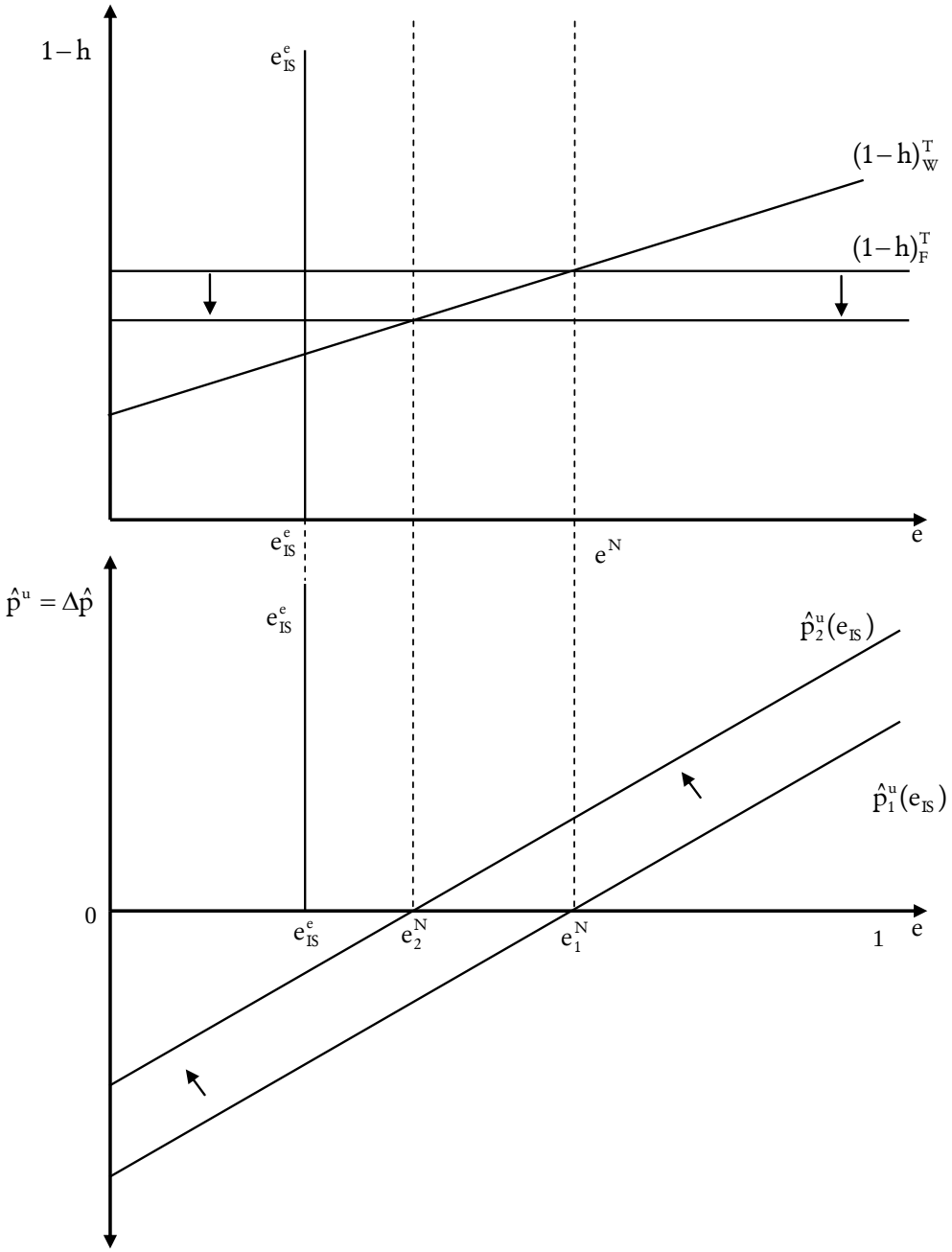


Source: Hein/Stockhammer (2009: 285)

3. The effect of investment in capital stock

- Firms target mark-up is positively related to capacity utilisation
- The lower the growth rate of capital stock, the higher will be medium-run capacity utilisation, if the exogenous components of demand remain constant, and the higher will be the firms' target profit share
- Weak investment, low demand and hence a rate of employment below the stable inflation rate makes firms' target wage share curve shift downwards, the stable inflation rate of employment decreases, the NAIRU rises, and the Phillips curve shifts upwards.

Figure 6: Low investment, slow capital stock growth and the NAIRU

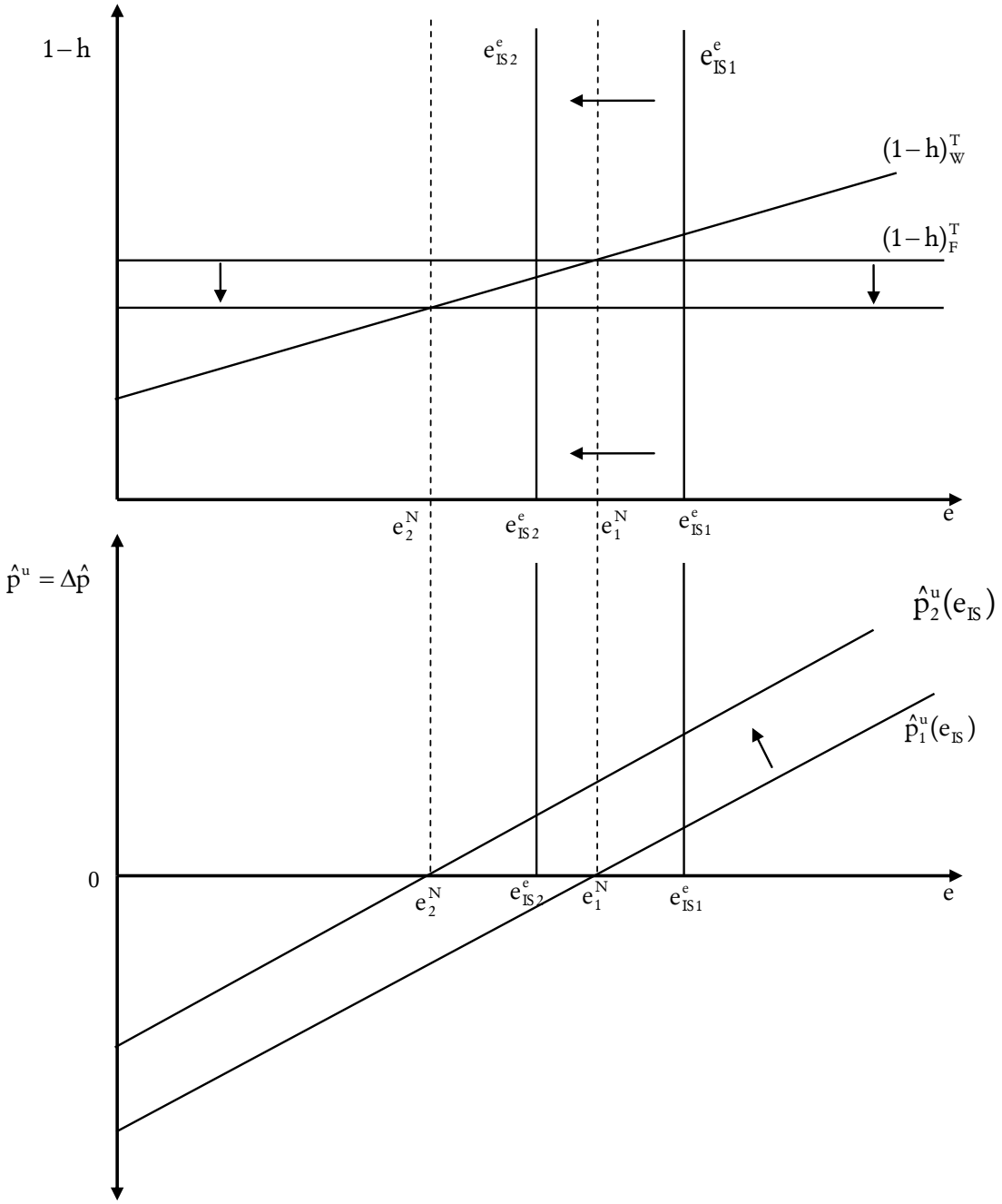


Source: Hein/Stockhammer (2009: 286)

4. Persistent changes in the ‚ex ante' real interest rate

- Short-run successful inflation targeting policies by central banks have medium-run adverse effects
- Higher (lower) interest rates mean higher (lower) costs for firms which makes them increase (decrease) their target mark-ups

Figure 7: Persistent change in the 'ex ante' real rate of interest and the NAIRU



Source: Hein/Stockhammer (2009: 287)

4. A Post-Keynesian macroeconomic policy assignment

a) Monetary policy:

- refrain from fine tuning inflation or employment

- target a constant rate of interest (‘parking it’)
  (Rochon/Setterfield 2007)

- take responsibility for stability of financial system
  - definition of credit standards and creditworthiness
  - reserve requirements to prevent bubbles (i.e.ABRR)
  - ‘lender of last resort’ in the case of systemic crises

Parking it targets (or rules):

- zero nominal overnight rate (Kansas City rule, Wray (2007))

- zero real rate of interest (Smithin rule, Smithin (2007))

- real rate equal to productivity growth (Pasinetti rule, Lavoie (1996))

Monetary policy rule:

$$\dot{i}_n = \dot{i}_0^e + \hat{p}^e + \hat{p}^u , \qquad (18)$$

$\dot{i}_0^e$: given by medium-run productivity growth.

b) Wage/incomes policy

- 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:

$$\hat{w} = \hat{w}_0 + \hat{p}^T \qquad (19)$$

$\hat{w}_0$: long-run productivity growth

Institutional requirements:

- wage bargaining coordination focussing on consistent distribution targets
    - high coordination at national level,
    - strong trade unions and employer association,
    - government involvement, ...

➔ Phillips curve becomes (partly) horizontal

➔ Demand management can choose high level of employment without triggering unexpected inflation

c) Fiscal policy

- Real stabilisation in the short and the medium/long run
- redistribution supports stabilisation
- take endogeneity of inflation barrier into account

Long-run government deficit (functional finance):
$G - T = S - I$, with $X - M = 0$ at long-run stable inflation employment rate (focus on government investment)

➔ Stable government debt-GDP-ratio

➔ redistribution in favour of rentiers is prevented by $i \leq g$,

➔ public debt stabilises financial markets (safe haven)

Stabilise the economy in the face of shocks:

➔ automatic stabilisers + discretion

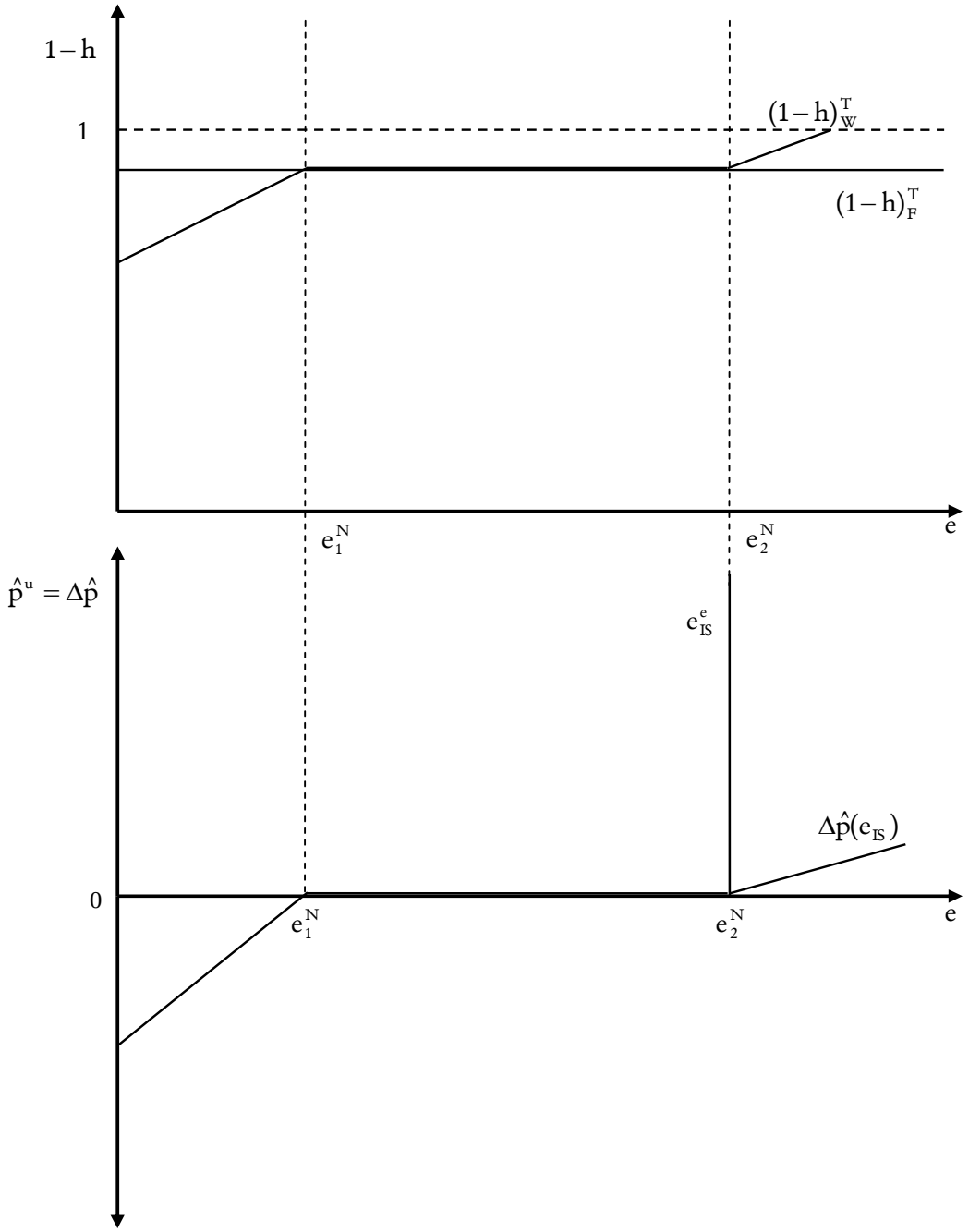
Progressive taxation (income + wealth) and social policies
➔ improve income distribution
➔ reduction of S – I and thus G – T
➔ improve automatic stabilisers.

Fiscal policy rule:

$$D = D_0 + D_1\left(e^T - e\right), \quad D_1 > 0, \tag{20}$$

d_0: permanent government deficit or surplus (in relation to the capital stock), which is required to keep employment at target (e^T) in the medium run,
d_1: the reaction in the case of short-run deviations of employment from target.

Figure 8: Result of the Post-Keynesian policy mix



Source: Hein/Stockhammer (2009: 289)

3.
NCM and PKA compared

Table 1: Macroeconomic policy recommendations of New Consensus models (NCM) and of post-Keynesian models (PKM) compared

	NCM	**PKM**
Monetary policy	Inflation targeting, which affects unemployment in the short run, but only inflation in the long run	Target low interest rates affecting distribution, and stabilise monetary, financial and real sectors
Fiscal policy	Support monetary policy in achieving price stability, balance the budget over the cycle	Real stabilisation in the short and in the long run, no deficit target, distribution of disposable income
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 should be on rigid nominal wages and steady nominal unit labour cost growth
Co-ordination	Clear assignment in the long run, co-ordination only in the short run	No clear assignment, co-ordination required in the short and the long run