Searching for Flexibility

The Effects of Thatcher on UK Housing and Labour Markets

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Introduction

- Spillovers between housing and labour markets
- Consequences of Thatcher on:
  - Labour market
  - Housing market

Introduction

Key reforms of interest:

- Labour market reforms and union busting
- Privatisation, the right to buy, and council house building
- Financial liberalisation

Literature

Four strands

- Search and Matching (DMP) in a DSGE
- Search and Matching in the housing market
- Housing and Labour market spillovers
- Empirical DSGE

Key modelling references

- Labour-DSGE part: Lubik (2008, 2009)
- Housing part: Head, Lloyd-Ellis and Sun (2014)

Setting

- Two markets:
  - Output good sector which produce general output goods
  - Housing sector which trade (new and existing) vacant houses
- Population distributed amongst a constant number of homogeneous households, population also tracks:
  - Labour force
  - Occupied housing units
- Construction
  - Developers produce new vacant housing units
  - Undeveloped land is released exogenously
  - Undeveloped land can be developed by paying a conversion cost

Households

- Within the household there is perfect risk-sharing
- Supply labour to:
  - General industry elastically (with search-frictions)
  - Construction sector inelastically (Walrasian fashion)
- Incomes from:
  - Labour wages
  - Unemployment benefits
  - Housing Sales
- Expenditures on
  - Consumption
  - Lump-sum taxes
  - Housing costs/investments:
    - ★ Maintenance/land taxes
    - ★ Housing Purchases
    - ★ Rents
- Complete financial markets

Labour Search

- General industry:
  - Produce output goods only through labour supply
  - Monopolistically competitive
  - Face search-frictions when hiring labour, and pay a cost to post
- vacancies
  - Negotiate wages through Nash bargaining
- Labor Market Matching Technology and Definition of Tightness:

$$\begin{aligned} M^C\left(U_t, V_t\right) &= \kappa_{c,t} U_t^{\delta_c} V_t^{1-\delta_c} \\ \omega_{c,t} &= \frac{V_t}{U_t} \end{aligned}$$

- Aggregate Number of Employed Workers:

$$L_t = \left(1 - \vartheta_{c,t}\right) L_{t-1} + \gamma_{c,t} V_t$$

Housing Search

- Housing Markets:
  - Searching buyers match with vacant houses with search frictions
  - Some vacant houses for sale are in "chains"
  - House prices are negotiated through Nash bargaining
- Housing Market Matching Technology and Definition of Tightness:

$$\begin{aligned} M^H\left(B_t, S_t\right) &= \kappa_{h,t} B_t^{\delta_c} S_t^{1-\delta_c} \\ \omega_{h,t} &= \frac{B_t}{S_t} = \frac{B_t}{H_t - S_t} \end{aligned}$$

- Aggregate Number of Employed Workers:

$$N_t = \left(1 - \vartheta_{h,t}\right) N_{t-1} + \lambda_{h,t} B_t$$

Monetary Policy

- Monetary authority follows a simple policy rule dependant on:
  - Inflation
  - Output
- Response to inflation can be either Dovish or Hawkish

Market spillovers

- Spillovers are captured by having the matching and separation probability in each market be affected by the tightness of the other, allowing us to estimate the elasticity of one market on the other.
- Housing market outcomes affect labour markets:

$$\kappa_{c,t} = \tilde{\kappa}_{c,t} \left(\frac{\omega_{h,t}}{\omega_h} \right)^{-\zeta_\kappa},$$

$$\vartheta_{c,t} = \tilde{\vartheta}_{c,t} \left(\frac{\omega_{h,t}}{\omega_h} \right)^{-\zeta_\vartheta}.$$

- Labour market outcomes and monetary policy affect housing markets:

$$\kappa_{h,t} = \tilde{\kappa}_{h,t} \left(\frac{\omega_{c,t}}{\omega_c} \right)^{\eta_\kappa} \left(\frac{1+i_t}{1+\pi_{t+1}} R^{-1} \right)^{-\theta_\kappa},$$

$$\vartheta_{h,t} = \tilde{\vartheta}_{h,t} \left(\frac{\omega_{c,t}}{\omega_c} \right)^{\eta_\vartheta} \left(\frac{1+i_t}{1+\pi_{t+1}} R^{-1} \right)^{\theta_\vartheta}.$$

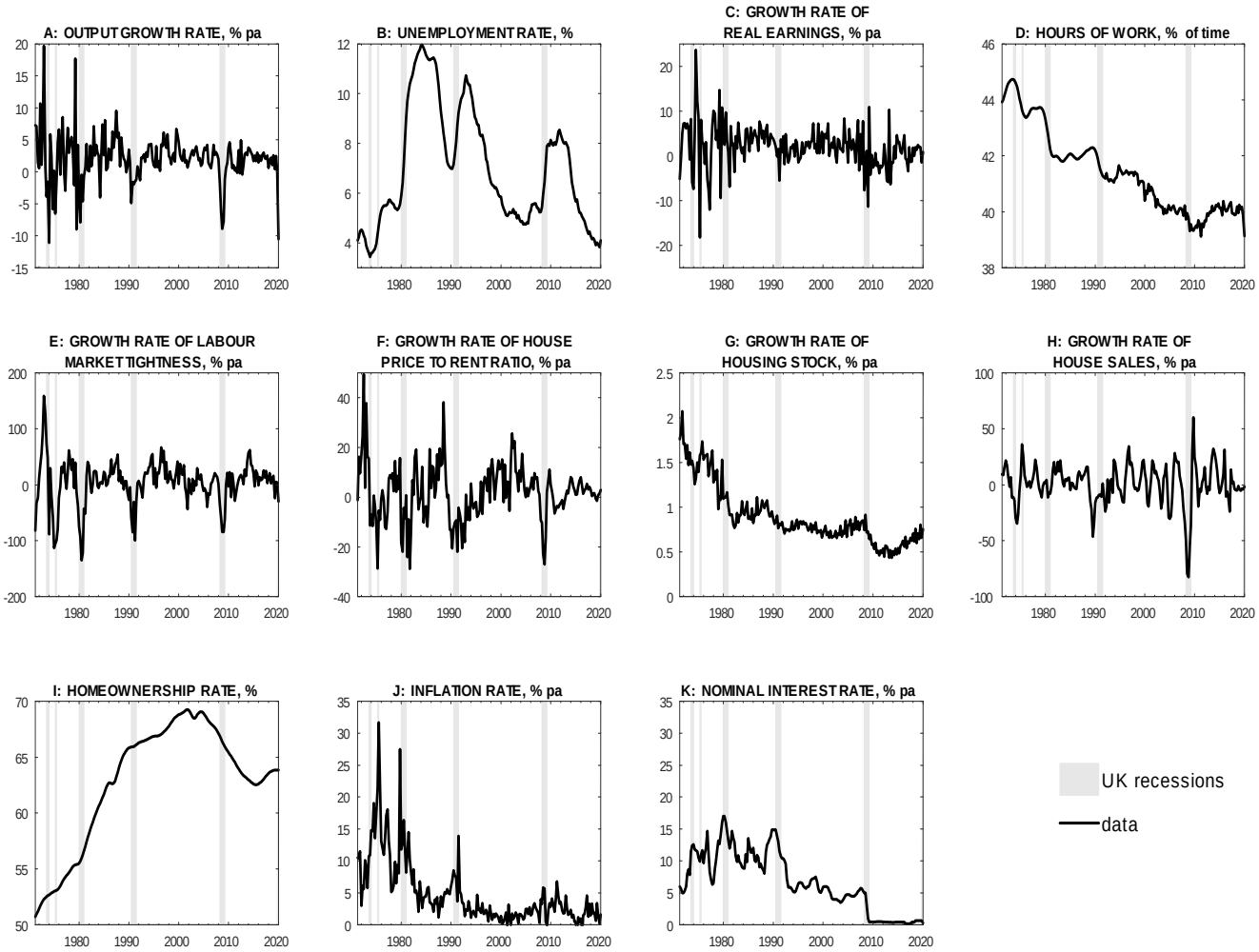
Monetary Policy and Shock Volatilities

- Monetary policy operates with a simple interest rate rule:

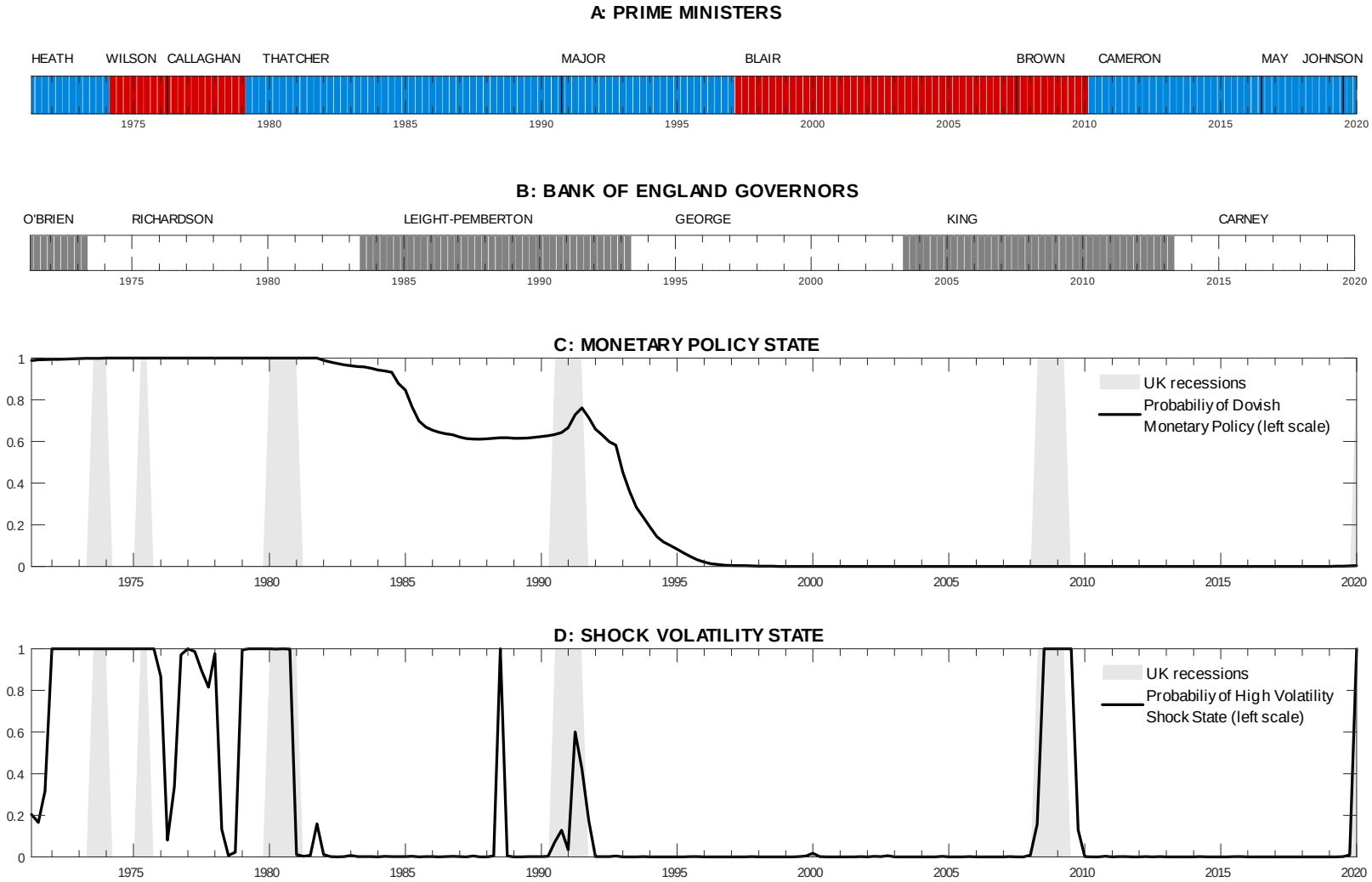
$$\frac{1+i_t}{1+i_{ss}} = \left(\frac{1+i_{t-1}}{1+i_{ss}}\right)^{\alpha_i} \left(\frac{\Pi_t^{\alpha_\pi}}{\Pi_{ss}^{\alpha_\pi}} \left(\frac{Y_t}{(1+\mu)(1+\gamma)Y_{t-1}}\right)^{\alpha_y}\right)^{1-\alpha_r} e^{m_t}$$

  with $\alpha_\pi^H > \alpha_\pi^D$ so response is either Howkish or Dovish
- Good luck vs. Good policy: High and Low volatility shocks

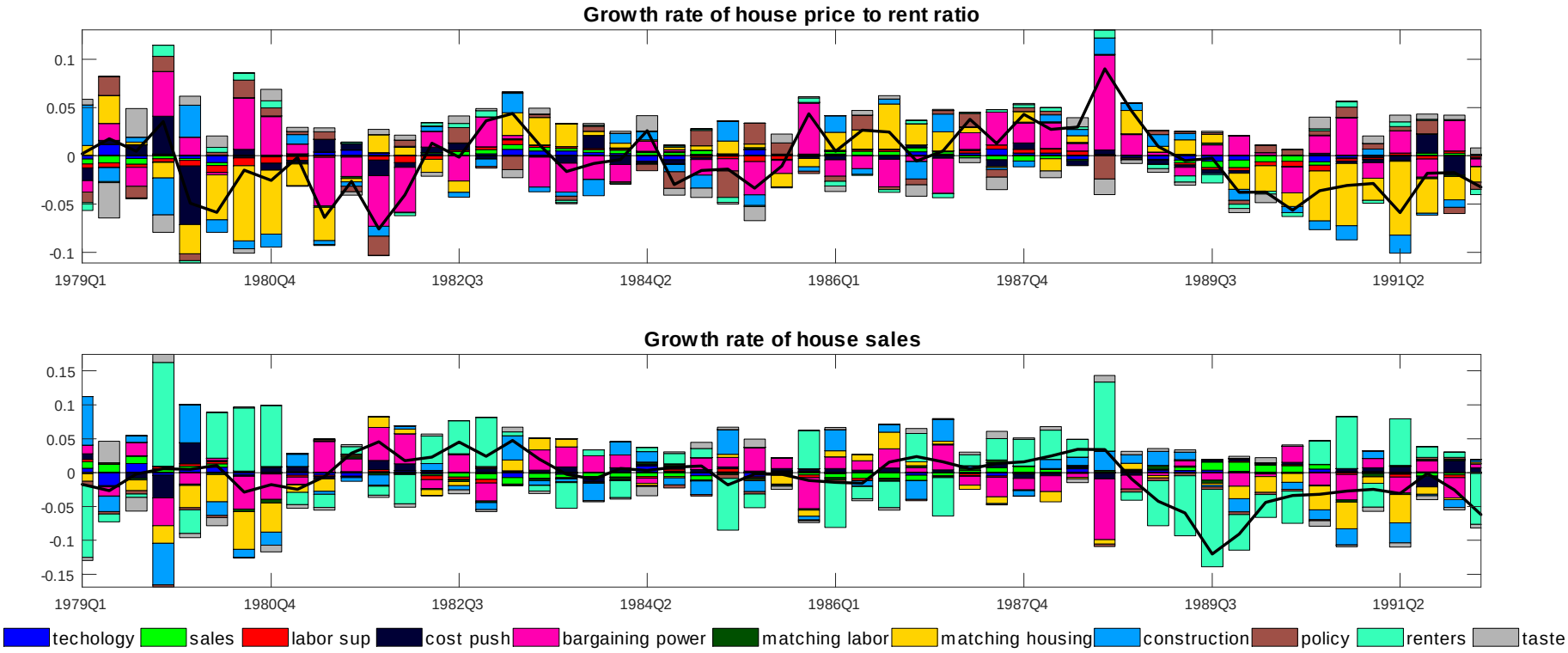
Data


A: OUTPUT GROWTH RATE, % pa
B: UNEMPLOYMENT RATE, %
C: GROWTH RATE OF REAL EARNINGS, % pa
D: HOURS OF WORK, % of time
E: GROWTH RATE OF LABOUR MARKET TIGHTNESS, % pa
F: GROWTH RATE OF HOUSE PRICE TO RENT RATIO, % pa
G: GROWTH RATE OF HOUSING STOCK, % pa
H: GROWTH RATE OF HOUSE SALES, % pa
I: HOMEOWNERSHIP RATE, %
J: INFLATION RATE, % pa
K: NOMINAL INTEREST RATE, % pa
UK recessions
data

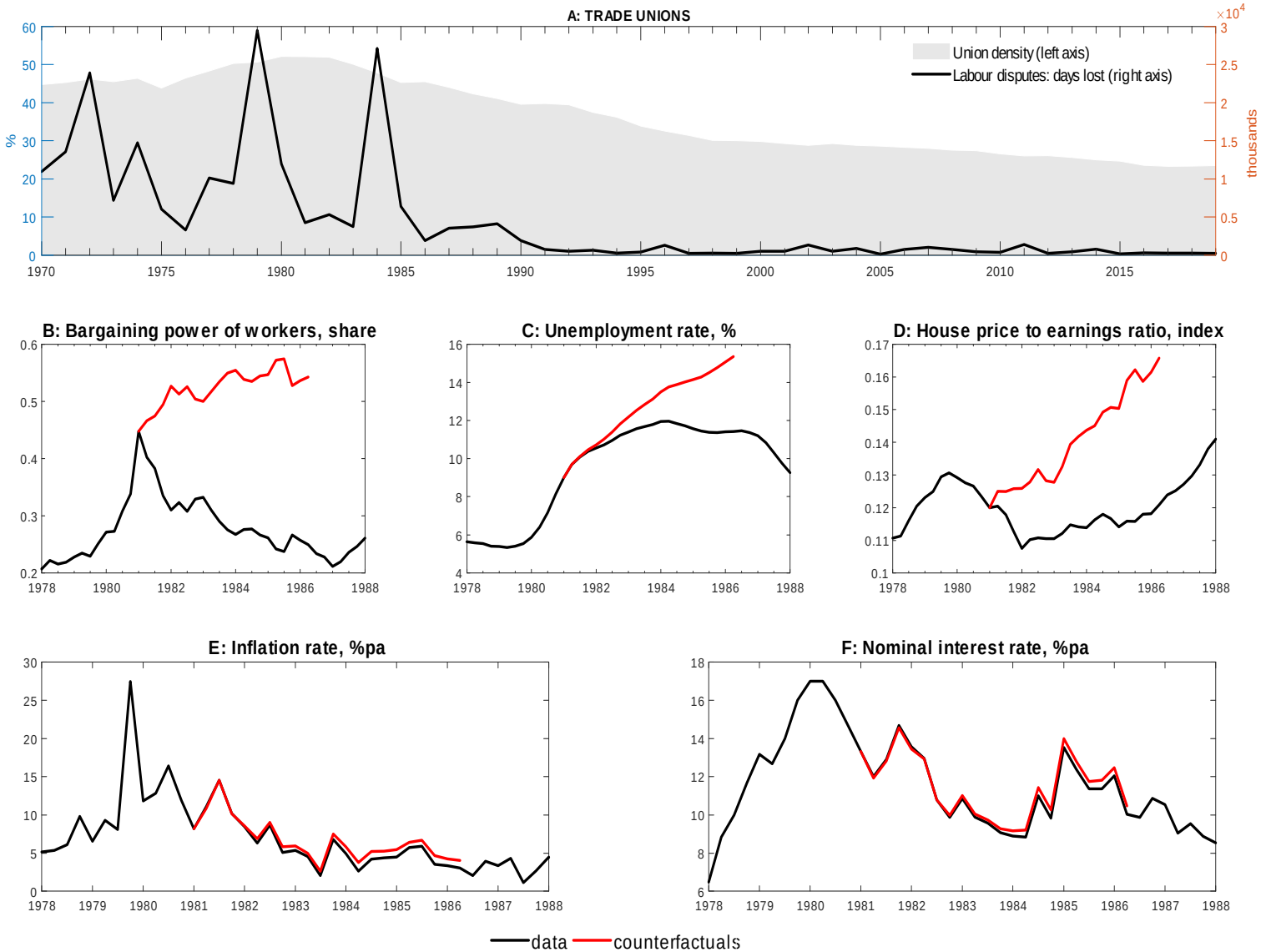
Switch in Monetary Policy State



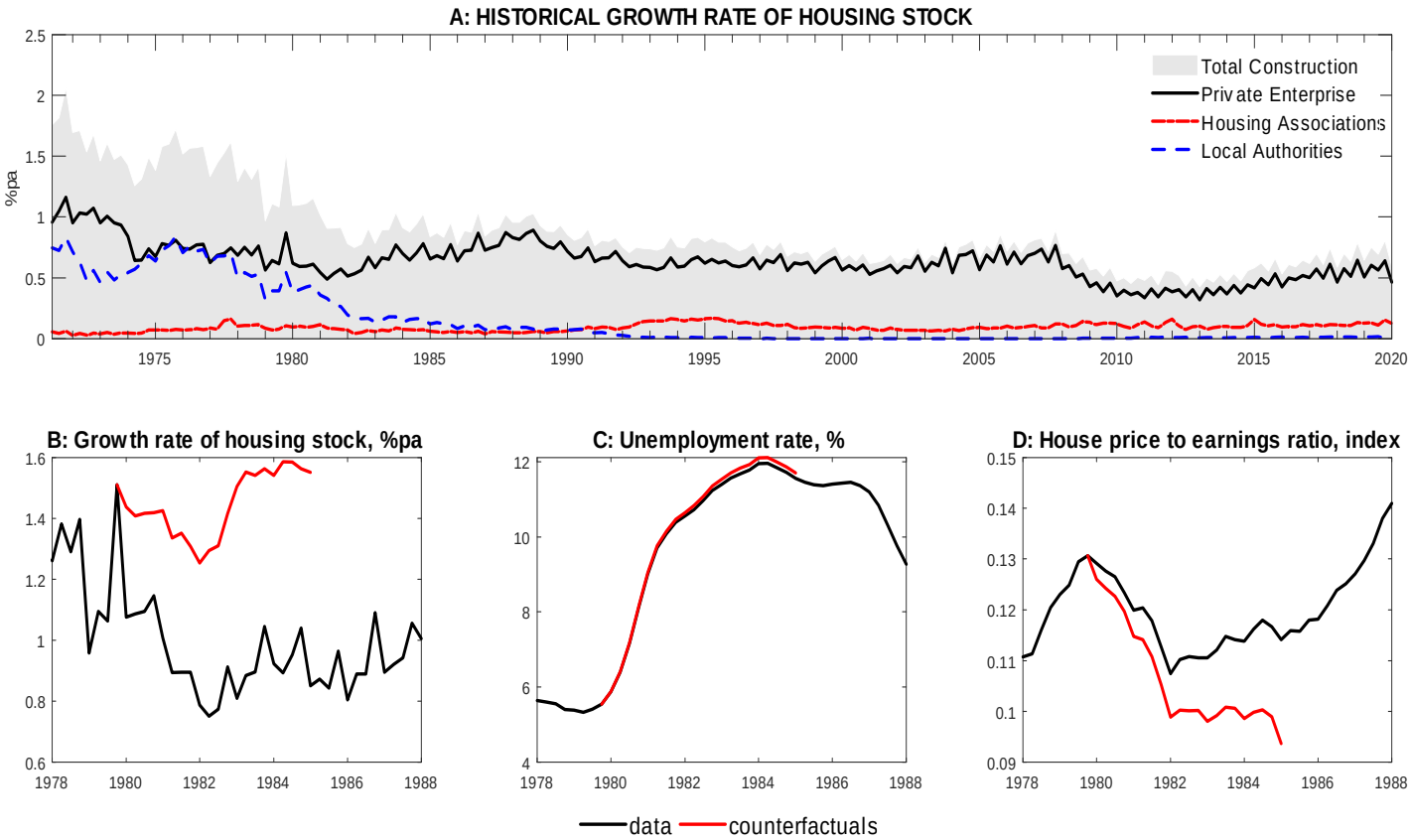
Historical Decomposition



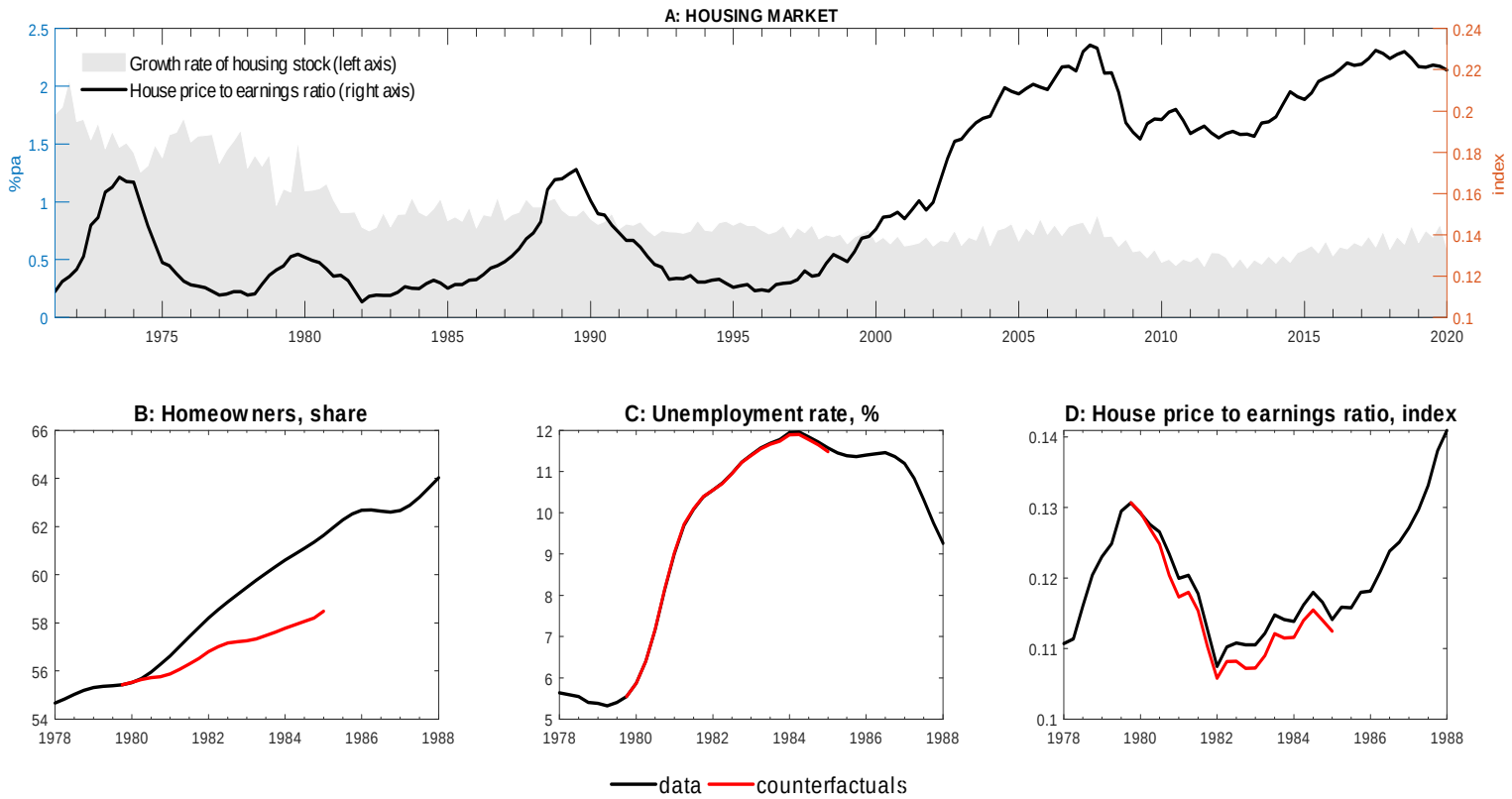
Labour Market Reforms



End to Council Housing Construction

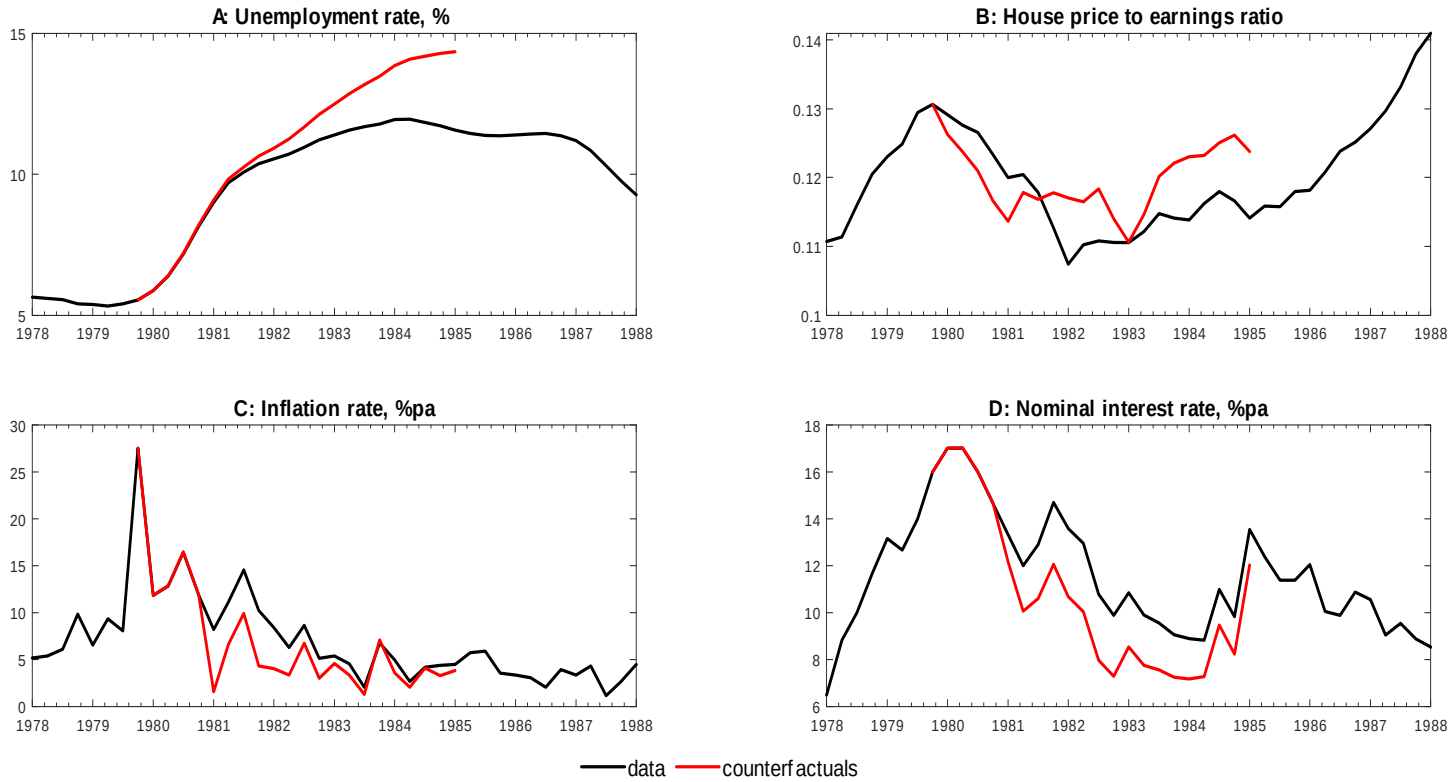


Right to Buy


A: HOUSING MARKET
Growth rate of housing stock (left axis)
House price to earnings ratio (right axis)
%pa
index
B: Homeowners, share
C: Unemployment rate, %
D: House price to earnings ratio, index
data
counterfactuals

Conclusions

- Spillovers between the housing and labour markets were significant



- Thatcher Reforms: lower unemployment by about one percentage point at the peak of unemployment in 1984, and a sustained reduction in housing affordability – about 10% throughout 1982-85, as measured by house price to earnings ratio

Literature

- Search and Matching (DMP) in a DSGE:
  - Christiano et al. (2005)
  - Lubik (2009)
- Search and Matching in the housing market:
  - Arnot (1989)
  - Wheaton (1990)
  - Krainer (2001)
  - Diaz and Jerez (2014)
  - Hedlund (2014, 2016)
  - Head et al. (2016)
  - Garriga and Hedlund (2020, 2023)
  - Gabrovski and Ortego-Marti (2021)

Literature

- Housing and Labour market spill-overs
  - Head and Lloyd-ellis (2014)
  - Brach, Petrosky-Nadeau and Rochetau (2016)
- Empirical DSGE:
  - US labour market: Lubik (2008, 2009)
  - UK labour market: Faccini, Millard, and Zanetti (2011)
  - Zanetti (2016)

Parameter Estimates

Parameters		Prior dist. Type (mean,std)	Posterior dist. Mean [95% conf.int.]
		Model Parameters	
Elast. of HM matching eff-cy wrt. LM tightness	η_κ	$N(3.0, 1.0)$	5.1328 [5.0620,5.2238]
Elast. of HM matching eff-cy wrt. Interest rate	θ_κ	$N(2.0, 1.0)$	2.9702 [1.4903,4.2434]
Elast. of LM matching eff-cy wrt. HM tightness	ζ_κ	$N(3.0, 1.0)$	4.4792 [4.4355,4.5159]
Elast. of HM separation rate wrt. LM tightness	η_ϑ	$N(3.0, 1.0)$	0.4069 [0.3815,0.4358]
Elast. of HM separation rate wrt. Interest Rate	θ_ϑ	$N(2.0, 1.0)$	1.6315 [0.6991,2.7304]
Elast. of LM separation rate wrt. HM tightness	ζ_ϑ	$N(3.0, 1.0)$	5.9529 [5.8998,5.9816]

Steady States based on Data

Data ratio	Notation	Value
Employment rate, quarterly	l_c	0.93
Hours of work, normalised	h_c	0.3418
Average duration of unemployment, weeks	$\frac{1}{\lambda_c^w}$	40
Daily filling rate	γ_c^d	0.05
Share of employment in construction sector	$\frac{l_h}{l_c}$	0.036
Earnings ratio	$\frac{w_h}{h_c w_c}$	1.18
Unemployment benefit to earnings ratio	$\frac{b_c}{h_c w_c}$	0.19
Cost of posting vacancy to earnings ratio	$\frac{\iota}{h_c w_c}$	0.5
Houses to occupied houses ratio	h	1.03
Share of rented houses to occupied houses	$b + f$	0.34
Average time to find a house, weeks	$\frac{1}{\lambda_h^w}$	20
Average time between house moves, years	ϑ_h	13
Rent to earnings ratio	$\frac{r^h}{h_c w_c}$	0.356
House price to quarterly earnings	$\frac{p^h}{h_c w_c}$	24.03