ECOM181 Macroeconomics for Policy

2022/23 Semester 1

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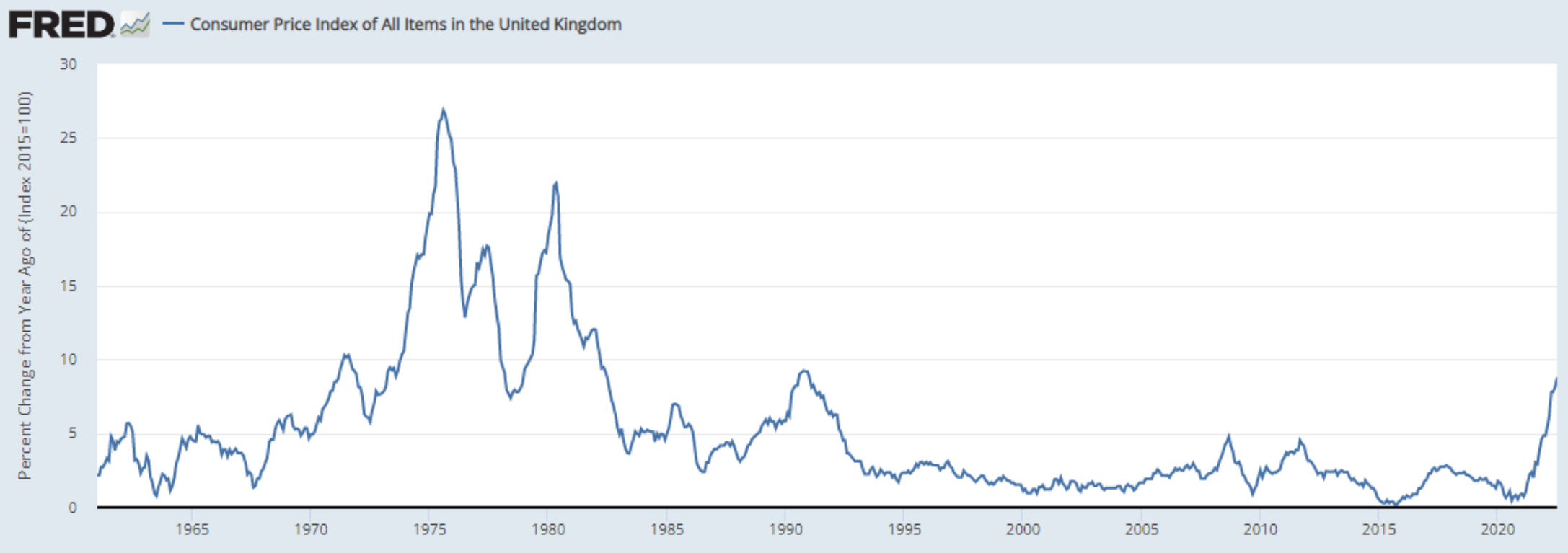
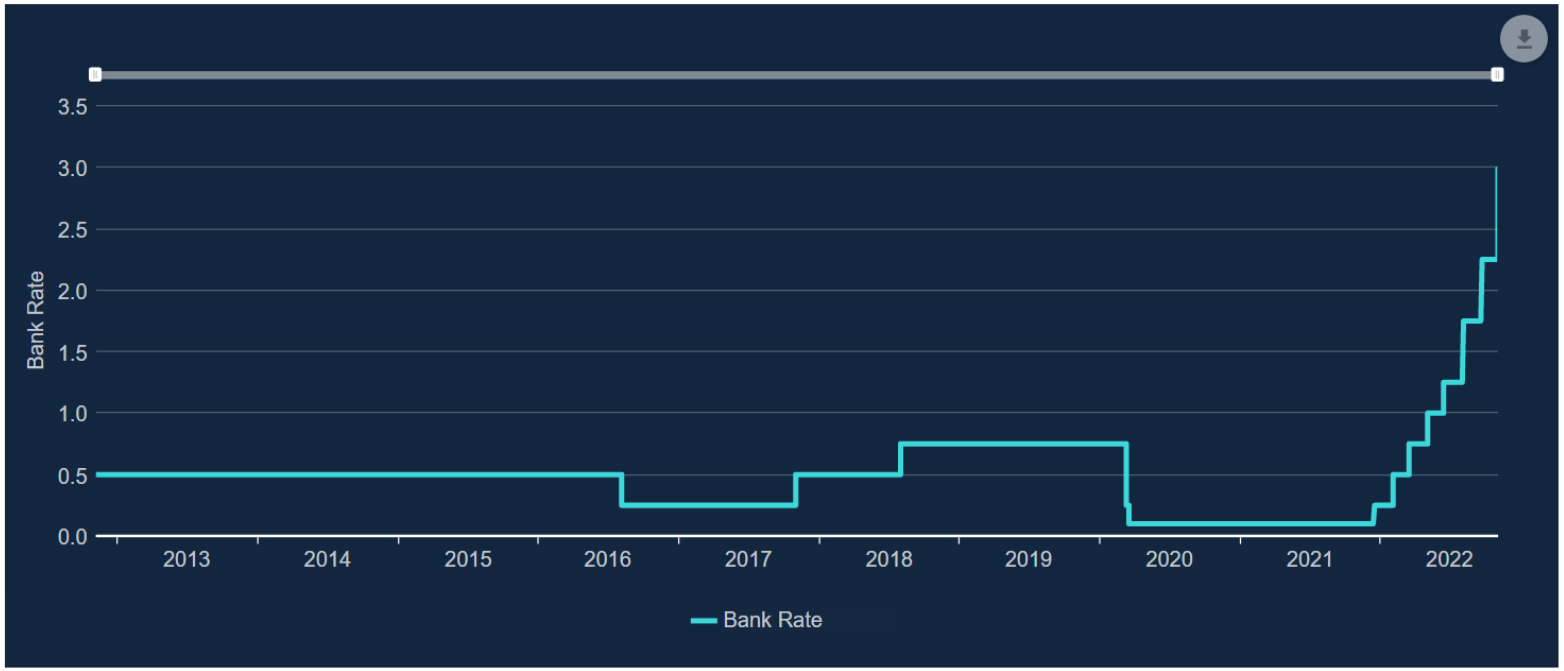
Last week: Inflation going up

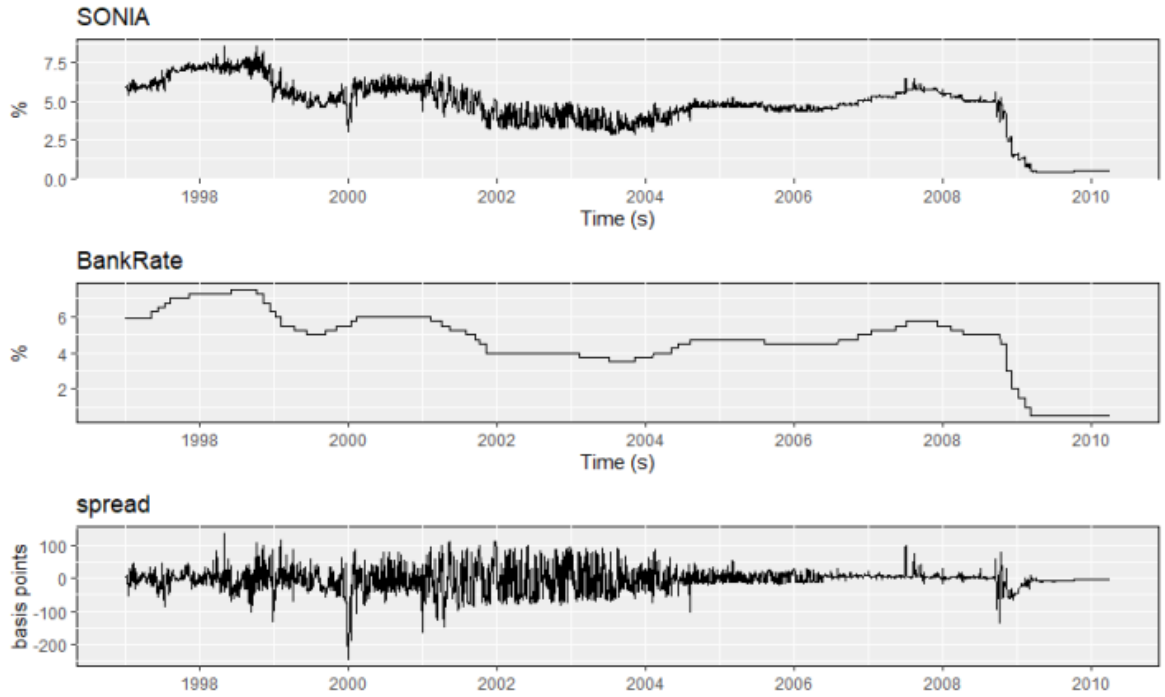


Last week: The bank rate is increased as well



Last week: And the Bank rate effects SONIA

"The Sterling Overnight Index Average (SONIA) is used as the measure of overnight interest rates. SONIA is the weighted average rate of all unsecured sterling overnight cash loans brokered in London by members of the Wholesale Markets Brokers' Association (WMBA)."



Plan for today

- Monetary policy transmission in New Keynesian model
- Micro evidence on alternative monetary policy transmission

Questions to discuss

- How do interest rate changes affect inflation in the context of a New Keynesian model?
- How do unconventional monetary policy tools (i.e., QE, forward guidance, negative interest rates, etc) affect inflation?
- Do you think the Bank of England should react to rapidly growing stock prices or housing prices when inflation is around a target?

Question to discuss

- How do interest rate changes affect inflation in the context of a New Keynesian model?

Real interest rate channel

- What would you do if you know that you get high interest rates on your bank deposits?
    - Buy goods now or buy them later?

- What do you do when you know that purchases will become much more expensive soon?
    - Buy goods now or buy them later?

Real interest rate channel

- This is what we see in IS curve.

IS curve: $y_t = E_t y_{t+1} - \sigma(i_t - E_t \pi_{t+1})$

- Higher nominal interest rate, for given inflation expectations, leads to lower aggregate demand and a slowdown in economic activity.
- If we would add capital and investment to the model, the same real interest channel holds there as well.
- Higher real interest rate means less investment, lower aggregate demand, and a slowdown in economic activity.

Real interest rate channel

- But how does a slowdown in aggregate demand and economic activity help to reduce inflation?

New Keynesian Phillips curve: $\pi_t = \beta E_t \pi_{t+1} + \gamma y_t$

- NK Phillips curve: Inflation is lower if demand is lower (low marginal costs)
- Demand depends on the real interest rate
- The CB influences the real rate through the nominal interest rate

→ A higher nominal and real interest rate leads to lower aggregate demand and lower inflation

Real interest rate channel summarized

Real interest rate channel

Ireland (2015) states:
"A monetary tightening, in the form of a shock to the Taylor rule, that increases the short-term nominal interest rate translates into an increase in the real interest rate as well when nominal prices move sluggishly due to costly or staggered price setting. This rise in the real interest rate then causes households to cut back on their spending as summarized by the IS curve. Finally, through the Phillips curve, the decline in output puts downward pressure on inflation, which adjusts only gradually after the shock."

Reference: Ireland, P., 2015. The monetary transmission mechanism.

Danger of a recession

- So in order to fight rising inflation, a slowdown in economic activity needs to be induced.
- This is part of the transmission channel of monetary policy.
- So in times of high inflation, stopping this inflation can cause or worsen a recession.
- This is indeed likely to happen in the near future.
- But if the CB would not raise interest rates, inflation may (permanently) get out of control.

Interest rate setting

- How does the central bank decide how much to change the interest rate?
- A good description of historical interest rate setting: Taylor rule

1. IS curve: $y_t = E_t y_{t+1} - \sigma(i_t - E_t \pi_{t+1})$

2. New Keynesian Phillips curve: $\pi_t = \beta E_t \pi_{t+1} + \gamma y_t$

3. An interest rate rule proposed by Taylor: $i_t = \alpha \pi_t + \varphi y_t$

Question to discuss

- How do unconventional monetary policy tools (i.e., QE, forward guidance, negative interest rates, etc) affect inflation?

Question to discuss

- Do you think the Bank of England should react to rapidly growing stock prices or housing prices when inflation is around a target?

Responding to asset prices not helpful for inflation goal

TABLE 3—BUBBLE AND TECHNOLOGY SHOCKS

Policy rule (π, s, y)	σ_y	σ_π
1.01, 0, 0	3.47	40.84
1.01, 0.05, 0	1.92	94.13
1.01, 0.1, 0	3.91	180.77
1.01, 0, 0.5	1.08	19.49
2, 0, 0	0.80	0.64
2, 0.05, 0	0.68	1.26
2, 0.1, 0	0.58	2.89
2, 0, 0.5	0.70	0.44
3, 0, 1	0.68	0.23

Bernanke, Ben and Gertler, Mark, 2001. "Should central banks respond to movements in asset prices?", *American Economic Review*, Vol. 91(2): 253-257

Plan for today

- Monetary policy transmission in New Keynesian model
- **Micro evidence on alternative monetary policy transmission**

Household debt and the transmission of monetary policy: New evidence

Cloyne, Ferreira, and Surico (2016)

https://cepr.org/voxeu/columns/household-debt-and-transmission-monetary-policy-new-evidence

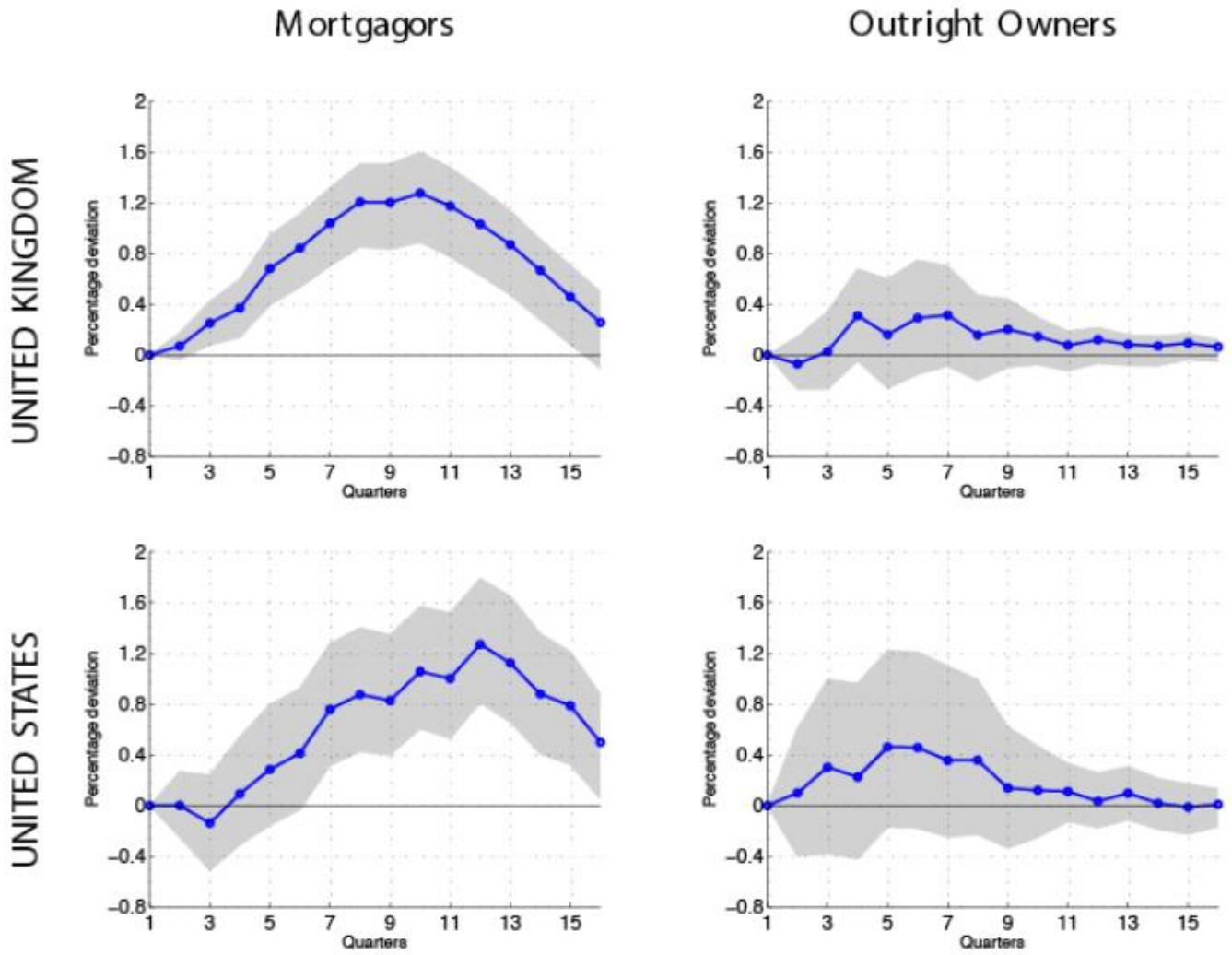
Monetary policy and mortgage debt

- Do households with mortgage debt react differently to interest rate changes?
- If so, is this because it affects their monthly payments (flexible mortgage rates)?
    - or would the same happen even if their monthly expenditures remained fixed (fixed mortgage rate)?
- Would fixed rates mute the power of monetary policy compared to flexible rates?

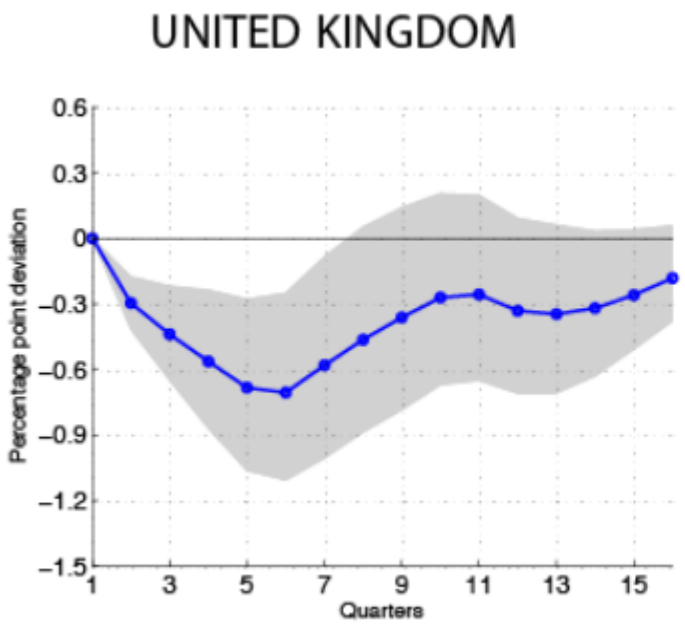
→ Cloyne, Ferreira, and Surico (2016) tackle these questions by comparing the UK and the US

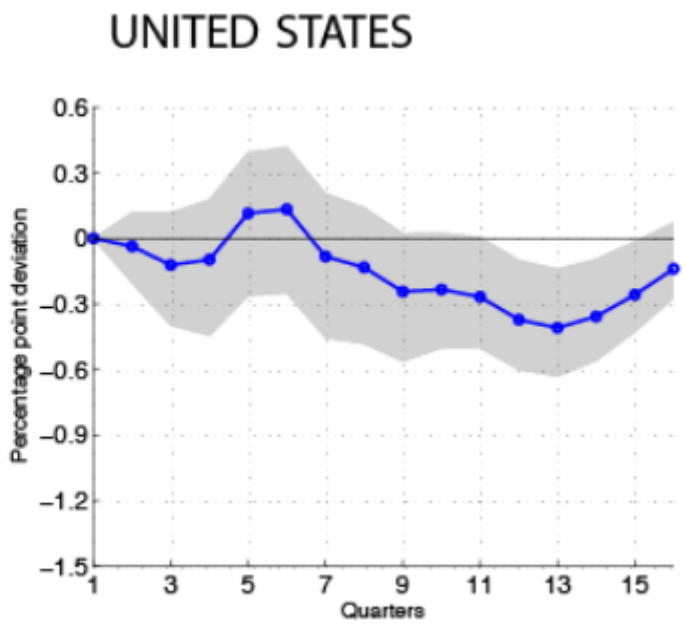
Response of non-durables to interest rate cut

Response of durables to interest rate cut



Response of mortgage payments to interest rate cut





Monetary policy and mortgage debt

- The cumulative effect on mortgage payments by mortgagors $166 (UK) relative to $56 (US).
- The movement in mortgagor expenditure over the four years is $600 (UK) and $535 (US).
- Income rises by around $700 (UK) and $760 (US) for mortgagors

→ Extra spending in both countries out of additional income. Mortgage payments quantitatively only play a small role here.

Response of income to interest rate cut

Monetary policy and mortgage debt

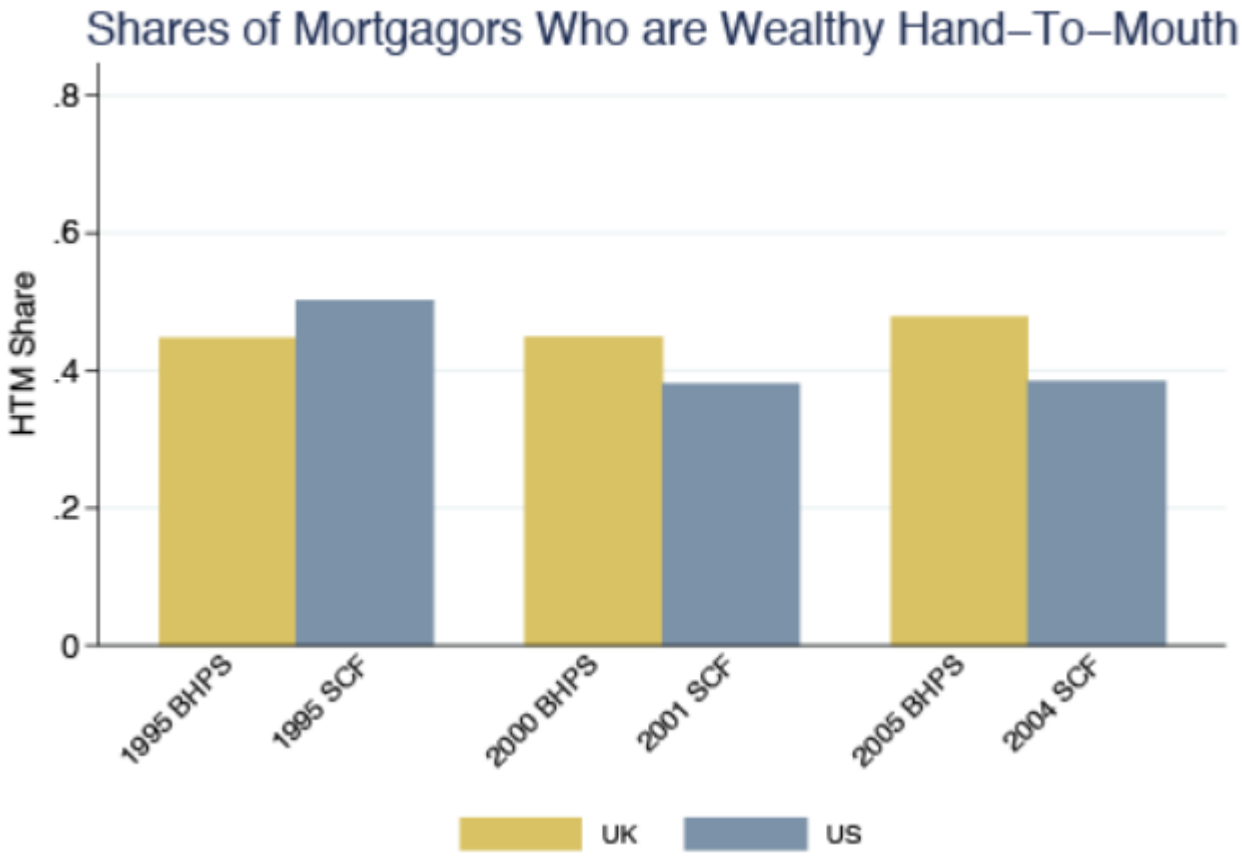
- So do households with mortgages spend more because they have a higher income increase?

- Not really. The income increases is largely caused by general equilibrium effects (e.g. real interest rate channel on investment)
    - Income rises by around $700 (UK) and $760 (US) for mortgagors
    - Income also rises considerably for outright owners: $450 (UK) and $585 (US)

- The difference in spending cannot be explained by these relatively small income differences
- Instead, mortgagors spend a larger proportion of their additional income

→ Higher marginal propensity to consume (MPC) $\frac{dc}{dY}$

Large shares of liquidity constrained households with high MPC



Implication: heterogeneous agents models

- Should consider models where a large fraction of households does not consider intertemporal substitution and the real interest rate channel.
- Instead, they simply consume their income in any period (because they are liquidity constrained)

- Such a model with heterogenous agents implies that there are distributional consequences of monetary policy

- See Economics in central banking: Greg Kaplan, Benjamin Moll and Gianluca Violante, https://www.centralbanking.com/awards/3970686/economics-in-central-banking-greg-kaplan-benjamin-moll-and-gianluca-violante