Housing and the Welfare Cost of Inflation

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*The views expressed are my own and do not necessarily reflect those of the OFR or the Department of Treasury.

Paper Summary

- Propose a housing channel through which inflation negatively affects welfare.
  - Inflation front-loads *real* mortgage payments.
    constant nominal mortgage payments
  - Tightens the budget constraint of young households relatively more.
    incomplete markets (i.e. borrowing constraints)
- Provide some evidence consistent with the model mechanism.
- Develop 2-period and full quantitative general equilibrium OG model.
  - Extra 1p.p. in π^* lowers welfare by 0.053p.p. (consumption equivalent terms)
  - Decompose in direct (tighter borrowing limit) and indirect (lower house prices)

Result Mechanics

- HH consumes c_1, c_2, housing h for both periods, mortgage scaled by house size

$$\max_{c_1,c_2,h} \ln(c_1) + \theta \ln(h) + \beta \left[\ln(c_2) + \theta \ln(h)\right]$$

$$\text{s.t.} \quad y = c_1 + S + m \cdot h \qquad : \lambda_1$$

$$y + \frac{S}{1+\pi} = c_2 + \frac{m \cdot h}{1+\pi} \qquad : \lambda_2$$

$$S \geq 0 \qquad : \mu$$

(1) $\mu = 0$, $S > 0$ and $c_1 = \frac{(1+\pi)c_2}{\beta} \longrightarrow$ all good!

(2) $\mu > 0$, $S = 0$ and $c_1 < \frac{(1+\pi)c_2}{\beta} \longrightarrow$ would prefer borrowing to increase c_1

- Higher π widens gap between desired c_1 (1) and achievable c_1 (2)
- Exacerbated by real m payments at $t = 1$, making constraint more binding

Discussion

1. *Optimal* inflation rate.
2. Quantitative model: possible improvements.
3. Other comments:
    - Empirical evidence is suggestive at this stage.
    - Optimal mortgage contract?
    - Excessive complications in simple model.

Comment 1: Why not *optimal* inflation rate?

- You evaluate welfare cost for $\pi \in [0, 8]$. Compute optimal inflation rate.
- In fact, you should get optimal inflation is negative! Friedman ('69)
- Claim: Optimal policy wants to undo inefficiencies:
  - make real mortgage payments mimic real earnings
  - undo (or alleviate) binding credit constraint

  $\Rightarrow$ optimal to have $\pi^* \leq -g < 0$ (??) where g is real earnings growth
- There is an interesting logic behind optimal result. Pursue it!

Comment 2: Quantitative Model

- Borrowing constraint. Are HHs subject to 0 borrowing constraint? This is unreasonably restrictive and matters for welfare results. **Calibrate carefully**.
- Bequests. Distribute bequests in **correlation to income**. See Kaplan, Mittman, Violante (2020). If the "rich old" leave bequest to "rich young", welfare losses will be reduced.
- Owning vs. renting. Welfare loss is increasing in θ, which captures the relative preference for owning vs. renting. Welfare losses are concentrated among the young but the young like to rent so θ should be lower for them. Do you have a sense of **how θ changes with age?**

Other comments

- Mechanism is very clear but the empirical evidence provided is only suggestive:
  - Lots of economic changes between 1980s and 2010s
  - E.g. changing age profile of earnings, productivity growth, ...
  - Do more to cleanse results from secular changes.
- Welfare loss would not occur if implementing optimal mortgage contract:
  - How much does indexing mortgage payments alleviate welfare loss?
- Simple model has unnecessary complications:
  - Ability to buy a new house in period 2.
  - Depreciation rate.
  - Numerical example (quantitative model suffices).