Discussion of "A Heterogeneous Agent Model of Energy Consumption and Energy Conservation"

Massimiliano Pisani

Banca d'Italia

Conference on
"Heterogenous Agents in Macroeconomic Models"
CNB Congress Center
Prague, May 16 2024
Usual disclaimers apply

The **novel** channel

- Monetary policy influences energy conservation decisions and energy intensity through its distributional effects:

The **novel** channel

- Monetary policy influences energy conservation decisions and energy intensity through its distributional effects:
  - imperfect insurance;

The **novel** channel

- Monetary policy influences energy conservation decisions and energy intensity through its distributional effects:
  - imperfect insurance;
  - share of unemployed workers with limited abilities to invest into energy-saving technology;

The **novel** channel

- Monetary policy influences energy conservation decisions and energy intensity through its distributional effects:
  - imperfect insurance;
  - share of unemployed workers with limited abilities to invest into energy-saving technology;
  - rate of return on savings modify incentives to invest into energy-saving capital.

Transmission of energy shock and monetary policy

- When raw energy prices rise, all agents have incentives to invest into energy saving capital.

Transmission of energy shock and monetary policy

- When raw energy prices rise, all agents have incentives to invest into energy saving capital.
- Rising policy rates dampens incentives by suppressing creation of new jobs, increasing amount of unemployed workers and rising returns on nominal savings.

Main results

- Welfare (rule-based) analysis: policies with weaker reaction to inflation and/or with output support result in smaller welfare losses for the workers and firm owners (despite rising inflation).

Main results

- Welfare (rule-based) analysis: policies with weaker reaction to inflation and/or with output support result in smaller welfare losses for the workers and firm owners (despite rising inflation).

- Policy of looking-through the energy prices does not bring economic benefits.

The trade-off engineered by Volha and Ivan

- My (educated) "guesses":

The trade-off engineered by Volha and Ivan

- My (educated) "guesses":
  - case of full (**technology and financial**) homogeneous exposure and no wage rigidity: there should be no trade-off, optimal Ramsey policy should coincide with core inflation targeting.

The trade-off engineered by Volha and Ivan

- My (educated) "guesses":
  - case of full (**technology and financial**) homogeneous exposure and no wage rigidity: there should be no trade-off, optimal Ramsey policy should coincide with core inflation targeting.
  - Households' heterogeneous exposure to rising energy prices **and** imperfect insurance induce an endogenous trade-off for monetary policy.

The trade-off engineered by Volha and Ivan

- My (educated) "guesses":
  - case of full (**technology and financial**) homogeneous exposure and no wage rigidity: there should be no trade-off, optimal Ramsey policy should coincide with core inflation targeting.
  - Households' heterogeneous exposure to rising energy prices **and** imperfect insurance induce an endogenous trade-off for monetary policy.
  - Ramsey optimal response: to partly accommodate core inflation, to indirectly sustain employment and prevent workers from becoming more exposed to the shock through unemployment.

Comment 1: policy inflation

- What's the reason for including the "policy inflation" case, that is, the central bank responds to a weighted average of energy price inflation and (headline?) consumer price inflation?

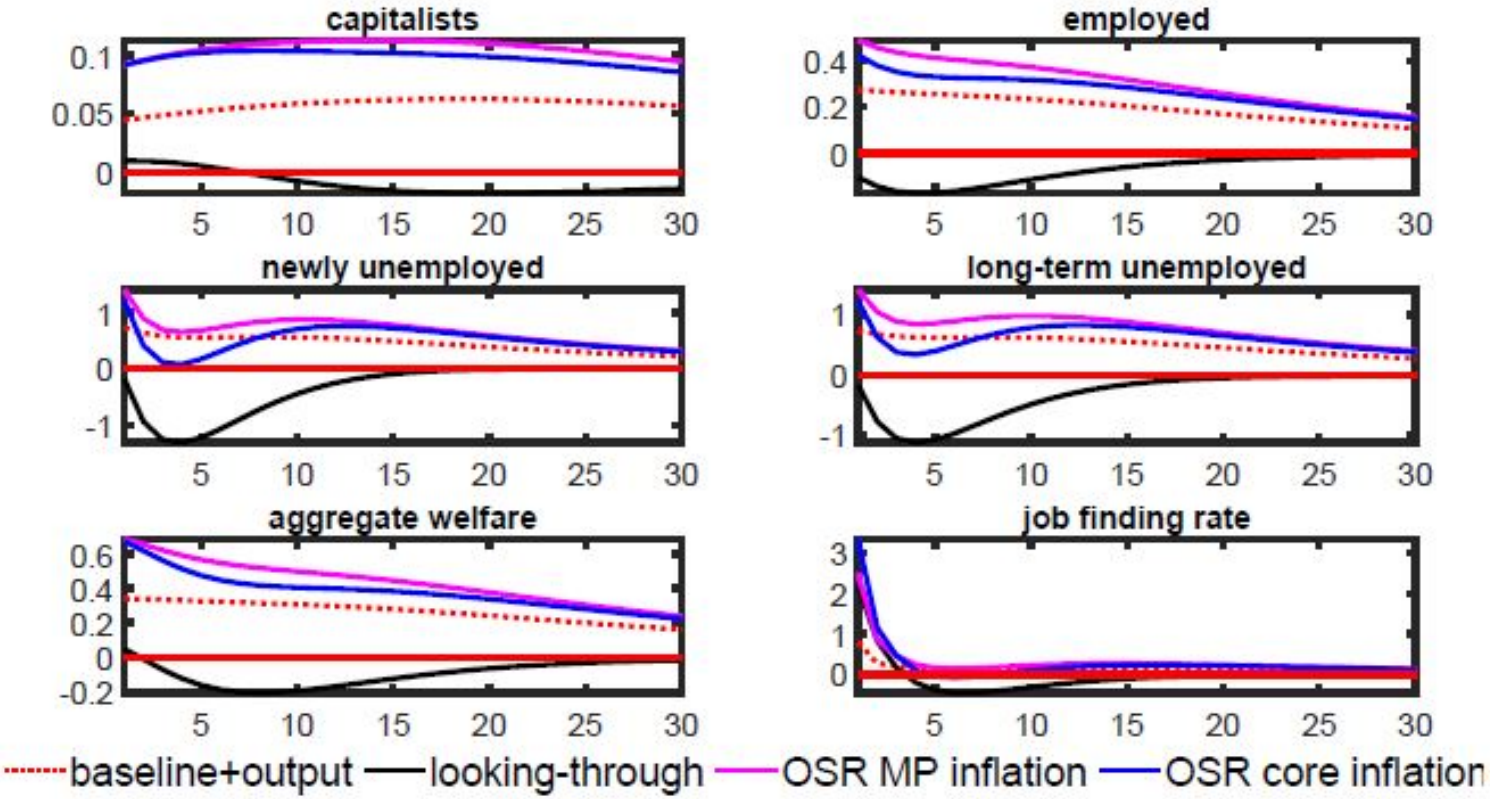
$$\Pi_t^p = \Pi_t \left(\frac{\tilde{P}_{e,t}}{\tilde{P}_{e,t-1}} \right)^{\phi_e} = (\Pi_t)^{1-\phi_e} (\Pi_{e,t})^{\phi_e} \qquad (1)$$

Comment 2: fully-indexed unemployment benefits

- Fully-indexed unemployment benefits seem to matter for welfare ranking.

Comment 2: fully-indexed unemployment benefits

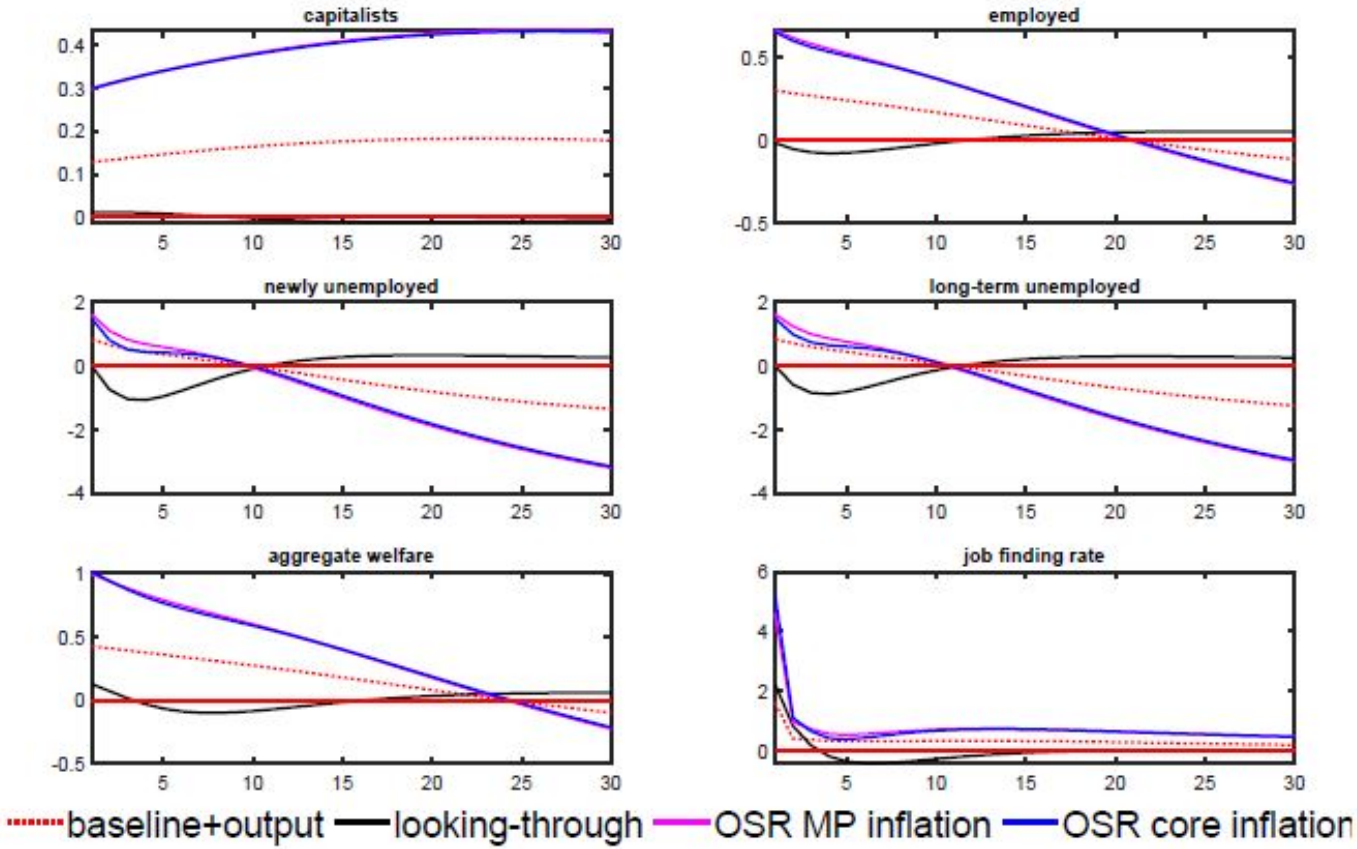
Figure 8: Policy Responses: Welfare and Job-Finding Rate, 1% Energy Price Shock



Note: All responses are reported as percentage points difference relative to the baseline policy. Positive values mean the welfare is larger than under the baseline policy.

Comment 2: Sticky unempl. benefits as in Ravn and Sterk (2021)

Figure D1: Policy Responses: Welfare and Job-Finding Rate, 1% Energy Price Shock



Note: All responses are reported as percentage points difference relative to the baseline policy. Positive values mean the welfare is larger than under the baseline policy.

Comment 2: fully-indexed unemployment benefits

- Why not reporting also Ravn and Sterk (2021) case in main text (instead of reporting it in the Appendix)?

Comment 3: sticky nominal wage

- Can you isolate the role of this assumption?

Comment 3: sticky nominal wage

- Can you isolate the role of this assumption?
- Non-trivial assumption, because, likely, efficiency would call for an increase in wage following higher energy prices (for insurance reasons, if workers are risk-adverse and firms risk-neutral).

Comment 4: heterogeneous nominal bond positions

- Does the magnitude of the initial nominal bond positions matter?

Comment 4: heterogeneous nominal bond positions

- Does the magnitude of the initial nominal bond positions matter?
- Open-economy dimension?

Comment 5: evidence supporting the proposed mechanism?

- Is there any evidence (even anecdotal) supporting the novel mechanism?

Comment 5: evidence supporting the proposed mechanism?

- Is there any evidence (even anecdotal) supporting the novel mechanism?
- That is, unemployed workers have limited abilities to invest into energy saving technology compared to employed workers.

Overall

- Very interesting idea, very rich model.
- Some extra-work needed to further clarify transmission.
- Welfare: show in a systematic way how the different modeling features affect the optimized (operational) rules.
- The framework can be exploited to address many other interesting issues (in other papers).
- THANKS!