Heterogeneity in Macroeconomics: Implications for Policy

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Two Questions

1. What are the effects of unconventional monetary policy (in particular QE) on inequality?

2. Does running the economy hot for an extended time reduce inequality and improve outcomes disproportionally for disadvantaged groups or for low-income households?

I will try to answer these two questions from the perspective of quantitative Heterogeneous Agent New Keynesian models

distribution + imperfect risk sharing + real effects of monetary policy

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- Emphasis on the key features these models should have

What are the effects of unconventional monetary policy (in particular QE) on inequality?

Effects of QE on Inequality

- Hot topic among policymakers and in the press

How the Federal Reserve Is Increasing Wealth Inequality

The Fed's low-interest-rate policies have stabilized the economy and turbocharged the stock market. But those who don't own lots of stocks haven't benefited anywhere near as much as those who do.

by Allan Sloan and Cezary Podkul

April 27, 6 a.m. EDT

REPUBLISH

Co-published with The Washington Post

1. ↑ asset prices: gain for equity holders and home owners

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1. ↑ asset prices: gain for equity holders and home owners
2. ↓ lower long-term rates: gain for borrowers
3. ↑ bank recapitalization: higher credit supply → gains for workers
4. ↑ aggregate demand: gains for workers

How Does QE Work?

The problem with QE is that it works in practice but it doesn't work in theory

(Ben Bernanke)

- Wallace Neutrality always lurking in the background
- Assume:
  1. All assets are only valued for their pecuniary (possibly risky) value
  2. No trading frictions: all investors can exchange arbitrary quantities at the same prices

Then, asset swaps have no real effects in the economy

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- Lesson: need frictions and heterogeneity in our models
  1. Assets differ in their liquidity properties
  2. Investors face credit constraints / transaction & participation costs

Quantitative Macro Models of QE & inequality

1. Cui and Sterk (JME, 2021):
    - QE: a form of liquidity transformation for households
    - MPC out of liquid wealth > MPC out of illiquid wealth
2. Lee (WP, 2021)
    - QE: CB issues (unproductive) bonds to purchase productive K
    - Price of K rises and I rise too, which increases AD
3. Beraja, Fuster, Hurst and Vavra (QJE, 2019)
    - QE: lowers mortgage rates and induces refinancing
    - Benefits accrue mostly to households with positive equity

Limitations and Way Forward

- Standard NK model has dismal predictions for asset pricing
  - With sticky prices, profits fall in a monetary expansion
  - Fixes: sticky wages, fixed costs of production, K adjustment cost
- Problem: Wrong Campbell-Schiller decomposition
- Insights from finance: *time varying risk / risk aversion*
- Heterogeneous agent models offer some natural solutions:
  1. Redistribution toward risk-averse hh in recession (Kekre-Lenel, 2021)
  2. Countercyclical uninsurable risk (Constantinides-Duffie, 1996)
  3. Endogenous unemployment disasters (Bai-Zhang, 2020)

Does running the economy hot for an extended time reduce inequality and improve outcomes disproportionally for disadvantaged groups or for low-income households?

How Does AIT Work?

- When inflation undershoots the 2% target for a time, the Fed will direct monetary policy to push inflation above the target for some time to compensate this initial inflation deficit
- Policy will be adjusted based on assessments of the shortfalls of employment from its maximum level
- Consistent with new goal of more inclusive employment
- A longer and stronger recovery would disproportionately benefit low- and moderate- income communities

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What follows is based on joint work with Felipe Alves (Bank of Canada)

Key Features of our Model

- Household heterogeneity: labor productivity
- Imperfect risk-sharing: save/borrow through risk-free bond
- Frictional labor market: $E \leftrightarrow U$
- Participation decision: flows from N into E and U and viceversa
  - Hobijn-Sahin (2021): recessions increase N through the surge in U
- Skill dynamics: loss upon layoff, decay during U, and learning during E
  - Davis-von Wachter (2011): earnings losses are very persistent
- NK closure: Phillips curve + Monetary policy rule (TBD)

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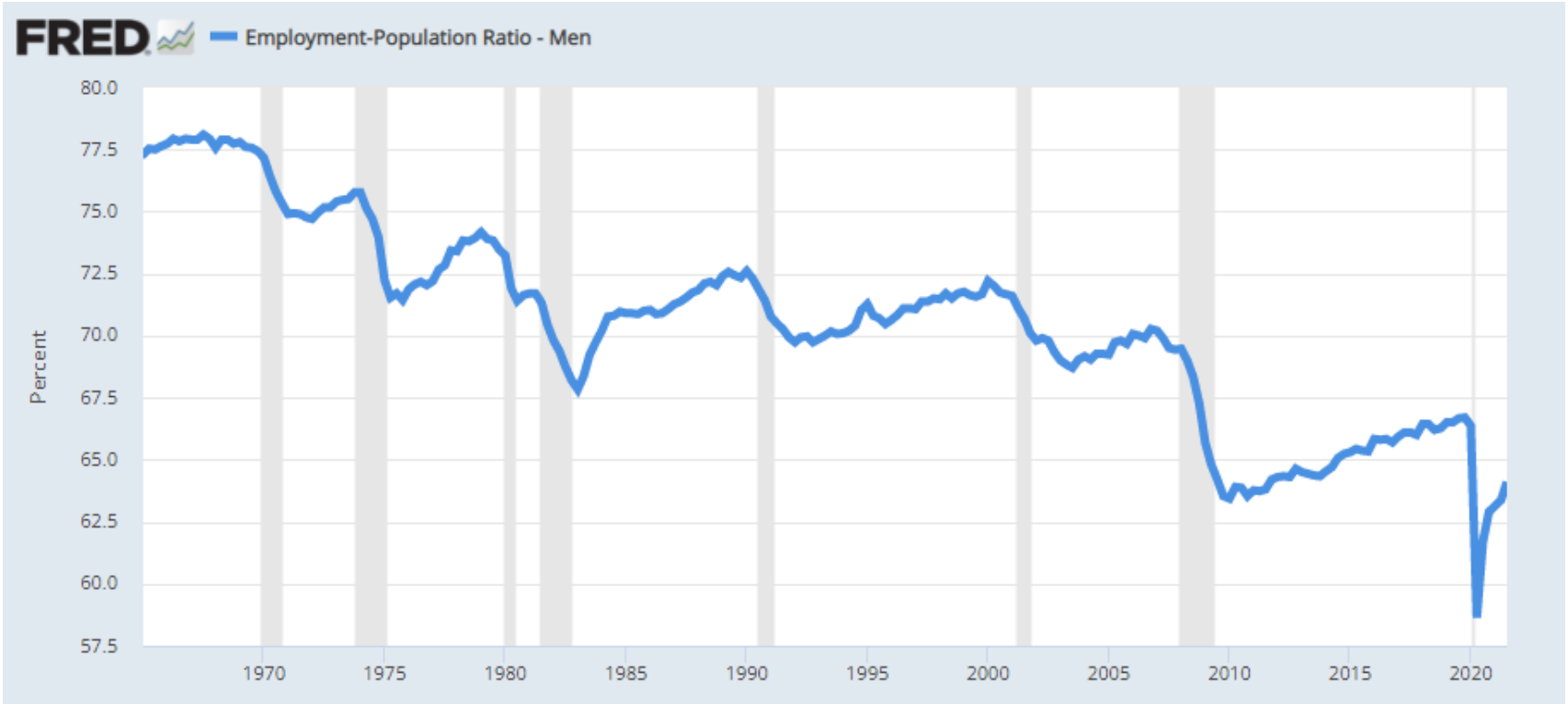
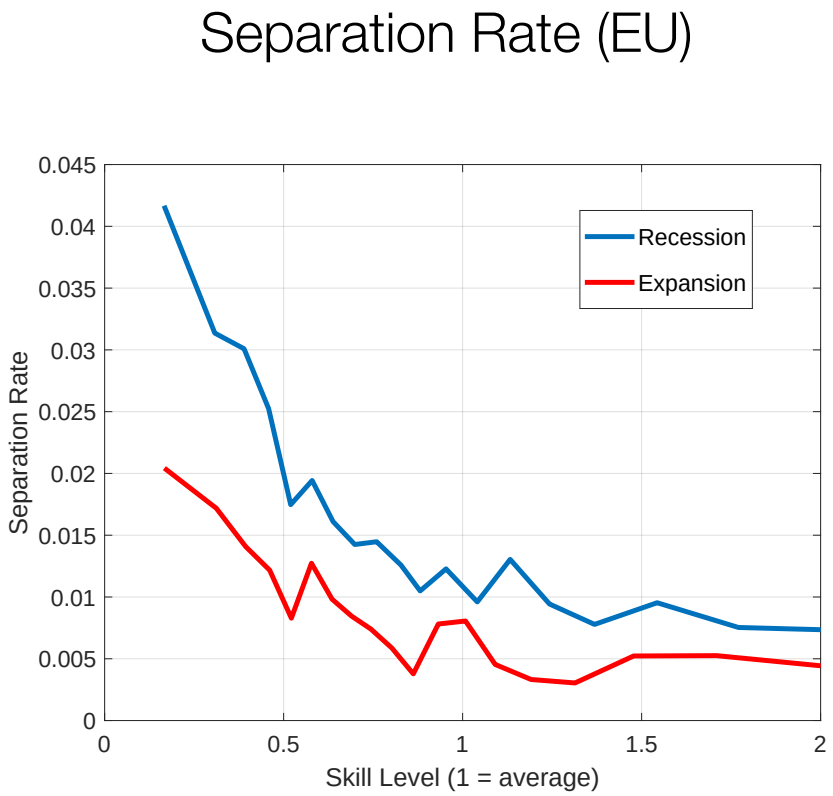
Idea: recessions can have long-lasting effects on economic prospects of displaced or non-employed workers

The Long Shadow of Recessions on Employment



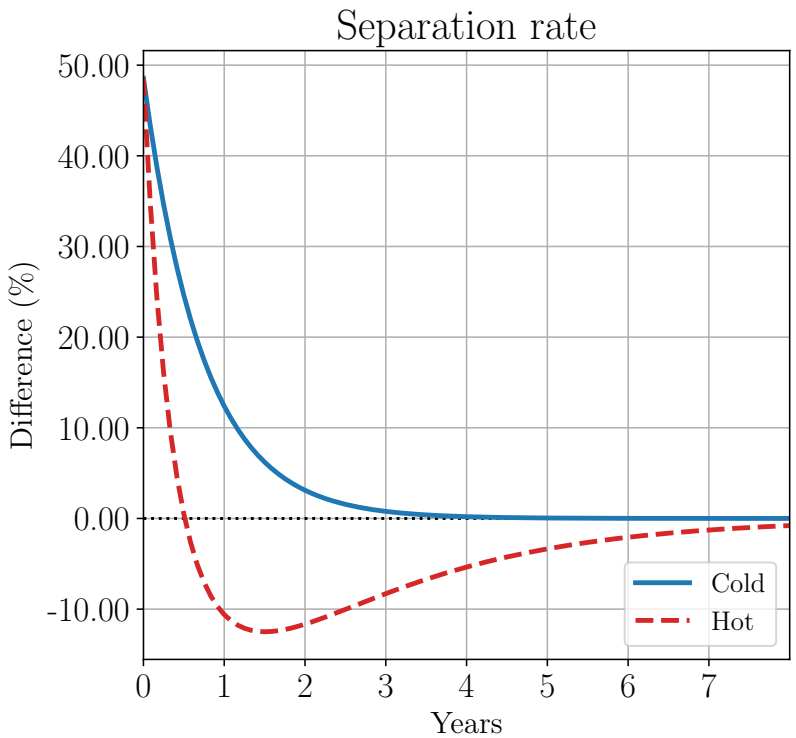
- Heathcote-Perri-Violante: recession + SBTC is a double whammy

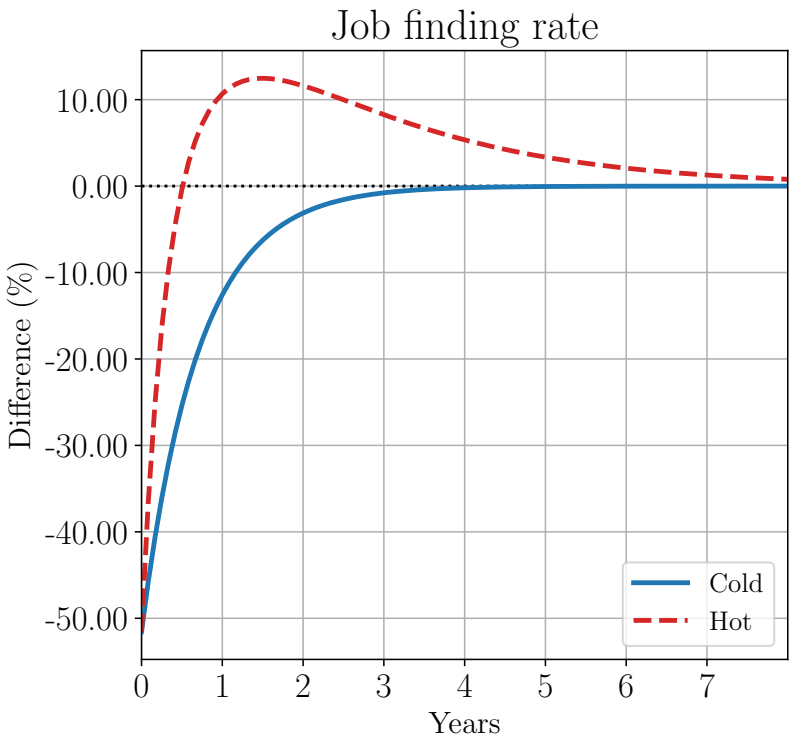
Uneven Incidence of Recessions



- Large heterogeneity in EU rates across skill distribution
- Recessions disproportionately increase EU rate for unskilled

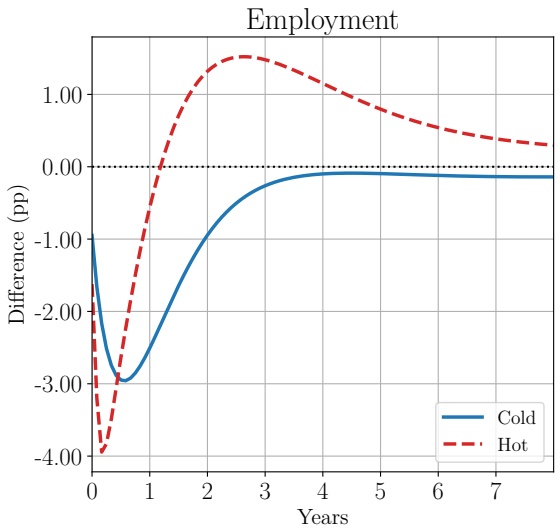
Experiment: Cold and Hot Economies

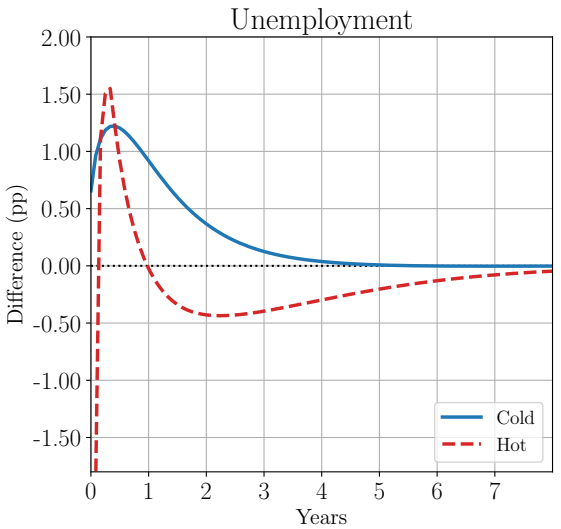


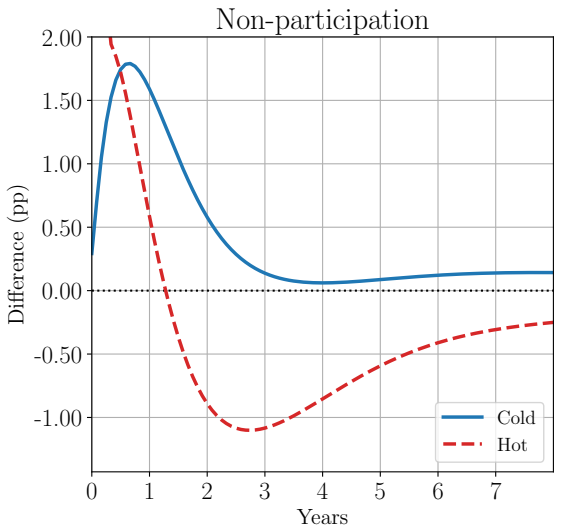


- Cold: standard monetary policy response to negative shock
- Hot: Fed follows AIT after negative shock

Dynamics of *E*, *U*, *N*

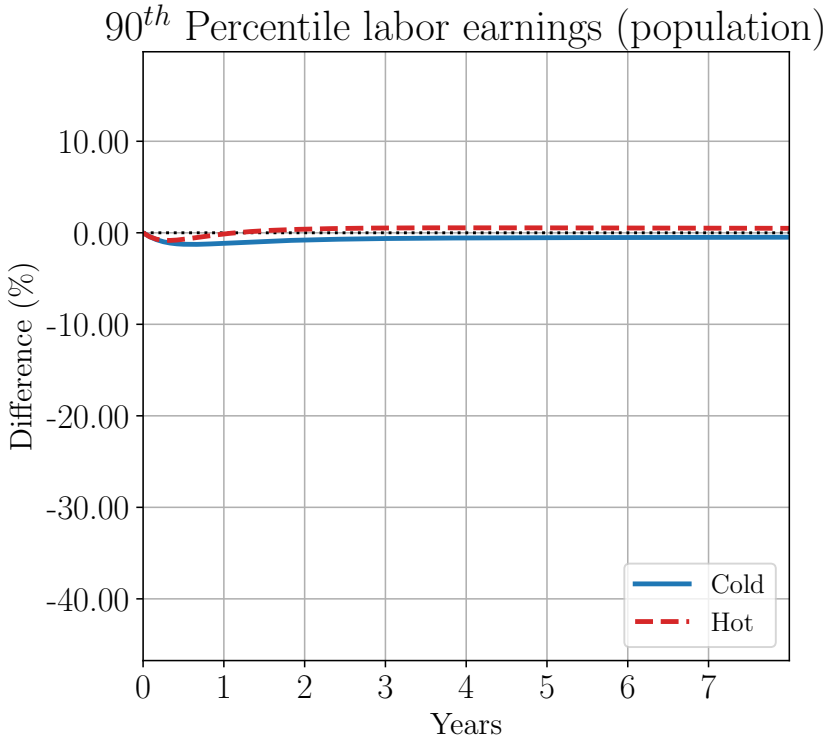


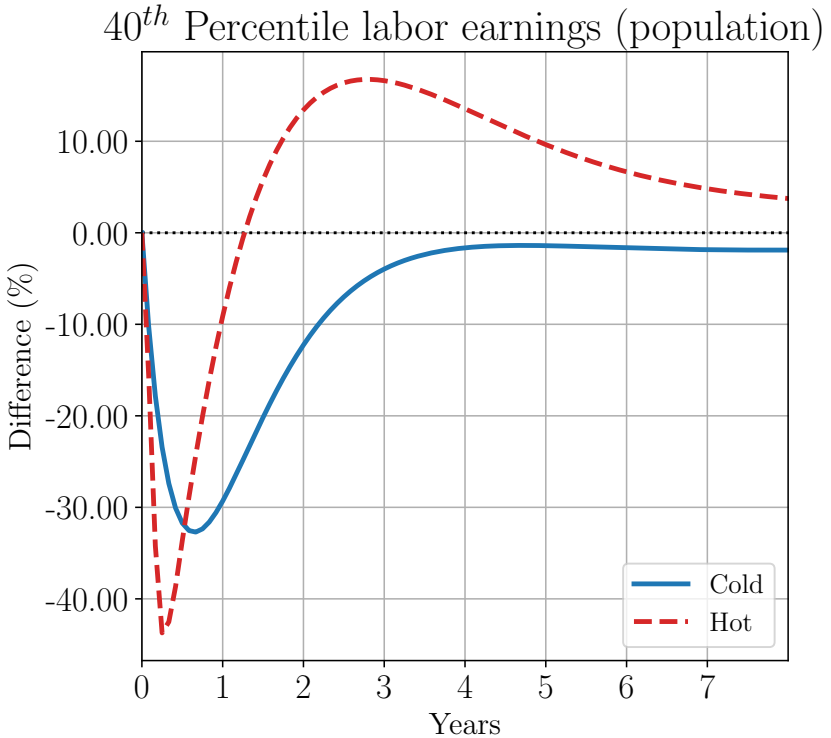




- Drop in *U* at impact due to intertemporal substitution
- Hot economy: sustained *E* and *U* and *N* below trend

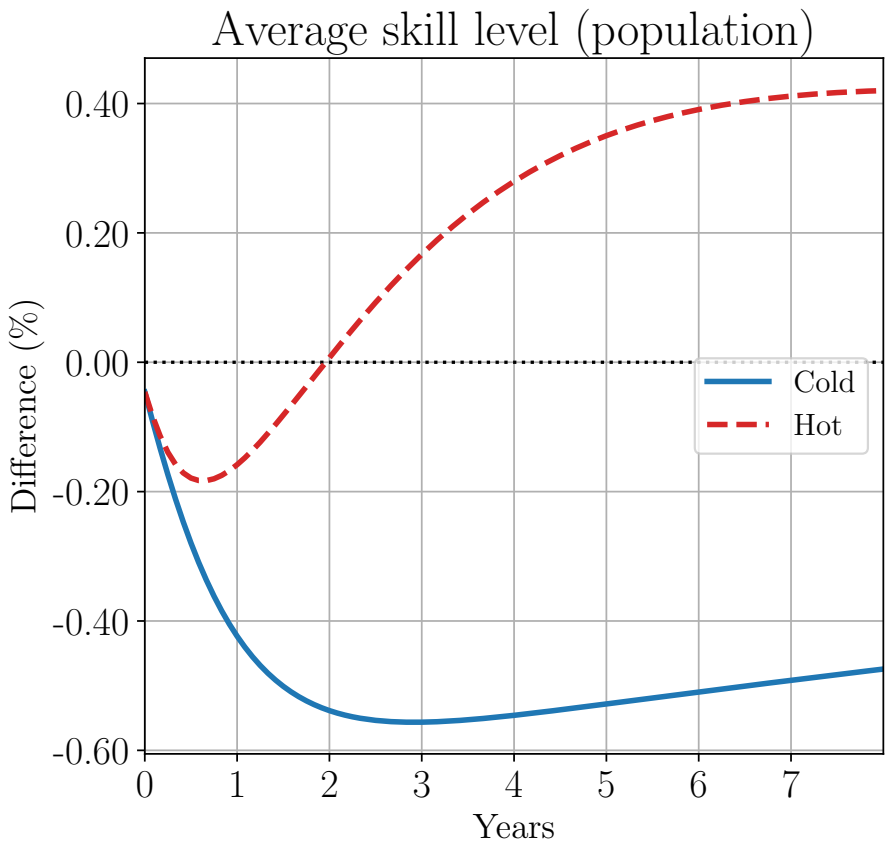
Dynamics of Earnings Across the Distribution





- Hot economy: much more *inclusive* recovery after the recession

Average Human Capital in the Population



- Hot economy: no persistent loss in human capital

Who Bears Costs of Inflation?

1. Fall in real wages in the presence of nominal rigidity
    - Low-income workers lose more?
2. Devaluation and revaluation effects
    - Borrowers gain, but poorer households have more nominal wealth
3. Portfolio reallocation from nominal to real assets
    - Increase in equity prices
4. Additional effects through government budget constraint?