International Spillovers of New Monetary Policy

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Introduction

In normal times

- Central banks focus on short term rates

Zero Lower Bound

- Central banks resort to unconventional policies
  1. Quantitative easing (QE)
  2. Forward Guidance (FG)
  3. Negative interest rate policy (NIRP)

When the Federal Reserve used these new monetary policy tools, it sparked great interest about the international spillover effects of these policies.

Research Questions

1. Are there any differences in the spillover effects of new tools of monetary policy and conventional monetary policy from large economy to a small open economy (SOE)?

2. By calibrating our model to mimic the US and Canadian economies around the Great Recession, we run counterfactual experiments that provide answers the following questions :

    a. What would have happened to the Canadian economy had the Fed engaged in a more or less aggressive QE?

    b. How would the outcomes be different had the Bank of Canada (BoC) engaged in QE on top of what the Fed did?

Main Takeaways

1. The international spillovers of new monetary policy are qualitatively similar but quantitatively different from those of the conventional monetary policy.

2. The expansionary monetary policy shocks in the US, have contractionary effects on most Canadian real variables. These contractionary effects are strongest in the case of forward guidance (FG) and the negative interest rate policy (NIRP), intermediate in the case of conventional monetary policy and the weakest in the case of quantitative easing (QE)

Main Takeaways Cont'd

3. An increase in the size of US QE increases the spillovers but only at a decreasing rate and, after a certain threshold, further increases in US QE have very small spillover effects on the Canadian economy.

4. If Canada had engaged in its own QE on top of the one by the US, the positive effects on Canadian economy would be much stronger.

Contribution to Literature

1. Literature on Unconventional Monetary Policy
   - Gertler and Karadi (JME 2013)
   - Sims and Wu (JME 2020)
2. International Macroeconomics Literature
   - Gali and Monacelli (AER 2016)
   - Alpanda and Kabaca (JEEA 2020)
   - Kolasa and Wesolowski (JIE 2020)

The focus of our model is an SOE. The rest of the world is represented by a large country

SOE

Medium-scale DSGE model with
Extention of Sims and Wu (JME 2020)

1. Household
2. Labor Market
3. Non-Financial Firms
4. Financial Intermediaries
5. Monetary Authority
6. Fiscal Authority

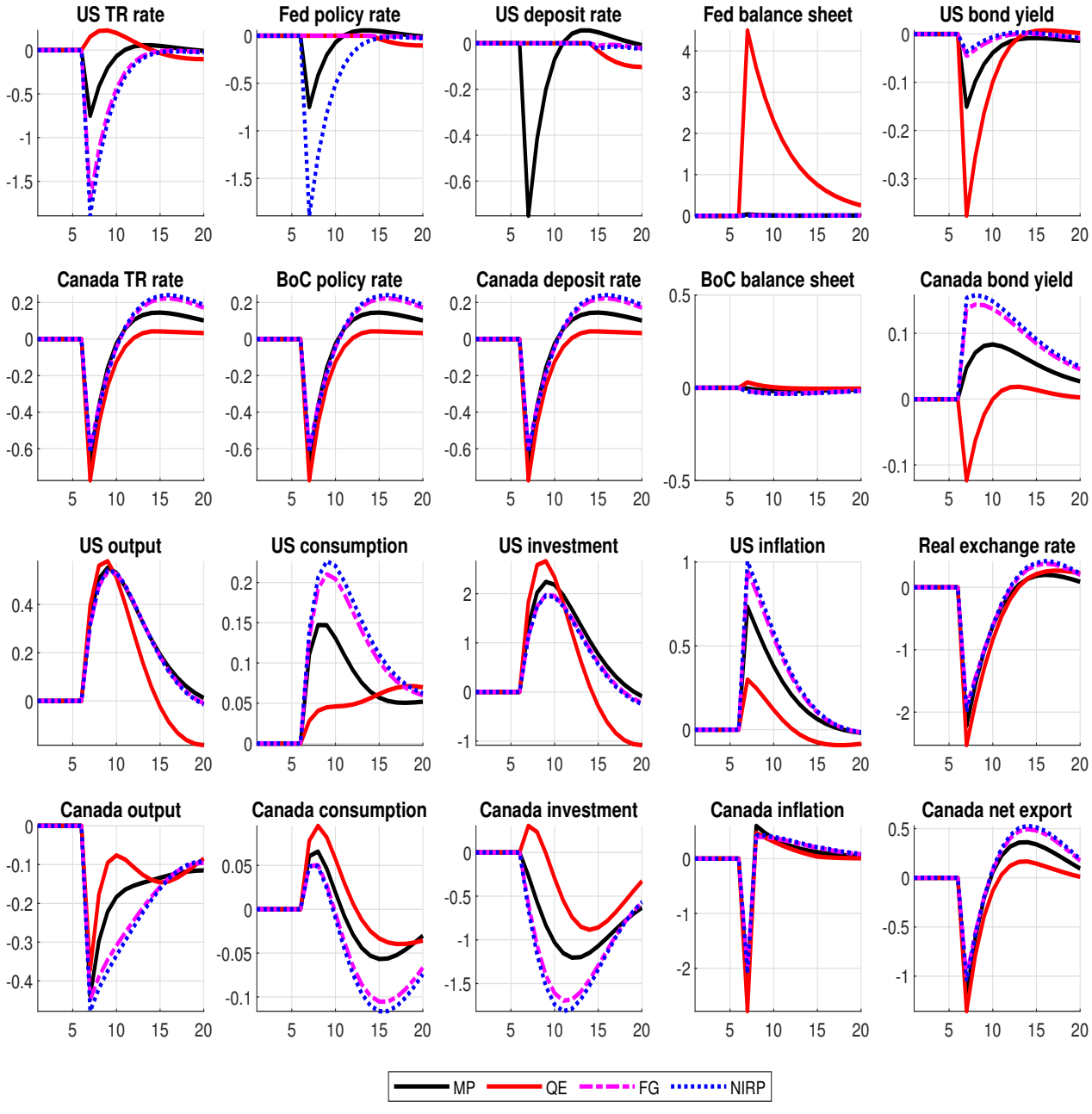
International Spillovers of Conventional versus New Monetary Policy

- We begin by quantifying the conventional and new monetary policy steps that would generate a similar effect on foreign GDP.
- In order to do so, we come up with the following policy interventions:

  1. We hit the foreign economy with a -1% shock to its annualized policy rate. This is the conventional monetary-policy stimulus.
  2. For QE, we allow the foreign central bank to increase its balance sheet by about 4% of GDP.
  3. For FG, we shock the foreign economy by -2.2% change in the annualized policy rate.
  4. For NIRP, we hit the economy with a -2.4% shock to its annualized policy rate.

- All shocks hit the economy in period 7

Exogenous monetary policy shocks to US economy only



Summary of Findings

- First, if the monetary policy shocks originate only in the foreign economy and we choose the shocks such that the immediate effect on foreign GDP of conventional and new monetary policies is roughly the same:

  1. The immediate effects on home GDP are also the same but the recovery rate of home GDP is different across conventional and new monetary policies.
  2. The effects on various components of GDP, like consumption, investment and net exports, are also different by policy.

  $$\text{QE} > \text{MP} > \text{FG} > \text{NIRP}$$

- Second, if there are domestic monetary policy shocks, in addition to the foreign monetary policy shocks, the effects on GDP and its components are different.

Counterfactual Experiments

- What would have happened to the Canadian economy had the Fed engaged in a more or less aggressive QE?

- How would the outcomes be different had the Bank of Canada engaged in QE on top of what the Fed did?

- We do so in 3 steps
  1. We construct a benchmark scenario in which we choose credit shocks in such a way that when combined with the actual QE policies of the Fed and the Bank of Canada, they produce some real outcomes that are close to what happened in the data.
  2. We counterfactually change the magnitude of QE done by the Fed to see how it would have changed the outcomes for the Canadian economy.
  3. We run a counterfactual experiment in which we allow the Bank of Canada to engage in QE in the wake of 2008 crisis.

Counterfactual Changes in QE by the Fed : Diminishing returns to QE

Scenario	Change in Fed balance sheet	Maximum change in US output	Maximum change in US investment	Maximum change in Canada output	Maximum change in Canada investment
Counterfactual 2	6% to 16%	−13.0%	−60.0%	−3.5%	−11.0%
Benchmark	6% to 25%	−8.5%	−41.0%	−7.0%	−20.0%
Counterfactual 3	6% to 36%	−8.5%	−42.0%	−8.5%	−23.0%

Policy Implication

- Our counterfactual analysis can give a sense of preview to policy makers as to what to expect from the Bank of Canada QE program in response to the current recession.
- The framework can be easily modified to think about the current monetary-policy interactions between two large economies like the US and the European Union.
- Bank of Canada's main policy-analysis model, TOTEM, in it's current state will not do a good job in thinking about the concepts of new monetary policy. Our framework provides a very useful insight to improve TOTEM along the lines of modelling new monetary policy toolkits.