Structural Reforms and Monetary Policy in a Monetary Union

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"Structural Reforms, Inflation and Monetary Policy"

"Research suggests that reforms that increase employment flexibility, such as reducing employment protection, are more likely to depress demand during downturns. I would however reject the conclusion that this means all structural reforms should be postponed.

The reason is that the short-term impact of structural reforms does not just depend on when they are implemented, but how—namely, the credibility of reforms, the type of reforms and *their interaction with other policy measures*. [...]

I would argue that our current monetary stance in fact makes accelerating structural reforms desirable, because it brings forward their positive demand effects."

Mario Draghi, "Structural Reforms, Inflation and Monetary Policy," Sintra, May 22, 2015.

Emphasis added.

Structural Reforms and Macroeconomic Policy

- President Draghi and other policymakers have been calling repeatedly for structural reforms designed to make product and labor markets more flexible in weakly performing economies–such as Italy.

- What are the dynamic effects of structural reforms? How do they interact with monetary policy?

- To answer these questions, it is crucial for models to incorporate micro-level market dynamics.

The Off-the-Shelf New Keynesian Approach: Reduced-Form Structural Reforms

- In a 2014 *JME* article that received considerable attention, Eggertsson, Ferrero, and Raffo (EFR) adopt a basic New Keynesian model with sticky prices and wages to study the effects of structural reforms.

- In their exercise, product and labor market reforms are modeled very simply as exogenous cuts to price and wage markups.

- This has a positive supply-side effect on output, but it also "automatically" pushes the economy in the direction of deflation.

- Markup cuts imply an immediate, similarly "automatic," depreciation of the terms of trade, which induces an improvement in the trade balance.

- EFR warn that the deflationary effect of reforms can exacerbate the problem of the zero lower bound (ZLB) on interest rates in monetary policymaking, with unfavorable demand-side consequences.

The Off-the-Shelf New Keynesian Approach: Reduced-Form Structural Reforms, Continued

- The EFR approach to modeling market reforms in dynamic, stochastic, general equilibrium (DSGE) frameworks has been adopted by a variety of other papers.

- It is also to the concerns raised by EFR and others that President Draghi was responding in 2015 in Sintra.

- There is much merit in the exercise that EFR performed as a starting points for discussion of the dynamic macroeconomics of structural reforms in models for macro policy analysis.

The Off-the-Shelf New Keynesian Approach: Reduced-Form Structural Reforms, Continued

- However, their modeling of structural reforms was a reduced-form one:

  - The off-the-shelf New Keynesian model does not include any of the product and labor market dynamics that the narrative of policymakers, including President Draghi, has been focusing on.

- There is no producer entry barrier that product market reform is lowering, because there are no producer entry dynamics.

- There is no extensive margin of employment with hiring and firing decisions by firms nor the impact that reforms such as reducing unemployment benefits and worker bargaining power would have on the labor market.

- It turns out that incorporating such ingredients affects key conclusions drastically, and it brings them much closer to the narrative of the "calls for reforms" that have been front and center in policy debates.

  - Conclusions of the EFR basic model are also not robust to introducing investment and capital accumulation in the model.

Structural, Structural Reform Modeling

- Matteo Cacciatore, Giuseppe Fiori, and I have been studying the macroeconomic effects of product and labor market reforms in models that incorporate the market dynamics policymakers have in mind.

- The framework builds on the work I did with Marc Melitz in our 2005 *QJE* paper and the work that Marc and I did with Florin Bilbiie (2012, *JPE*—BGM).

- The model is augmented with labor market frictions as in Matteo's 2014 *JIE* paper, and Matteo and Giuseppe's (2015, *RED*) analysis of the macroeconomic effects of market reforms in a flexible-price, flexible-wage model—CF below.

Structural, Structural Reform Modeling, Continued

● The basic ingredients of the model include:

– Endogenous producer entry subject to sunk costs.

· Part of these costs is of technological nature; part is assumed to be the result of inefficient market regulation.

· Product market reform reduces barriers to producer entry.

– Labor markets are characterized by search-and-matching frictions as in the standard Diamond-Mortensen-Pissarides framework.

· Firms incur costs of vacancy posting, workers receive unemployment benefits, equilibrium wages are determined by (Nash) bargaining between workers and firms.

· Labor market reform reduces firing costs, unemployment benefits, and/or worker bargaining power.

– Prices and wages are sticky, which introduces a role for monetary policy, including in managing the transition dynamics triggered by the reform shocks.

"Market Deregulation and Optimal Monetary Policy in a Monetary Union"

- In Cacciatore, Fiori, and Ghironi (2016, *JIE*), we use a two-country, monetary union version of the model to study how the structure of markets and market reforms affect the optimal conduct of monetary policy by the union's central bank.

- In addition to the basic ingredients above, the model also features translog preferences for consumption goods, as in BGM and CF.

- This implies that product market reforms have a pro-competitive effect on flexible-price markups as increased entry results in higher substitutability across products.

Optimal Policy with Rigid Markets

- Optimal policy with high market regulation implies departures from price stability in the long run (a positive inflation target) and over the business cycle (deviations of inflation from target in response to business cycle shocks).

- Optimal policy is more active in response to business cycle fluctuations than historical ECB behavior.

- Optimal policy aims to narrow wedges relative to the efficient allocation:

  – The policymaker trades off costs created by inflation against the benefits of addressing suboptimal outcomes in labor and product markets.

Optimal Policy in Response to Reforms

- It is optimal to expand monetary policy during the transition dynamics generated by reforms (more than dictated by historical ECB behavior).

- Monetary policy expansion makes it possible to front-load the beneficial effects of reforms (as President Draghi suggested).

- The demand-side effects of reforms (for instance, expansion in investment in firm/product creation) ensure that reforms have inflationary effects and do not create ZLB problems.

Optimal Policy in the Post-Reform Environment

- The costs of a narrow focus on price stability are lower once the long-run effects of reforms have materialized.

- Reforms imply that job creation is closer to the efficient outcome in the new steady state and over the business cycle around this new steady state.

- Hence, there is less need for monetary activism.

The International Effects and Dimension of Reforms

- In contrast to the reduced-form approach of EFR and others, reform in the Home country (holding Foreign market regulation constant) causes current account deficit and terms of trade appreciation during the early part of the transition.

  – It is optimal to borrow to finance increased business creation, and the latter puts upward pressure on labor costs.

- It is desirable to synchronize reforms across countries to avoid creating an additional tradeoff for the single monetary policy by creating a differential in the desirability of inflation across countries.
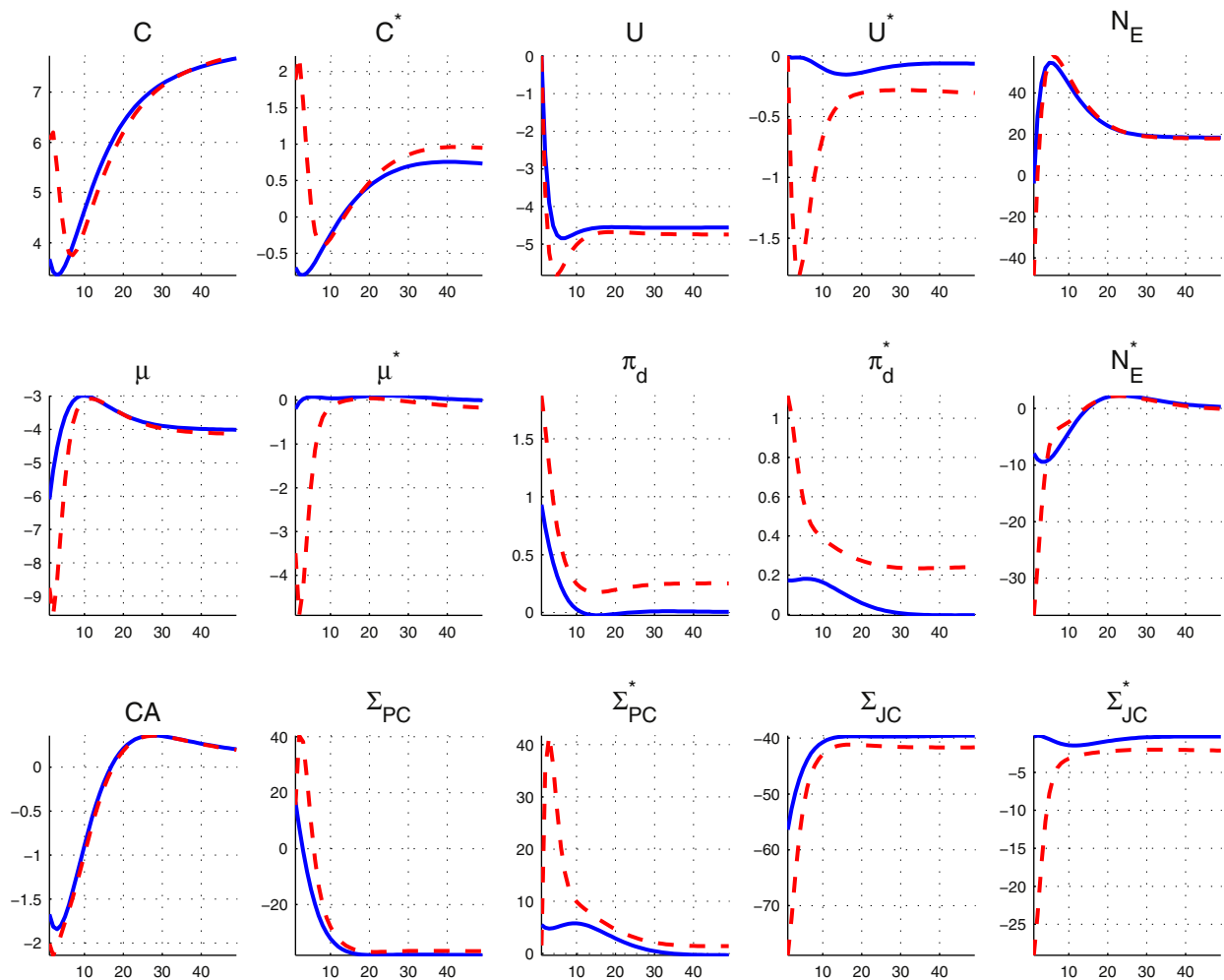
Fig. 1. Home product and labor market reform, historical policy (continuous lines) versus Ramsey-optimal policy (dashed lines). Responses show percentage deviations from the high-regulation steady state under historical policy (zero steady-state inflation). Unemployment and inflation are in deviations from the steady state.
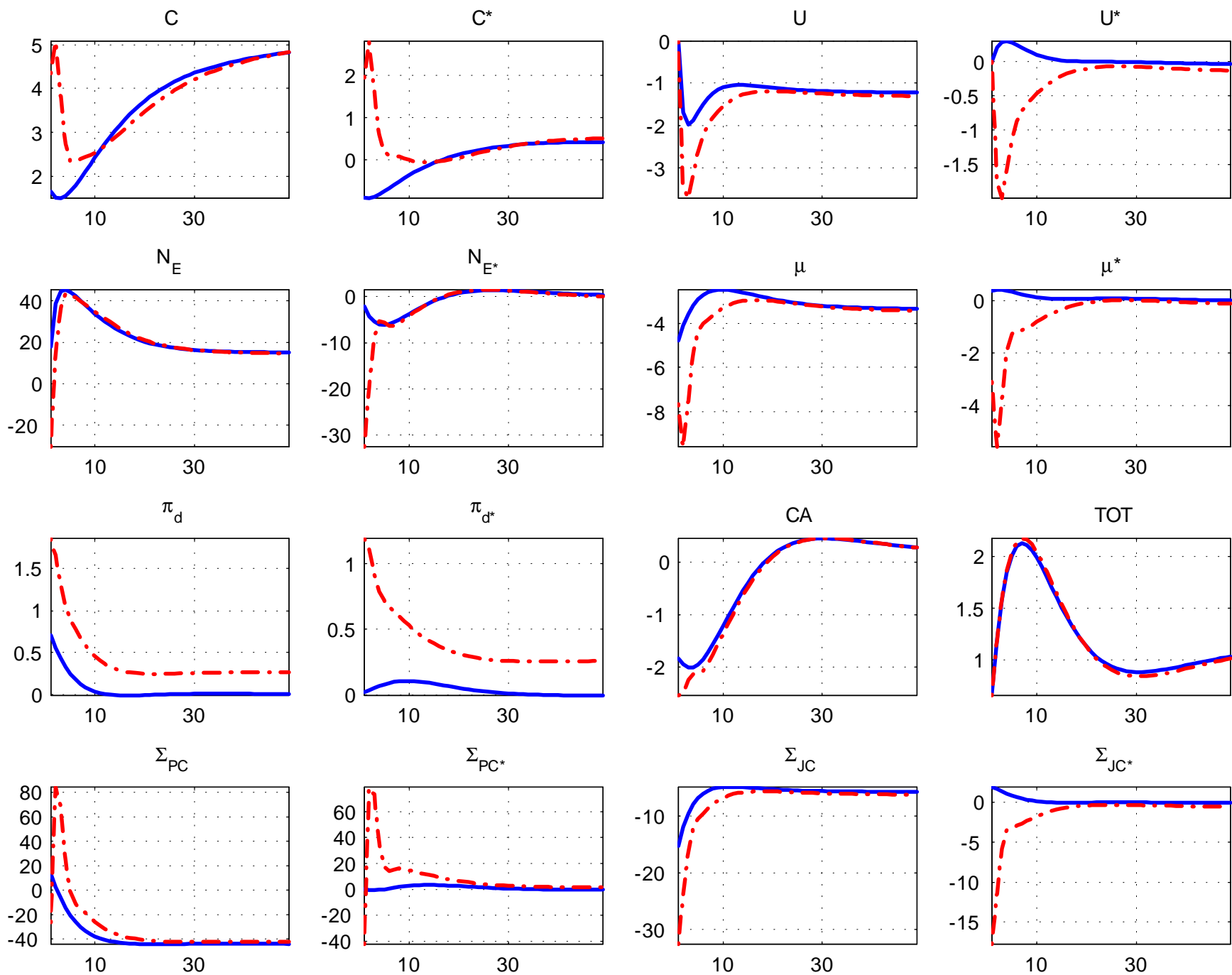
Figure 2: Home Product Market Deregulation, Historical Policy (Solid) versus Optimal Policy (Dashed).
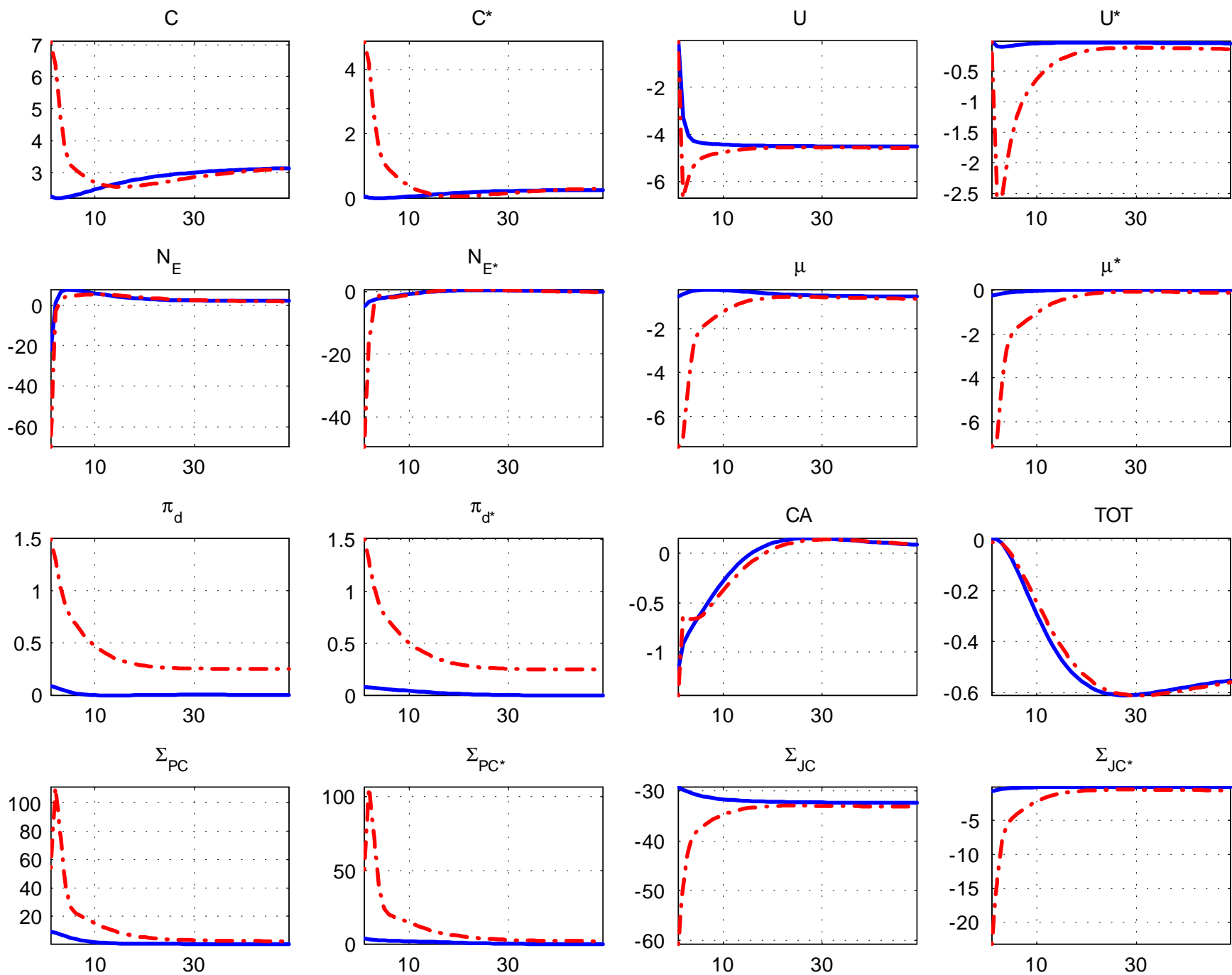
Figure 3: Home Labor Market Deregulation, Historical Policy (Solid) versus Optimal Policy (Dashed).

"Market Reforms in the Time of Imbalance"

Does the State of the Economy Matter?

- Yes. In Cacciatore, Duval, Fiori, and Ghironi (2016, *JEDC*—CDFG), we show that transition costs from reforms that reduce firing costs (for instance) are larger if the reform is implemented during recession, or belt-tightening to shift resources to business creation during a recession is amplified if product market reform in implemented under financial autarky.

- In this paper, we assume flexible prices and wages, and we model a production structure with monopoly power in an upstream, non-tradable sector whose output is then used as input in production of final goods.

- Product market reform can then be interpreted as deregulation of the service sector.

- Sequencing reforms is important when the state of the economy is unfavorable: It is better to begin from product market reform to reduce the short-run pain on the way to the long-run gain.

- Appropriate sequencing of reforms in an economy that can borrow internationally makes it possible to implement them with limited cost even during recessions.
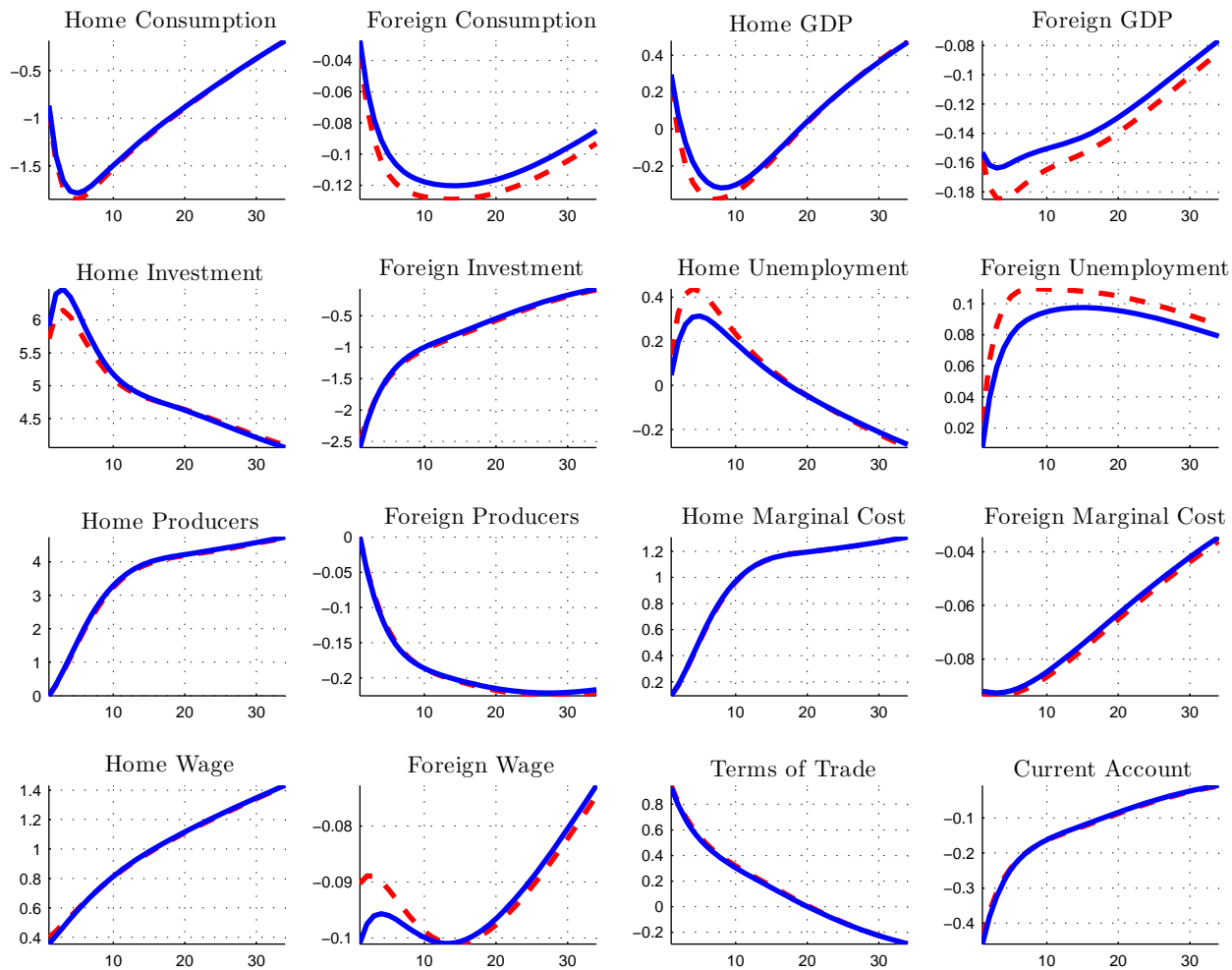
Figure 1. Home product market reform, normal times (continuous lines) versus recession (dashed lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.
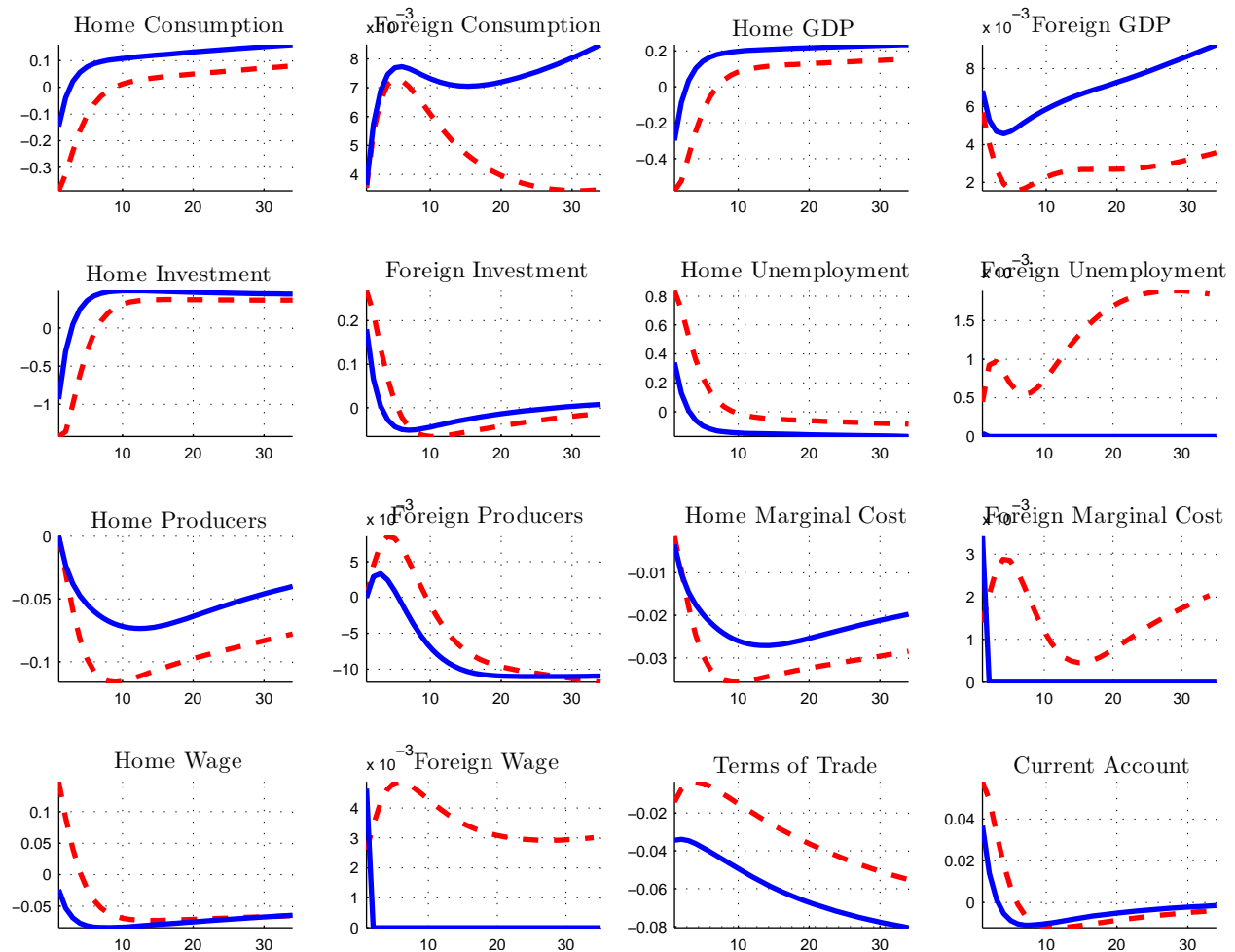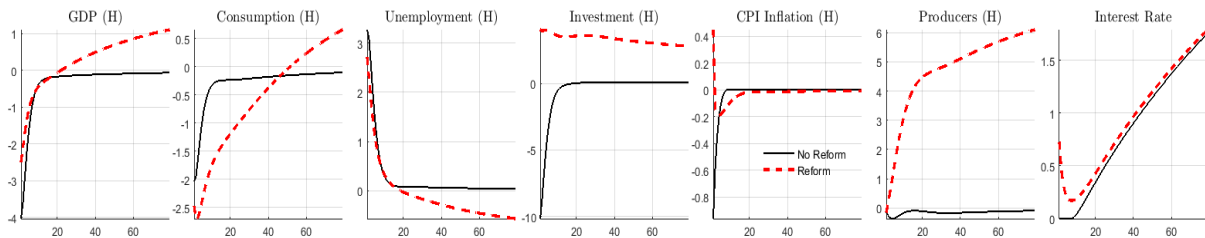
Figure 2. Home firing costs reform, normal times (continuous lines) versus recession (dashed lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.
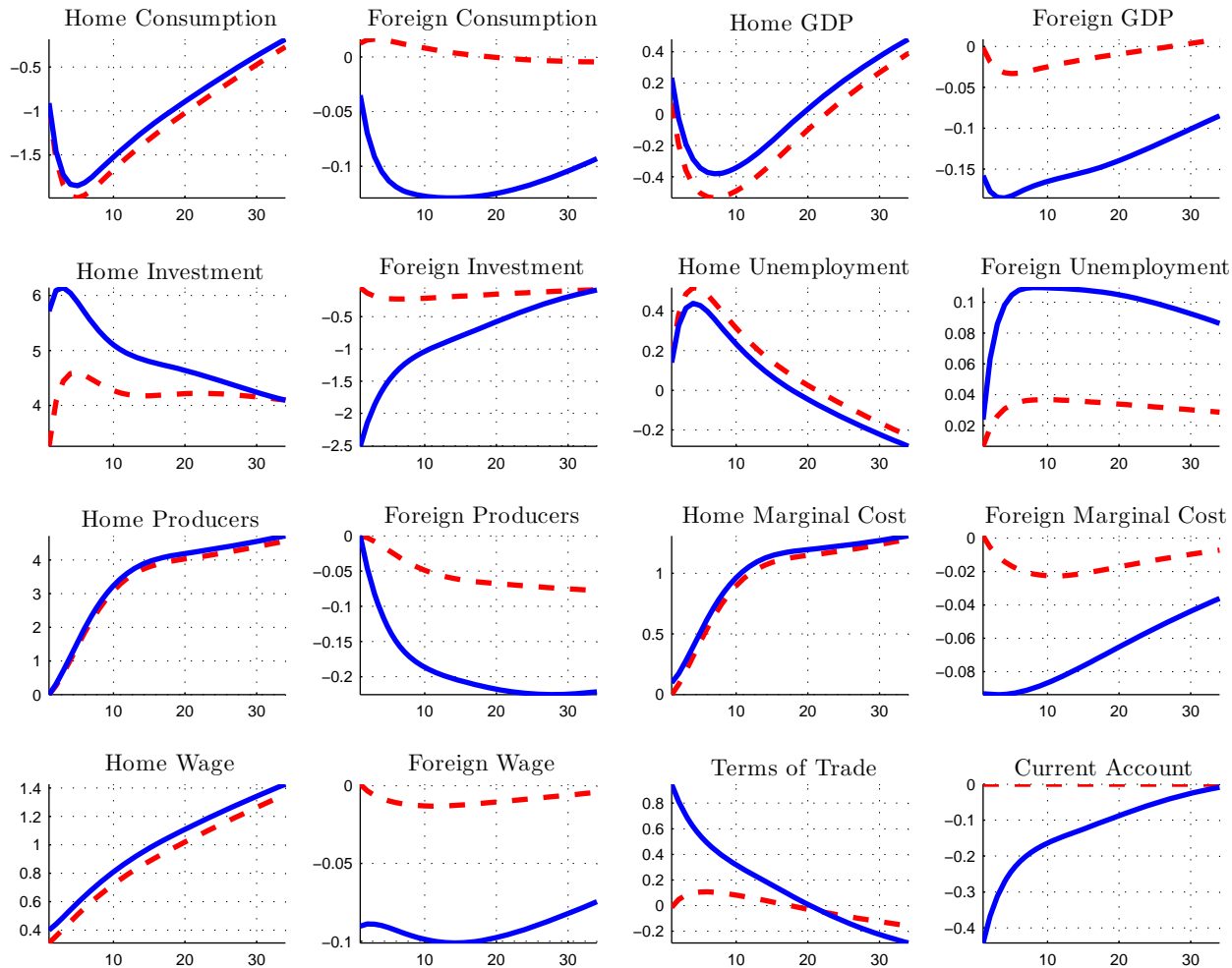
Figure 8. Home product market reform in a recession, open capital account (continuous lines) versus financial autarky (dashed lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.

"Market Reforms at the Zero Lower Bound"

Does the Zero Lower Bound Matter?

- In Cacciatore, Duval, Fiori, and Ghironi (2017, CEPR DP or NBER WP), we reintroduce nominal rigidity in the model of CDFG to study whether reforms do exacerbate the ZLB problem and whether this should be a reason to postpone reforms.

- We introduce an Euler equation shock that pushes the central bank of our model monetary union against the ZLB and we study what happens if reforms are implemented when the economy is in this situation.

- The answer is strikingly different from EFR:
  - Product market reform has an inflationary effect that actually helps the central bank get out of the ZLB.
    - Markup reduction does happen as more producers enter the economy, but this effect happens endogenously and gradually; on impact, increased demand for factors of production imparts a helpful inflationary impulse.
  - Labor market reform does not lift the central bank away from the ZLB, but its deflationary effect is limited.

- In sum, the ZLB is not a reason to delay reforms, especially if appropriately sequenced— again, it is a good idea to begin from the product market.
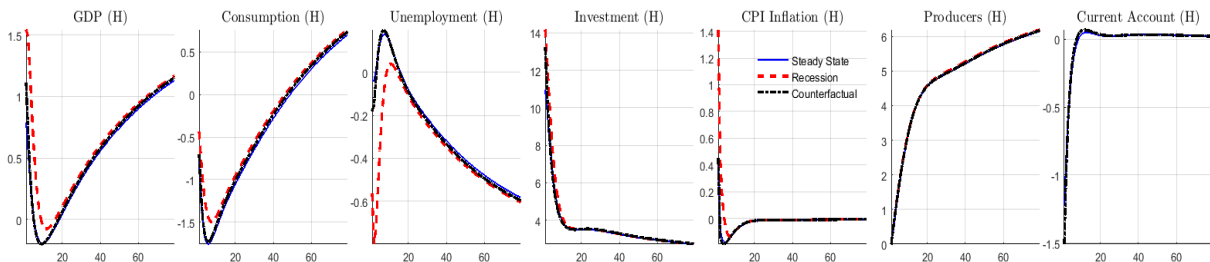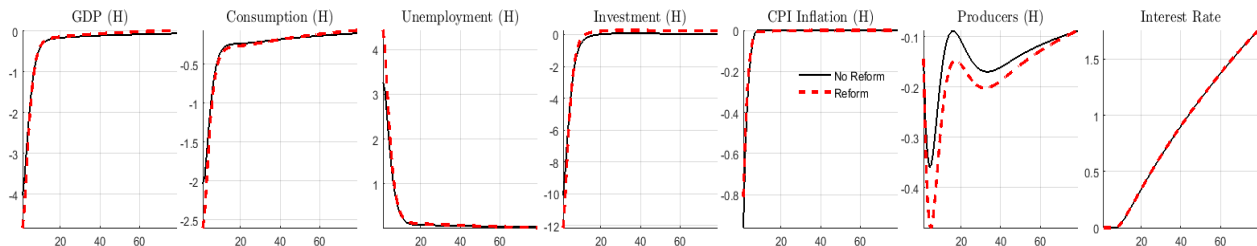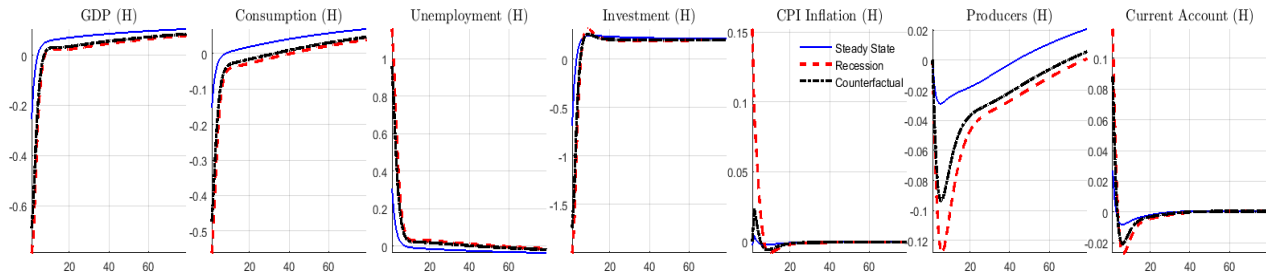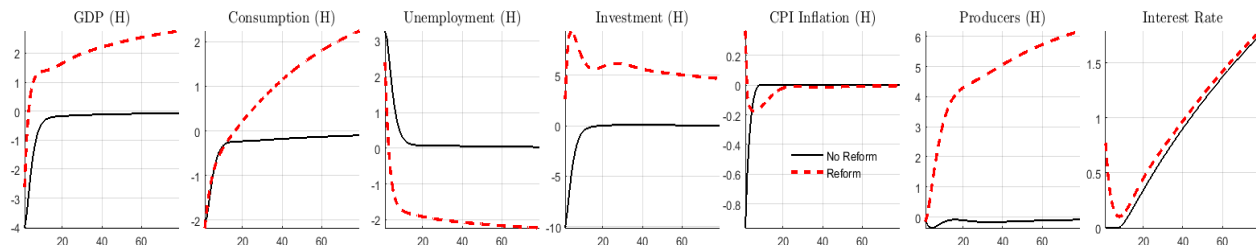
Figure 1. *Top panel*: recession (continuous lines) versus recession followed by product market reform (dashed lines); *Bottom panel*: net effect of product market reform in normal times (continuous lines), in a recession with binding ZLB (dashed lines), and in a recession where the interest rate is allowed to violate the ZLB (dotted lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.

Figure 2. *Top panel*: recession (continuous lines) versus recession followed by firing cost reform (dashed lines); *Bottom panel*: net effect of firing cost reform in normal times (continuous lines), in a recession with binding ZLB (dashed lines), and in a recession where the interest rate is allowed to violate the ZLB (dotted lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.
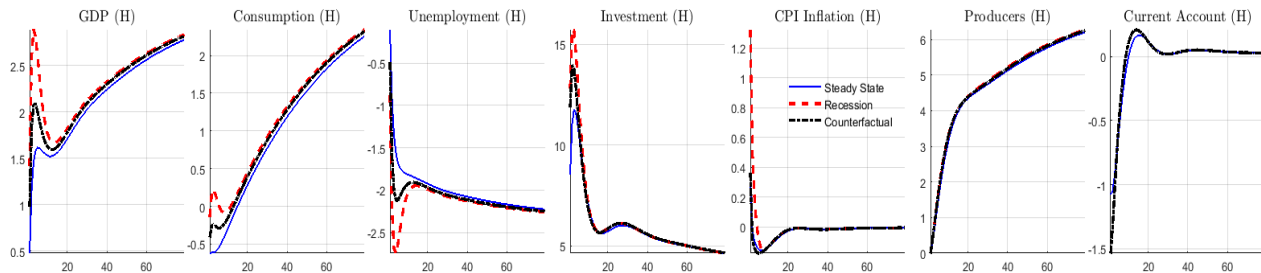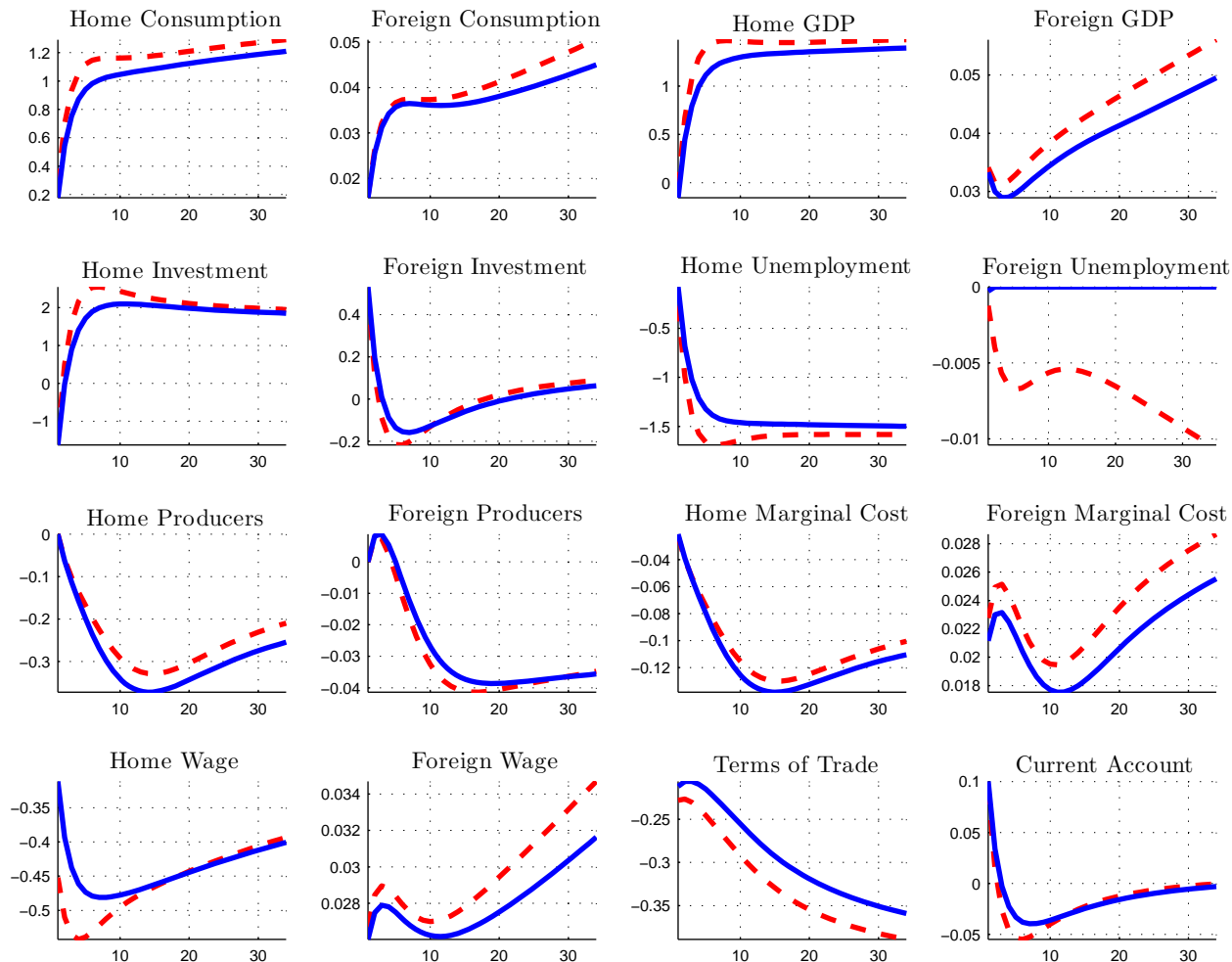
Figure 4. *Top panel*: recession (continuous lines) versus recession followed by joint product and labor market reform (dashed lines); *Bottom panel*: net effect of joint product and labor market reform in normal times (continuous lines), in a recession with binding ZLB (dashed lines), and in a recession where the interest rate is allowed to violate the ZLB (dotted lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.
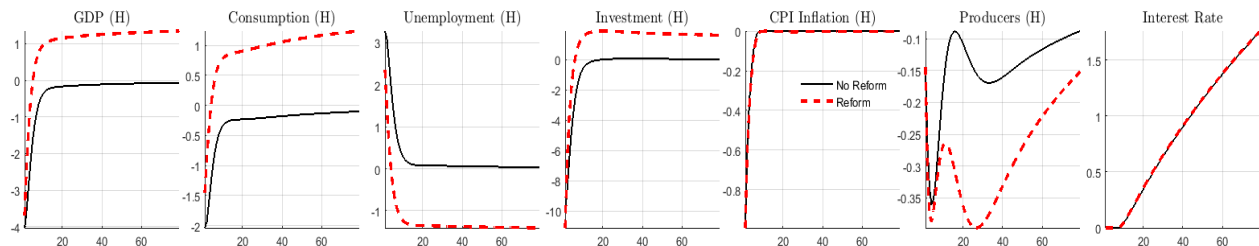
Conclusions

- President Draghi was right in 2015 and remains right now:

  - Implementing reforms in an environment of monetary expansion makes it possible to smooth transition costs and front-load the longer-term gains from the reforms.

  - Appropriate sequencing of reforms is important.

  - The ZLB should not deter governments from implementing reforms, especially if they are indeed sequenced appropriately.

Figure 3. Home unemployment benefits reform, normal times (continuous lines) versus recession (dashed lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.
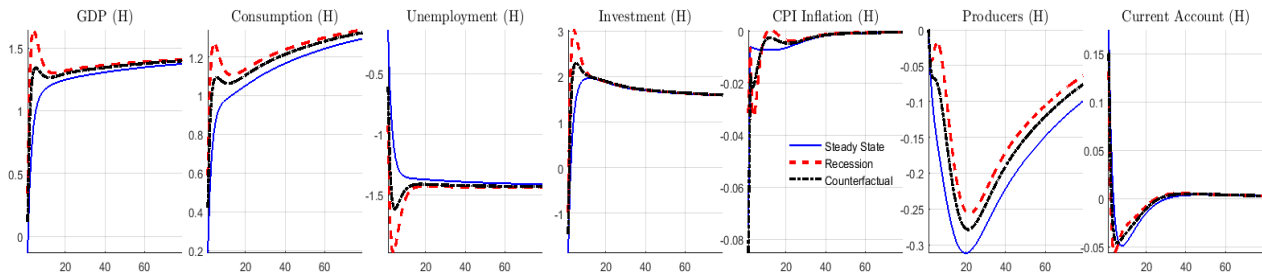
Figure 3. *Top panel*: recession (continuous lines) versus recession followed by unemployment benefit reform (dashed lines); *Bottom panel*: net effect of unemployment benefit reform in normal times (continuous lines), in a recession with binding ZLB (dashed lines), and in a recession where the interest rate is allowed to violate the ZLB (dotted lines). Responses show percentage deviations from the initial steady state. Unemployment is in deviations from the initial steady state.