Comments on

Nicoletta Batini, Alejandro Justiniano, Paul Levine and Joseph Pearlman:

Model Uncertainty and the Gains from Coordinating Monetary Rules

by

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The questions in the paper

• Which monetary rules perform well in a world consisting of large open economies (e.g. US vs. EU)?

• Are there significant gains from coordination in the design of monetary rules?

• Which rules are robust and offer protection against the problem of indeterminacy?

This paper is a nice development relative to the previous meeting of the Forum in Washington, in Nov 2003. As in their previous paper, the authors are concerned with dimensions of monetary policy which depend on openness (its degree and features).

As in Washington, in my discussion I will focus on fundamental issues in model specification, regarding the role of relative price and financial markets in the macroeconomic adjustment.

What does the paper do?

Build a two-block world economy featuring monopolistic firms and workers, nominal price and wage rigidities (Calvo).

Exchange rate pass-through is complete at the border, incomplete at consumer level because of monopolistic retailers subject to nominal rigidities.

Markets are complete.

Estimate a linearized form of the model using Bayesian methods (Smets and Wouters, Schorfheide and Lubik etc..).

Focus on Inflation Forecast Based (IFB) rules, and design rules that avoid indeterminacy vis-à-vis model uncertainty (specifically, the estimated measures of model uncertainty). Look at welfare maximizing rules (subject to model uncertainty) in both the cooperative and the non coop. case.

Main results (subset)

Theory

- Holding the law of one price, the monetary policy spillovers on foreign ‘OUTPUT’ are negative. With incomplete pass-through, they become positive.

Policy assessment

- IFB rules worse than current-inflation rules.
- Stabilization is worth 7 percent of OUTPUT. Cooperation on top of it is only worth 0,12 percent of OUTPUT.
- Small gains from cooperation (*but complete markets*?)

But also: Bayesian estimates of many important parameters! Some comments on them belong in the conclusions.

The ‘BJLP’ model

The core of it is extensively studied in the literature

- Obstfeld and Rogoff; Corsetti and Pesenti; Clarida Gali and Gertler and several others. But also GEM-like models.

As is well known, there are at least 3 distortions:

- Monopoly power in production;
- Staggered price adjustment;
- Monopoly power on terms of trade.

The model can deal with asymmetries across blocks, It has also several interesting features such as

(a) home bias in consumption; habit formation

(b) degree of indexation in wages and prices.

Different from the version in the model presented in the 2003 Forum

- *Imperfect pass through:* the LAW OF ONE PRICE holds at the border (import prices pass-though is 100%), but prices of imports at consumer level are subject to nominal rigidities.
- *Exchange rate volatility:* there is an ‘error’ introducing exogenous volatility so that:
  - Monetary policy and exchange rates are no longer strictly connected:
  - Exchange rate is “disconnected from fundamentals”

Some comments on the BJLP's Bayesian estimates

The authors produce many interesting and reasonable parameter estimates. In an unfair fashion, I will concentrate on 2 findings that are quite questionable. Why? We can learn quite a bit from them.

Problem-result 1: truly enormous degree of price rigidities in the import retail sector

Median parameters estimates suggest duration of

- prices of domestic goods — 1,5 quarters (B&K?)
- Wages — 9 quarters
- import prices — 25 quarters

To see why the above results are really puzzling, let's derive model-consistent **policy implications**

Conventional wisdom

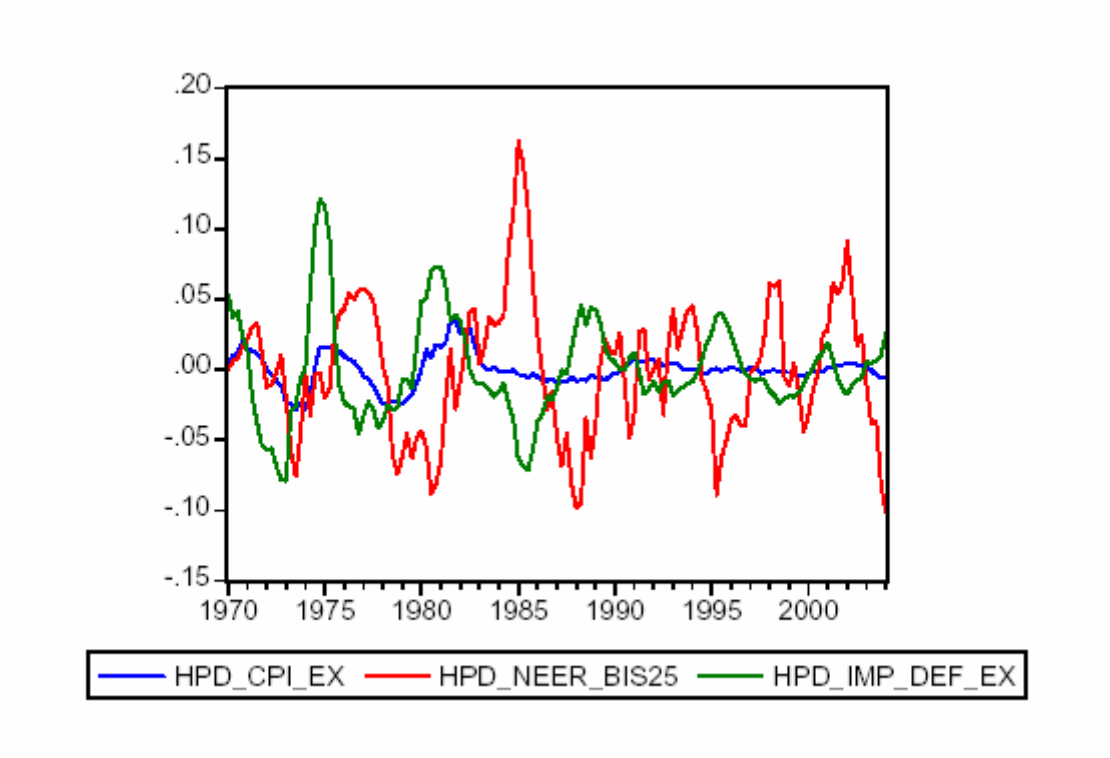
- Competition is stronger in the import sector than in the rest of the economy. Since the sector is more flexible, import prices are often excluded from core inflation.

According to the model

- Import sector is the most inflexible. But then efficiency requires that the bulk of nominal price adjustment should be shifted to domestic prices (GDP deflator and wages)!
- Import sector should become core inflation!

What is the problem here?

The following plots nominal exchange rate (red), the price of imports at the border (green) and the CPI (blue)



- Volatility of nominal exchange rate E is very high
- Volatility of CPI is very low

Bjpl (and other authors) adopt a model in which:

- the **retail price of import** in domestic currency is adjusting only partially.
- the **marginal costs** of import retailers, however, fluctuate with the exchange rate

$$\overset{ADJUSTING\_PARTIALLY}{\Delta P_F} = markup \overset{MARGINAL\_COSTS}{\Delta (E \bullet P_F^*)}$$

  - A highly volatile E => a highly volatile MC
  - To prevent import prices from fluctuating too much, hence making the CPI too volatile) one needs to assume a lot of nominal rigidities!

By the way, note that with nominal rigidities markups can easily become negative!

What do we learn?

Bayesian estimates clearly point to mis-specification

To reinforce this conclusion: pass through at border prices is not complete (as posited in the model)

So, how to model import prices? There is no single answer but useful features are:

a) Price discrimination i.e. pricing to market (correctly defined). Price elasticities, vertical interactions and so on…

b) Distribution and local component in costs

c) Nominal rigidities (local currency pricing)

Looking only at c may not be a good idea. There are other reasons why prices may be stable in local currency.

Moreover, are nominal rigidities asymmetric across countries? Across goods markets? …

Problem-result 2: enormous volatility of tastes shocks

almost 10 times the prior!

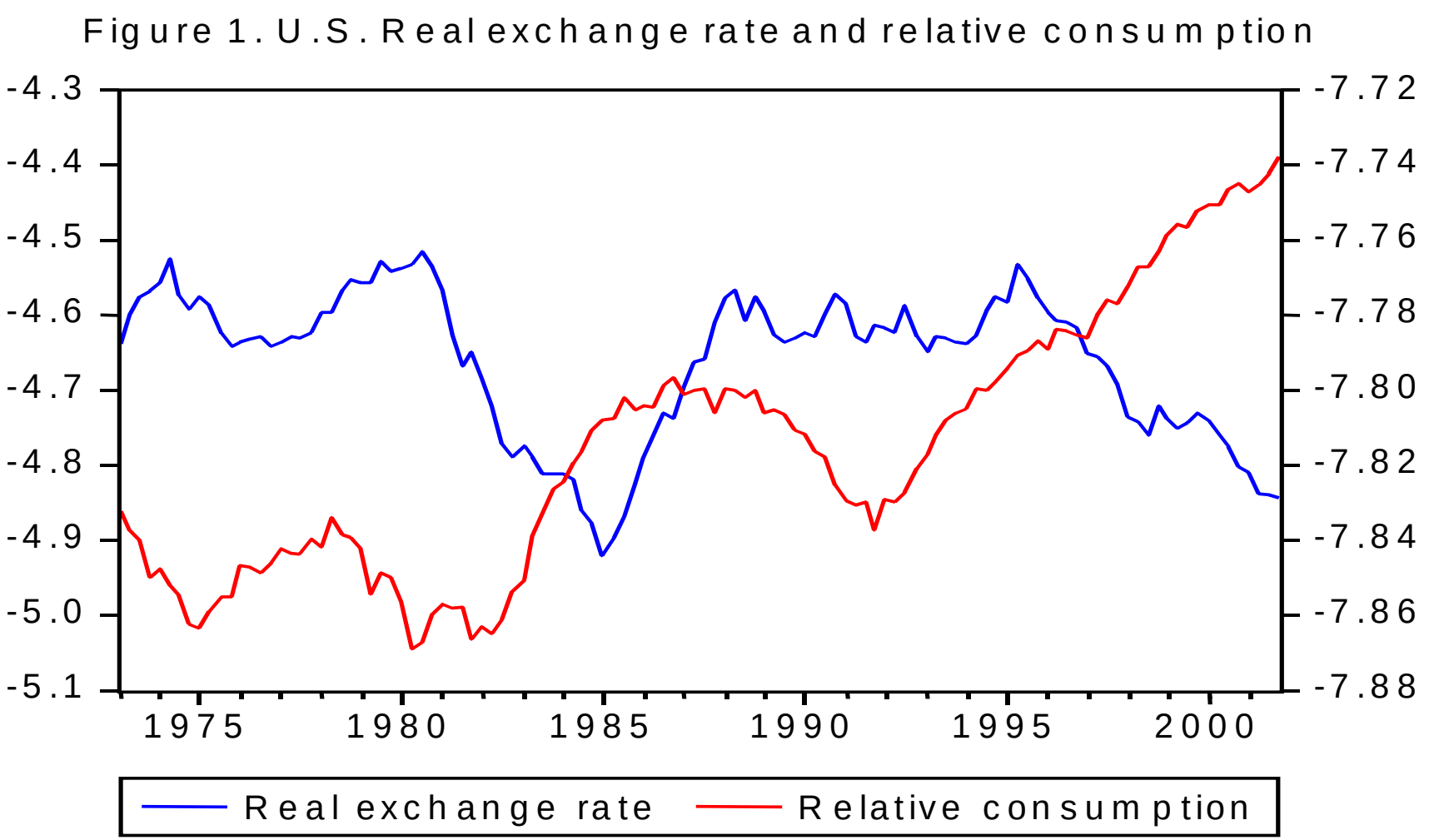
Why? With complete markets, open-economy models in which PPP doesn't hold have a stark prediction regarding risk sharing:

$$RER = \frac{eP^*}{P} = \frac{U_c^*}{U_c} = \left(\frac{C}{C^*}\right)^{\sigma}$$

But in the data the correlation between C/C* and RER is negative (zero)

HP-Filtered	First-Differences
U.S.	U.S.
-.30 (-.12, -.56)	-.27 (-.11, -.41)

U.S. RER and Relative Consumption



At the root of the problem:

- in the data the correlation between relative consumption and the real exchange rate is negative,

the model predicts a strong positive correlation between the ratio of marginal utility of consumption and the real exchange rate:

$$RER = \frac{eP^*}{P} = \frac{U_c^*}{U_c} = \left(\theta \frac{C}{C^*}\right)^{\sigma}$$

How to reconcile the two:

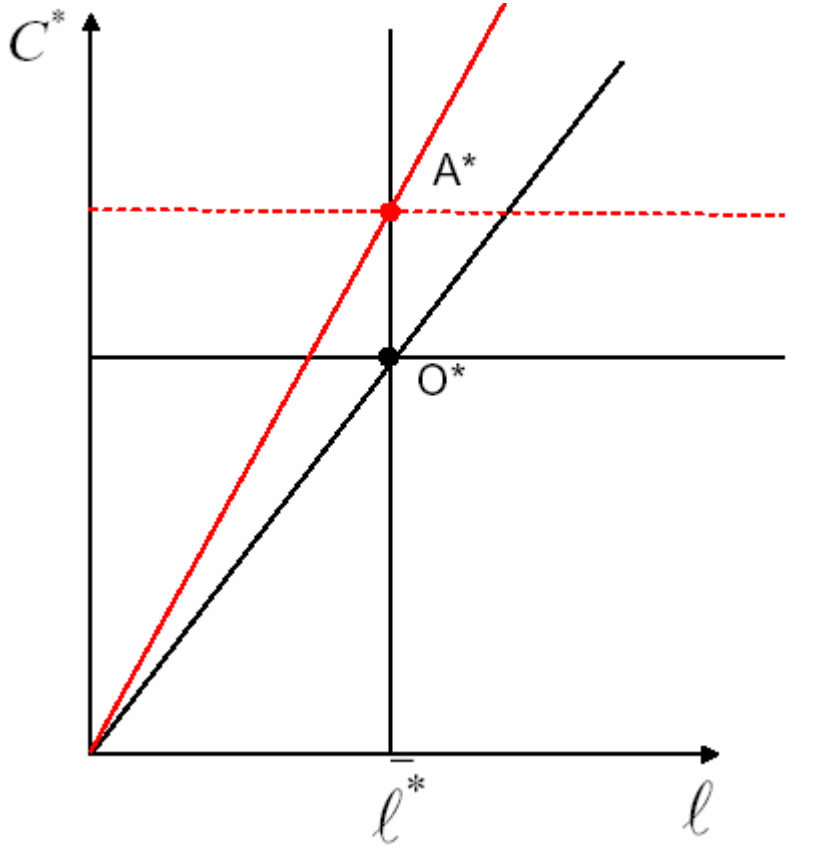
Lots of tastes shocks!

What discipline do data impose on these shocks?

Output, consumption and welfare

A comment on output spillovers: PCP case

Assume log utility. Without local currency pricing, a monetary shock abroad has the following effect in the Home country:



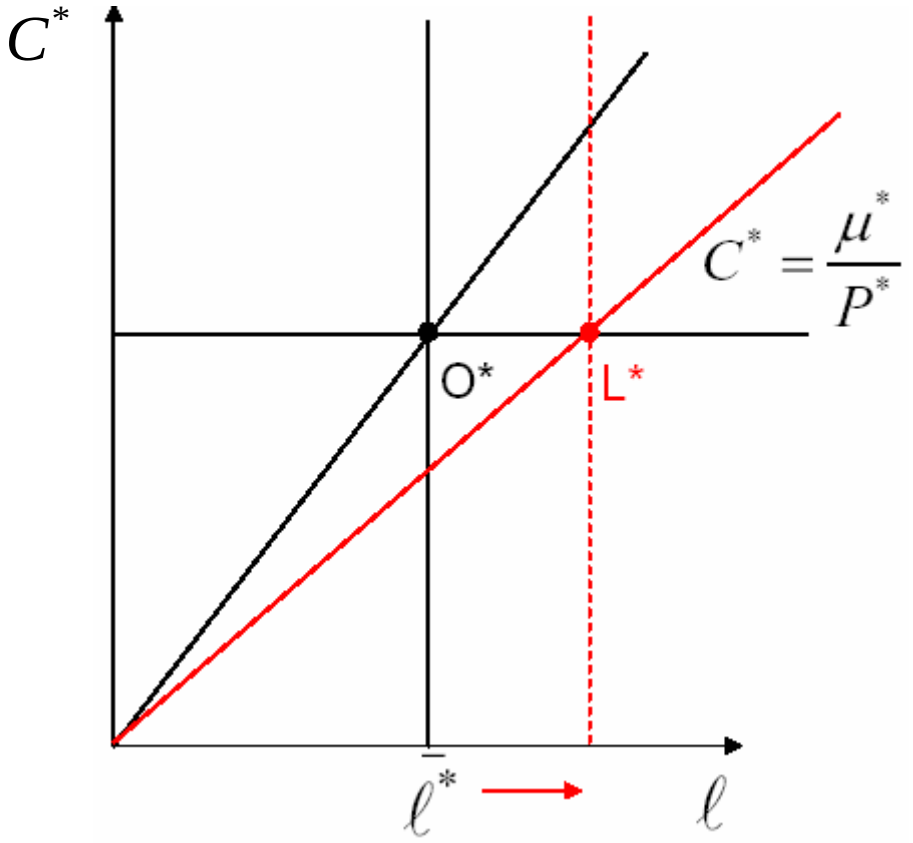
More consumption

No output spillovers

But spillovers relevant to policy are positive!

A comment on output spillovers: LCP case

Assume log utility. With local currency pricing, a monetary shock abroad has the following effect in the Home country:



Same consumption

Positive output spillovers!

But spillovers relevant for policy are negative

Overall

Again, as in November 2003, the paper presents a very nice methodology, combining indeterminacy analysis and welfare analysis of policy rules.

The main issue is: which policy trade-offs are relevant to monetary authorities in a global economy?

This takes much more than checking whether policy prescriptions derived in closed-economy models are optimal in open economy context.

The authors are moving in the right directions.

Modelling open economy requires work on at least 3 important issues

1 Volatility of international prices

deviations from the law of one price, local currency price stability

2 Risk Sharing

Complete vs incomplete market: is there a difference and why?

3 International transmission of real and monetary shocks

terms of trade response

There is a variety of models matching to some extent these three important dimensions of the data. In principle the authors could run one against the other.