

# **DISCUSSION OF:**

*Oil price shocks and the global economy: a model-based  
assessment*

*by*

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# ... before reading the paper

1. Long period of rising oil prices with little effect on growth and inflation.
  - Which shocks (and oil shock in particular) can explain this?
  - What is different with respect to the past?
  - What should policy makers do?
2. Effects of oil shocks on the economy:
  - Depend on type of shock: demand or supply?
  - Direct or indirect (i.e. through monetary policy reaction)?
  - Asymmetry: oil price increase has bigger effect than a fall.
3. A DSGE model is in a unique position to try to disentangle this riddle.

# After... my reactions in a nutshell

1. Very interesting paper, it does mention almost all the “prejudices” I had before reading it. It proposes a promising way to deal with them (though it is still a work in progress)
2. Model is calibrated, still missing convincing evidence that it does a good job in replicating data.
3. At times one feels that the work would gain from a narrower focus and/or some simplification in the model structure

# What does the paper do?

- Reviews recent macro facts
  - Oil price upsurge (*oil shock*)
  - Sustained growth (exp. US and S-E Asia)
- Poses several interesting questions concerning the shocks that are responsible for the evolution of oil prices, inflation and growth:
  - “*what are the factors that brought about the current situation*”?
  - why no “*more discernible effects*” on growth and inflation?
- Calibrates and simulates a very complex model with rich international interactions.

# Very rich and complex structure

- World split in 5 regions (2 groups: exporters and importers of oil)
- LC and FL consumers in different proportion among regions (habit persistence in C and L)
- Several layers of production: oil, intermediate goods and two final goods and trade interaction.
- Rigidities: nominal (wage, prices); real (investment, trade)
- Oil production [ $f(K, L, land)$ ] takes place in a monopolistic sector and is subject to real rigidities:
  - 5 to 10 years before quantities react to shock
  - No inventories

## Interlude: some questions for the authors on their calibration

- *Elasticity of substitution between imported and domestic goods  $\gg 1$ : other studies (Rabanal – Tuesta, work at Bofl) estimate lower values to obtain sensible correlation between RER and relative consumption... (adjustment costs on trade?).*
- *IES = 5, very high (CKM = 1/5), why we need it?*
- *monetary policy (target core inflation forecast, coeff = 2)... this is not the typical Taylor rule an explicit formulation is not given (yet) in the paper. Why this choice? Appropriate for all countries?*

# Which issues does the paper address?

- Focus of the paper is (too?) wide
  - Productivity shock in oil importing countries (“**demand**” shock) with and w/o oil supply rigidities [*reproducing facts + importance of real rigidities in oil production*]
  - Same, but with new oil discoveries
  - Mark up shock to oil price (“**supply**” shock)
  - Increase in demand for oil in emerging Asia [*what will happen if China continues to grow?*]
  - Shock to taxes on oil (normative issue: how to reduce oil intensity?)
  - BUT... interaction btw monetary policy and the oil price?

# SOME DOUBTS...

- DO WE REALLY NEED ALL THOSE FEATURES IN THE MODEL TO ANSWER THESE QUESTIONS? (a simplification of some features could have been the money paid for a more detailed modelling of some other “core” aspects, like **oil inventories**)
- WOULDN'T IT BE BETTER TO ADDRESS ONLY ONE OR TWO ISSUES, LEAVING ASIDE OTHER (admittedly equally interesting) POINTS?

# Two questions on which it would be interesting to test the model

- How can we explain the different reaction of the economies to oil price rises over the last few decades? Which shocks (demand? supply? endogenous? exogenous?) can account for it?
- What share of the GDP decline belongs to monetary policy reaction and what to the oil shock directly? What is the “best” monetary policy response, given the nature of the shock?

# Oil shocks, monetary policy and growth

“Conventional wisdom”: strong and persistent oil price upswings led to economic recessions and higher inflation rates

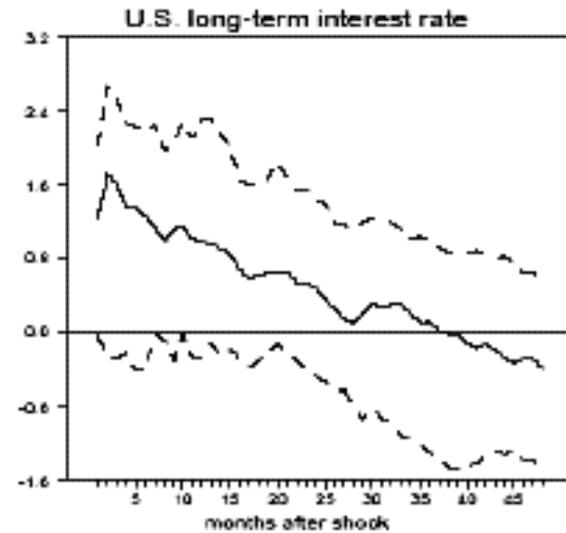
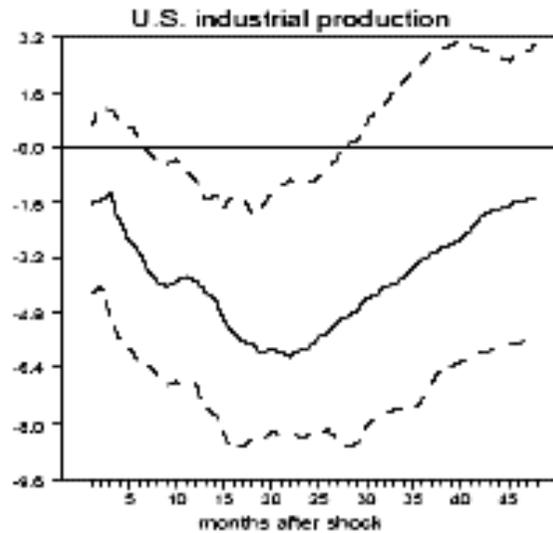
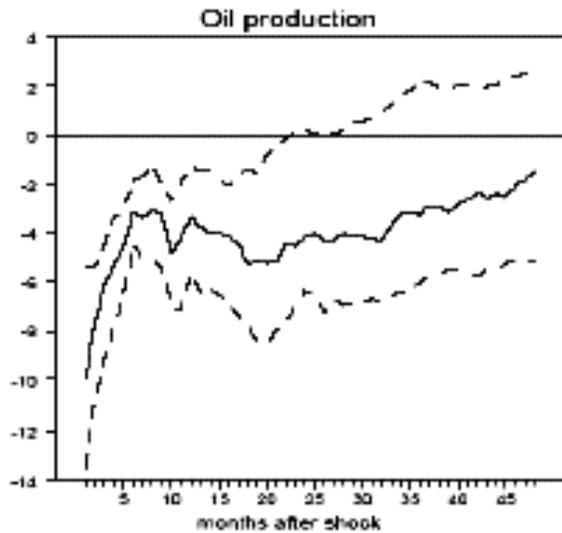
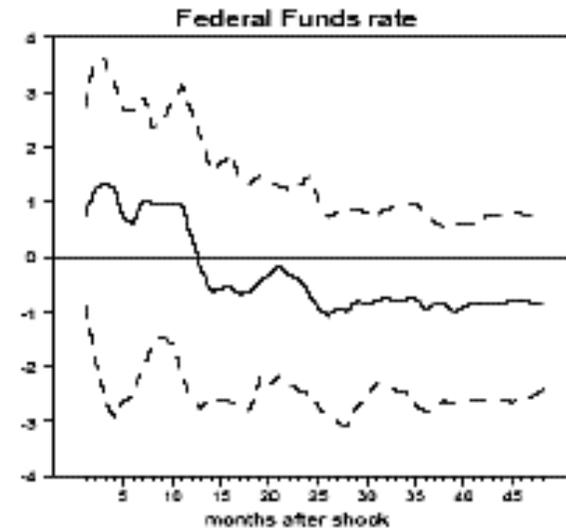
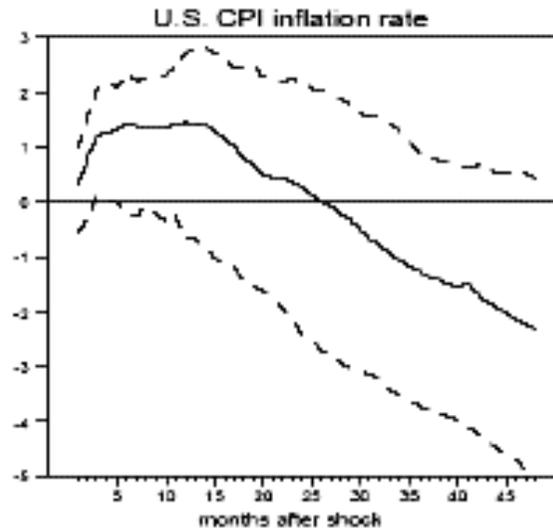
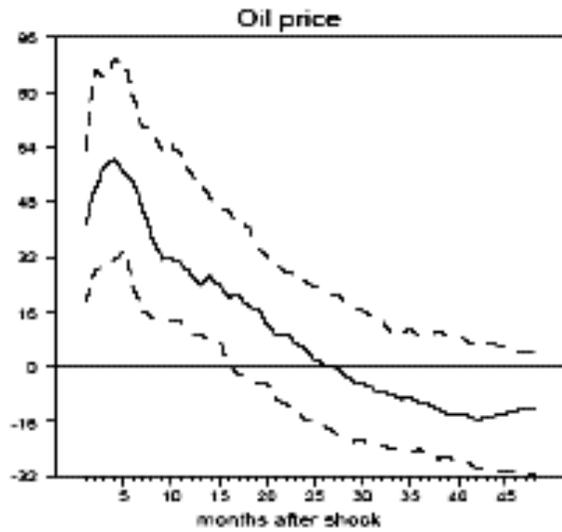
BUT ...

The relationship between oil price and macroeconomic variables weakened after the mid-80s in many OECD countries (Hooker, 1996)

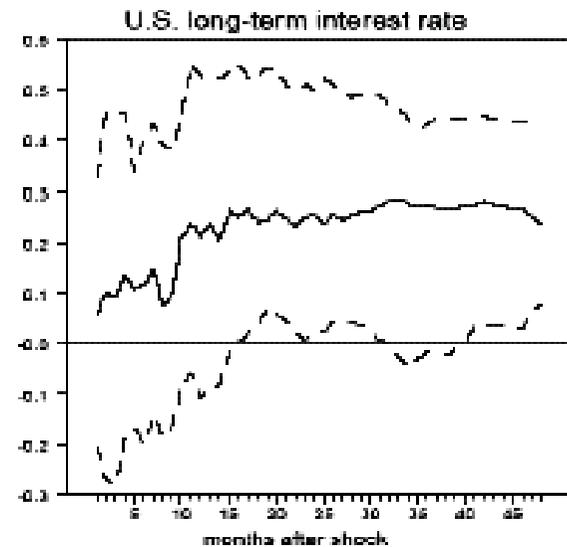
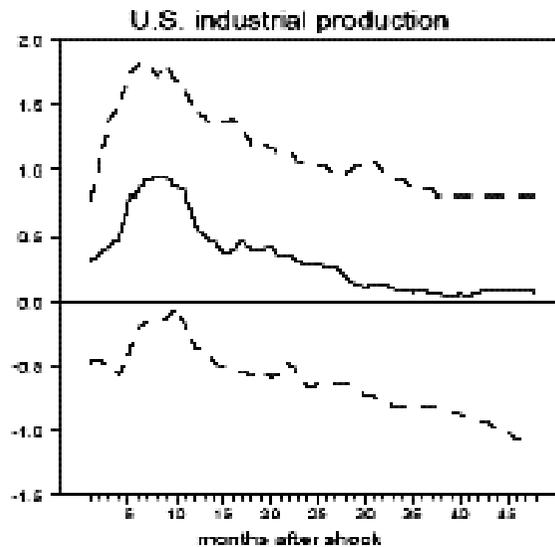
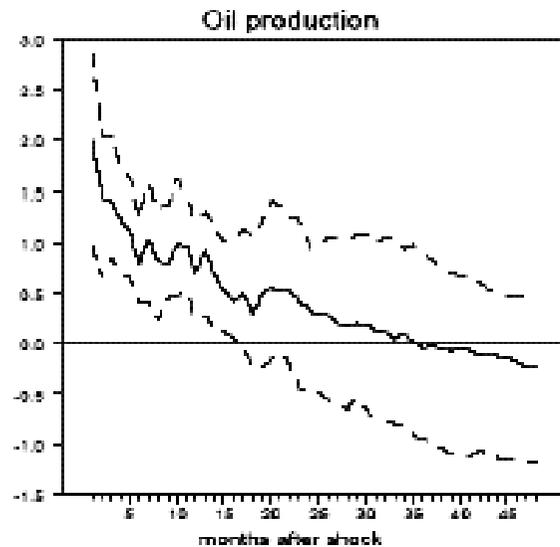
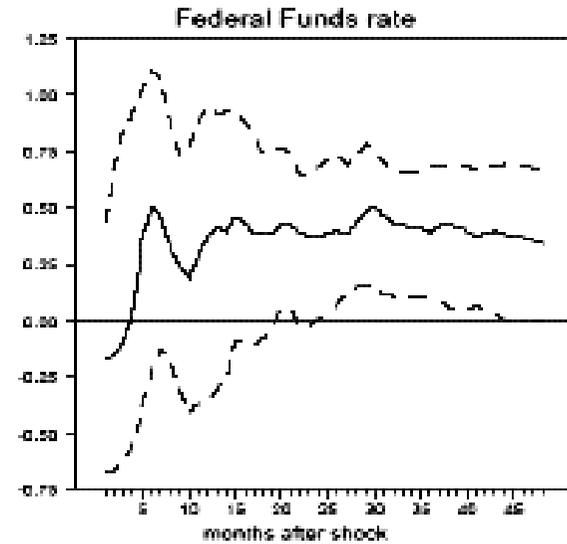
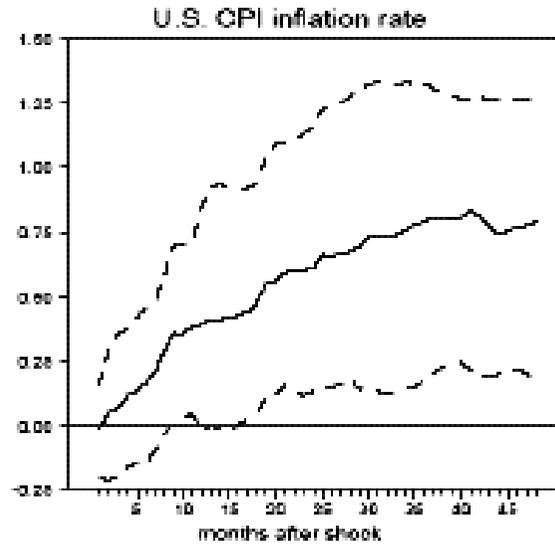
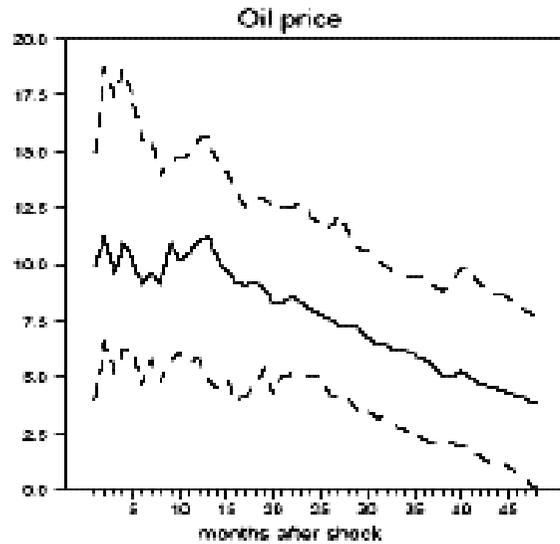
Different opinions on “exogenous” component: see Kilian *versus* Hamilton

Recent work at the Bofl (**Lippi & Nobili 2006**) – based on a VAR identified with sign restrictions – shows that demand and supply oil shocks have different implication for the economy and for the monetary policy response...

# Supply-side oil shock effects on the US



# Demand-side oil shock effects on the US



# Oil shocks, monetary policy and growth

On the relative importance of oil price shocks and *endogenous monetary policy* in determining recessions... **Bernanke et al.** (1997) (RF)

*“we find that the endogenous monetary policy response can account for a very substantial portion (in some cases nearly all) of the depressing effects of oil price shocks on the real economy”* (p. 94)

**Hamilton and Herrera** (RF) challenge the conclusion.

**Leduc – Sill** (DSGE): monetary policy contributes for about 40% to recession, no monetary policy rule can completely offset oil shock.

# CONCLUSIONS

This is a very interesting paper. A DSGE model like the one presented in the paper is in an ideal position to shed some light on these issues.

Prior to other exercises need to show its ability to reproduce the main macro facts (key test for plausibility of model **and** calibration).

At the moment (WORK IN PROGRESS) the paper provides a wide range of examples of potential uses of the DSGE but it does not present any “conclusive” evidence to disentangle the riddles mentioned in these discussion.

I have the feeling that narrowing the focus is the route to go.

**THE END**