Discussion of
Oil Price Shocks, Monetary Policy Rules and Welfare by De Fiore, Lombardo, and Stebunovs

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The model…

- 3-country model: 2 oil-importing and 1 oil-exporting economy

- oil-importing economies produce only traded goods

- LOOP holds but deviation from the PPP due to home bias

- nominal price and wage rigidities – persistence

- fiscal policy structure: with VAT and excise tax

- monetary policy: simple Taylor-type interest rate rule with the possibility to react to oil prices separately

The model…

- 2 channels by which oil enters the model:
    - as a production input (near Leontief substitute)

        existing capital stock must be combined with oil in production

    - as a consumption good (near Leontief substitute)
- oil price endogenous
- the model used to analyse optimal monetary response to an
exogenous oil price shock

Calibration…

• for the US, the EA, and oil-exporting economies

• the calibration tries to:

   - replicate the volatility and correlations of some macroeconomic variables (RER?)

   - reproduce the oil intensity in production and consumption observed in data

   - generate the contribution of the oil price shock to the overall variance of GDP as obtained in VAR empirical work

Optimal policy…

• found by searching for an optimal rule that:

   - maximises welfare to a second-order approximation

   - satisfies the zero lower-bound constraint

• the paper finds that:

   - M-P should respond with a very marked degree of inertia due to a zero-lower bound constraint

   - M-P should negatively respond to oil-price inflation in presence of an exogenous oil price shock – i.e. M-P should respond to a core inflation measure (lower weight on headline CPI)

   - when an exogenous oil price shock is absent – the reaction to oil price should be positive (higher weight on headline CPI)

Optimal policy results…

• is zero lower bound important for this result?

• the result suggests importance of the source of the oil price change - good, but can this be picked up by freeing the reaction on GDP in the optimal M-P rule?

 - the coefficient on output is held constant

Demand shock: GDP up, P^o up, CPI up

Supply shock: GDP down, P^o up, CPI up

When there is no ex. oil price shock – positive reaction on P^o

When there is ex. oil price shock – negative reaction on P^o

 - try coefficient on output higher than 1.98 (?)

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

• large output response in the model – 7% oil price shock causes 0.3% fall in GDP in the US – so 100% observed shock would lead to 4.5% fall in GDP

Calibration of the model

1. oil is an input in production:

   - captured in the model – capital/oil substitutability is 0.09 (near Leontief)

   - small and decreasing share in production in the UK, and decreasing share of manufacturing

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

2. additional effect on consumption – also captured in the model

P^o up => consumption RW down

- operates through 2 channels:
  - households spending on fuel
  - import prices of foreign traded goods
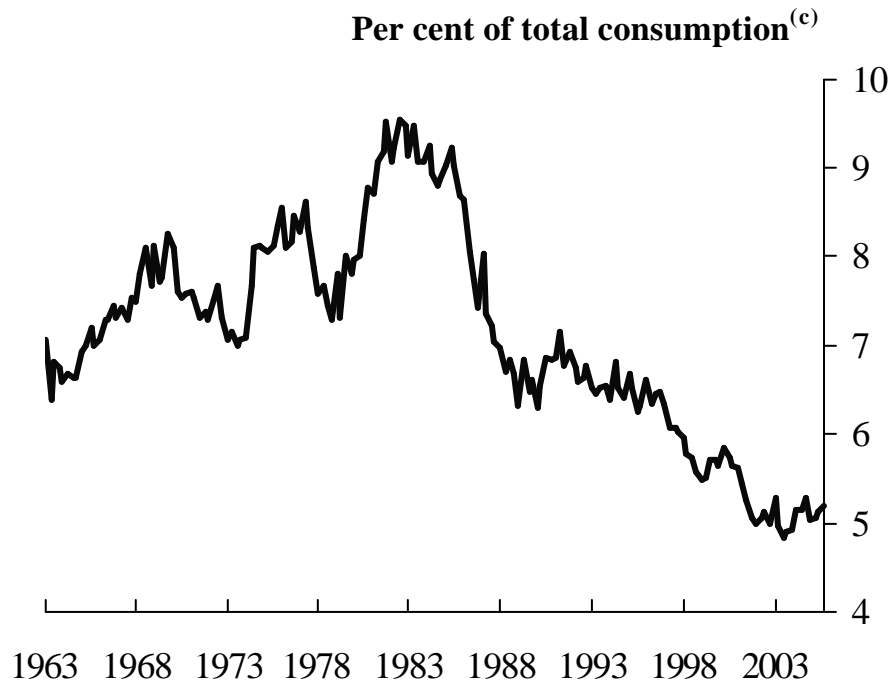
The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

- households spending on fuel
  - in the model 4.5% in the Euro Area, and 8.5% in the US
  - goods/oil substitutabilty 0.09 (near Leontief)

The issue – model calibration…

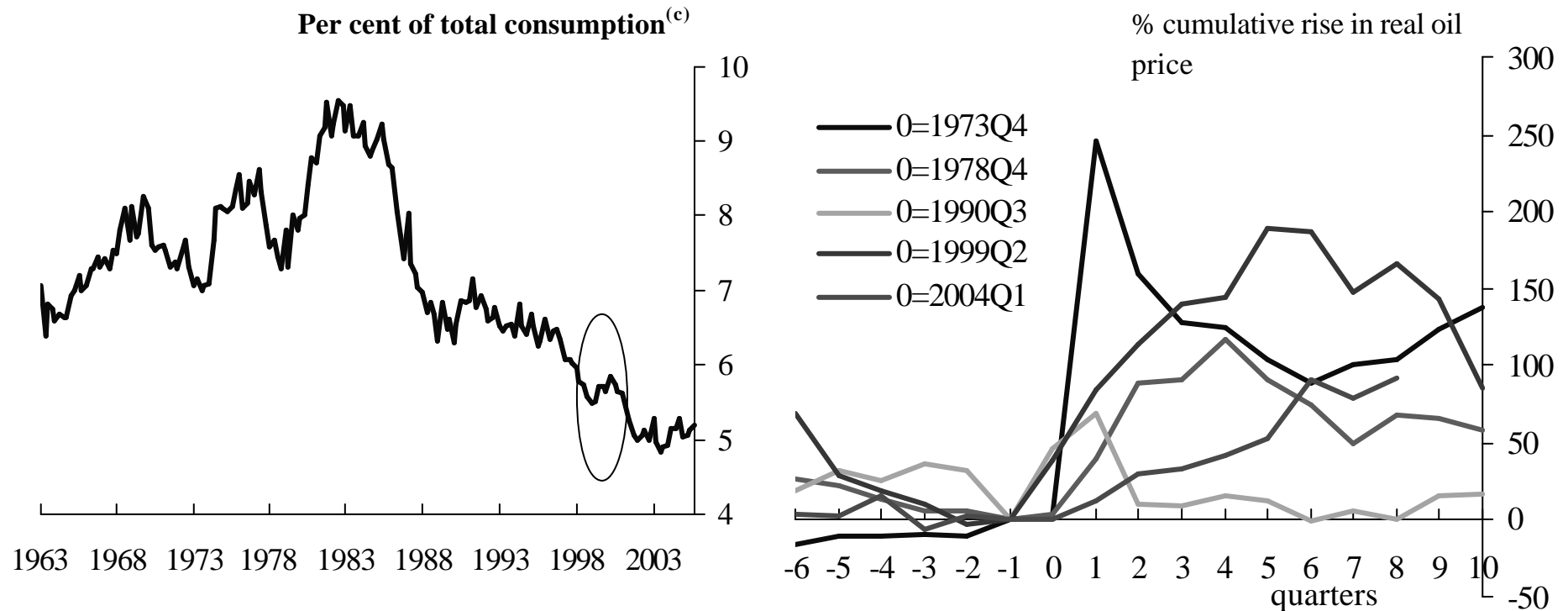*Why would oil be so important as to warrant a special reaction of monetary policy?*

- households spending on fuel is falling (at least in the UK)

Per cent of total consumption[c]

1963	1968	1973	1978	1983	1988	1993	1998	2003

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

• households spending on fuel is falling (at least in the UK)

• goods/oil might have become more substitutable (near CD)

Per cent of total consumption[(c)]

% cumulative rise in real oil price

0=1973Q4
0=1978Q4
0=1990Q3
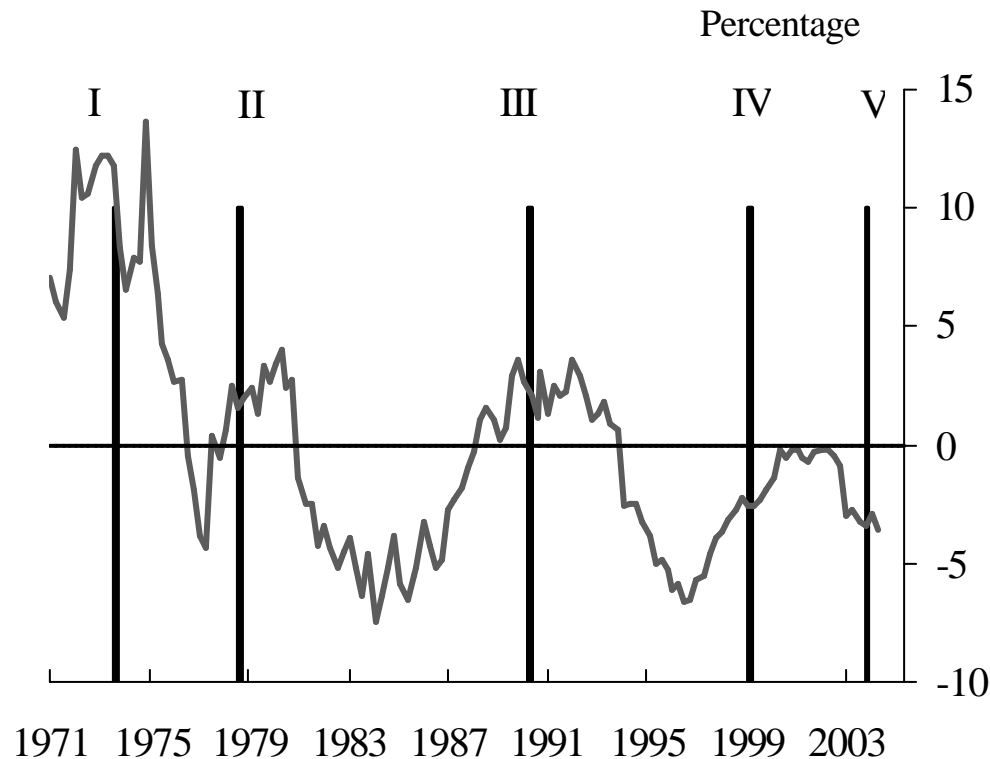0=1999Q2
0=2004Q1

quarters

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

• RW persistence important for oil price impact on output

P^o up => real C wage down => if nominal wage up

=> real product wage up => employment down

- this exaggerated if labour supply elasticity high – in the model Frisch elasticity is 0.4

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

• but RW persistence falling in the UK (real consumption wage relative to warranted level)

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

• the impact of oil through households consumption might have been falling for a while – does this model overestimate it and thus obtains the result that M-P should react to oil prices?

The issue – model calibration…

Why would oil be so important as to warrant a special reaction of monetary policy?

- 2 further reasons why present can differ from the past:

    - the source of the shock matters: demand vs. supply

    - monetary policy reaction matters

The issue – source of the shock…

Why would oil be so important as to warrant a special reaction of monetary policy?

• the source of the shock matters

   - this model is good because it can capture endogenous changes in the oil price following demand side shocks – maybe putting a bit more stress on this, perhaps providing impulse responses for an AD shock (in the US, or US+Asia as one country)

   - Lippi and Nobili (2006) – significant fraction of oil price fluctuations occurs in response to world economic developments

   - L&N find much smaller impact of oil prices on output in the last few years compared to 1970s

The issue – M-P reaction…

Why would oil be so important as to warrant a special reaction of monetary policy?

• monetary policy reaction matters

• good M-P (today?)

• this credibility of M-P is very difficult to capture in the model

Future extensions…

• analyse F-P: counter-cyclical taxes on oil can directly alleviate the effect through consumption channel, but pro-cyclical taxes on oil can be used to reduce labour income taxes, and thus indirectly alleviate consumption channel

• merge US and Asia and analyse the demand shock - possibly analyse the effects of an immigration shock (US) or migration shock (Asia) on capital, demand for oil, current account

• introducing NT sector: endogenous oil intensiveness (whenever relative price between T and NT goods changes), especially because in the model, oil price shock is a transfer of wealth from consumers to T goods exporters