The time varying effects of oil price shocks on euro area exports

DISCUSSION
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The views expressed in this paper are solely those of the authors and cannot be attributed to the European Central Bank or the Eurosystem.

Summary paper

Research question: What explains the time variation in the relationship between oil price shocks and euro area exports

- **Is it the <u>type of oil shock</u> - demand versus supply - and the variation in their relevance over time (external factors)?**

- **Is the time variation in the effect of oil shocks due to <u>structural changes in the domestic economy</u> (domestic factors)?**

Using a Bayesian time-varying VAR model, identified using robust sign restrictions derived from a theoretical model

Summary paper: findings

1) Is it the <u>type of oil shock</u> - demand versus supply - and the variation in their relevance over time (external factors)

YES

- **Co-movement of oil prices and EA exports is positive following demand shocks, whereas it is negative following oil supply shocks**

- **Demand shocks have become more important for explaining real oil price variability over time, the reverse is true for oil supply shocks**

- **Explains the switch in the sign of EA exports from negative to positive oil price shocks**

Summary paper: findings

2) Is the time variation in the effect of oil shocks due to structural changes in the domestic economy (domestic factors)

PROBABLY

- **Conditional upon an oil demand shock, the positive co-movement between oil prices and EA exports has become stronger, the reverse is true following oil supply shock**

- **Some indication based on theoretical model and data that this is due to interplay between several structural factors (increased EME trade, more favourable oil bill recycling, lower oil share in production, increased competition)**

Discussion: overview

- **Nice paper!**

- **Strengthen the interpretation of the results**
  1. **What about the size of the shocks?**
  2. **More empirical validation of the link between the time varying effects on exports and the structural domestic factors**

- **Other, smaller comments**

1) What about the size of the shocks?

- **This paper seems to interpret time variation in EA exports as due to 1) the source of the shock or 2) structural changes in the EA economy**

- **However, what about <u>time variation in the size of the oil demand and supply shocks</u>?**

- **In other words, could it be that the changes in the response of EA exports are just due to changes in the magnitudes of the shock? Some indication, yes**

1) What about the size of the shocks?

More specifically,

- In the **SVAR** framework, it is not possible to separately measure the underlying volatility of the shocks

$$y_t = A_{0,t}\varepsilon_t$$

- the estimated **contemporaneous impact** is a combination of the magnitude of the 1 standard deviation shock itself and the immediate reaction to that shock

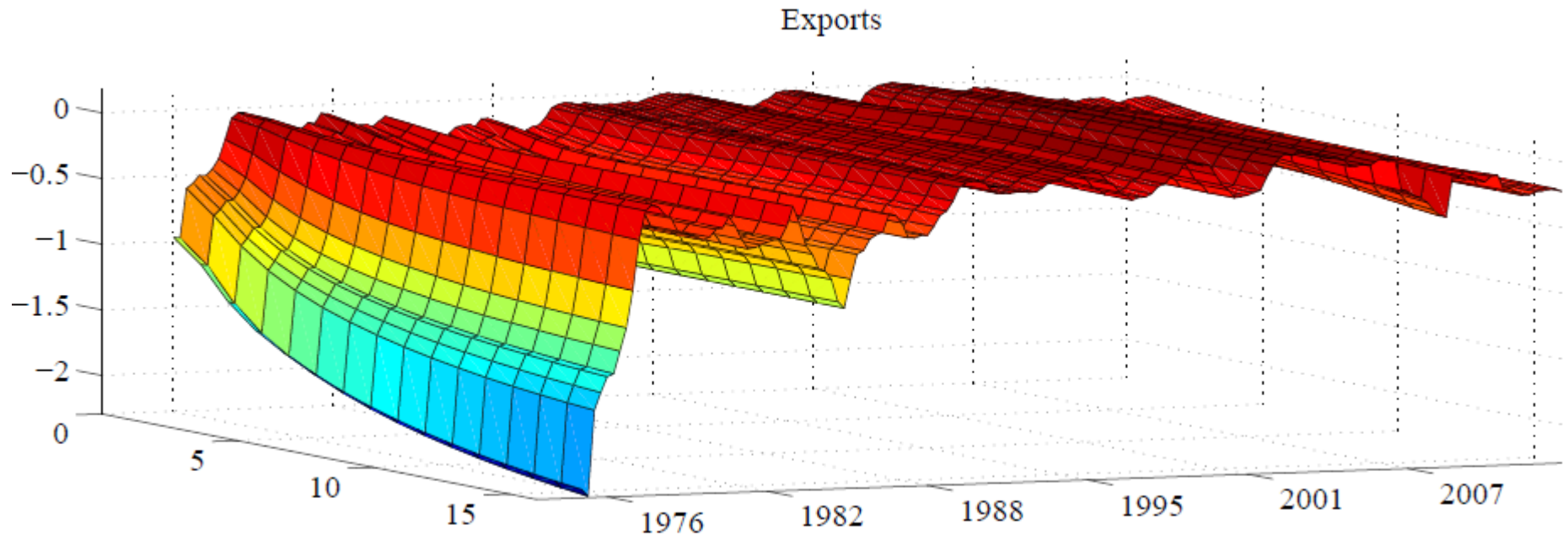- What is driving the time variation in the responses?

Time variation in the size of the shocks seems to matter…

Look at the <u>volatility in real oil prices</u> and the events in the oil market that are known to be related to oil supply shocks
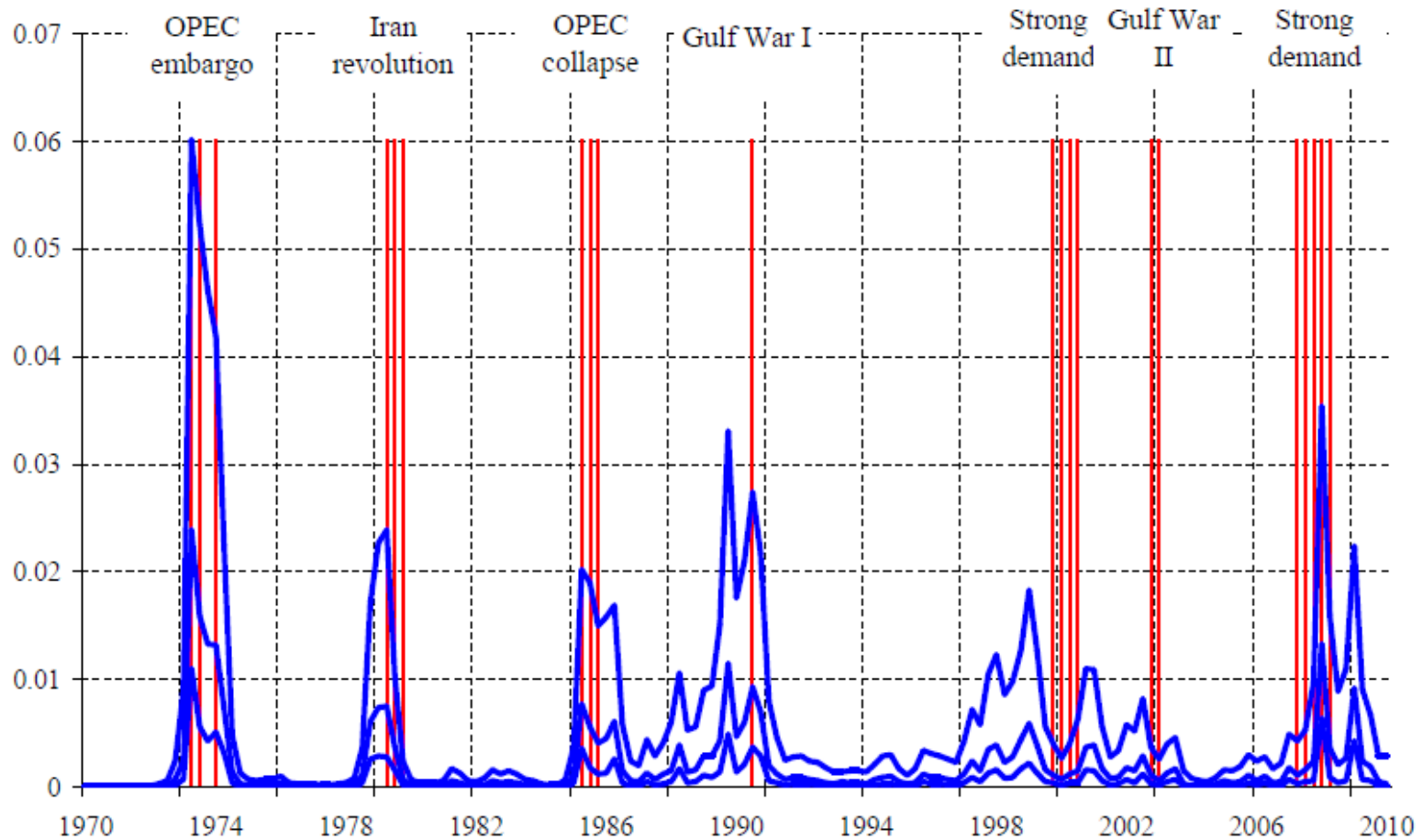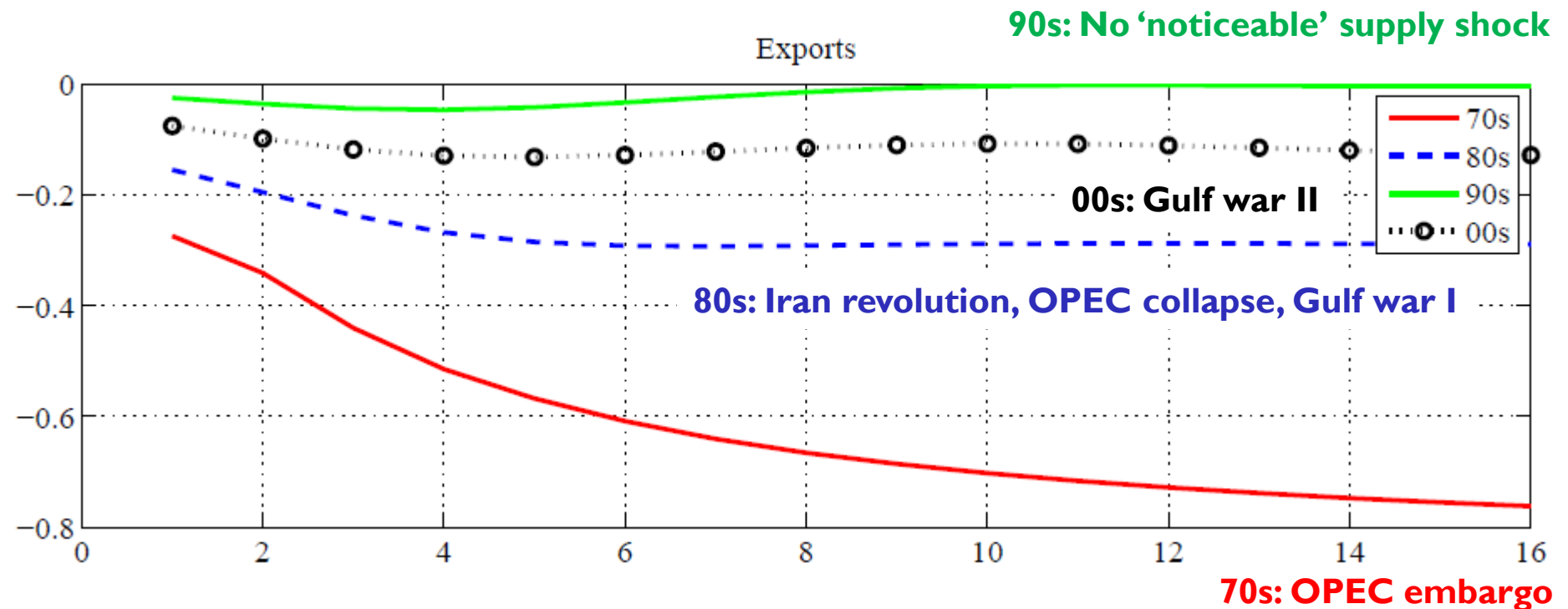
Time variation in the size of the shocks seems to matter…

… and relate this to the periods in which the strongest responses of EA exports following an <u>oil supply shock</u> are recorded
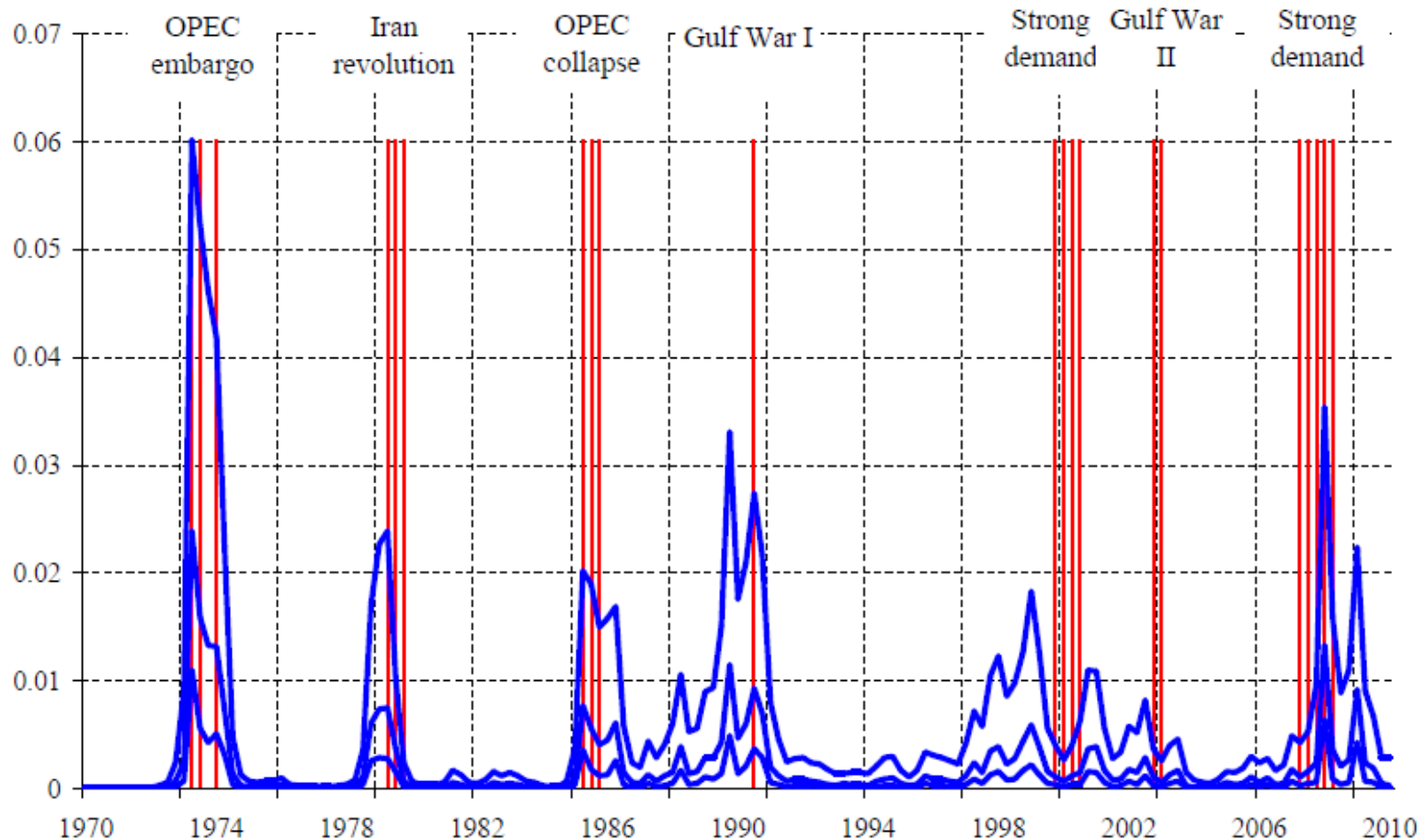

Exports

Time variation in the size of the shocks seems to matter…

… and relate this to the periods in which the strongest responses of EA exports following an <u>oil supply shock</u> are recorded
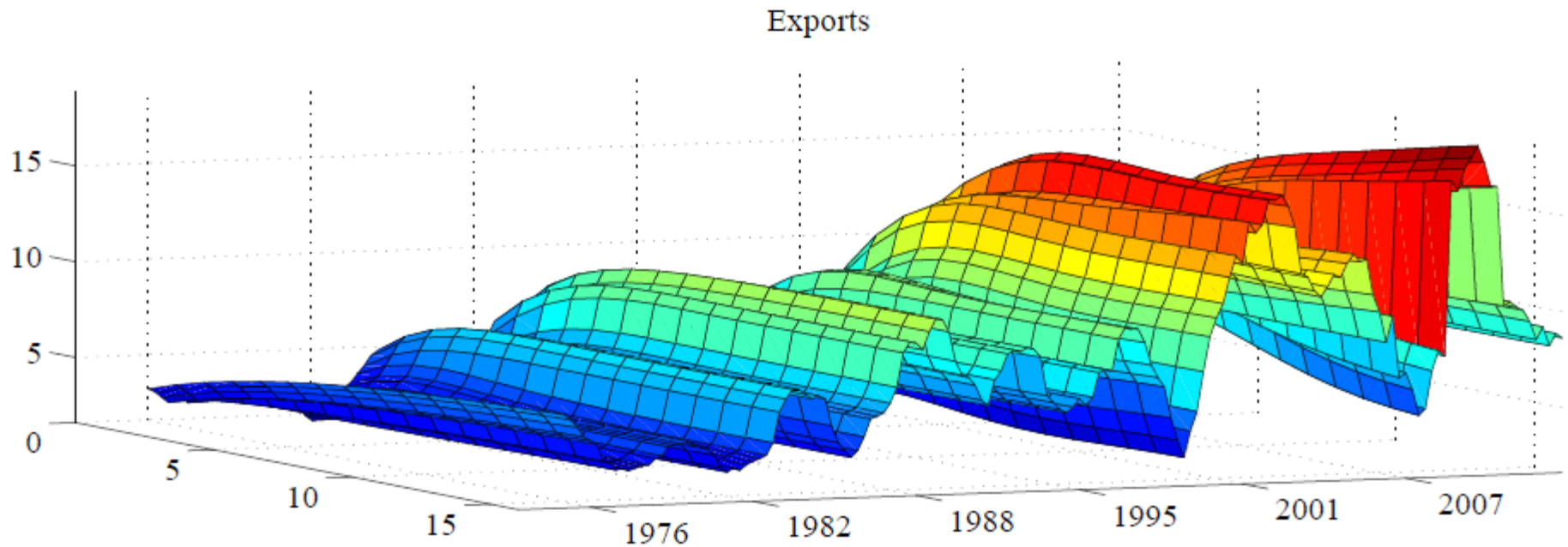

90s: No 'noticeable' supply shock

Exports

00s: Gulf war II

80s: Iran revolution, OPEC collapse, Gulf war I

70s: OPEC embargo
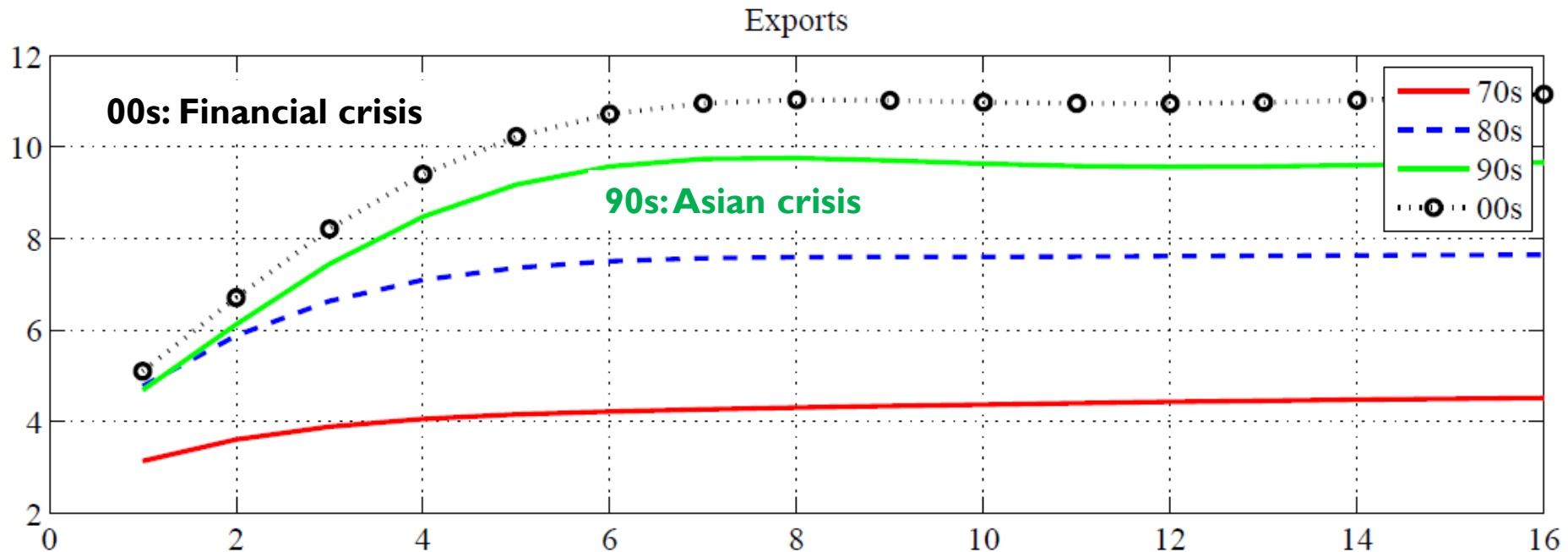
Legend:
- 70s
- 80s
- 90s
- 00s

Time variation in the size of the shocks seems to matter…

This is also true for the <u>demand shocks</u>

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Exports

Time variation in the size of the shocks seems to matter…

This is also true for the <u>demand shocks</u>

Exports

00s: Financial crisis

90s: Asian crisis

Legend:
- 70s (red, solid)
- 80s (blue, dashed)
- 90s (green, solid)
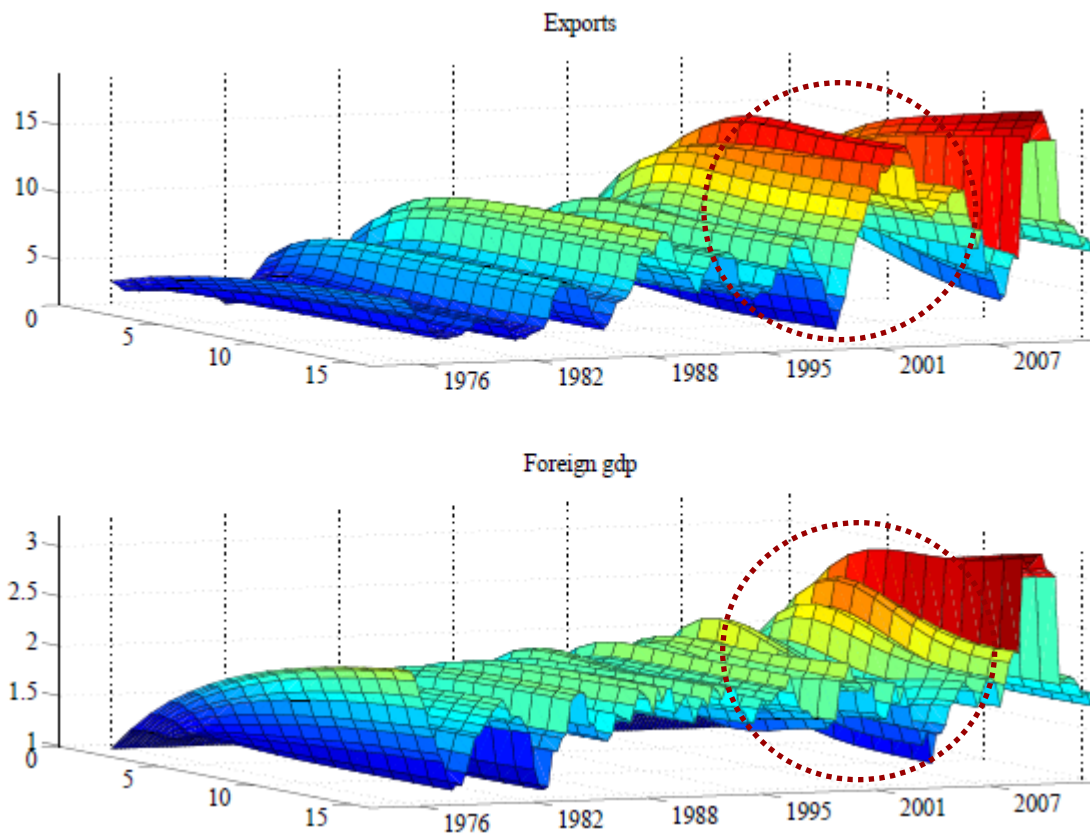- 00s (black, dotted with circles)

More explicit discussion of this would helpful for the interpretation of the results

Some suggestions

Might be useful to see to what extent the different variables co-move

That is, in case of no structural changes in transmission, larger shocks should affect all variables similarly

Exports

Foreign gdp

Some suggestions

Alternatively, Baumeister and Peersman (JAE, 2012): very simplified <u>back-on-the-envelope calculation to recover the structural shock series</u>
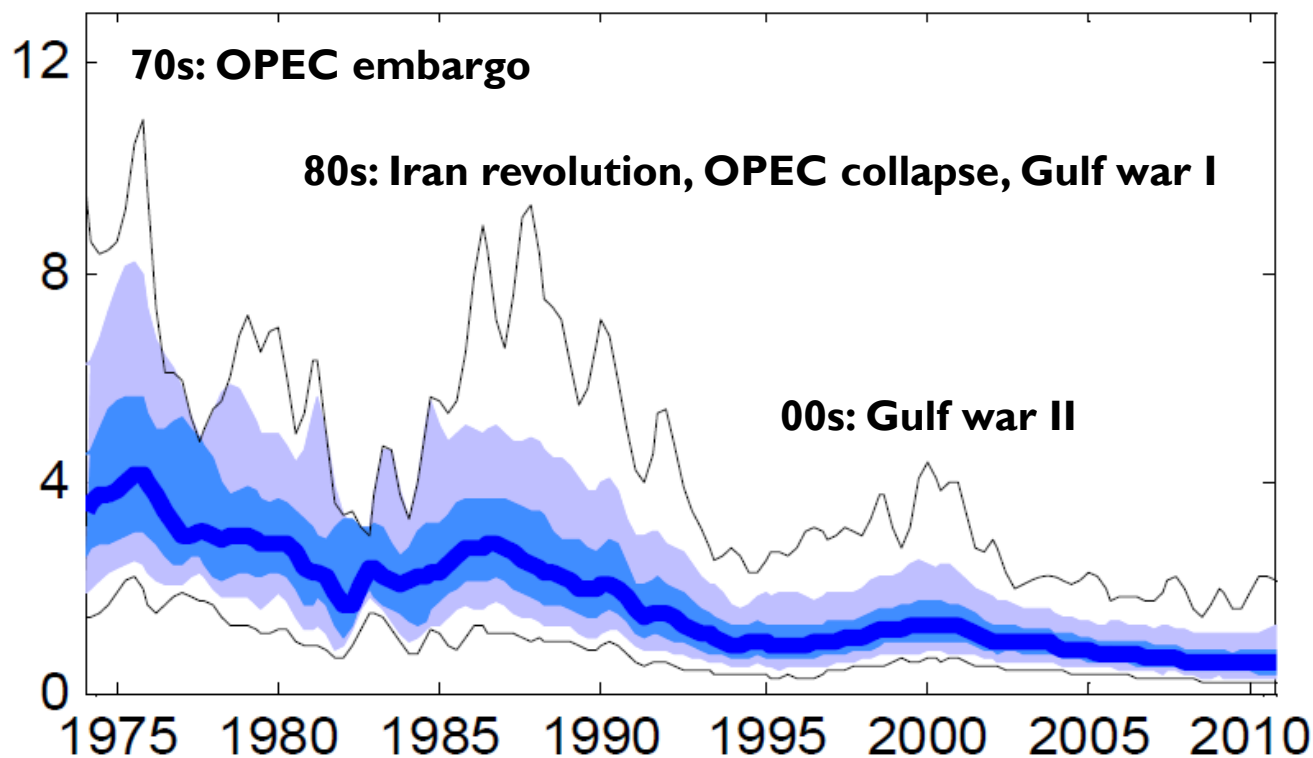
For example, oil supply shocks:

$$Q_{oil\ supply,t} = \epsilon_{supply,t}\ P_{oil,t} + \varepsilon_t$$

Oil supply shocks

$\frac{\Delta Q_{oil}}{\Delta P_{oil}}$, **estimate within the model**

Some suggestions

Baumeister and Peersman (JAE, 2012): very simplified <u>back-on-the-envelope calculation to recover the structural shock series</u>

70s: **OPEC** embargo

80s: Iran revolution, **OPEC** collapse, Gulf war I

00s: Gulf war II

2) Interpretation of the structural changes

Relatively weak support for the structural factors explaining the change of the impact on EA exports over time

- **In theoretical model: unrealistically high changes have minimal effects on exports (e.g. 0 to 100% petrodollar recycling changes reaction in exports with 0.04)**

- **Necessarily requires a combination of the different factors to be able to explain some time variation**

- **However, two tools are available in paper that would allow to give more empirical support to the findings**

Some suggestions…

First, use <u>TVP-VAR and theoretical model </u>combined

- **TVP-VAR model provides estimated IRFs over time**
- **Choose different periods in which have some indication that the responses were different (due to structural factors)**
- **<u>Estimate the theoretical model with impulse response matching </u>(minimum distance estimator)**

Know <u>which structural parameters have changed</u>, and how important these are in explaining the time variation in the responses over time

Some suggestions…

Second, TVP-VAR model estimates

- **Basically have an estimated time series of impact effects**

- **Could regress these on the factors that seem relevant**

- **Not so many variation over time in structural factors, could estimate same TVP-VAR for the different EA member countries, and perform some panel regressions**

Conclusion

- **Nice paper!**

- **Strengthen the interpretation of the results**
    1. **Discuss/acknowledge the potential important role of <u>time variation in the size of the shocks in explaining time variation</u> in the effect on EA exports**
    2. **<u>More empirical validation </u>of the structural factors would be welcome, could use the tools that are already present in the paper**

- **Other, smaller comments**

Thank you