Favero, Giavazzi & Perego “Country Heterogeneity and the International Evidence on Effects of Fiscal Policy”
– A Discussion –

Morten O. Ravn, University College London

June 2011
FGP touch upon a very important, interesting and relevant question: “What happens following a fiscal intervention meant to stabilize debt-to-GDP”
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Much of the paper, however, instead asks: “How can you estimate the impact of exogenous fiscal policy shocks using panel data”
They estimate:

\[ \tilde{X}_{i,t} = C_{i,1} + C_2 \tilde{X}_{i,t-1} + \varphi_i Z_{i,t-1} + \gamma^{g}_i \varepsilon_{i,t}^{g} + \gamma^{\tau}_i \varepsilon_{i,t}^{\tau} \]

\[ \tilde{X}_{i,t} = [y_{it}, g_{it}, \tau_{it}, i_{it}, p_{it}, s_{it}]', \quad Z_{i,t} = [B_{it}, y_{it}^*, s_{it}^*]' \]
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Their main points

1. One needs to control for debt dynamics when estimating the impact of fiscal shocks
2. One needs to allow for heterogeneity across countries due to:
   1. heterogeneity in fiscal reaction functions
   2. differences in openness
Does one really need to control for debt?

- Reduced form VAR

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  - debt may carry important information about the shocks
But - the authors use narratively identified shocks - they are not trying to identify the shocks - they know them!

Since the shocks are known the Wold theorem implies that their impact can be estimated from:

\[ Y_t = D_s(L)e_s, \quad s = g, \tau \]

There is no need to control for debt or anything else.

Problem: Small sample bias - the above requires an infinite sample. In that case, I might want to estimate finite sample approximations that allow for VAR structures but that would imply a quite different model with MA-structure in the shocks and debt in the vector of observables.
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- Both could be questioned
The use of narratives is attractive because they contain a lot of information that is difficult to capture with VARs.
Using the IMF narrative

- The use of narratives is attractive because they contain a lot of information that is difficult to capture with VARs.
- But one also needs to be careful:
  - Endogeneity of the narratively identified shocks.
  - Quality of the narrative.
  - Scaling of the shocks and the interpretation of impulse responses.
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Endogeneity

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Endogeneity

- $\varepsilon_{g_{i,t}}$ and $\varepsilon_{\tau_{i,t}}$: “tax increases and spending cuts implemented to reduce the budget deficit and put public debt on a sustainable path”

- What is required for estimation?

1. $\varepsilon_{f_{i,t}} \perp \varepsilon_{i,t}$
2. $\varepsilon_{f_{i,t}} \perp \tilde{X}_{i,t-1}$
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- Violation of 2 can be dealt with - project $\epsilon_{i,t}^f$ on $\tilde{X}_{i,t-1}$ and use the orthogonalized measure
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Violations of 1 and 3 is not easy to deal with and it seems likely that it could be a problem - there might potentially be endogeneity biases
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Problem 2: **Measurement Errors**

\[ \varepsilon_{st} = \varepsilon_{st} + \eta_{st} \]

Where \( \eta_{st} \) is some measurement error.

If this is relevant, there is attenuation bias:

\[ e_{X_i,t} = C_{i,1} + C_{i,2} e_{X_i,t-1} + \phi_i Z_i,t + \gamma_g i \varepsilon_{g,t} + \gamma_\tau i \varepsilon_{\tau,t} \]

Mertens and Ravn (2011) and Perotti (2011) show how to deal with such problems and the biases produced by ignoring them. Both of these papers estimate tax multipliers and find significantly bigger estimates when accounting for attenuation biases.
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Both of these papers estimate tax multipliers and find significantly bigger estimates when accounting for attenuation biases
The estimates of the impact of innovations to taxes and spending cannot be interpreted like multipliers and cannot be compared across countries.

You would like to know, for example, $\xi_y^g = dy dg$, this is not the same as the response of output to a one percent innovation to $\varepsilon_g$ because this latter one is computed at unchanged output. How can you do this?

Include spending and tax revenues in the vector of observables and scale so that these change by the appropriate amounts.

Such scaling problems likely to be one cause of heterogeneity.
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What do we learn?

- How does a fiscal stabilization affect aggregate activity?
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- Negative: Wealth effects from cut in government spending
- Negative: Substitution effects from increase in distortionary taxes
- Negative: Income effects on liquidity constrained
- Positive: Expectations and trigger points
- Positive: Impact on cost of borrowing and risk of default

M.O. Ravn (U(C,L))

Heterogeneity and Fiscal Policy

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- What is the impact of a fiscal stabilization?
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- What is the impact of a fiscal stabilization?
Conclusions

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- This paper makes some progress on these issues
- I am looking forward to further progress on the topic