

What is the fiscal stress in Euro Area? Evidence from a joint monetary-fiscal (semi-)structural model

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Overview

Motivation

Why care about Euro Area (EA) and why is it an interesting experiment for fiscal policy?

- Recent wave of austerity-focused fiscal policies put doubt on fiscal policy effectiveness.
- Unconventional monetary policy limit the merits of conducting expansionary fiscal policy
- Institutional complexity
- Decision-making in fiscal policy very heterogeneous

Overview

Motivation

Insights from this paper:

- ① Despite these discrepancies, there is space for a common core in fiscal policy-making.
- ② Fiscal policy does interact with monetary policy in an asymmetric manner in the EA.
- ③ In addition, spending rises are more effective in boosting output than tax decreases. Yet, since the start of the Great Recession, tax multiplier has increased.
- ④ Lastly, there are striking commonalities in results within the EA and in comparison to the US.

Overview

Briefly on the presentation outline

- ① Contributions of this paper and the literature
- ② Econometric approach and data
- ③ *Results:*
 - Benchmark monetary-fiscal shocks
 - Multipliers
 - Monetary-fiscal interactions and public debt
 - Comparison to the US
 - Robustness checks

Contributions

Contributions

This paper

- 1 Monetary-fiscal interactions from an empirical perspective, which is scarce in particular for EA.
- 2 Longest time-series on fiscal policy in EA, covering multiple important events in Europe
- 3 Separate study of spending and tax multipliers and consistent comparison to individual member state estimates with the Area.
- 4 Application of a robust identification scheme to jointly identify fiscal-and monetary policy shocks in an econometric framework.

Econometric approach and data

Approach

Econometric approach

- 1 Cast the model in a Bayesian VAR framework.
- 2 Three dimensions of the economy captured:
 - **Fiscal:** Expenditure, net taxes, government debt
 - **Monetary:** Interest rate
 - **Macroeconomic:** Output, GDP deflator
- 3 Joint identification of shocks using a sign-restriction scheme consistent with DSGE models and previous empirical literature on monetary-fiscal interactions.
- 4 Estimation of the model using penalty method (Uhlig, 2005), where draws that do not fulfil the full identification scheme are heavily penalized, but not removed (as in the pure rejection method).
- 5 The parameters are drawn from a Normal-Wishart prior. Optimal length is set to 2, and 20.000 Markov Chain Monte Carlo simulations are run, with 10.000 of them being saved.
- 6 Statistical significance at 95%.

Approach

Identification scheme

Imposed Signs on the Impulse Responses only in $t=1$

	Spending	Net Taxes	Debt	Output	Inflation	Interest Rate
Spending shock	+		+	+		
Tax shock		+	-	-		
Business cycle shock		+		+		
Monetary shock				-	-	+

Approach

Data

- Government expenditure, net taxes, government debt, real GDP, GDP deflator and short-term interest rate from 1980:I-2015:IV (144 observables per variable).
- Government expenditure includes both consumption and gross investment.
- Net taxes are the current receipts less net transfers and net interest paid.
- 3-month EONIA rate as the short-term interest rate.
- The three (or four) variables on the real side of the economy enter the VAR as logarithms.
- For pre 2002-period the data have been backward extrapolated by the ECB within the framework of the Euro Area Wide Model.
- From descriptive statistics, most data distributions are symmetric, except for the interest rate (with a disperse distribution).

Results

Subsection 1

Benchmark monetary-fiscal shocks

Policy interactions

Definitions

- *Level 1*: Positive or negative correlation = interactions
- *Level 2*: Both expansionary/contractionary = compliments; One expansionary + one contractionary = substitutes
- *Level 3*: Does the monetary and/or fiscal policy react in a stabilizing manner following a business cycle shock?

Policy interactions

Results

- 1 In all cases, except for a tax shock, both the monetary policy and the two fiscal policies react, either in the same or in the opposite direction. Moreover, in all cases except for a tax shock, the correlation of the two fiscal policy responses is positive.
- 2 The nature of interactions (beyond automatic stabilizers) however, varies over shocks:
 - For a **spending shock**, monetary and fiscal policies act as *substitutes*.
 - For a **tax shock** monetary policy reaction is *not statistically significant* at 95%.
 - For a **monetary policy shock** monetary and spending policy react as *compliments*, while monetary and tax policy as *substitutes*.
 - When the shock is from outside, i.e. a **business cycle shock**, tax *complements* monetary policy (contracting), spending *counteracts* the monetary policy contraction. Overall, fiscal policy contracts and so *complements* the action of monetary policy.

Subsection 2

Multipliers

Multipliers

Results

- **Spending** multiplier = 0.60 (without debt = 1)
- **Tax** multiplier = 0.50 (without debt = 0.50)

Both multipliers are *below* 1. If we don't control for debt, fiscal multipliers become higher. Moreover, over time:

- Spending multiplier is consistently higher than the tax multiplier.
- Spending policies are more effective in expanding during less turbulent times, when less economic uncertainty prevails.
- Tax policies are more effective in expanding output during more turbulent economic times.
- During the latest sovereign debt crisis (2011-14), spending and tax became roughly equivalent, and very low (0,42 and 0,41 respectively). Thus, under times of **fiscal** distress, the expansionary effect from fiscal policies is **weak**.

Multipliers

Across EA

Spending multipliers in the Euro Area

	Euro Area	Germany	France	Italy	Spain
Full sign restrictions	0.60	–	–	–	–
Restrictions a la Blanchard and Perotti	–	1	0.30	-0.10	0.50
Identification via local projections	–	1	0.40	-0.10	0.50
Empirical literature (1985-2010)	0.60	0.40	1.60	0.10	0.30

Multipliers

Across EA

Tax multipliers in the Euro Area

Studies	Country	Sample period	Tax multiplier
Gerba (2017)	Euro Area	1980:I-2015:IV	0.50
Baum and Koester (2011)	Germany	1976:I-2009:IV	0.65
Biau and Girard (2005)	France	1978:I-2003:IV	0.1
Giordano et al (2007)	Italy	1982:I-2004:IV	-0.16
De Castro (2005)	Spain	1980:I-2001:II	-0.05

Subsection 3

Monetary-fiscal interactions and public debt

Monetary-fiscal interactions and public debt

Patterns

- Monetary authority discriminates between the two fiscal policies as their effects on output are different.
- If one considers the interaction between **spending and monetary policy**, then they act as substitutes for the spending, monetary policy, and business cycle shocks.
- If one considers interaction with **taxes**, on the other hand, then the two behave as compliments for spending-and business cycle shocks, and as substitutes for a monetary policy shock.
- Taking the **net fiscal stance**, then for spending and monetary policy shocks, the two behave as substitutes, while for a business cycle shock they act as compliments.
- I find clear evidence of omitted variable (upward) bias in the estimates when I exclude government debt from our model.

Subsection 4

Comparison to the US

Comparison to the US

Findings

Compare results to those found for the US in Gerba and Hauzenberger (2014).

- For EA, the (peak) impact of a spending- and a business cycle shock is beyond doubt more profound, while for the US, it is the (peak) impact of a tax shock.
- For a monetary policy shock, on the other hand, the difference is not very clear.
- A comparison of the multipliers shows that while **similar for spending**, they are **very different for taxes**. The tax multiplier is much higher in the case of US, with the (peak) impact at 1.65 compared to 0.76 for the EA.
- Lastly, in terms of comparative advantages, standard Keynesian expansionary (or spending-oriented) policy seems to be more effective in the EA, and standard non-Keynesian (tax-oriented) in the case of the US.

Subsection 5

Robustness checks

Robustness checks

List

- 1 Time-variation (expanding-window and sub-sample estimates).
- 2 Pure rejection method.
- 3 Alternative identification scheme: Removing debt: removing sign restriction on debt for a tax shock.
- 4 Estimation in (annual) growth rates since data have an I(1) process.
- 5 Comparison to a recursive (or agnostic Cholesky) identification scheme.

Concluding remarks

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To finish off

The joint analysis of monetary and fiscal policy in the EA sheds novel light on the role and effects of (common) fiscal policy and their interactions with monetary policy since 1980:

- ① I find sufficient evidence for a common fiscal policy reaction in the EA.
- ② I also find significant evidence for (implicit) interactions between fiscal-and monetary authorities.
- ③ Said that, the nature of interactions depends very much on the shocks that hit the economy.
- ④ I also find that failing to recognize the debt channel will result in misinterpretation of the monetary-fiscal estimates.

Concluding remarks

To finish off

In addition:

- ① On the effectiveness of fiscal policies, I find that the spending multiplier is higher than the tax multiplier.
- ② Nonetheless, this efficacy has changed over time, and while the spending multiplier has decreased since the onset of the Great Recession, that of taxes has increased.
- ③ Moreover, Spending (tax) policies are more effective in expanding during less (more) economic turbulent times, when less economic uncertainty prevails. During fiscal distress, however, expansionary effect from fiscal policies is overall undermined.
- ④ There are considerable differences in the nature of monetary-fiscal interactions between the EA and the US, including the fiscal multipliers.

To end
Thank you

THANK YOU FOR YOUR ATTENTION!

ANY QUESTIONS OR REFLECTIONS?

Appendix

Results

Variance decomposition

Variance Decompositions: Specifications with debt

	Horizon	Spending	Tax	Business Cycle	Monetary Policy
Spending	1	52	2	1	1
	4	50	4	2.5	2
	8	45	7	6	4
	20	28	12	12	13
	40	25	13	12.5	17.5
Net Taxes	1	2	41	51	0.5
	4	4	38	45	7
	8	7	35	42	9
	20	12	32	40	10
	40	13	31	38	13
Gov. debt	1	10	21	7	16
	4	8	25	15	15
	8	8	26	18	16
	20	8	15	14	22
	40	12	11.5	15	22
Output	1	30	32	40	17
	4	27	30	37	17.5
	8	25	28	32	20
	20	20	22	25	23
	40	20	20	23	22
Interest Rate	1	3	4	4	38
	4	6	9	10.5	32
	8	7	12	14	30
	20	8	12	16	28.5
	40	10	13	16	28