Fiscal policy spillovers in NiGEM

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NiGEM

- We quantify the effects of a contractionary fiscal shock to one particular Euro Area country on GDP in that country and other Euro Area countries using the National Institute Global Econometric Model (NiGEM).

- NiGEM is an estimated global model with forward-looking agents and built-in nominal rigidities slowing the adjustment process to the equilibrium.

- Countries in the model are linked through trade, competitiveness and financial markets.

- NiGEM is a theoretically coherent and closed global model, in the sense that every export is matched by an import, all liabilities are matched by assets, all income flows from assets are matched by outflows on liabilities and current accounts add up across the world.

Fiscal policy multipliers

- We consider four types of fiscal shock: government consumption, government investment, direct tax rate and indirect tax rate.
- Each shock is equivalent to a 1% of GDP contraction and lasts 1 year.
- Multipliers are usually below 1 when countries implement fiscal policies in isolation.
- Multipliers from government spending shocks are larger than those from tax rate shocks.
- Multipliers depend on the degree of trade linkages between Euro Area countries and on the sensitivity of imports to total final expenditure of each country.

First year multipliers

Table 1: First year multipliers from a 1 per cent of GDP temporary fiscal contraction

	Government Spending		Taxes	
	Consumption	Investment	Income	VAT
Belgium	-0.45	-0.46	-0.10	-0.06
Finland	-0.62	-0.64	-0.20	-0.10
France	-0.58	-0.59	-0.40	-0.15
Germany	-0.46	-0.48	-0.31	-0.28
Greece	-0.94	-0.96	-0.59	-0.12
Ireland	-0.22	-0.22	-0.06	-0.08
Italy	-0.55	-0.56	-0.11	-0.06
Netherlands	-0.55	-0.56	-0.18	-0.11
Austria	-0.49	-0.50	-0.13	-0.05
Portugal	-0.61	-0.62	-0.11	-0.12
Spain	-0.81	-0.82	-0.22	-0.19

Note: No shift in the budget deficit target. Experiments conducted in one country at a time.

Fiscal policy multipliers

- Countries that are more open to trade experience smaller multipliers, as the decline in demand is absorbed by imports to a larger degree.
- By contrast, countries whose agents' consumption plans are more sensitive to fluctuations in short-term income are found to experience larger multipliers.
- Country size also correlates with the magnitude of the multipliers: bigger countries induce a larger response from the monetary authority and policy rate acts more aggressively to dampen the impact of the shock.

Fiscal policy spillovers

- We also consider spillover multipliers i.e. the effect on GDP in one Euro Area country from a fiscal contraction in another Euro Area country.
- First year fiscal spillover multipliers from a 1% of GDP temporary fiscal shock in Germany range between 0.01% to 0.3% of each country's GDP.
- The Euro Area wide spillover multiplier, excluding Germany, is 0.11%
- The spillover multipliers for the case of France, Italy and Spain are somewhat smaller, reflecting the smaller size of these economies as well as a lower import penetration compared to Germany.
- Trade is the main transmission channel of spillovers between countries, and interest rates act to dampen this channel.

First year spillover multipliers (Germany)

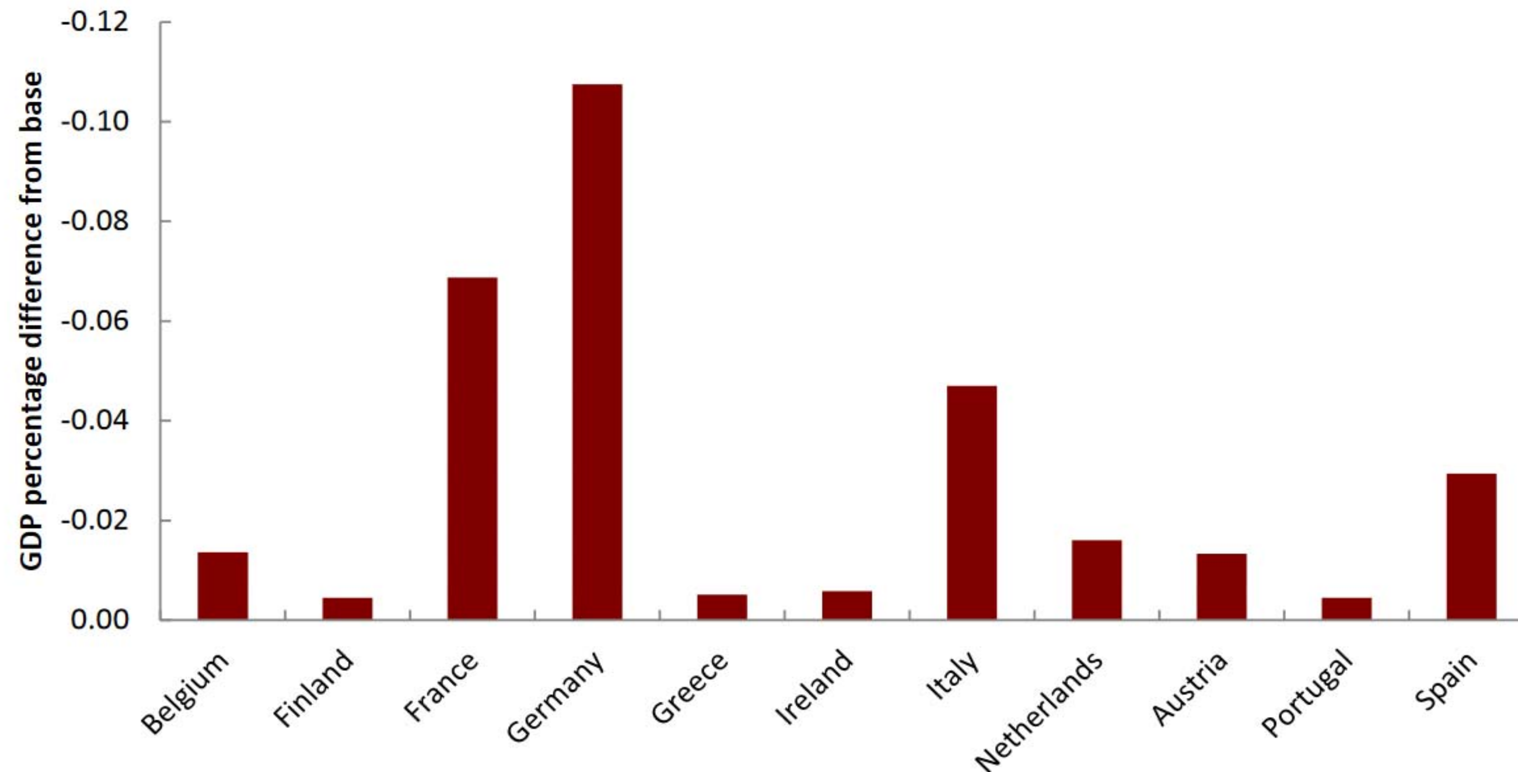
Table 2. First-year GDP spillover multiplier (in %) from a 1% of GDP temporary fiscal contraction

Table 2a. Fiscal shock implemented in Germany

	Government spending		Taxes	
	Consumption	Investment	Income	VAT
Belgium	-0.21	-0.22	-0.14	-0.12
Finland	-0.11	-0.12	-0.08	-0.06
France	-0.09	-0.09	-0.06	-0.05
Germany	-0.46	-0.48	-0.31	-0.28
Greece	-0.14	-0.14	-0.09	-0.07
Ireland	-0.04	-0.04	-0.02	-0.01
Italy	-0.06	-0.06	-0.04	-0.03
Netherlands	-0.28	-0.29	-0.19	-0.16
Austria	-0.14	-0.15	-0.09	-0.07
Portugal	-0.12	-0.13	-0.08	-0.07
Spain	-0.05	-0.06	-0.04	-0.02

Euro Area first year spillover multipliers

- Government consumption shock



Note: Each bar is the Euro Area, excluding the country named in the bar, first year multiplier that arises from a temporary reduction of government consumption by 1% of GDP applied, again, to the country named in each bar.

International fiscal policy coordination

- We also examine whether international coordination of fiscal policies strengthens or weakens the size of multipliers in individual countries and find that fiscal multipliers increase significantly when countries coordinate their fiscal policies.

- There is a large degree of variation across countries, but the average percentage increase in the fiscal multiplier, in absolute value terms, is 60% for government spending shocks and 100% for revenue shocks.

- Most of the variation is explained by the degree of openness of an economy.

Fiscal policy spillovers – crisis times

- We consider a 25% increase in proportion of liquidity constrained agents, our proxy for a "crisis time" scenario.
- The magnitude of multipliers from tax rate shocks increases by around 20% when the fiscal contraction is implemented in isolation, and 25% when there is international coordination of fiscal policies.
- The effect on government spending/investment multipliers is much smaller, increasing by around 8% on average.