

NIESR

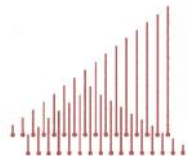
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# Less Austerity, More Growth?

Dawn Holland

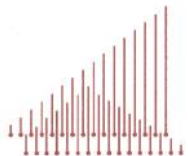
National Institute of Economic and Social Research

ENEPRI Conference: EU Growth Prospects in the Shadow of the Crisis  
22 October 2012, Brussels



National Institute of Social and Economic Research

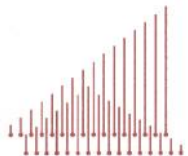
- Coordinated fiscal austerity across Europe
- What is the economic impact?
- Is it self-defeating?
- What factors determine the fiscal multiplier?
- How important are fiscal spillovers?
- Analysis based on simulations using NiGEM



## Outline of presentation

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- Key features of NiGEM model
- What determines the fiscal multiplier?
- Does the state of the economy affect the multiplier?
- How does the fiscal position affect sovereign bond yields?
- Assessment of planned fiscal consolidation programmes, 2011-2013 for 12 EU economies



## NiGEM Overview

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- NiGEM is a large-scale structural econometric model of the world economy
  - Discrete models for 40 countries and 6 regional blocks for the remaining countries
- Country Linkages
  - trade and competitiveness
  - interacting financial markets
  - international stocks of assets
- Endogenous policy rules for interest rates and fiscal solvency
- Rational expectations options
  - Financial markets
    - Exchange rates
    - Long rates
    - Equity prices
  - Labour markets
  - Consumption
- Exogenous labour force



## GDP

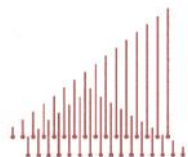
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- In the short- to medium-term, GDP is driven by the demand side

$$Y = C + I + GC + GI + XVOL - MVOL$$

- In the longer term, GDP is governed by the supply side

$$YCAP = \chi [uK^{-\dots} + (1-u)(Le^{techl})^{-\dots}]^{-(1-r)/\dots} M^r$$



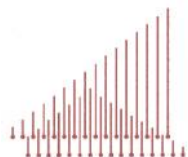
## Consumption

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- Consumption depends on (a dynamic adjustment path around) real personal disposable income and wealth.

$$d \ln(C_t) = \left\{ \ln(C_{t-1}) - [a + b_0 \ln(TAW_{t-1}) + (1 - b_0) \ln(RPDI_{t-1})] \right\} \\ + b_1 d \ln(RPDI_t) + b_2 d \ln(NW_t) + b_3 d \ln(HW_t)$$

- Short-term income elasticity of consumption ( $b_1$ ) captures liquidity constraints
- RPDI depends on TAX



## Government sector

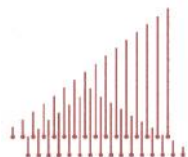
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- Government sector has 3 revenue sources and 4 expenditure categories:

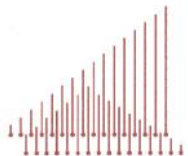
$$- BUD = (GC + GI) * PY + TRAN + GIP - TAX - CTAX - MTAX$$

- Income tax (TAX)
  - Corporate tax (CTAX)
  - Indirect tax/VAT (MTAX)
  - Consumption (GC)
  - Investment (GI)
  - Social transfers to households (TRAN)
  - Interest payments (GIP)
- The deficit flows onto the debt stock, after allowing for money finance:

$$- DEBT = DEBT_{t-1} - BUD - \Delta M$$



- **Short-term interest rates set by a central bank**
  - Feedback rules depend on (+T for Target)
    - Inflation (INFL), Output gap (Y/YCAP),
    - Price level (PL), Nominal Aggregate (NOM)
- **Two Pillar Strategy**
  - Interest rate =  $c^*(INFL-INFLT)+d^*(NOM-NOMT)$
- **Long-term interest rates are forward looking – the forward convolution of expected short rates**

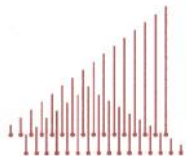




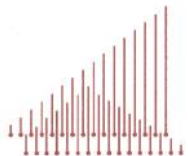
## What determines the size of the fiscal multiplier?

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- **Multipliers differ across countries**
  - Openness
  - Access to liquidity
  - Size
  - Independent monetary policy?
  - Speed of adjustment in labour market
  - Inflation anchor
- **Multipliers differ within countries**
  - Instrument
  - Monetary policy response
  - Expectation formation



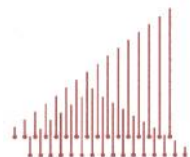
- Why are multipliers generally less than 1?
  - Import leakages
  - Looser monetary policy, exchange rate
  - Consumption/investment channels adjusts gradually and offset through savings



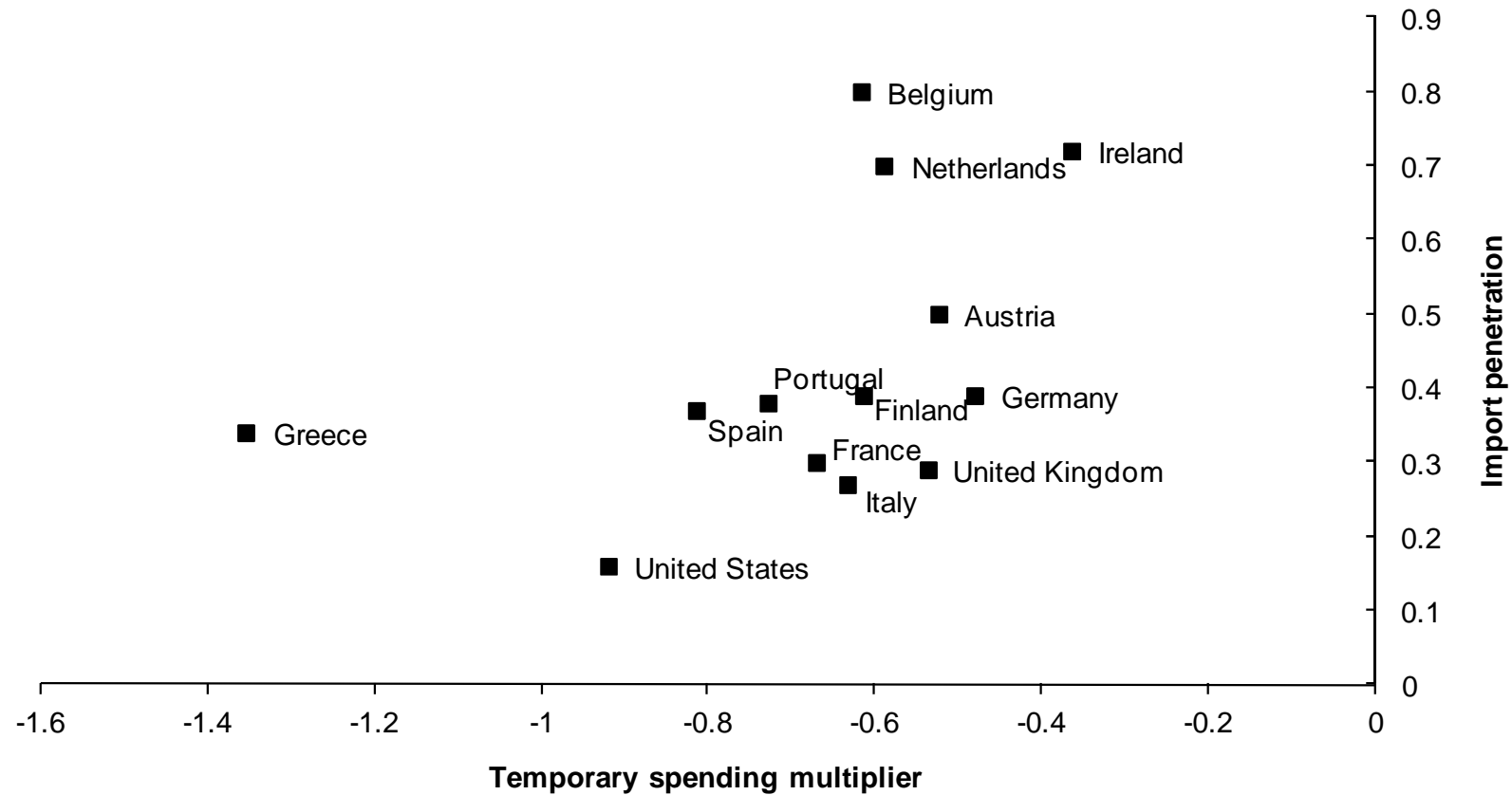
## Baseline Fiscal Multipliers

**Table 2. Key factors determining cross-country differences in multipliers**

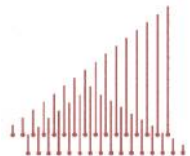
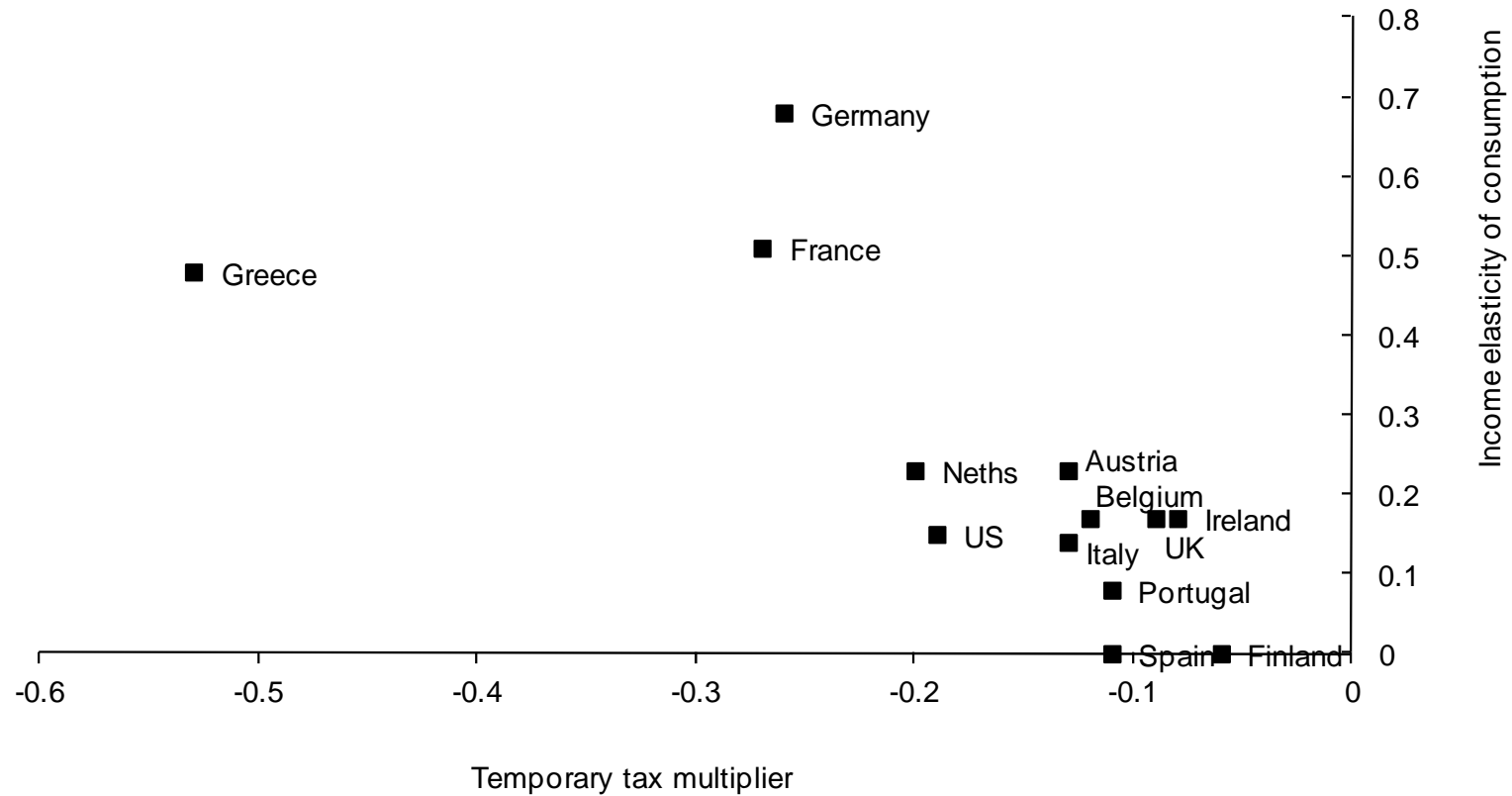
	Temporary spending multiplier	Temporary income tax multiplier	Import penetration	Income elasticity
Austria	-0.52	-0.13	0.50	0.23
Belgium	-0.62	-0.12	0.80	0.17
Finland	-0.61	-0.06	0.39	0.00
France	-0.67	-0.27	0.30	0.51
Germany	-0.48	-0.26	0.39	0.68
Greece	-1.35	-0.53	0.34	0.48
Ireland	-0.36	-0.08	0.72	0.17
Italy	-0.63	-0.13	0.27	0.14
Netherlands	-0.59	-0.20	0.70	0.23
Portugal	-0.73	-0.11	0.38	0.08
Spain	-0.81	-0.11	0.37	0.00
United Kingdom	-0.54	-0.09	0.29	0.17
United States	-0.92	-0.19	0.16	0.15
Spending correlation			0.43	-0.12
Tax correlation			0.22	-0.73



# Government consumption multiplier and openness



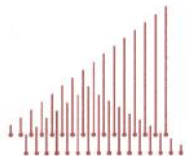
# Tax multiplier and income elasticity of consumption



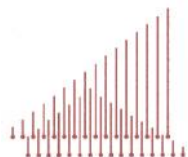
## Assumptions underlying baseline multipliers

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- Innovations are temporary
- Central bank sets interest rates to stabilise inflation (no boundary issues)
- Financial markets are “rational”
  - Long-term interest rates
  - Equity prices
  - Exchange rates
- Consumers are myopic
- Liquidity constraints/propensity to save are “normal”
- Government borrowing premium is exogenous

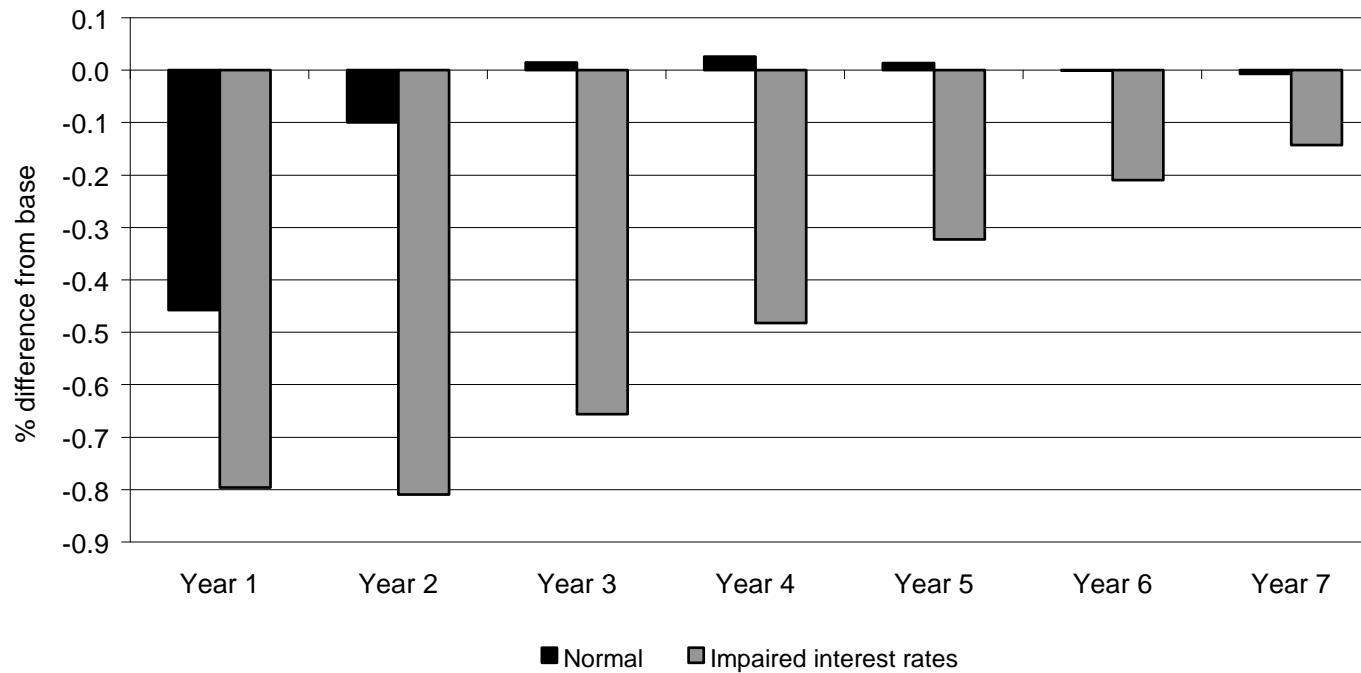


- Recent studies suggest multipliers may be more pronounced when the economy has suffered a prolonged downturn
  - Delong and Summers (2012), Auerbach and Gorodnichenko (2012), IMF (2012), and others
- Channels of transmission?
  - Interest rates and the zero lower bound
  - Impaired banks and heightened liquidity constraints
  - Hysteresis

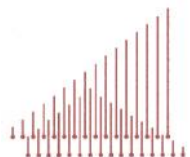


# Impaired interest rate channel

**Figure 3. Impact of an impaired interest rate adjustment on GDP**



Notes: Impact on the level of GDP of a 1% of GDP fiscal spending consolidation (permanent) in the UK, with and without an interest rate response.



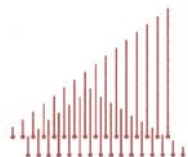


## Heightened liquidity constraints

$$d \ln(C_t) = \left\{ \ln(C_{t-1}) - \left[ a + b_0 \ln(TAW_{t-1}) + (1 - b_0) \ln(RPDI_{t-1}) \right] \right\} \\ + b_1 d \ln(RPDI_t) + b_2 d \ln(NW_t) + b_3 d \ln(HW_t)$$

**Table 3. Impact of consolidation programme (tax rise) on UK GDP, under different short-term income elasticities of consumption**

Model	Short-run income elasticity of consumption ( $b_1$ )	First year multiplier
1	0	-0.01
2	0.1	-0.06
3	0.2	-0.11
4	0.3	-0.15
5	0.4	-0.20
6	0.5	-0.25
7	0.6	-0.31
8	0.7	-0.36
9	0.8	-0.41
10	0.9	-0.47
11	1	-0.52



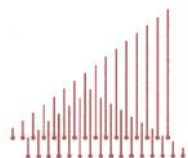
## Government borrowing premia

- Several studies look at links between fiscal position and government borrowing rates
- GPREM may depend on BUD/GDP and/or DEBT/GDP
- Budget balance improves following a fiscal consolidation innovation
- Government debt/GDP may deteriorate in short-term

**Table 4. Empirical relationship between government borrowing premia and fiscal variables**

	Spread (t-1)	Debt to GDP ratio	Fiscal balance to GDP ratio	
				Implied long-run
Argyrou and Kontonikas (2011)	0.74		-2.0 (t+1)	-7.7
Attinasi et al (2009)	0.97		-1.6 (t+1)	-54.9
Bernoth and Erdogan (2012)		2.2	-16 (t+1)	
De Grauwe and Ji (2012)		$-6.12(t) + 0.08(t)^2$		
Schuknect et al (2010)		1.25	-12.64	

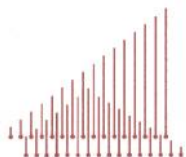
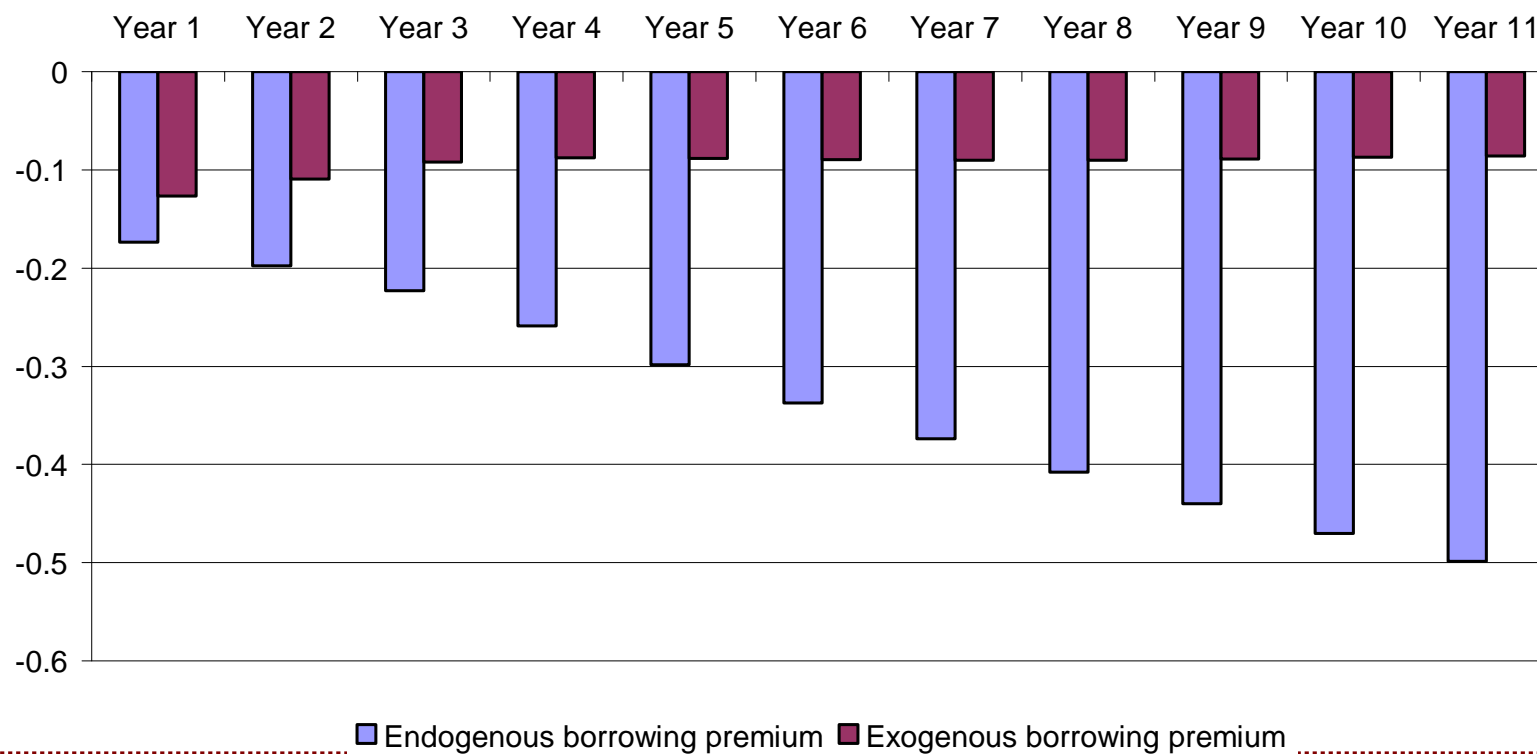
Note: Spread is defined as the 10-year government bond yield over that in Germany, expressed in basis points. (t+1) indicated expectations 1 year ahead. (t)<sup>2</sup> indicates the current debt to GDP ratio squared.



## Endogenous government borrowing premium

- Let  $GPREM = 0.04 * DEBT/GDP$

**Figure 4. Impact of 1% of GDP fiscal consolidation in the UK on long-term interest rates**

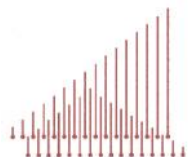


## Assessing fiscal consolidation programmes 2011-2013

- **Ex-ante Net Fiscal impulses 2011-2013, as announced by governments**

	2011			2012			2013		
	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based
<b>Austria</b>	-0.9	-0.4	-0.5	-0.4	-0.2	-0.3	-0.1	0	-0.1
<b>Belgium</b>	-0.7	0	-0.7	-1.2	-0.5	-0.7	-1.3	-0.4	-0.9
<b>Finland</b>	-0.3	-0.3	-0.1	-0.6	-0.5	-0.1	-0.1	-0.1	0
<b>France</b>	-1.4	-1.1	-0.3	-1.7	-1.1	-0.6	-1.7	-0.8	-0.8
<b>Germany</b>	-0.5	-0.2	-0.3	-0.2	0	-0.2	-0.1	-0.1	0
<b>Greece</b>	-2.7	-1.2	-1.5	-5.1	-3.5	-1.6	-2	-0.9	-1.1
<b>Ireland</b>	-3.4	-0.9	-2.5	-2.4	-1	-1.4	-2.1	0.7	-1.4
<b>Italy</b>	-0.5	-0.3	-0.2	-3	-2.4	-0.6	-1.5	-0.6	-0.9
<b>Netherlands</b>	-0.8	-0.3	-0.5	-0.6	-0.5	-0.1	-0.6	-0.45	-0.15
<b>Portugal</b>	-5.9	-2.7	-3.2	-2.1	0	-2.1	-1.9	-0.5	-1.4
<b>Spain</b>	-2.5	-0.5	-2	-2.1	-0.4	-1.7	-1.4	-0.3	-1.1
<b>UK</b>	-2.1	-1.1	-1	-1.8	-0.2	-1.6	-1	0	-1

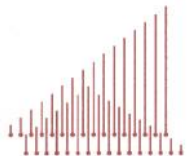
**Source:** Euroframe (2012). Does not include fiscal plans introduced after January 2012.



## Two scenarios

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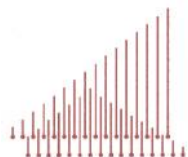
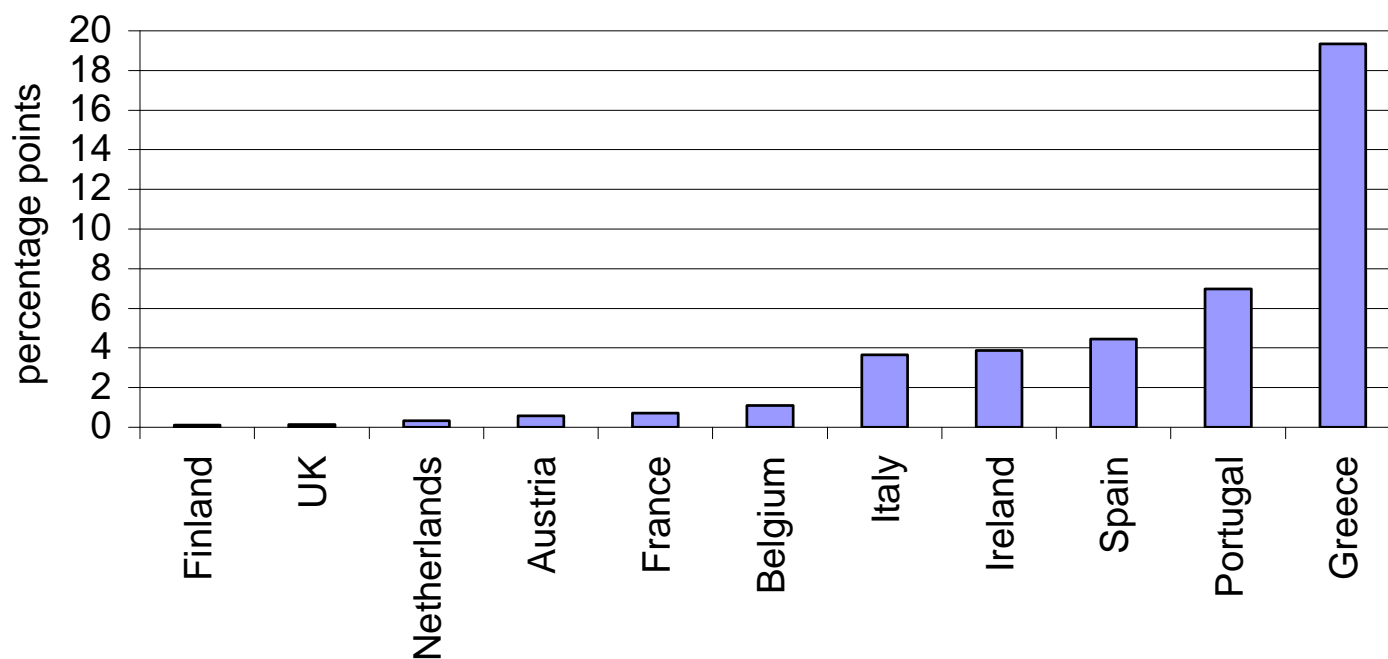
- Scenario 1 – impact of consolidation programme based on default assumptions underlying baseline multipliers
- Scenario 2 – modified assumptions to allow for:
  - Impaired interest rate channel
  - Heightened liquidity constraints



## How high are liquidity constraints?

- As a proxy, use bond spreads over Germany to calibrate relative stress in banking systems

– 10-year government bond spreads over Germany, Sept 2012

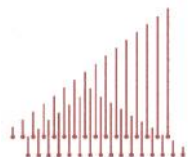


## Expected impact of programmes on level of GDP

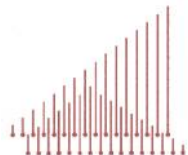
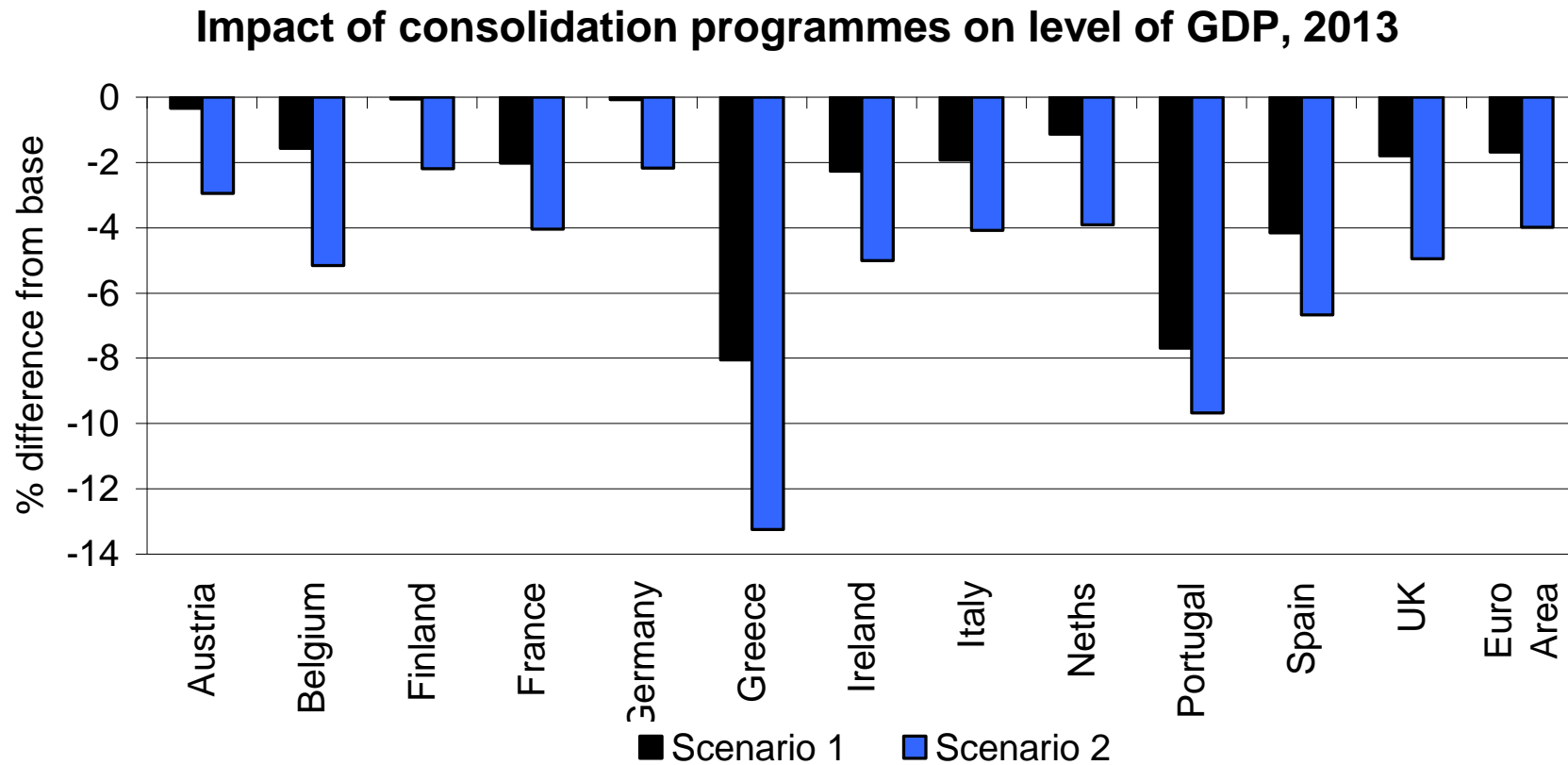
**Table 6. Impact of consolidation programmes on GDP**

	2011		2012		2013	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
<b>Austria</b>	-0.2	-1.0	-0.2	-2.1	-0.3	-2.9
<b>Belgium</b>	-0.6	-2.2	-0.7	-4.3	-1.6	-5.2
<b>Finland</b>	0.0	-0.9	0.1	-1.8	-0.1	-2.2
<b>France</b>	-0.5	-1.4	-1.1	-2.9	-2.0	-4.0
<b>Germany</b>	-0.1	-1.0	0.0	-1.9	-0.1	-2.2
<b>Greece</b>	-2.4	-4.6	-6.7	-13.0	-8.1	-13.2
<b>Ireland</b>	-0.9	-1.2	-1.3	-3.1	-2.3	-5.0
<b>Italy</b>	0.0	-0.7	-0.7	-2.6	-1.9	-4.1
<b>Netherlan</b>	-0.6	-1.9	-0.7	-3.3	-1.1	-3.9
<b>Portugal</b>	-3.2	-4.4	-5.9	-7.8	-7.7	-9.7
<b>Spain</b>	-1.7	-2.5	-3.2	-5.3	-4.2	-6.7
<b>UK</b>	-0.5	-2.2	-1.2	-4.3	-1.8	-5.0
<b>Euro Area</b>	-0.5	-1.5	-1.0	-3.1	-1.7	-4.0

Note: Per cent difference from base in level of real GDP



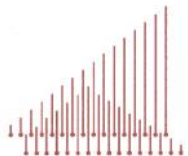
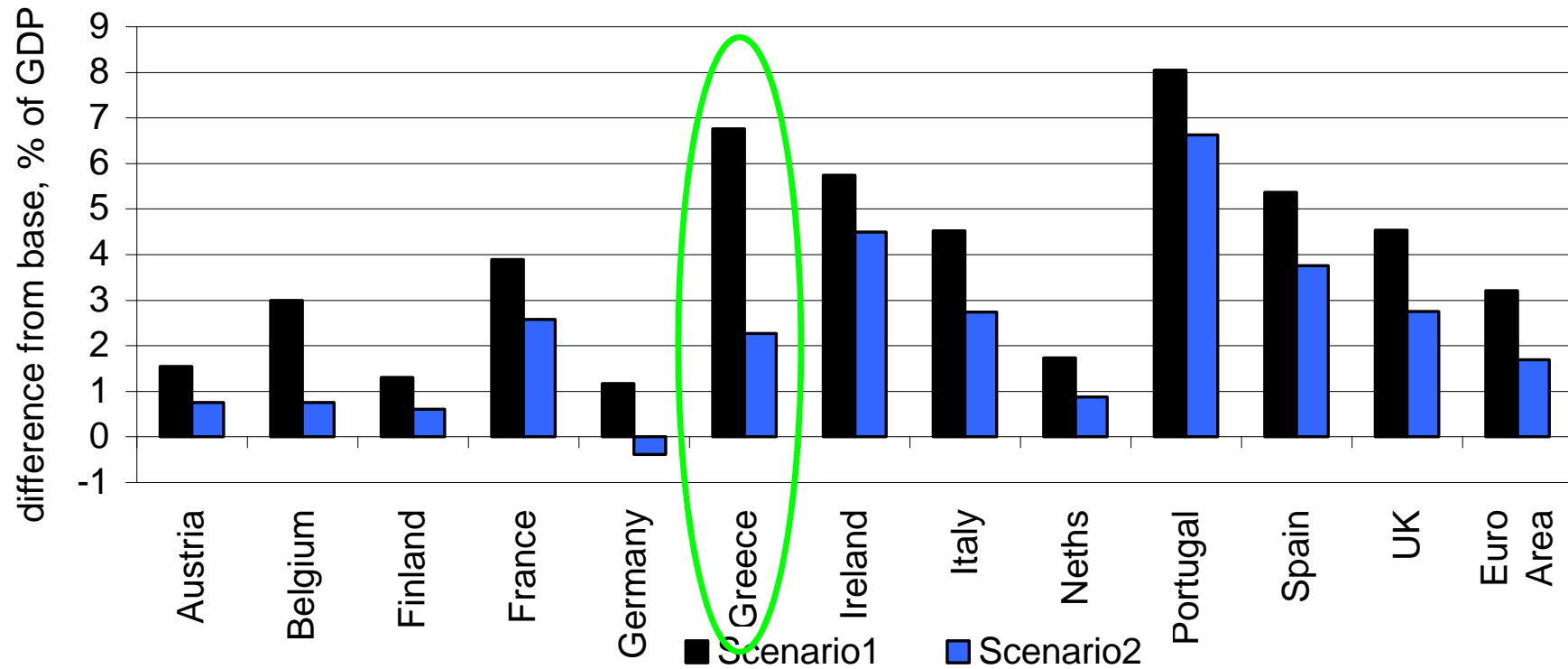
# Output declines nearly double in most countries due to impaired interest rates/credit



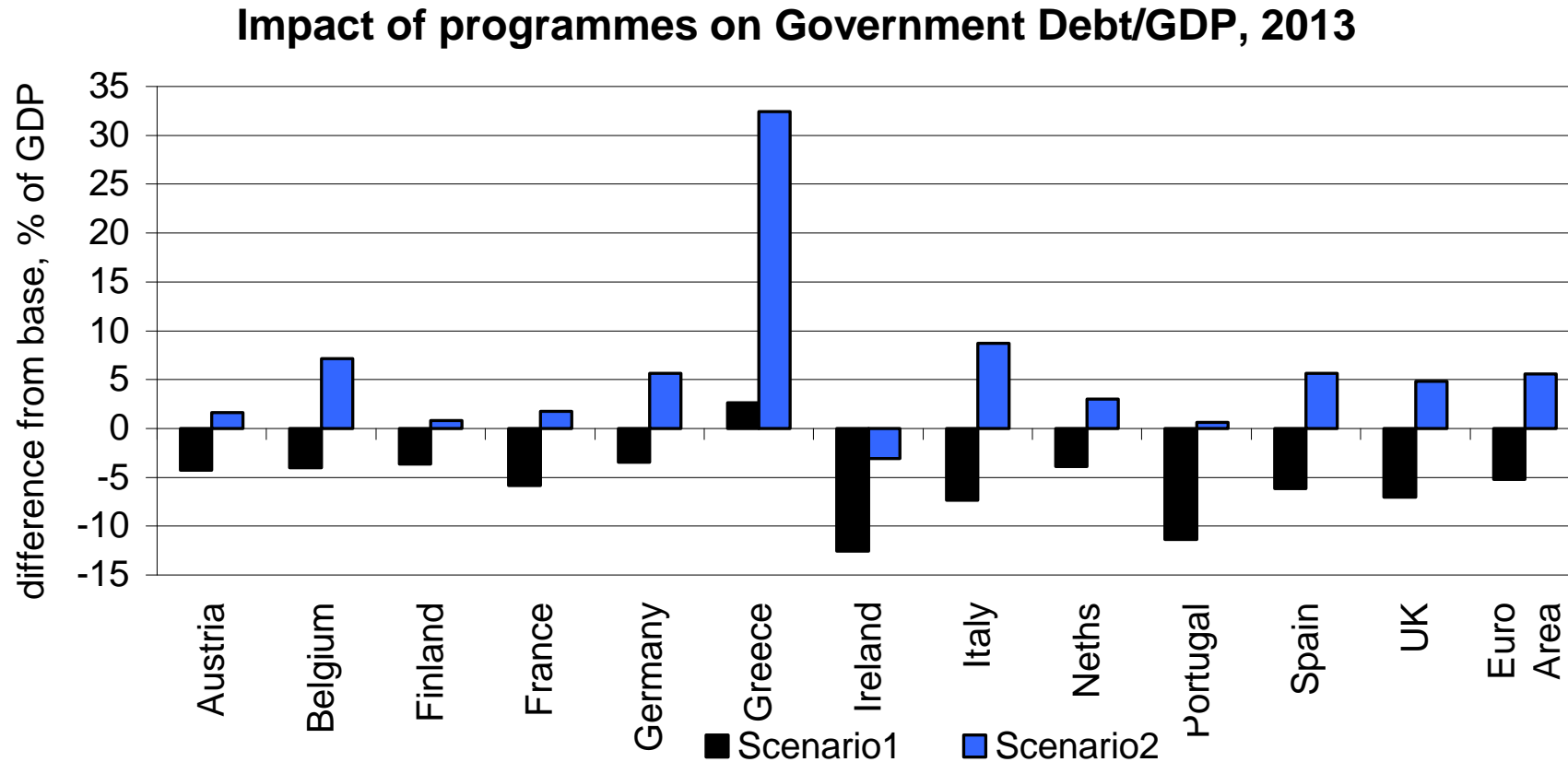


# Fiscal balances improve, but not as much when output declines deepen

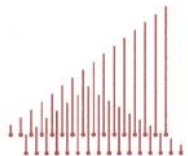
## Impact of programmes on government budget balance, 2013



## Perverse impact on Debt/GDP ratio with impaired transmission

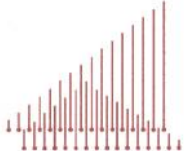
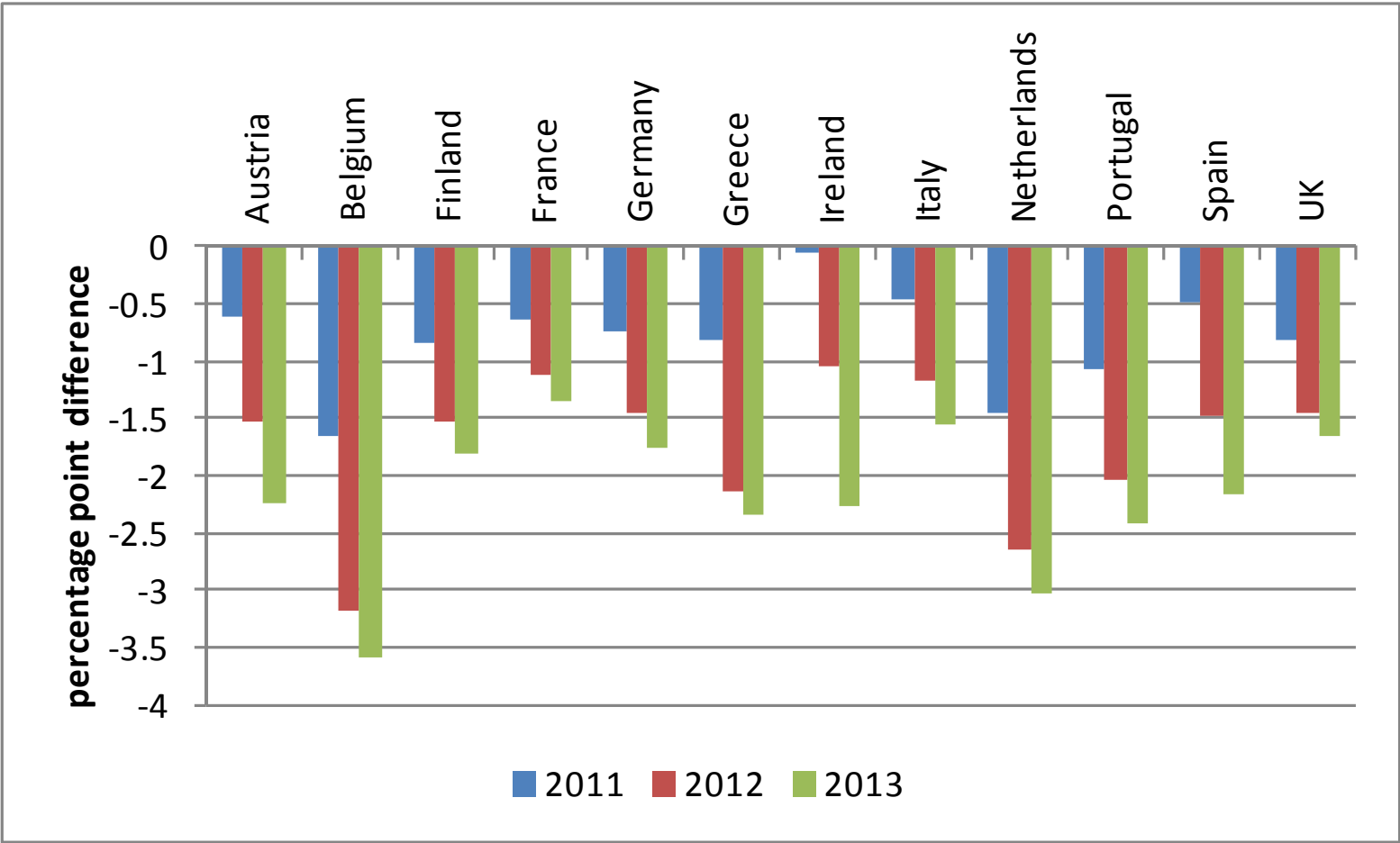


- **Feedbacks on government borrowing premia??**



How much of decline due to spillovers from simultaneous consolidation?

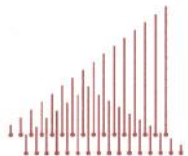
## Impact of joint policy action relative to unilateral action



## Key conclusions

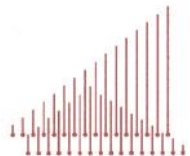
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- Little prospect for growth in Europe given the ongoing fiscal adjustment
- The effectiveness of consolidation measures likely to be diminished at present
- Impaired transmission mechanisms exacerbate effects on output
- Fiscal consolidation may be ‘self-defeating’ at present
- Consolidation in all countries at the same time significantly aggravates the impact
  - on average output declines by 2% by 2013 due to spillovers



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Thank you



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