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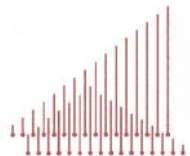
Reassessing the fiscal multiplier

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National Institute of Economic and Social Research

25 June 2013

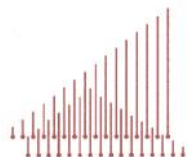
EBEA Bank of England Conference



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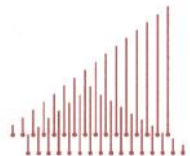
Introduction

- Recent literature questions the pre-crisis assessment of fiscal multipliers
 - Blanchard and Leigh (2013) – forecasting errors for 2010-11 may be explained by underestimated multipliers (0.5 versus 1.5)
 - Multipliers in a recession may differ from those in equilibrium –
 - Delong and Summers (2012)
 - Auerbach and Gorodnichenko (2012)
- Presentation relies heavily on:
 - Barrell, R., Holland, D. and Hurst, I. (2012), [Fiscal multipliers and prospects for consolidation](#), *OECD Journal: Economic Studies*
 - Bagaria, N., Holland, D., and Van Reenen, J. (2012), [Fiscal consolidation during a depression](#), *National Institute Economic Review*
 - Holland, D., Portes, J., (2012), [Self-defeating austerity?](#) , *National Institute Economic Review*



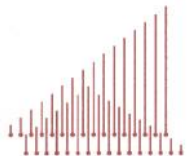
Outline of presentation

- Before we assess the change... was there agreement on multipliers before the crisis?
- What determines the fiscal multiplier?
- Does the state of the economy affect the multiplier?
 - What are the channels of transmission?
- How does the debt position affect sovereign bond yields and growth?
- Under what conditions can fiscal consolidation be considered ‘self-defeating’?
- How important are spillovers from synchronised fiscal consolidation?
- Examples illustrated using simulations from the National Institute Global Econometric Model (NiGEM)

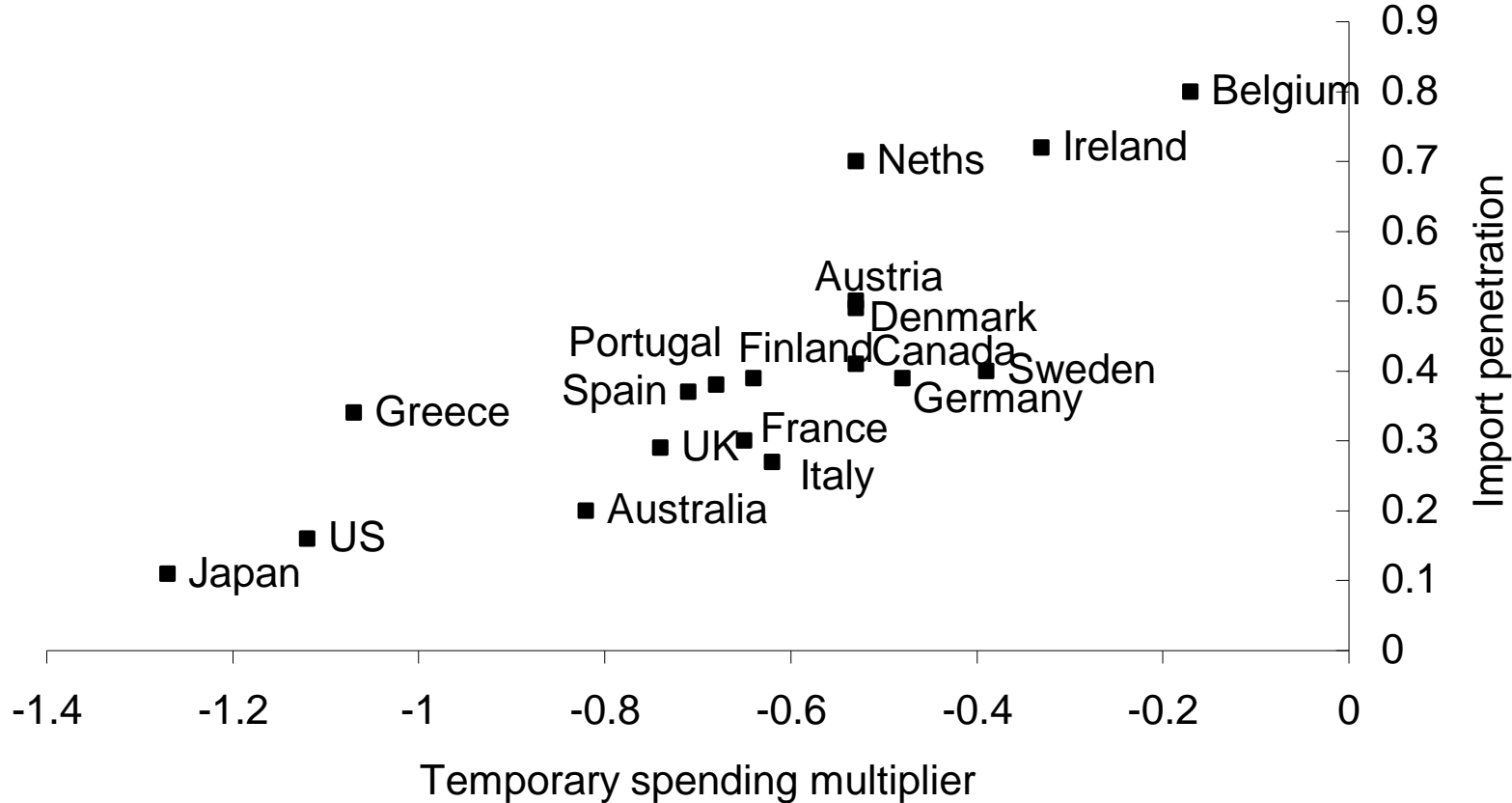


What determines the size of the fiscal multiplier?

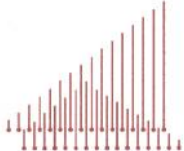
- **Multipliers differ across countries**
 - Openness
 - Access to liquidity
 - Country size
 - Independent monetary policy?
 - Speed of adjustment in labour market
 - Inflation anchor
- **Multipliers differ within countries**
 - Fiscal instrument
 - Monetary policy response
 - Expectation formation



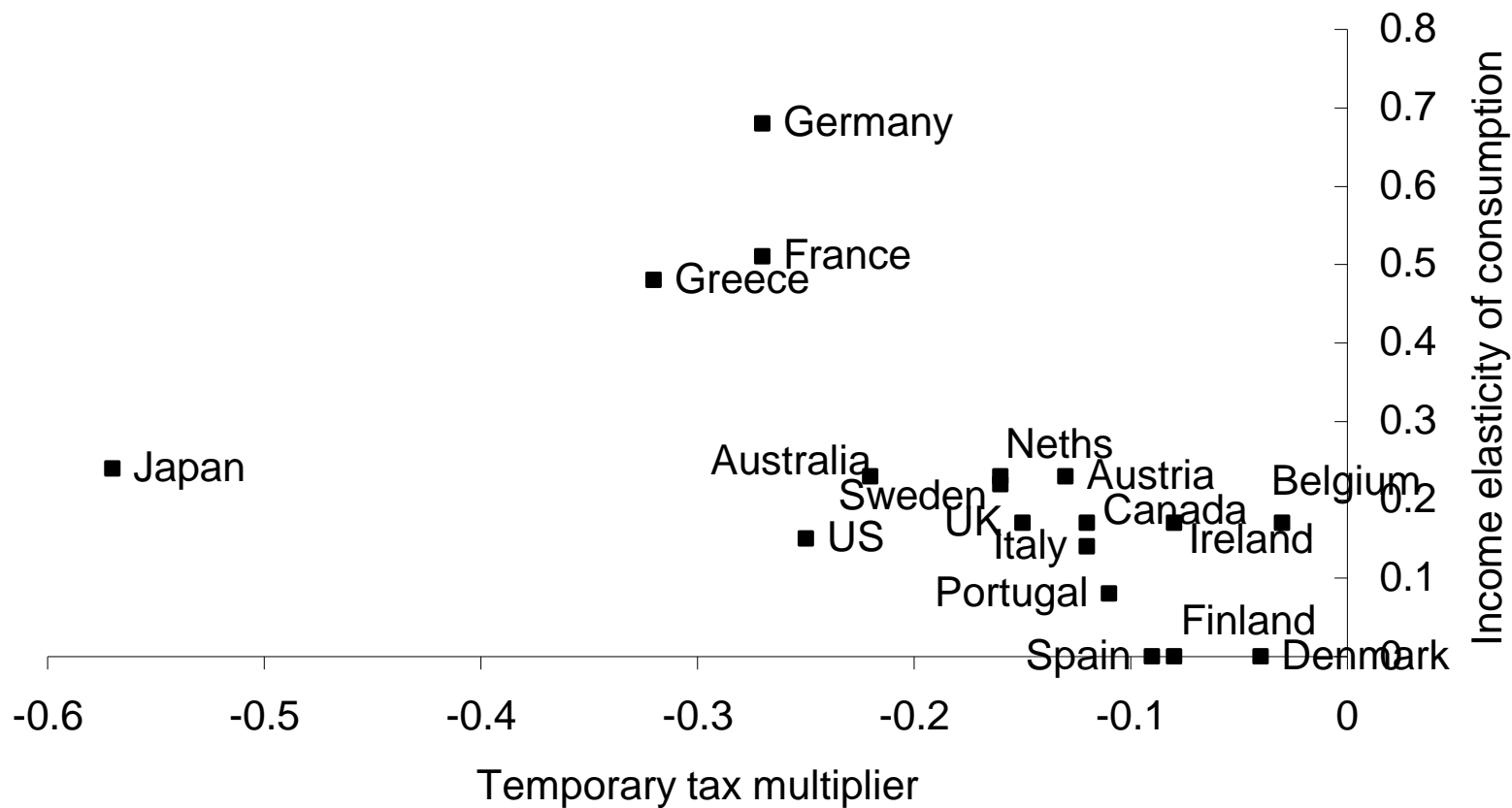
Government consumption multiplier and openness



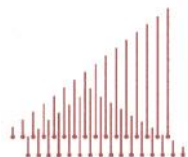
■ Correlation: 0.81



Direct household tax multiplier and income elasticity of consumption



■ Correlation: -0.54

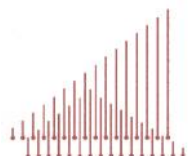


OBR Fiscal Multipliers

Table C8: Estimates of fiscal multipliers

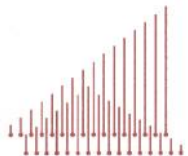
	Impact multipliers
Change in VAT rate	0.35
Changes in the personal tax allowance and National Insurance Contributions (NICs)	0.3
AME welfare measures	0.6
Implied Resource Departmental Expenditure Limits (RDEL)	0.6
Implied Capital Departmental Expenditure Limits (CDEL)	1.0

Source: HM Treasury (2010) *Budget 2010, HC 61*.

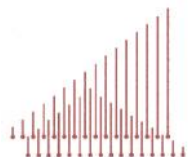


Interpretation of baseline multipliers

- Why are multipliers generally less than 1?
 - Import leakages
 - Looser monetary policy, exchange rate
 - Consumption/investment channels adjusts gradually and offset through savings
 - Crowding out/in of the private sector

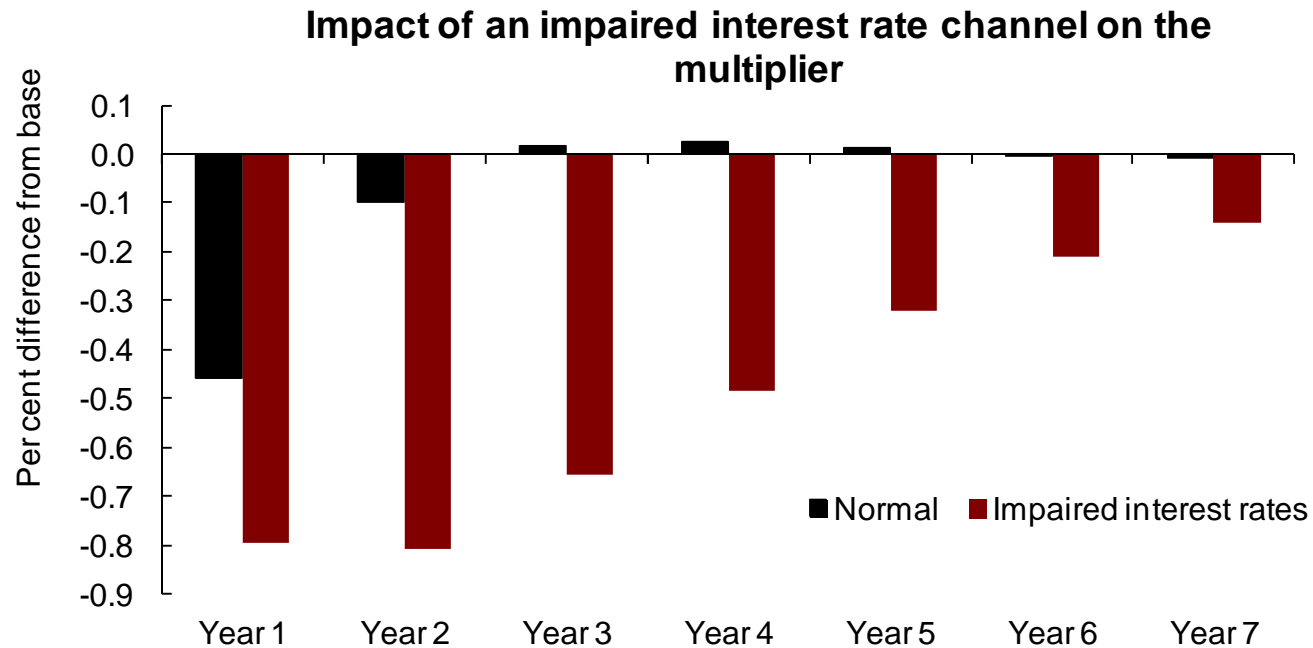


- Recent studies suggest multipliers may be more pronounced when the economy has suffered a prolonged downturn
 - Delong and Summers (2012), Auerbach and Gorodnichenko (2012), IMF (2012), and others
- Channels of transmission?
 - Interest rates and their zero lower bound
 - Impaired banks and heightened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

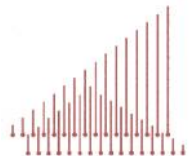


Impaired interest rate channel

- Fiscal tightening generally allows monetary loosening
 - Little room if close to ‘zero lower bound’
 - Contrast short and long rates



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



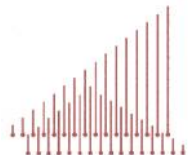
Heightened liquidity constraints....

- ...related to short-term income elasticity of consumption

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

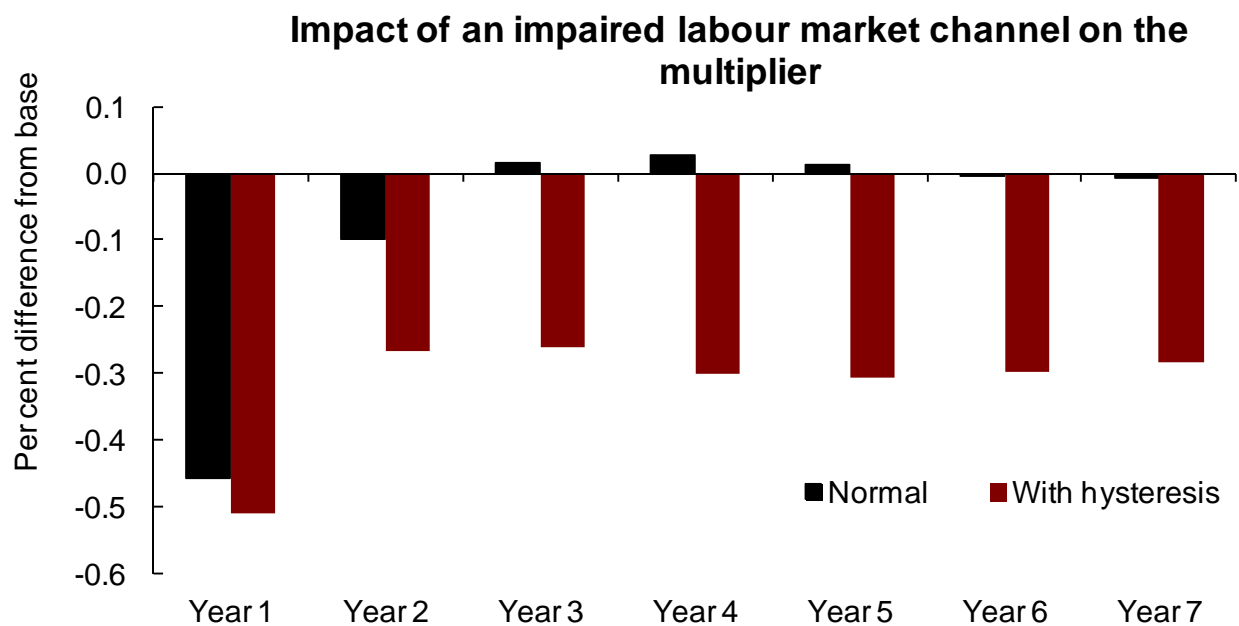
Table 3. Impact of consolidation programme (tax rise) on UK GDP, under different short-term income elasticities of consumption

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

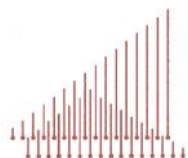


Labour market hysteresis may increase and prolong effects

- Long-term unemployed may put little or no pressure on wages
- Reduced labour force attachment or labour force withdrawal – prolonged effects on productive capacity

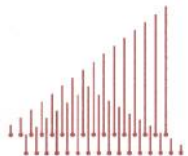


- Notes: Impact on the level of GDP of a 1% of GDP fiscal spending cut (permanent) in the UK, with and without wage pressure from long-term unemployed



Government debt and longer-term growth

- Despite recent controversy over Reinhart and Rogoff (2010) paper, a number of recent studies have looked for a threshold-effect on the links between government debt and GDP growth
 - Cecchetti, Mohanty, Zampolli (2011); Checherita and Rother (2010); Baum, Checherita-Westphal and Rother (2012); Kumar and Woo (2010)
- Channel of transmission generally assumed to be through a risk premium on sovereign bond yields
- Econometric evidence is mixed



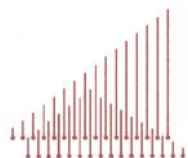
Government borrowing premia and the fiscal/debt position

- Studies relate the government borrowing premium to expected or current levels of either the deficit or stock of debt relative to 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
Arghyrou 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	

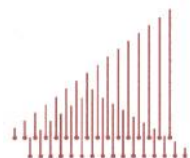
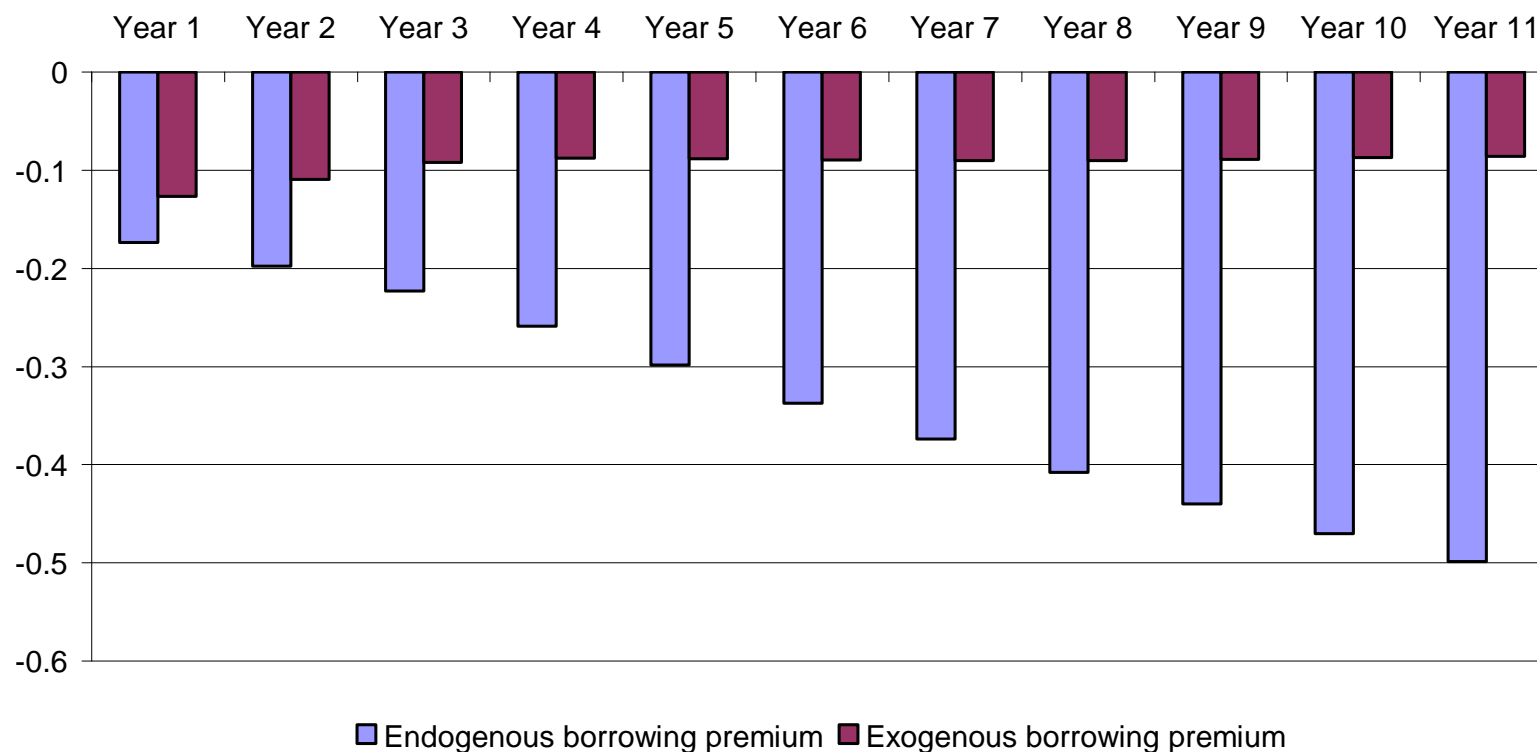
Note: Spread is defined as the 10-year government bond yield over that in Germany, expressed in basis points. (t+1) indicated expectations 1 year ahead. (t)² indicates the current debt to GDP ratio squared.



Endogenous government borrowing premium

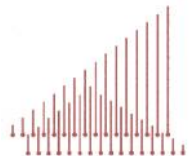
- Let $GPREM = 0.04 * DEBT/GDP$

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



When can fiscal consolidation be considered 'self-defeating'?

- Consolidation measures are generally imposed to ensure debt sustainability
- Debt sustainability can be defined as a stable debt/GDP ratio, perhaps below a given threshold
 - e.g. SGP limit of 60% or Reinhart-Rogoff limit of 90%
- Over the longer-term, consolidation measures should bring the debt/GDP ratio down, but not necessarily in the short- to medium-term
- May be exacerbated if government borrowing premia rise when debt/GDP ratio rises
- Use narrow definition – Fiscal tightening causes debt/GDP ratio to rise in the short-term



What happens to debt ratio initially when policy is tightened?

- If rise in money stock is neither inflation/deflationary (steady state)

- $DEBT = DEBT_{t-1} - BUD - \Delta M0$

- Becomes

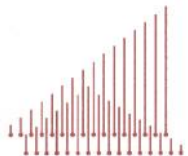
- $DEBT = DEBT_{t-1} - BUD - \Delta NOM$

- And

$$\frac{d \frac{DEBT}{NOM}}{dG} = \frac{DEBT - \frac{dBUD}{dG} - r \frac{dNOM}{dG}}{NOM + \frac{dNOM}{dG}} - \frac{DEBT}{NOM}$$

- In short-run debt-to-GDP ratio could rise or fall

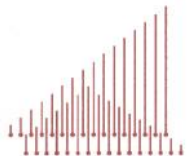
Note: DEBT is gov't debt stock; BUD is gov't budget balance; M0 is money stock; NOM is nominal GDP, G is government consumption (value)



With no feedbacks....

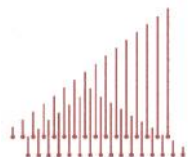
- If
 - $BUD = TAX - G - OtherExp$
 - $NOM = C + I + G + X - M$
- $dBUD/dG = -dG$
- $dNOM/dG = dG$
- $dDEBT/dG = dG*(1 -)$
- Impact on debt ratio depends on starting level and on $M0/NOM$
 - If $GDR < 100$, fiscal consolidation decreases GDR initially (no feedbacks) unless rise in money stock exceeds a threshold
 - if $GDR = 100$, fiscal consolidation increases GDR initially (no feedbacks) unless no rise in money stock
 - If $GDR > 100$, fiscal consolidation increases GDR initially (no feedbacks)

Note: TAX is total gov't revenue; OtherExp is other gov't expenditure; C, I, X and M are consumption, investment, exports and imports, respectively; GDR is government debt to GDP ratio



But there are feedbacks...

- $dBUD/dG < |-dG|$
- $dNOM/dG$ generally less than dG
- Debt ratio more likely to worsen initially in response to consolidation:
 - The larger your automatic stabilisers
 - The larger the multiplier
 - The larger the initial debt ratio
- In the longer-run, Debt ratio will improve in response to a permanent consolidation, as output returns to capacity and inflation returns to target
- But deviation can be prolonged

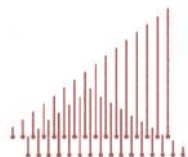


Econometric multiplier estimates based on unilateral policy measures...

- ... what happens when policy is synchronised? ... **And** transmission channels are impaired?
- Table shows ex-ante fiscal impulses 2011-2013

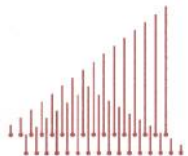
	2011			2012			2013		
	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based	Fiscal impulse (% of 2011 GDP)	of which tax based	of which spending based
Austria	-0.9	-0.4	-0.5	-0.4	-0.2	-0.3	-0.1	0	-0.1
Belgium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

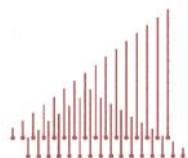
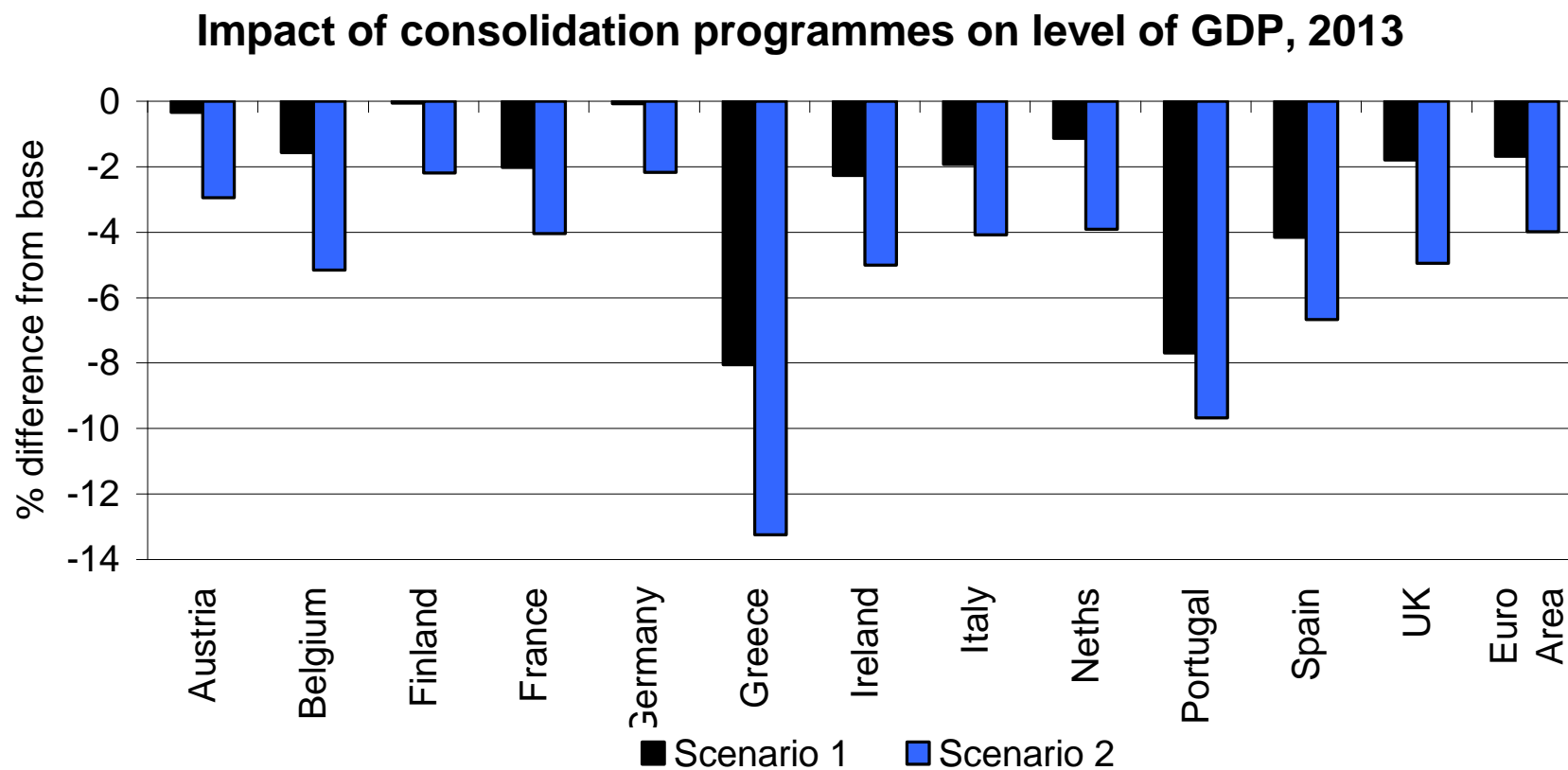


Two scenarios

- 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

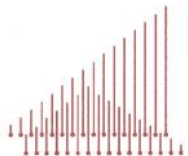
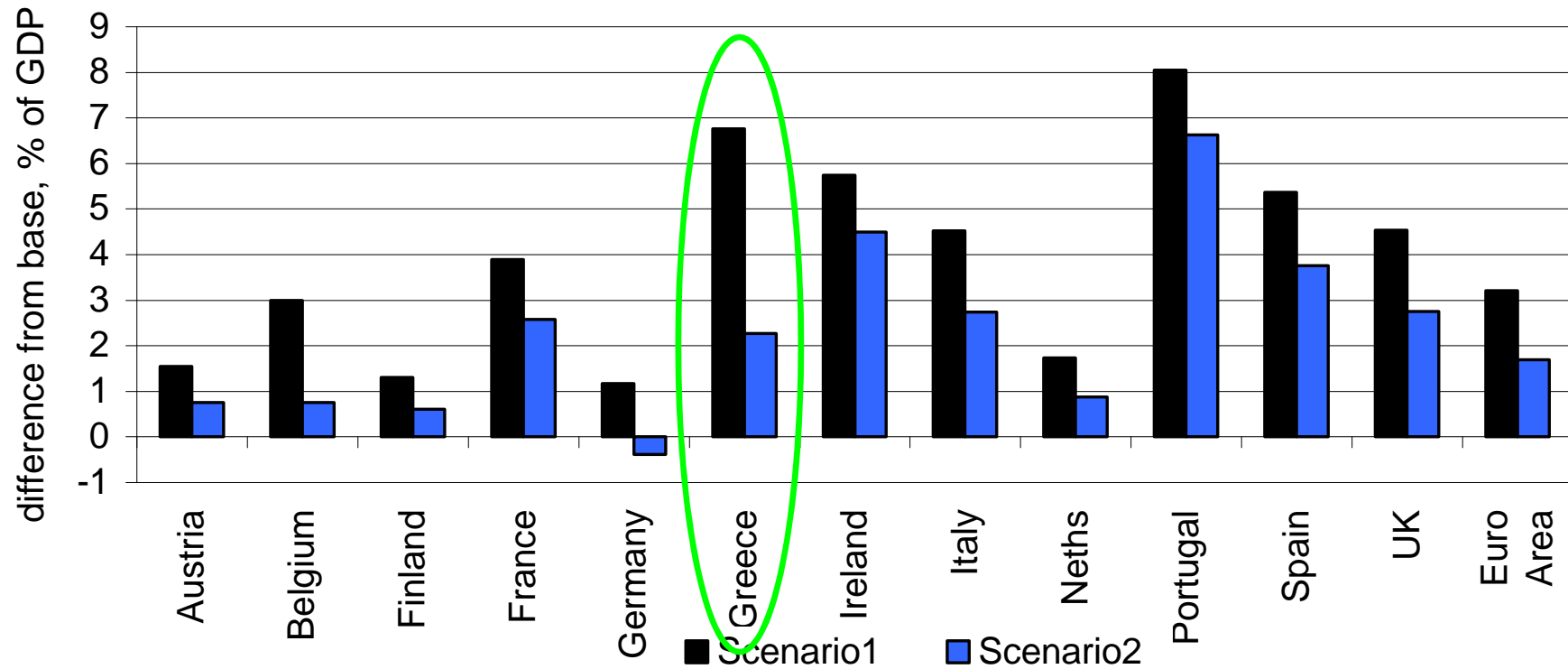


Output declines nearly double in most countries due to impaired interest rates/credit

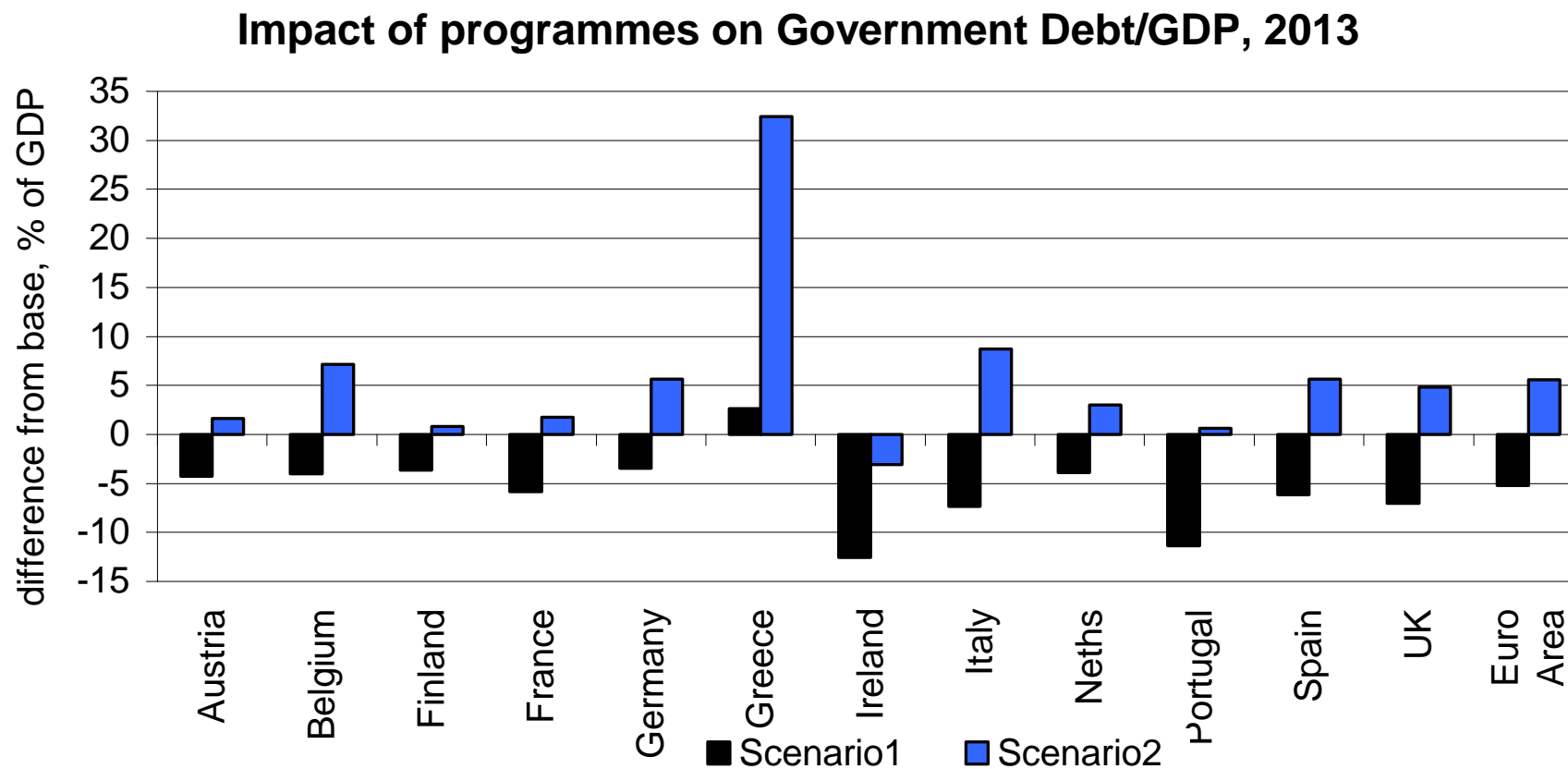


Fiscal balances improve, but not as much when output declines deepen

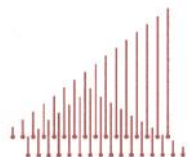
Impact of programmes on government budget balance, 2013



Perverse impact on Debt/GDP ratio with impaired transmission

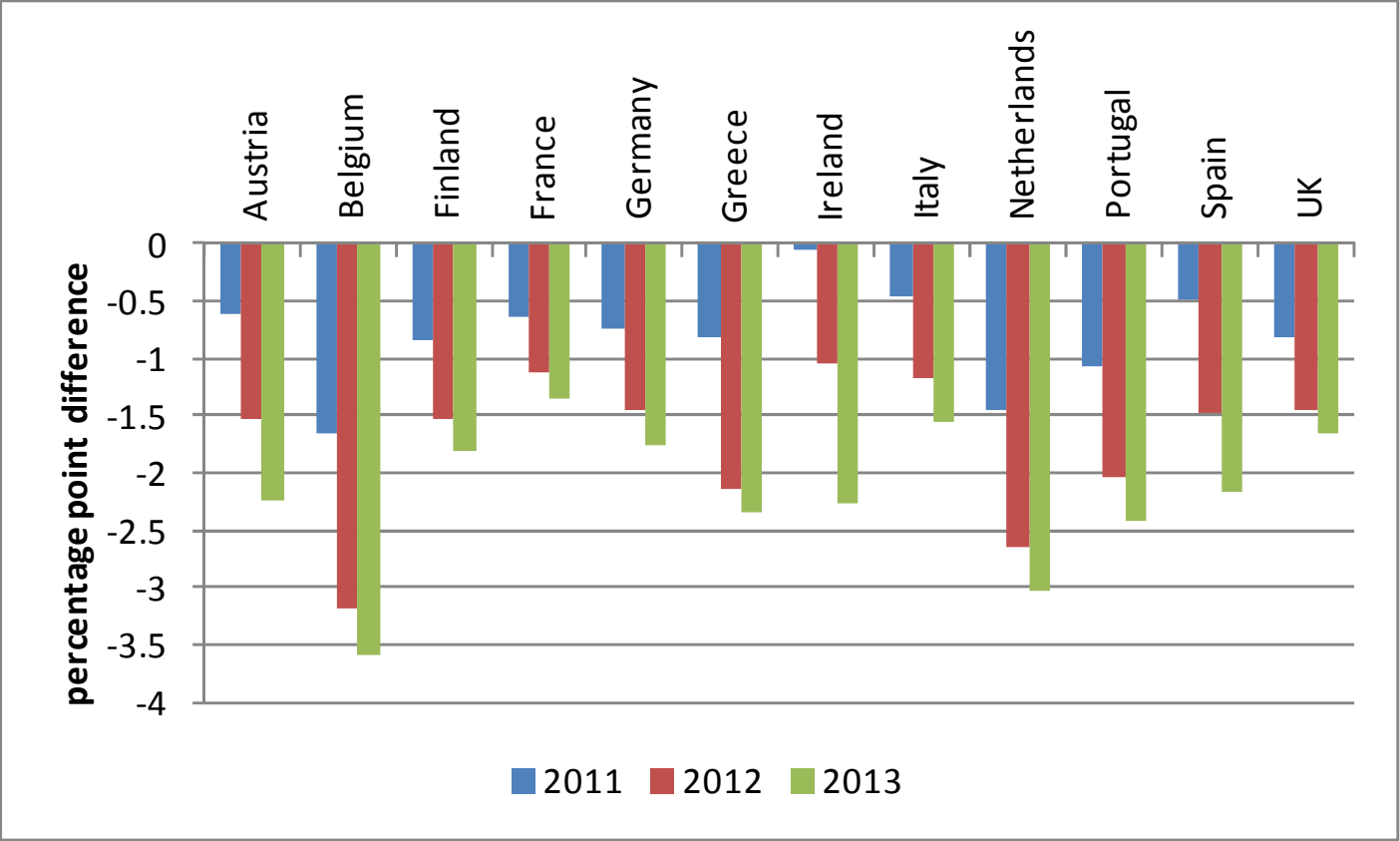


- **Feedbacks on government borrowing premia??**

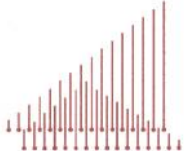


How much of decline due to spillovers from synchronised consolidation?

Impact of joint policy action relative to unilateral action



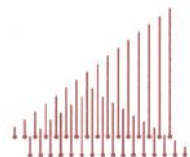
..... on average output declines by 2% by 2013 due to spillovers



Uncovering the implied multiplier

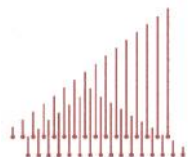
	Total ex-ante measures	Impact on GDP 2013	Of which		Implied multiplier
			<i>Spillovers</i>	<i>Domestic policy</i>	
Austria	-1.4	-2.9	-2.2	-0.7	0.5
Belgium	-3.2	-5.2	-3.5	-1.7	0.5
Finland	-1.0	-2.2	-1.7	-0.5	0.5
France	-4.8	-4.0	-1.3	-2.7	0.6
Germany	-0.8	-2.2	-1.7	-0.5	0.6
Greece	-9.8	-13.2	-2.4	-10.8	1.1
Ireland	-7.9	-5.0	-2.2	-2.8	0.4
Italy	-5.0	-4.1	-1.5	-2.6	0.5
Netherlands	-2.0	-3.9	-3.0	-0.9	0.5
Portugal	-9.9	-9.7	-2.4	-7.3	0.7
Spain	-6.0	-6.7	-2.1	-4.6	0.8
UK	-4.9	-5.0	-1.6	-3.4	0.7
Euro Area	-3.6	-4.0	-1.8	-2.2	0.6

- Note: Reflects policy mix described in slide 20



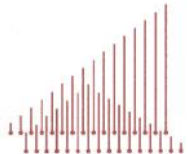
Key conclusions

- There was little agreement on the size of multipliers before the crisis....
- ...but it is generally agreed that multipliers are higher now than before the crisis
 - Impaired transmission mechanisms exacerbate effects on output
- As a result, the effectiveness of consolidation measures likely to be diminished at present
- Fiscal consolidation more likely to be ‘self-defeating’ at present
- Synchronised consolidation significantly aggravates the impact



Thank you

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