

Taxes and Growth

New Narrative Evidence from Interwar Britain

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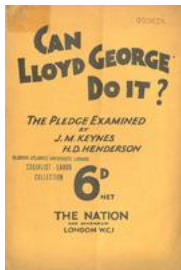
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Can fiscal policy affect economic activity?

- ▶ Long-standing and unresolved debate about the effects of fiscal policy and the “fiscal multiplier”.
- ▶ Many estimates focus on post-WWII. But there is much uncertainty. Pinning down causality is tough.
- ▶ *Can we learn anything from key episodes in history?*
 - ▶ *Yes, and in particular about the effect of tax changes*
- ▶ **Our question:** What are the effects of tax changes in Interwar Britain?

Interwar Britain: A contentious case



Keynes & Henderson (1929)

- ▶ Much of this debate focused on spending.
- ▶ *What about taxes?* Key part of the Keynesian toolkit post-WWII.

Taxes and growth: empirical challenges

- ▶ Tax policy affects GDP; GDP affects taxes.
 - ▶ The co-movement of fiscal policy and macroeconomic outcomes does not have a causal interpretation.

$$\Delta Y_t = \alpha_y + \beta \Delta \tau_t(\epsilon_t^Y) + \epsilon_t^Y$$

- ▶ We need a source of exogenous variation. But natural experiments are rare.
- ▶ What are the tax policy instruments?
 - ▶ Data on tax revenues are highly endogenous.

Our approach

A narrative analysis to isolate exogenous tax changes.

1. We focus on interwar Britain: 1919-1938 Data
 - ▶ The period is relevant: High debt environment, business cycle turbulence, low interest rates.
 - ▶ Historical period is useful for identification: Fiscal policy not used for stabilization, but many tax changes.
 - ▶ Of independent interest: Unsettled historical debate.
2. Official Budget documents: catalog ~ 300 tax changes
3. Use historical evidence to find exogenous variation (Romer & Romer 2010)

Contribution

- 1. New estimates of the effect of *tax changes* in the inter-war period**
 - ▶ “Multipliers” are large: exceeding 2 percent at the peak.
 - ▶ Similar to post-war narrative estimates.
 - ▶ Larger than military spending multipliers (Crafts & Mills (2013, 15)).
- 2. Estimates relevant for the current and post-war debate.**
- 3. Analysis provides important historical insights**
 - ▶ New analysis of interwar fiscal policy, and the personalities of the different British Chancellors.
 - ▶ New interwar dataset useful for future work.

Related Literature

- ▶ **Interwar multipliers:** Crafts & Mills (2013, 2015), Thomas (1981, 1983), Hatton (1987), Dimsdale & Horsewood (1995)
- ▶ **Defense expenditures:** Ramey & Shapiro (1997), Ramey (2011), Ramey & Zubairy (2017), Crafts & Mills (2013, 2015)
- ▶ **Narrative identification:** (Taxes) Romer & Romer (2010), Mertens & Ravn (2013, 2014), Cloyne (2013), Cloyne & Surico (2017), Hayo & Uhl (2013) (Taxes & Spending) Guarjardo et al. (2014), Jorda & Taylor (2016)
- ▶ **Identification using VARs:** E.g. Blanchard & Perotti (2002) + numerous applications.

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An interwar narrative approach

1. Identify all the tax policy changes

- ▶ Official UK Financial Statements [Timeline](#)
- ▶ Use the projected change in revenues

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2. Classify motivations for policy changes

- ▶ Need to understand the economic philosophy of the time, and the personalities and priorities of the UK Chancellors.
- ▶ Budget speeches from the Official Parliamentary Record.
- ▶ Extensive use of the historiography (eg. Daunton (2002, 2007), Matthew (1986), Moggridge (1972), Middleton (1985, 2015), Peden (1987, 2001), Pollard (1970), Short (1985), Tomlinson (1990)).

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3. Exogenous changes aggregated to quarterly frequency, relative to GDP

Tax changes, April 1920 Budget

TABLE IX. showing the effect of the PROPOSED ALTERATIONS in TAXATION and POSTAGE, &c., RATES.

	Estimate 1920-21. Increase + or Decrease -.	In a Full Year. Increase + or Decrease -.
	£	£
CUSTOMS.		
Spirits - - - - -	+ 6,000,000	+ 6,400,000
Beer - - - - -	+ 10,000	+ 20,000
Wine - - - - -	+ 3,800,000	+ 4,100,000
Tobacco (Cigars) - - - - -	+ 500,000	+ 530,000
Motor Spirit - - - - -	- 800,000	- 3,200,000
Total Customs - - - - -	+ 9,510,000	+ 7,850,000
EXCISE:		
Spirits - - - - -	+17,500,000	+18,100,000
Beer - - - - -	+22,430,000	+29,980,000
Motor Car and Motor Cycle Licences - - - - -	- 850,000	- 1,200,000
Total Excise - - - - -	+39,140,000	+46,880,000
TOTAL CUSTOMS AND EXCISE - - - - -	+48,650,000	+54,730,000
MOTION VEHICLE DUTIES - - - - -	+ 4,500,000	+ 9,000,000
ISLAND REVENUE:		
<i>Stamps:</i>		
Transfers of Stocks and Shares - - - - -	+ 1,500,000	+ 2,000,000
Marketable Securities and Share Warrants to Bearer - - - - -	+ 300,000	+ 500,000
Composition for Transfer Duty - - - - -	- - - - -	- - - - -
Companies' Share Capital Duty - - - - -	+ 3,000,000	+ 4,000,000
Receipts and Scrip Certificate - - - - -	+ 275,000	+ 550,000
Fire, Accident, &c. Policies - - - - -	+ 50,000	+ 100,000
Sea Policies - - - - -	+ 75,000	+ 150,000
Total Stamps - - - - -	+ 5,200,000	+ 6,300,000
<i>Income Tax:</i>		
Graduation, differentiation, abatements, allowances, &c. - - - - -	-11,500,000	-29,200,000
Abolition of temporary war reliefs, including reduced rates of tax on pay of sailors, soldiers, &c. - - - - -	+ 2,000,000	+ 3,900,000
Relief for double income tax within the Empire - - - - -	- 500,000	- 2,000,000
<i>Super Tax:</i>		
Increase and extension of scale of rates of duty - - - - -	+ 8,800,000	+11,000,000
Total Income Tax (including Super-tax) - - - - -	- 1,200,000	-16,300,000
<i>Excess Profits Duty:</i>		
Increase from 40 per cent. to 60 per cent., on profits accruing from 1 January, 1920 - - - - -	+10,000,000	+100,000,000
<i>Corporation Profits Tax:</i>		
Duty on the income of limited liability concerns engaged in trade, &c., on profits accruing from 1 January, 1920 - - - - -	+ 3,000,000	+ 35,000,000
TOTAL ISLAND REVENUE - - - - -	+17,000,000	+125,000,000
POSTAGE RATES (excluding Postcards and Printed Papers) - - - - -	+ 6,500,000	+ 9,500,000
GRAND TOTAL - - - - -	+76,650,000	+198,230,000

Income Tax changes, April 1920 Budget

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An interwar narrative strategy

- ▶ Policymaking mostly “pre-Keynesian.”
- ▶ Lack of stabilization policy useful for identification. Many tax decisions made for purely ideological reasons:
 - ▶ Imperial Preference
 - ▶ Making society less unequal
 - ▶ Long-run productivity performance.
- ▶ **But...** deficits, debt and the size of the state featured heavily in the debate.

Budgetary Orthodoxy

- ▶ Small and balanced budget. Importance of the “Minimal balanced budget rule (MBBR)” (Middleton, 1996).
- ▶ A strong, pervasive and long-standing principle of fiscal policy making in Britain (Middleton, 1985).
 - ▶ Gladstonian finance (Peden, 1987; Hicks, 1953).
 - ▶ Exchequer and Audit Act (1866): Treasury control over all other departments (Matthew, 1986).
- ▶ Basis of the “Treasury View,” permeating across the political spectrum (Moggridge, 1972).
- ▶ Useful concepts: sinking fund approach to debt repayment and the “Normal Year”

Classification of motives

Group	Sub-category
Endogenous (N)	<ol style="list-style-type: none">1. Crisis deficit reduction (DR)2. Spending-driven changes (SD)3. Countercyclical measures: stimulate production (SS) and (perhaps) demand (DS)
Exogenous (X)	<ol style="list-style-type: none">1. Long-run performance (LR)2. Social/ideological objectives (IL)3. Fiscal consolidation (FC)

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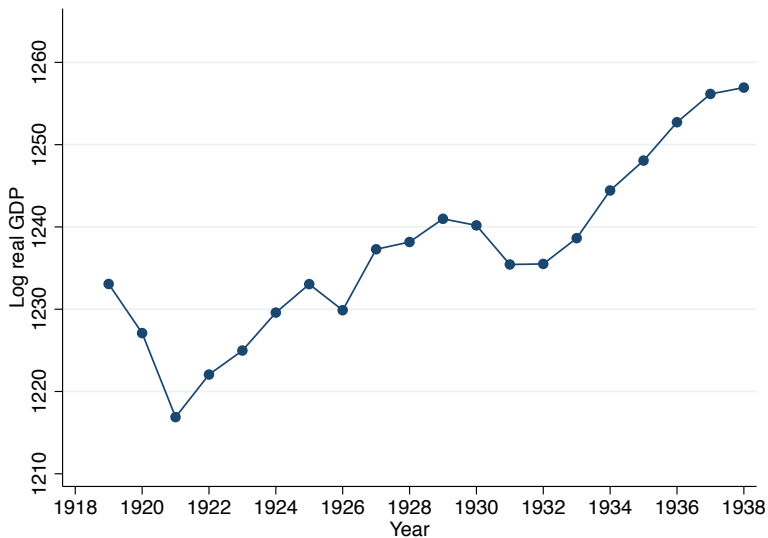
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Real GDP in Interwar Britain



Source: Mitchell et al. (2012); Hills et al. (2017)

Data

British Fiscal Policy 1919-1938

1. Early Postwar Policy (1919-1924)
2. Churchill (1925-1930)
3. Crisis and Recovery (1931-1935)
4. Rearmament (1936-1938)

1. The early postwar years (1919-1924)

- ▶ **Austen Chamberlain** was a firm believer in retrenchment and Imperial Preference (Short, 1985, p. xvii).
 - ▶ 1919 budget — no emergency. Still raised estate duties: *“Death Duties are not a suitable instrument for meeting a temporary emergency”* → **exogenous** (FC).
 - ▶ Tariffs reflected Imperial Preference → **exogenous** (IL).
 - ▶ Underestimation of spending led to crisis → 1920 large tax increase **endogenous** (DR).

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- ▶ **Horne** unique among interwar Chancellors: believed in **benefits of stimulation** (Peden, 2000).
 - ▶ By 1922 unemployment was high. Refrained from raising taxes. Tax cuts can be seen as **endogenous** (SS).

1. The early postwar years (1919-1924)

- ▶ The “**normal year**” concept was fully embraced by **Baldwin** and **Snowden** (Snowden, 1920).

- ▶ Snowden, a Labour Chancellor:

“When the Government borrows the savings of private individuals, or the reserve funds of public companies, the Government spends what would otherwise have been spent by these private individuals” (Snowden 1920, p. 27).

- ▶ Only differed from Conservative Chancellors in his will to reduce inequality and lay more of the taxation burden on the rich.
 - ▶ Both Chancellors decreased the tax burden in 1923 and 1924 (Snowden significantly so) → **exogenous** (IL/LR).

2. Churchill (1925-1930)

- ▶ “Gigantic taxation” and deflation **served rentier class.**

*“There is more to the life of a nation than the development of an immense rentier class quartered in perpetuity upon the struggling producer of new wealth.”
(Daunton, 2002, p. 123).*

- ▶ Sought to restore the balance: 1925 large reduction in income tax while raising estate duty → **exogenous** (LR).

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- ▶ Sought to restore the balance: 1925 large reduction in income tax while raising estate duty → **exogenous** (LR).
- ▶ Low taxes for all and a balanced budget **not Churchill's cup of tea** (Hancock, 1970).
 - ▶ Deficit reduction only when faced with a severe budgetary situation (e.g. 1926 & 1927).
 - ▶ To preserve the appearance of a balanced budget, resorted to “my adventitious resources” (eg. raiding the Road Fund).
 - ▶ Prepared to stimulate, e.g. in 1928.
→ All these are **endogenous** (SS, DR).

2. Churchill (1925-1930)

Snowden returned in 1930 and could not support Churchill's "relative profligacy" (Tomlinson, 1990).

- ▶ Reasserted his will and raised taxes (Daunton, 2002).
- ▶ Tone of the 1930 Budget is not one of emergency. Promised no new taxes in the future. → **exogenous** (FC).

*"... industry as a whole continued to hold its ground... I am departing from the policy of recent years which has been acted on the precept of postponing the evil day. My proposals this year will be framed in such a way that whatever the revenue they yield this year, they will yield greater sums in 1931 and later years **in order to meet this legacy of indebtedness.**"*

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- ▶ Churchill accused Snowden and the Treasury of being:

"like-minded spirits who 'embraced themselves with all the fervour of two long-separated kindred lizards'" (ibid.).

3. Crisis and Recovery (1931-1935)

- ▶ **Snowden's Sept 1931 Budget** was clearly endogenous:
 - ▶ Economy quickly deteriorated during 1930-1931.
 - ▶ Snowden had only raised oil duty in his April Budget but appointed the May Committee to propose cuts.
 - ▶ Labour Party could not agree on cuts, new government in August, Britain came off Gold, supplementary Budget in September.
 - ▶ **Substantially** increased taxes, including taxes on the poor
→ **endogenous** (DR).

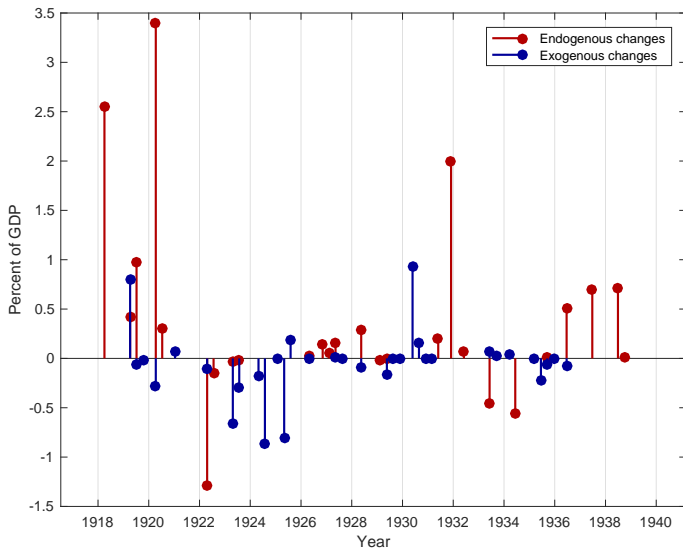
3. Crisis and Recovery (1931-1935)

- ▶ **Neville Chamberlain** had always been a strong advocate of **Imperial Preference** (Self, 2006).
 - ▶ But seriousness of the economic situation was the ultimate driver of 1932 tariff increases → **endogenous** (DR).
- ▶ **Stimulus measures** were introduced in 1933 and 1934 → **endogenous** (DM, SS).
- ▶ **By 1935....**
 - ▶ Cuts to income tax and entertainment duty
 - ▶ A desire to return to normal times + focus on lower income households → **exogenous** (IL).

4. Rearmament (1936-1938)

- ▶ **Preparations for war** dominated the rest of the period.
- ▶ Budgets between 1936 and 1938 all refer to rearmament as the main priority → **endogenous** (SD).
- ▶ Only **exception** are some 1936 tax cuts by Chamberlain. Small provisions against tax avoidance → **exogenous** (IL).

The new tax shock series



Was this analysis worth the effort?

H_0 : the tax series is not predictable

Series	Test statistic	p-value
<i>Exogenous series</i>		
GDP	0.47	0.98
Unemployment	1.62	0.81
Bank rate	3.41	0.49
Consumer prices	1.98	0.74
<i>Endogenous series</i>		
GDP	11.66	0.02
Unemployment	11.62	0.02
Bank rate	34.83	0.00
Consumer prices	8.89	0.06

Granger causality tests using four lags of each variable.

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Estimation strategy

- ▶ Estimation of the IRF using local projections:

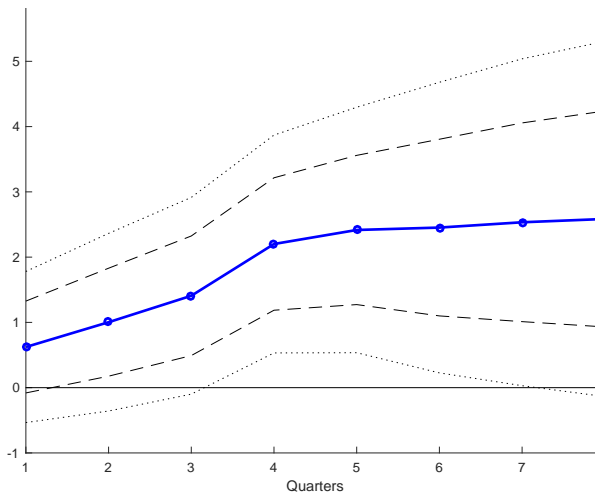
$$\ln Y_{t+h} - \ln Y_{t-1} = \alpha^h + \beta^h \Delta \tau_t + \Gamma^h(L) X_{t-1} + u_{t+h}$$

where $\Delta \tau_t$ are the narrative tax shocks as a share of GDP.

- ▶ Baseline multiplier concept: the **cumulative, present value multiplier** at time k :

$$\frac{\sum_{j=0}^k (1+r)^{-j} \Delta Y_{t+j}}{\sum_{j=0}^k (1+r)^{-j} \Delta T_{t+j}}$$

The GDP Tax Multiplier



Cumulative (present value) GDP multiplier assuming taxes are reduced by 1% of GDP for 8 quarters [Raw IRF](#) [Receipts/GDP](#)

Real GDP source: Mitchell, Solomou and Weale (2012) [More](#)

Further Results

- ▶ **Unemployment** falls. [More](#)
- ▶ **Bank Rate** increases.
- ▶ Only weak evidence of an effect on prices.
- ▶ **Unanticipated changes**: very little effect, 80% of changes are implemented shortly after they are announced. [More](#)
- ▶ **Excluding fiscal consolidation** measures yields similar magnitudes. [More](#)
- ▶ **Shocks as instruments**: very similar results...

Robustness: IV approach

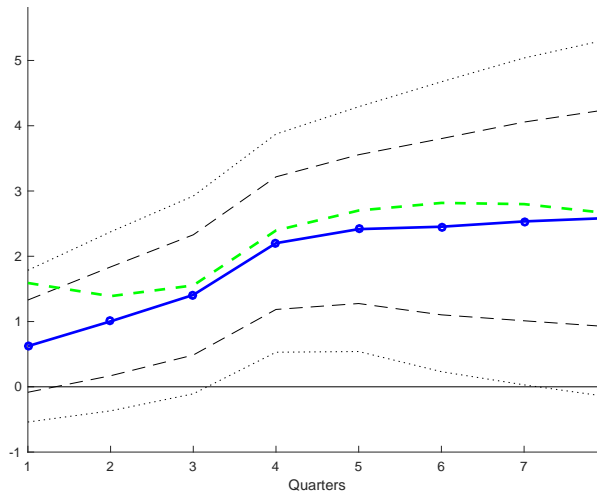
- ▶ So far, we've made assumptions about how revenue responds.
- ▶ Use Lennard (2018) receipts data, calculate cumulative effects on GDP and tax revenues and take the ratio.

$$\ln GDP_{t+h} - \ln GDP_{t-1} = \alpha^{y,h} + \beta^{y,h} \Delta \tau_t + \Gamma^{y,h}(L) X_{t-1} + u_{t+h}^y$$

$$(T_{t+h} - T_{t-1}) / GDP_{t-1} = \alpha^{T,h} + \beta^{T,h} \Delta \tau_t + \Gamma^{T,h}(L) X_{t-1} + u_{t+h}^T$$

- ▶ Equivalent to using our shocks as instruments for taxes (e.g. Mertens and Ravn 2013).

IV approach: Multiplier using tax receipts data



IRF for receipts/GDP

Further Robustness

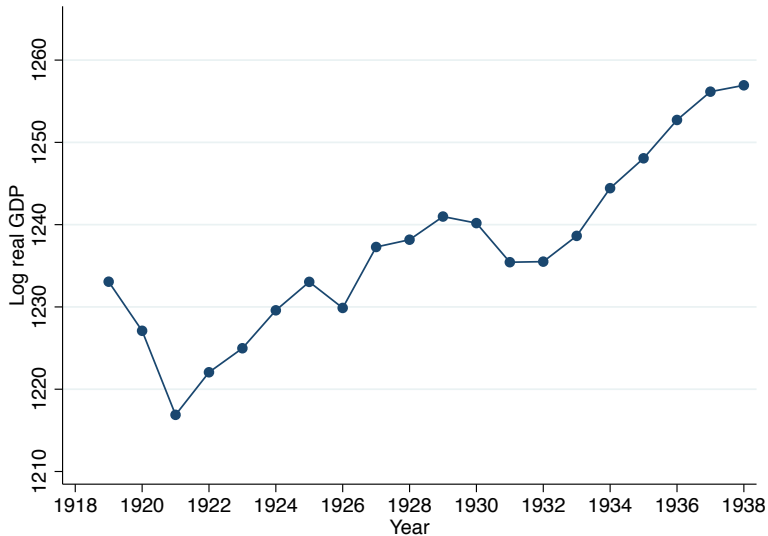
- ▶ **Lag structure:** responses very similar, with effects around 2 and 3. [Figure](#)
- ▶ **Additional controls** e.g. wages and the exchange rate: responses very similar, although standard errors become larger. [Figure](#)
- ▶ **Fiscal controls:** gov't spending and the deficit. [Figure](#)
- ▶ Dropping tax changes with **retroactive elements**. [Figure](#)
- ▶ Changing the **timing of the shocks**. [Figure](#)

Conclusion

- ▶ We find that the (cumulative, PV) tax multiplier is around 0.5 percent on impact, and exceeds 2 percent after four quarters.
- ▶ Larger than spending estimates by Crafts & Mills (2013, 2015). Remarkable similarity with post-WWII estimates.
- ▶ Interwar tax multiplier seem to be large, despite high debt and turbulent business cycle environment.
- ▶ Calculated using an extensive narrative analysis of the UK interwar period.

Extra slides

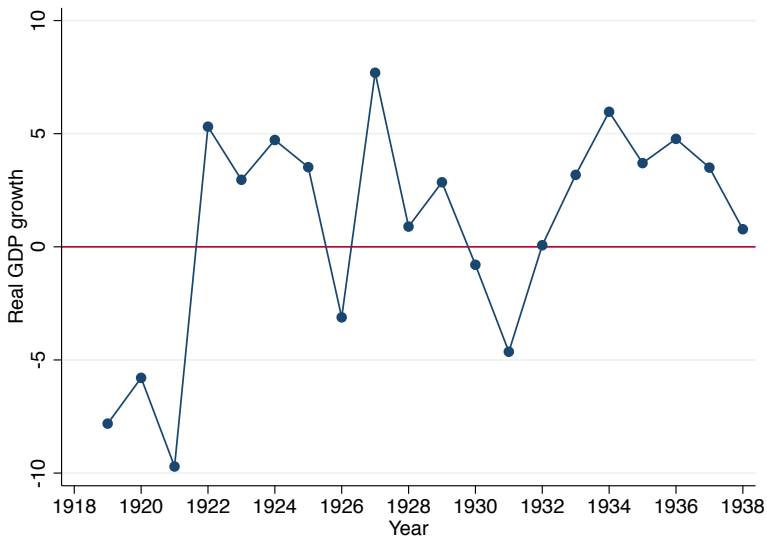
Real GDP



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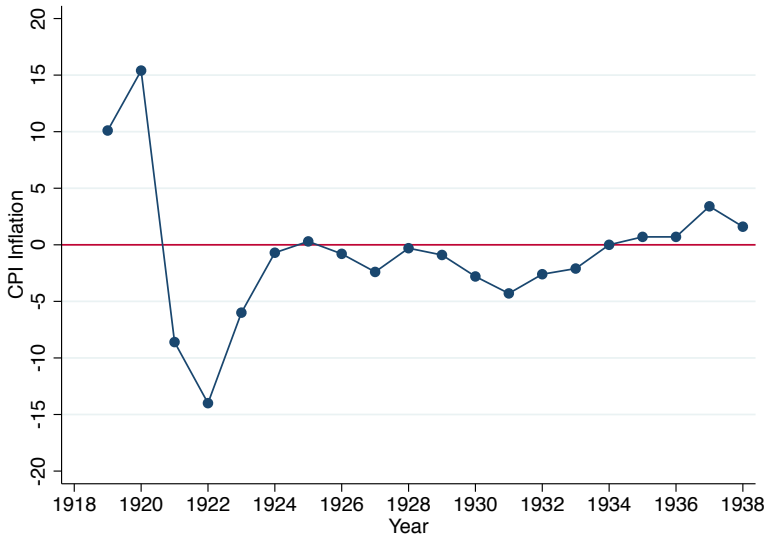
Real GDP Growth



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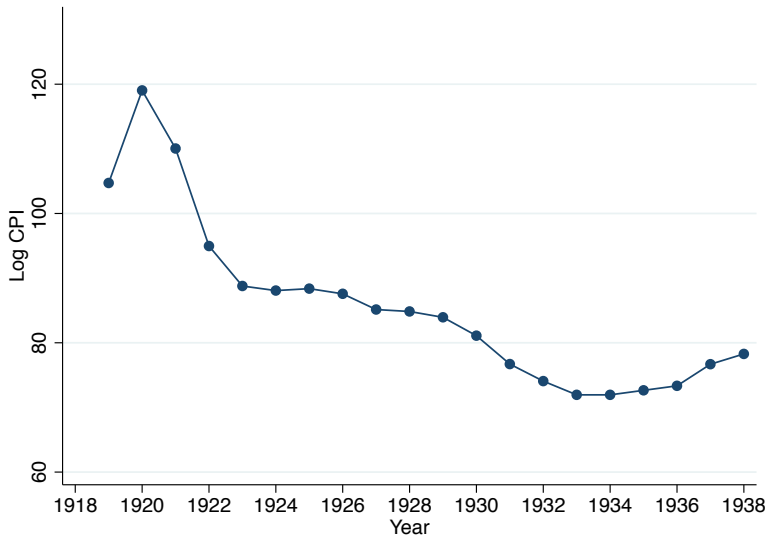
CPI Inflation



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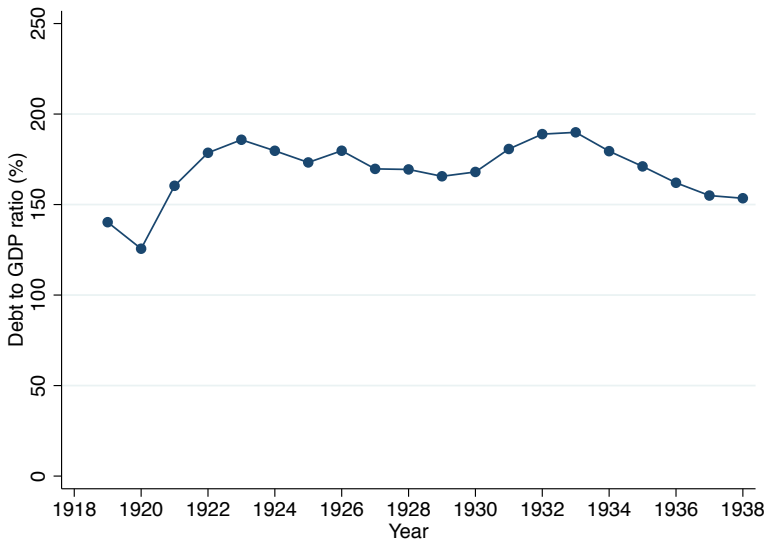
Consumer Prices Index



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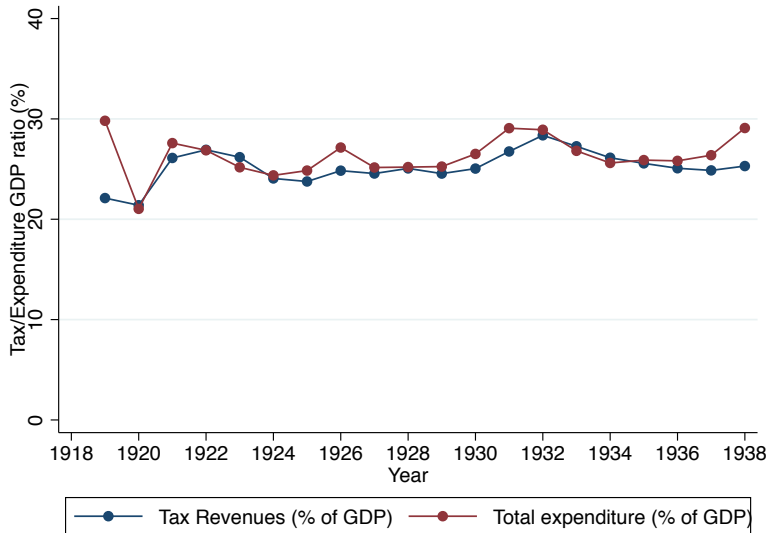
Debt to GDP ratio



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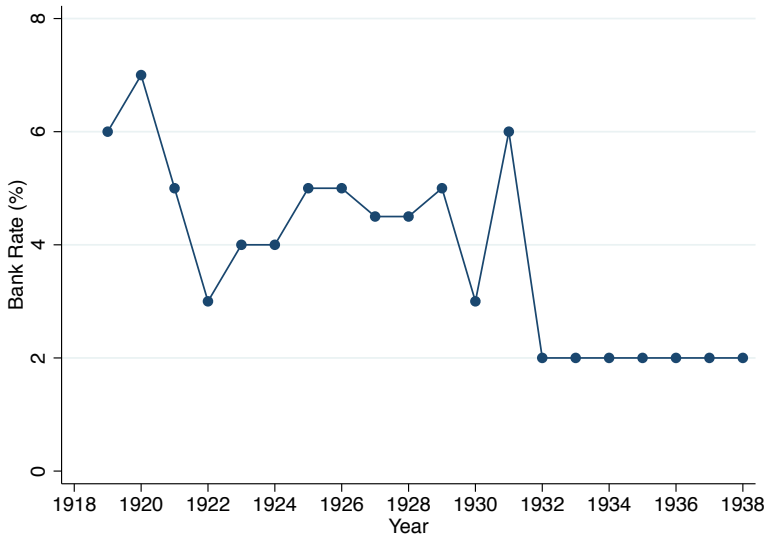
Taxes and Expenditure



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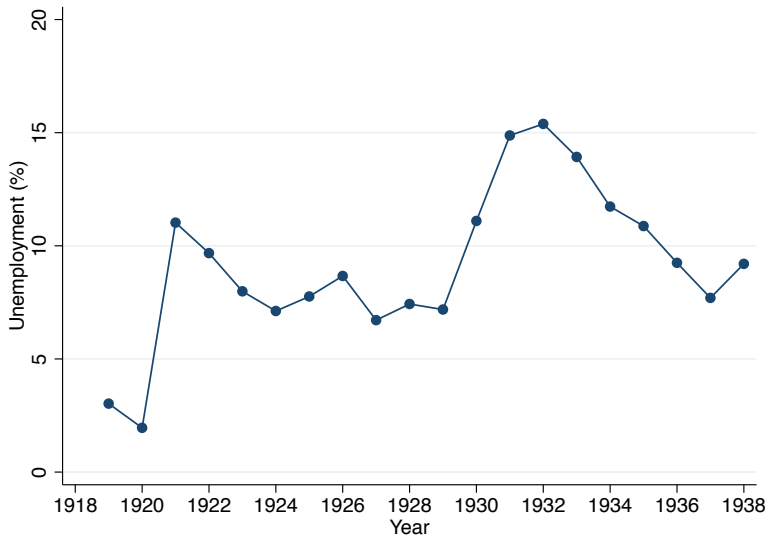
Bank Rate



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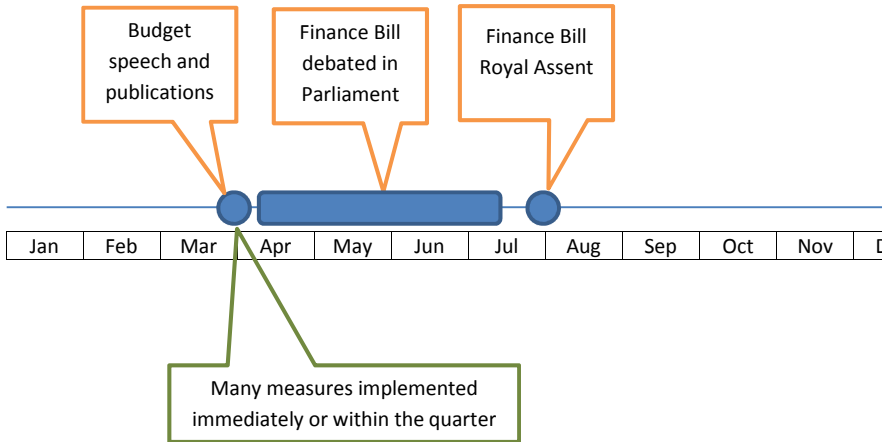
Unemployment Rate



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The British Budget Process

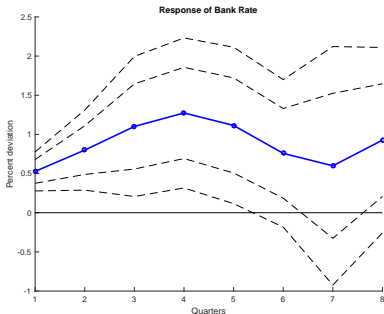
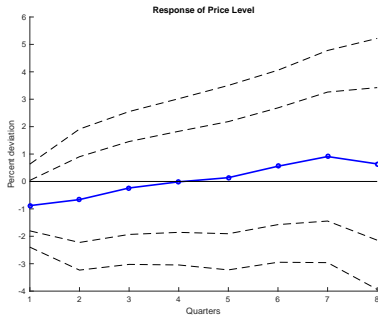
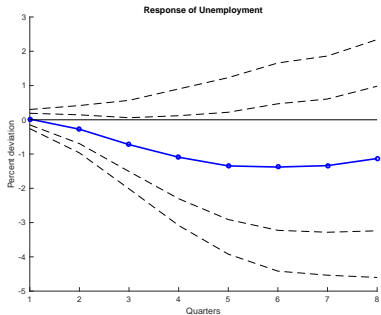


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Quarterly data sources

- ▶ **Our new tax series:** Financial Statements and Hansard.
- ▶ **GDP:** Mitchell, Solomou and Weale (2012);
- ▶ **Bank Rate:** “A Millennium of Macroeconomic Data”, Bank of England
- ▶ **Unemployment:** Based on administrative data, “A Millennium of Macroeconomic Data”, Bank of England
- ▶ **Prices:** Consumer Price Index, “A Millennium of Macroeconomic Data”, Bank of England

Unemployment falls, prices rise, Bank Rate increases



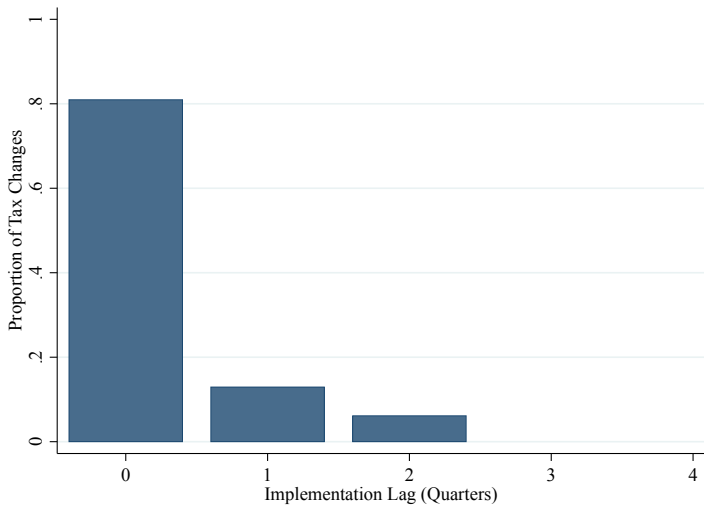
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Anticipation

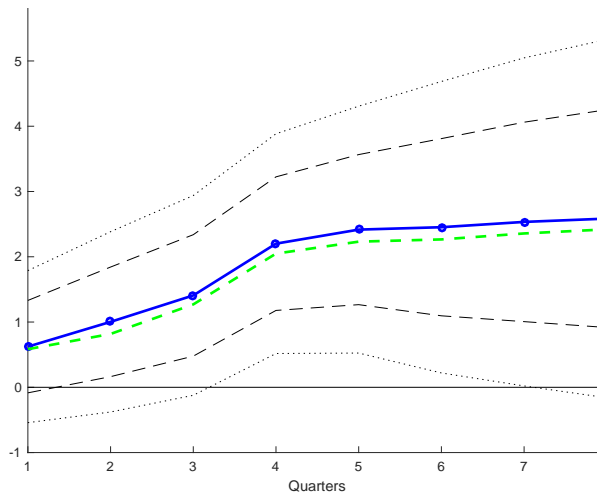
Some tax changes were announced and implemented at different times – how do we deal with **anticipation**?

- ▶ We use the implementation date as the shock date (though note: actions taking place in the second half of one quarter take place in the next quarter).
- ▶ Over **80% of 147 shocks** were implemented within the same quarter as they were announced.
- ▶ Granger causality tests suggest these shocks were not anticipated.
- ▶ Our VAR includes lagged macroeconomic variables, which should control for some predictability.
- ▶ We can also exclude measures implemented with a lag (Mertens & Ravn 2012)

Implementation Lags

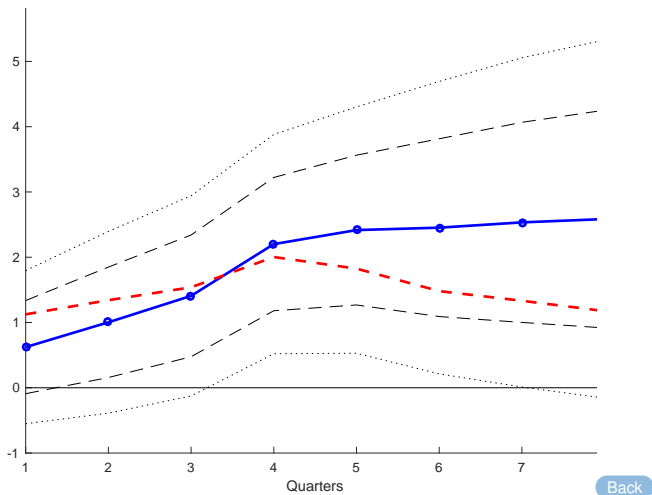


Unanticipated shocks only

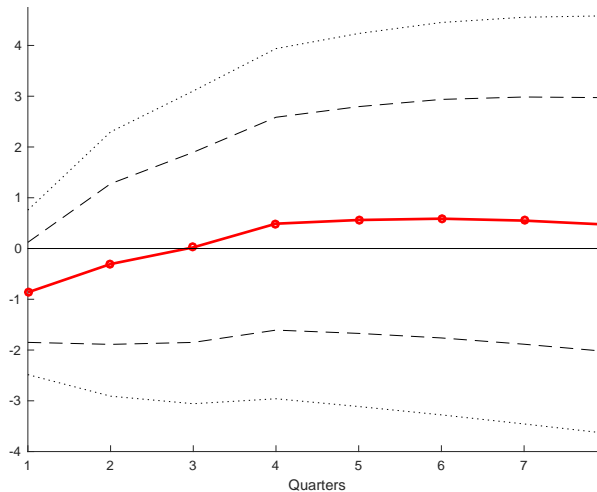


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Excluding fiscal consolidation measures

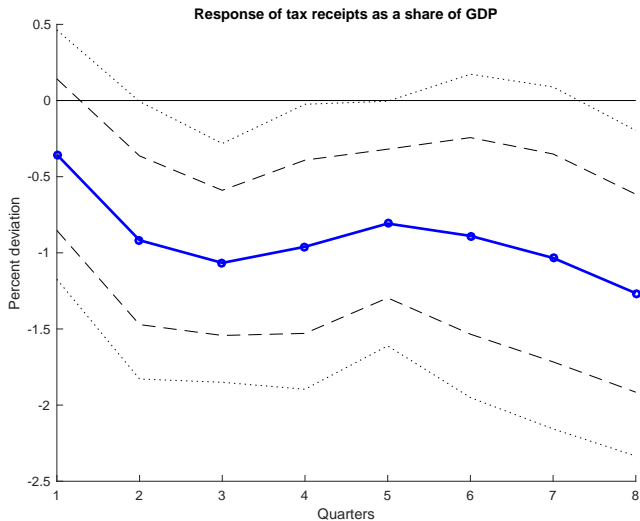


Different results using the endogenous tax changes



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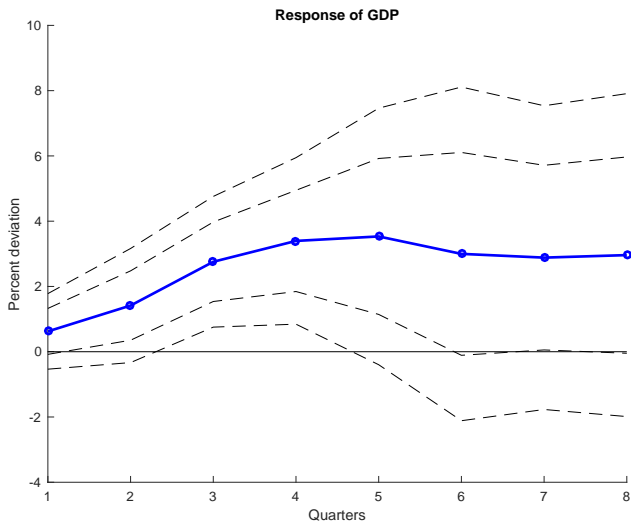
Response of revenues as a share of GDP



Baseline Results

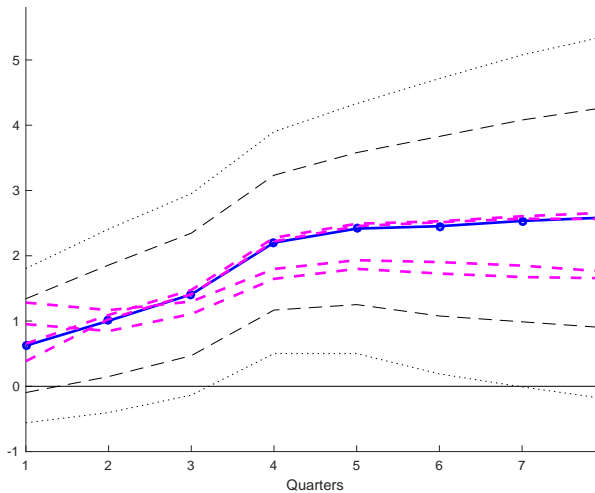
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Impulse response function for GDP



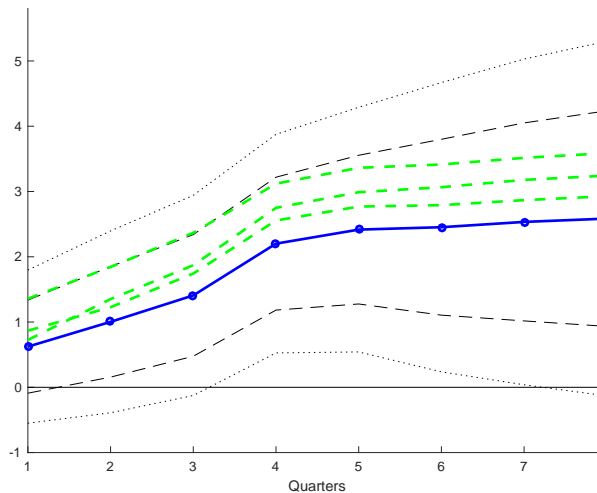
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Lag length



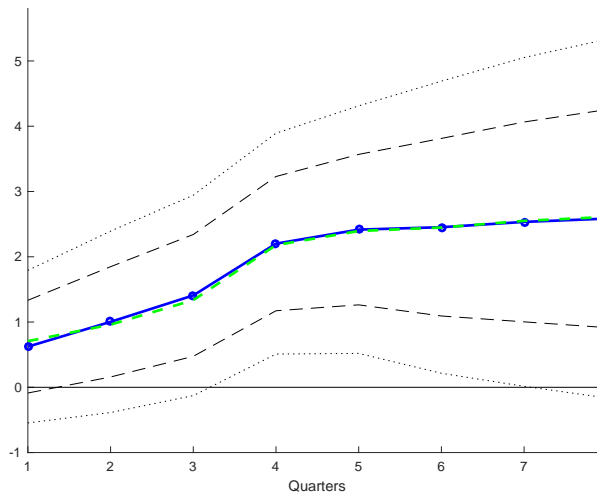
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Number of controls



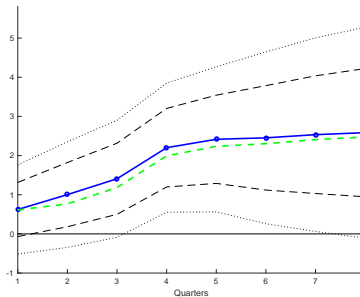
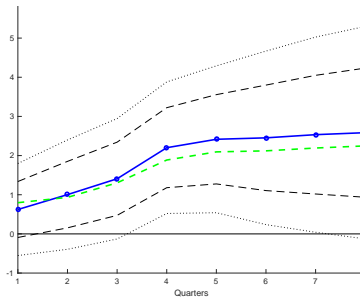
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Controlling for the exchange rate



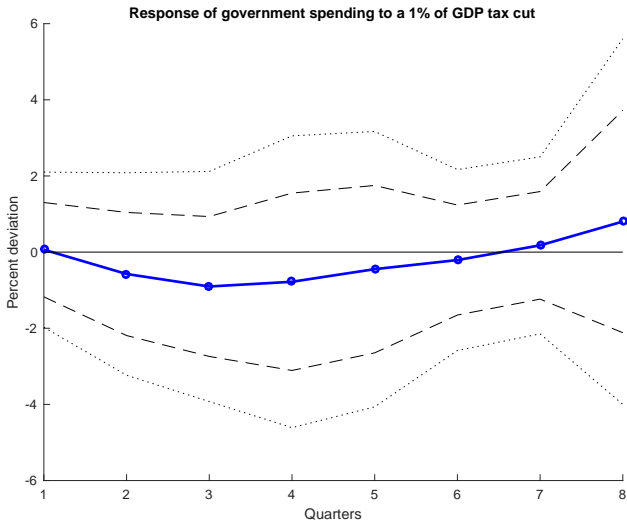
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Adding deficit and spending controls

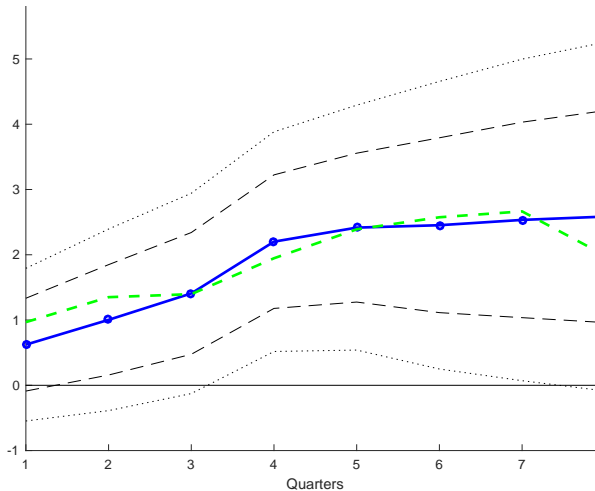


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Impulse response function for government spending as a share of GDP

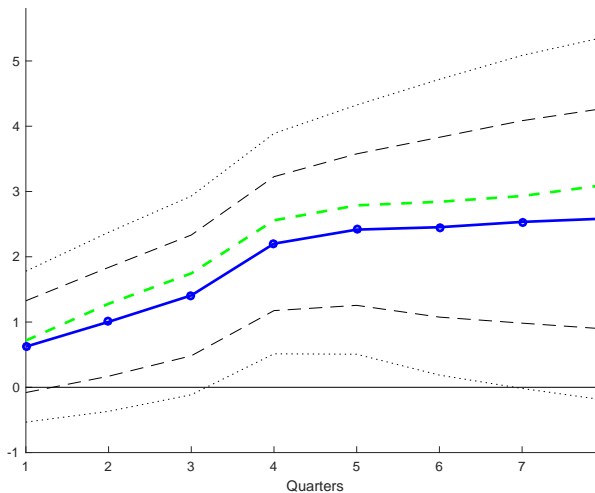


Dropping measures with retroactive elements



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Changing the timing of the shocks



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