Staff Working Paper No. 968
Macroeconomic policymaking in interwar Britain: a reappraisal
David Ronicle

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Abstract

This paper brings together modern empirical techniques with contemporary high-frequency data to fill two prominent gaps in the literature on Britain's interwar years: what were the quantitative effects of monetary policy on unemployment and prices in the years 1919 to 1938; and, how did that compare to the effects of fiscal policy? Its specific innovation is to draw on a previously little-used weekly publication of public finance statistics, allowing the roles of monetary policy, taxation and public spending to be assessed side-by-side in a coherent framework – a structural vector autoregression identified with sign restrictions. In a period of particularly unsettled policy, I find that policy shocks, both monetary and fiscal, made a material contribution to variation in prices and unemployment and played a central role in the two great recessions of the period, modern Britain's most severe. Other macroeconomic policy choices could have delivered better outcomes for prices and unemployment, but this would have required making different choices in the face of conflicting objectives and some sharp trade-offs.

Key words: Monetary policy, fiscal policy, economic history, Great Depression.

JEL classification: E3, E52, E6, N14, N44.

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1 Introduction

Macroeconomic outcomes in Britain between the First and Second World Wars[1] were terrible; they featured modern Britain's two most severe recessions, both of which saw falling prices and peak unemployment above 20 per cent. There were profound changes in the policy framework, most pertinently the restoration and subsequent abandoning of the gold standard. The macroeconomic policy stance, meanwhile, was pulled in multiple directions by multiple objectives: employment; price and financial stability; and, debt sustainability.

That joint volatility, of both key macroeconomic aggregates and the policy stance, is both a promising opportunity for the researcher and begs the question of what role macroeconomic policy, both monetary and fiscal, played in these outcomes. This is not a new area of investigation — Britain's interwar travails stimulated work by Keynes, Pigou and Schumpeter, amongst others, and many of the topics they discussed remain live issues. The period has been revisited frequently: authors in the 1980s were interested in understanding another period of high unemployment (e.g. Garside, 1990); the 1990s saw renewed interest from those looking to understand the Great Depression in an international context (Bernanke, 1995; Eichengreen, 1992); the 2000s saw interest from those looking for parallels to the Global Financial Crisis (Hatton and Thomas, 2010; Middleton, 2010); most recently, the period has been examined for lessons on fiscal policy and liquidity traps (Cloyne et al., 2023; Crafts and Mills, 2013; Ellison et al., 2024).

Nonetheless, there remain prominent gaps in the literature, which this paper attempts to address. First, to the best of this author's knowledge, there have been no empirical studies spanning the entire period that assess the effects of monetary policy on unemployment and prices. Second, there have been no

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[1]Throughout this text, the terms pre- and postwar will generally refer to the First World War, the epochal event for those living in the period.

empirical studies for these years that assess monetary policy and fiscal policy side-by-side.

So what role did monetary and fiscal policy play in this period? I find that they played an important one. Monetary policy, taxation and government spending shocks could have material effects on unemployment and prices — and the way that they were deployed meant that they did so. Of the three, monetary policy shocks had the larger and more persistent effects — and spending shocks the smallest and most short-lived. And, as long suspected in the literature, policy choices were regularly pro-cyclical.

Re-examining the period through the lens of these results raises important challenges to the established narratives for both the 1920s and 1930s. Where the literature on the 1920s has focused on the role of monetary policy, the return to the gold standard and the overvaluation of sterling, I find that: the postwar boom was stoked by loose fiscal policy; that fiscal consolidation was a major factor in the following bust; and, that the ongoing contraction in public spending allowed gold to be restored with an easier monetary policy than would otherwise have been the case — lending quantitative weight to the suspicion that the Bank was allowing itself to be influenced by domestic considerations, not just the need to restore gold. If the existing literature on the 1920s has focused excessively on monetary policy to the neglect of fiscal, the reverse is true of the 1930s. The focus on fiscal policy, coloured by the failure to adopt fiscal stimulus, has overshadowed the success of the policy actually pursued — the "cheap money" policy of historically low interest rates. Monetary policy played a very strong role in the recovery of the 1930s, especially when allowing for the sharp rise in inflation expectations following Britain's exit from gold that has been emphasised by Crafts (2013), Ellison et al. (2024) and Lennard et al. (2023).

An obvious implication of these results is that better outcomes might have been achieved in the period with alternative polices: a slower fiscal consolidation in the 1920s, a later return to gold (perhaps at a devalued parity) and a less aggressive defence of sterling in 1931 could all have kept unemployment lower and prices higher. A counterfactual exercise suggests that monetary policy was the most powerful tool for supporting recovery in the 1930s — though that result wouldn't have precluded the use of fiscal policy as further support. But doing any of those things would have required agreement on pursuing different objectives — a weaker commitment to gold and balanced budgets — something that would have been challenging, given both the centrality of these orthodoxies in policymakers' understanding of Britain's economic stability and global role (Daunton, 2007), and the unfavourable lessons they took from the experiences of peers.

To arrive at my results, I apply a well-established and parsimonious empirical strategy to monthly time series which were available at the time — a structural vector autoregression identified with sign restrictions, in the spirit of Mountford and Uhlig (2009). I adjust the approach of Mountford and Uhlig, to take account of recent critiques, notably those of Arias et al. (2018) and Caldara and Kamps (2017). Specifically, I drop the "penalty function" approach of Mountford and Uhlig, replacing it with the approach suggested in Arias et al., and uniquely identify each of the model's shocks.

As a final contribution, I construct a new monthly dataset of central government revenue and expenditure, drawing on an under-exploited contemporary source of data on the UK's public finances[2]. I hand-collected the weekly *Receipts into and Issues out of the Exchequer*, published in the British government's official journal, *The Gazette*. I then aggregated these to monthly figures and

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[2]Though this data has been employed at quarterly frequency by Cloyne et al. (2023) and monthly by Lennard (2020).

adjusted them to better reflect modern national accounting standards. I hope these series will further enrich the already impressive body of data available for this period at high frequency (Albers, 2018; Capie and Collins, 1983; Ellison et al., 2024).

Wider literature. Although this period has been intensively debated[3], empirical studies — especially recent ones — are relatively few and far between. Based on archival sources and discussion of the data, the broad contention of the current literature is that monetary and fiscal policies were frequently acting to accentuate the swings of the business cycle, not dampen them (e.g. Middleton, 2010).

In the case of fiscal policy, this was the result of the commitment to balanced budgets and debt reduction (Middleton, 2010). Although central government remained large postwar, with taxes and spending equivalent to a quarter of GDP (three times its pre-war size), the government quickly returned to "balanced budgets". In practice, this meant positive primary surpluses, to help bring down Britain's very large postwar stock of public debt. As part of the annual budget process, policy was pre-emptively tightened in the face of prospective deficits; as a result, the potential supportive effects from "automatic stabilisers" were frequently overridden, leading to pro-cyclicality (Cloyne et al., 2023; Middleton, 2010). There were two mild deviations from this policy: i) "window-dressing" (essentially artful accounting) was used in the 1920s to suggest the stance of policy was tighter than it was in practice; ii) rising tensions in Europe led Britain to rearm, which led to rising spending in the late 1930s. Recent empirical work has explored the effects of fiscal policy in the period: Cloyne et al. (2023) use the narrative approach of Romer and Romer (2010) to suggest

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[3]Many rich accounts of the period exist: Eichengreen (2004) provides an accessible introduction, Howson (1975) and Sayers (1976) provide detailed archival accounts, with a Treasury and Bank of England focus respectively, while Eichengreen (1992) covers developments in a broader international context.

that tax changes could have material effects on GDP, while Crafts and Mills (2013) found that defence spending in the 1930s probably played only a small role in recovery. An older literature on fiscal policy in this period begins with Keynes and Henderson (1929), who argued that the Liberals' 1929 campaign platform, of deficit-financed public works, would have made a material dent in unemployment — the most recent papers on whether "Lloyd George can do it" have tended to argue that fiscal stimulus would have had only temporary effects, unless it led to supply-side changes (Dimsdale and Horsewood, 1995; Matthews, 1989).

The case of monetary policy was more complex (Dimsdale, 1981; Eichengreen, 1992; Middleton, 2010) and the empirical literature, at least assessing the effects of policy on the domestic economy, is sparser than that on the effects of fiscal policy[4]. Monetary policy had an ideological lodestone just as strong as balanced budgets were to fiscal policy — the gold standard. The gold standard didn't automatically generate pro-cyclicality, but the choices made by British policymakers, who aspired to restore the standard on the basis of the pre-war dollar parity of $4.86, were consequential — the much higher rate of inflation in Britain over the war years meant that, in the absence of higher inflation in the US (which was not forthcoming), parity could only be restored by deflating the economy[5]. In restoring and managing the gold standard, the Bank of England faced two competing priorities, over which it came under repeated pressure — rising unemployment and the high burden of debt service, something borne out in both the archival sources and empirical work (Eichengreen et al., 1985; Howson, 1975; Moggridge, 1972; Sayers, 1976). Nonetheless, the gold standard was restored in 1925 and maintained until the pressures of 1931 — in the face of ac-

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[4]Lennard (2018) offers an interesting account of the effects of monetary policy under the prewar classical gold standard

[5]The extent of sterling's eventual overvaluation has spawned its own literature, beginning with Keynes (1931) in *The economic consequences of Mr. Churchill* and most recently advanced in Solomou and Vartis (2005).

celerating reserve outflows, the government and the Bank preferred to abandon the gold standard, rather than implement the extent of fiscal consolidation and Bank Rate increases that would have been needed to defend the gold parity. Off gold, monetary policymakers discovered new freedoms and in the mid-1930s adopted a "cheap money" policy, holding Bank Rate at a then historic low of 2 per cent. The exit from gold may have helped reset inflation expectations, reducing real rates and supporting recovery, as argued most recently in Crafts (2013) and assessed in Ellison et al. (2024) and Lennard et al. (2023), while "cheap money" has long been credited with supporting recovery, most notably through a boom in housing construction (Crafts, 2013; Middleton, 2010).
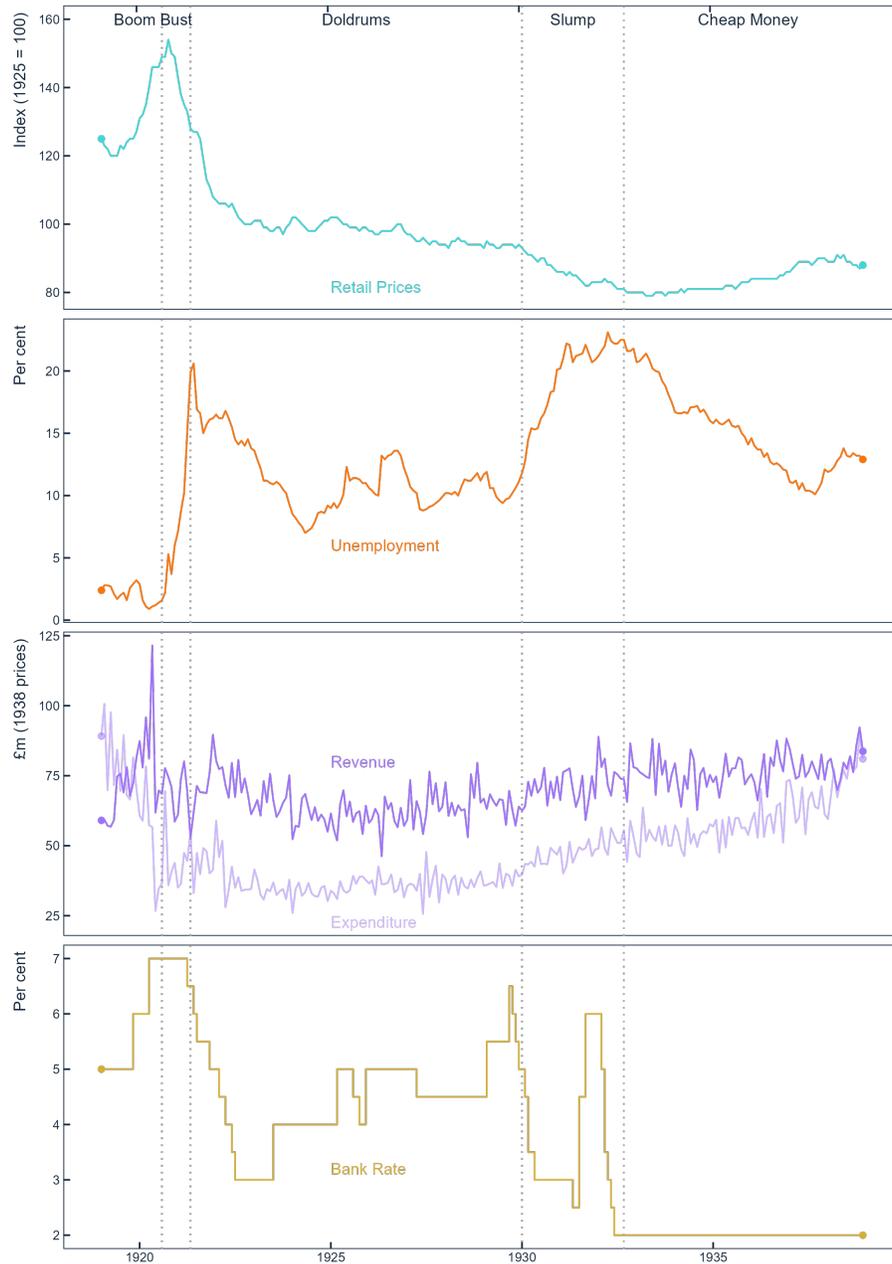
The paper proceeds as follows. Section 2 presents the data and empirical strategy. Baseline results are set out in section 3, while section 4 examines key developments in the period through the lens of the model, some variants and a counterfactual exercise, before Section 5 concludes. Finally, appendix A provides further detail on the model extensions and robustness tests.

2 Data and empirical strategy

2.1 Data

Contemporary data sources are surprisingly rich, allowing me to use a dataset that: covers key macroeconomic variables; runs for the full period at high frequency (monthly); and draws on contemporary sources, reflecting the information set available to policy-makers in real time (Orphanides, 2001). Capie and Collins (1983) provides the principal data source for this paper, supplemented by additional hand-collected contemporary data on the public finances, as reported in *The Gazette*. Figure 1 plots the data series I employ, with a periodisation based on the turning points identified in Mitchell et al. (2012).

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Figure 1: Data series employed

Activity: I take unemployment as my measure of economic activity. Two contemporary sources of administrative data on unemployment are used, both reported in the Ministry of Labour Gazette (and collected in Capie and Collins (1983)). The first series measures unemployment amongst trade union members, from 1919 through to 1926. The second covers unemployment amongst "insured workers" (those covered by the joint government-industry unemployment insurance scheme) and runs from 1920 to the end of the sample period. I created a single series by simply splicing the two series at the end of 1926, since they are closely correlated for the period in which they overlap. I prefer unemployment to GDP as a measure of activity: i) unemployment was the focus of contemporaries; ii) GDP hadn't been formalised and the data series constructed by Mitchell et al. (2012) wasn't available to policymakers in the period (even if its components were); iii) the Mitchell et al. (2012) GDP series doesn't start until 1920, so using it would remove a key part of the sample ahead of the 1920s recession.

Prices: The price series, the "cost of living" index, also comes from the Ministry of Labour Gazette and runs for the full sample. The series was introduced at the beginning of the Great War to track the evolution of living standards amongst the working population. It is constructed from retail prices using weights based on "typical" working class consumption habits in 1904 (Capie and Collins, 1983). As such, it is perhaps not an ideal guide to price developments, though it follows contemporary series on wholesale prices and wages reasonably closely and was the measure tracked by contemporaries, who were aware of its drawbacks.

Monetary policy: The monetary policy series is based on what was acknowledged as the Bank of England's primary policy tool in the period, "Bank Rate", as at month end. Nonetheless, there were other instruments affecting

the stance of policy; at the beginning of the period, the tap rate on short-term government debt was more influential in setting short-term market rates than Bank Rate, while, from the early 1920s, the Bank also regularly engaged in open market operations (Dimsdale, 1981). Arguably, the mid-December 1919 announcement of the plan to return to gold, and the exit in 1931, acted as forms of guidance, influencing the stance of policy by manipulating inflation expectations (Crafts, 2013). These issues are revisited in Section 4.

Public finances: The public finances series map to the modern concepts of central government revenue (primarily tax) and spending (both consumption and investment). Debt interest and transfers (such as unemployment insurance) are not included, the former following the convention in the wider literature on the effects of fiscal policy, the latter because of data limitations. The data were hand-collected and prepared for use by the author (see below). They are seasonally adjusted and in 1938 prices, deflated using the cost of living index discussed above.

Preparing public finance data for use. The weekly *Receipts into and Issues out of the Exchequer* is a rich but little known or used source of data on the UK's central government finances. Although documentation is scarce, the data run from at least 1870 through to the 1960s. The data were published in the British government's official journal, *The Gazette*, reporting cumulative fiscal year totals for a large number of line items to the close of the previous week. The data were picked up in various media outlets, including *The Economist* and other newspapers. As well as cumulative totals for the current fiscal year, the data include cumulative totals for the corresponding period of the previous fiscal year and, where in scope, full year forecasts for a particular item from the annual budget.

Coverage and Structure. The data are on a "cash basis", recording the

receipt of tax payments or the point at which cash is paid out, rather than, for example, reflecting tax liabilities as they arise (the convention in modern national accounting and public finance statistics). The data were issued in two tables, the first covering receipts, the second "issues" (i.e. payments out of the Exchequer). Each table was split into an "Ordinary" and an "Other" category. The former category is approximately what one might think of as "above the line" in modern fiscal accounting, and corresponds to the scope of annual budgets. The full-year annual totals for Ordinary Revenues and Ordinary Expenditure also correspond to commonly used annual fiscal data found elsewhere (for example Mitchell 1988).

The *Receipts* data is relatively straightforward. Ordinary Revenue primarily comprises tax-by-tax detail on revenues raised, though it also covers other sources of current income, such as from land holdings, interest income, income from public services (such as the Post Office) and some sales of government property (including war surplus). "Other Receipts" covers roughly three categories: i) repayments on temporary advances (which includes some elements of unemployment insurance, amongst other things); ii) debt issuance; iii) dividends, repayments and some sources of interest income.

The *Issues* data is substantially more complex than the receipts data. By far the largest components of Ordinary Expenditure are "supply services", which covers the armed forces and civil service, and debt service. It includes payments to "sinking funds", pots of money for debt redemption. And this category also includes some spending on roads and payments to local and regional authorities. "Other Issues" encompasses a broad range of items. Most material is debt redemption and repayment of ways and means advances. Of more interest are issues for capital expenditure. Also covered are temporary advances and again some elements of unemployment insurance.

Mapping to modern concepts. Modern national accounting draws a much sharper distinction between, on the one hand, transactions in the income and capital accounts (essentially taxes, transfers, government consumption and government investment, or "above the line" activities) and, on the other hand, the financial transactions which are a counterpart to these activities (such as debt issuance, i.e. "below the line"). But the granularity of the data, with each table comprising 30-40 line-items for each of receipts and issues, allows me to create aggregates that are closer to modern concepts (and the concepts typically employed when assessing the effects of fiscal policy). I do this by classifying each line of the table to one of six categories: revenue; government consumption; government investment; transfers; debt service; financial transactions — the latter of which are excluded from my aggregates. This also allows me to deal with the "window dressing" that occurs in some periods (Hicks, 1938; Middleton, 1981), since these mostly correspond to what are classified as financial transactions.

This is relatively straightforward on the receipts side, where Ordinary Revenues correspond to the concept of interest, with Other Receipts corresponding to "below the line" activities. It is more complex on the expenditure side. Studies of fiscal policy typically focus on primary expenditure, so I remove debt service from Ordinary Expenditure. In modern treatment, the sinking fund is just one element of the financial account counterpart to revenues outstripping spending — it can be thought of as a hypothecation of a part of the government surplus — so I exclude it from spending. Beyond Ordinary Expenditure, I treat issues for capital expenditure as government investment, including rearmament spending in the late 1930s; the remaining elements of other issues largely correspond to financial account transactions and are excluded. The one item of interest missing here is unemployment insurance — although the tables include some spending on this, in practice the bulk of unemployment insurance spend-

ing happened off the central government balance sheet and the data do not accurately reflect overall spending patterns — hence this is also excluded from the spending measure.

Overall, this set of adjustments is very similar to that made in Middleton (1981) on fiscal year data, with one important exception — because the data source does not include complete data on the funding or spending of unemployment insurance (which was largely accounted for and reported elsewhere), my revenue and spending aggregates are slightly lower than his.

Periodicity and Seasonality. To convert the data to monthly flows (from weekly cumulative totals) I take the difference between the latest published dataset for a particular month and the latest published dataset for the month prior. In a small number of instances this can generate changes in the number of weeks covered in a particular month, which becomes particularly problematic following seasonal adjustment. To accommodate this, I either manually reallocate the choice of final week for a month or apportion a particular week across two months. I seasonally adjust the data with X-13ARIMA-SEATS.

Revisions and Consistency. Because each release contains data both on the current fiscal year and for the corresponding period of the previous year, I have two records for each month of the sample period. Comparison of these reveals that data were not revised. More practically, this doubling of observations turns out to be a very helpful cross-check when line-items are reclassified or aggregated differently from year to year, or where month-ends don't align.

2.2 Empirical strategy

The starting point for this paper's empirical strategy is Mountford and Uhlig (2009), who use a sign-restricted structural vector autoregression to identify

business cycle, monetary policy, tax and government spending shocks in the United States over 1955 to 2000, with a primary focus on "agnostically" identifying the effects of tax and government spending shocks.

I make two changes to the approach of Mountford and Uhlig, to accommodate critiques from Arias et al. (2018) and Caldara and Kamps (2017). As Arias et al. demonstrate, the "penalty function" approach used in Mountford and Uhlig has the undesirable effect of imposing unintended (and opaque) additional restrictions. Meanwhile Caldara and Kamps demonstrate that using the penalty function has the effect of constraining the impact multipliers for tax and government spending policies to be positive, undermining the objective of "agnostic" identification. As a result, the approach here is to estimate a sign-restricted structural vector autoregression with the algorithm proposed in Arias et al.[6], rather than using the penalty function. In the absence of the penalty function, I uniquely identify each shock in the model — that has the virtue of making explicit the unintended restrictions identified by Caldara and Kamps and replaces the single "business cycle" shock of Mountford and Uhlig with separate generic demand and supply shocks. Unique identification also mitigates the "multiple shocks problem" identified in Fry and Pagan (2011).

Two business cycle shocks (demand and supply) and three policy shocks (tax, spending, monetary) are identified, each normalised to imply an increase in unemployment on impact, summarised in table 1. Zero restrictions are applied for a single month; sign restrictions are applied for 3 months[7]:

A demand shock: involves higher unemployment and lower prices and tax revenues. The effect on revenues captures the "automatic stabiliser" of tax policy, with receipts falling as activity does. Since Bank Rate was set weekly, it is assumed to react within the period to a demand shock, consistent with the

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[6]As implemented in Dieppe et al. (2016)

[7]A range of alternative durations are tested in appendix A.

Table 1: Shock Identification

	Demand	Supply	Monetary Policy	Tax	Spending
Unemployment	+	+	+	+	+
Prices	-	+	-	-	-
Bank Rate	-		+	0	0
Revenues	-			+	
Expenditure				0	-

mixed objectives for monetary policy discussed above.

A supply shock: involves higher unemployment and prices.

A monetary policy shock: involves higher Bank Rate and unemployment and lower prices. No judgement is made about the direct effect of monetary policy on revenues or expenditure.

A tax shock: involves an increase in revenues and unemployment and a fall in prices. It has no contemporary effect on Bank Rate; this is somewhat restrictive, but not inconsistent with the lags in data availability and the lack of evidence linking monetary policy decisions to fluctuations in taxes. Changes in taxes are assumed to have no direct effect on expenditure, given the type of government spending captured in my data (primarily spending on the armed forces and civil service) shouldn't be affected by day-to-day fluctuations in revenues.

A government spending shock involves lower expenditure and prices and higher unemployment. As with tax shocks, there is no initial impact on Bank Rate, for the same reason. No assumption is made about the effect on revenues.

The vector autoregression is estimated with a constant and two lags. All five variables (unemployment, price level, Bank Rate, revenue and expenditure) are in levels. Revenue and expenditure data are deflated using the price index; revenue, expenditure and the price level are logged; all variables are seasonally adjusted, with the exception of Bank Rate and the price level. The sample period runs from January 1919 to March 1939, at monthly frequency. Following

Arias et al. (2018) Bayesian methods are employed, with a normal inverse-Wishart prior distribution for the reduced form parameters.

3   Baseline results

Figure 2: Impulse responses
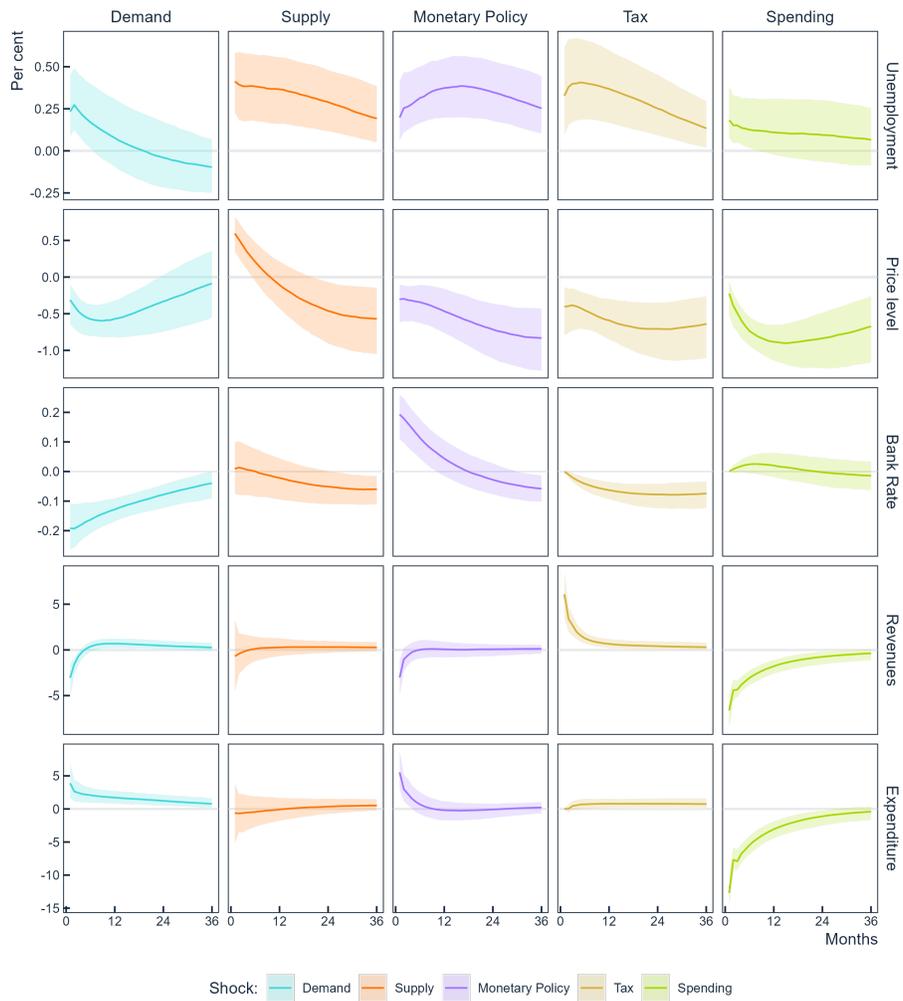
Notes: Solid lines represent the median estimated response to a one standard deviation shock, while shaded areas represent the 68% credible set. Units are percentage points for Bank Rate and the unemployment rate.

This section looks at the results from my baseline model specification, with a focus on the effects of macroeconomic policy shocks on unemployment and prices, including comparing results for this period against the wider literature on policy shocks; Section 4 then uses the model as a lens through which to interpret developments over the period.

Figure 2 presents the key results of the paper, the response over 36 months of each variable (the rows) to a one standard deviation shock, for each of my five identified shocks (the columns). The solid lines represent the pointwise median for each impulse response, while the shaded areas correspond to the 68% credible set[8].

Turning first to the headline impact on unemployment and prices, all three policy shocks had significant effects, though the effect of government spending shocks on unemployment is only significant in the first few periods following the shock. Tax shocks have the largest peak impact on unemployment, though that of monetary policy is of a similar magnitude and persists for longer. Spending shocks have the largest peak impact on the price level, though again, that of monetary policy is not much smaller and persists for longer.

The impulse responses reveal some further nuances. While tax shocks had only a muted effect on government expenditure, the reverse isn't true — my identified spending shocks typically involved a material corresponding shift in taxation. This offsetting move in tax receipts may help to account for the relatively smaller effects on unemployment of spending shocks compared to tax shocks. The responsiveness of receipts to changes in spending might also be consistent with the commitment to sustain balanced budgets. Monetary policy seems to have responded only a little to changes in fiscal policy; while tax increases were partly offset by small (but significant) cuts to Bank Rate, spend-

ing shocks were reinforced by modest (and insignificant) increases in Bank Rate. Changes in Bank Rate appear to have had significant but short-lived effects on receipts and expenditure; an increase in Bank Rate reduced receipts and raised spending, but the effects were fully unwound in less than 12 months.

Comparisons against the wider literature. The wider empirical literature on the effects of macroeconomic policy, usefully summarised in Ramey (2016), most consistently focuses on the effects of policy on GDP, rather than prices or unemployment. To draw wider comparisons, I therefore re-estimate my baseline model with GDP in the place of unemployment (see Appendix A. Table 2 summarises a range of relevant results.

Table 2: Forecast error variance decompositions compared

	This paper	Ramey (2016)	Other results
Monetary policy	10.8-21.1*	0.5-8.8	11-33*[†]
Tax	21.3*-28.6	1.8-4.3	15-20[‡]
Spending	2.5-3.8*	2.4-11.8	-

Notes: Values represent the median share of the forecast error variance for GDP or unemployment (the latter marked *) accounted for by the policy shock, after two years (this paper and Ramey), peak effects (Cloyne et al.; Lennard) or after four years (Cloyne and Hürtgen).
[†] Cloyne and Hürtgen (2016); Lennard (2018)
[‡] Cloyne et al. (2023)

As is immediately apparent, my results suggest that policy shocks in the period had an effect at the upper end of the range typically found in the literature, though it is worth noting that all the results reported here from Ramey (2016) are for the post-Second World War United States. Based on results from the UK, where Cloyne et al. (2023) covers tax in the interwar years, Lennard (2018) monetary policy under the classical gold standard and Cloyne and Hürtgen (2016) monetary policy in the postwar period, policy shocks tend to account for larger shares of the variance.

A number of factors may account for these large effects. Policy adjustments

were more extreme and less predictable in the UK in this period than is generally true in the post-Second World War US — Ramey (2016), for example, speculates that the common result that monetary shocks are harder to identify in the post-Volcker era reflects more predictable (and successful) policymaking. It may also reflect specific features of the UK in this period — as Ramey (2019) notes, more granular studies, such as Ilzetzki et al. (2013) find significant variation in fiscal multipliers[9] based on the policy regime and income level. Specifically, they find spending multipliers to be much larger in fixed exchange rate regimes (a reasonable characterisation of the UK for much of this period), though they also find multipliers are smaller in open and heavily indebted economies (both of which would also apply here). More generally, these results are consistent with the finding in the literature that the effects of tax shocks (as captured through multipliers) tend to be larger than spending shocks.

4   Twenty turbulent years, reappraised

With a set of structural shocks and impulse responses in hand, it is possible to use the model to construct a baseline narrative for macroeconomic developments over the interwar years. This section looks at developments over the period in this light, as well as looking deeper into two specific questions: i) how would the 1930s recovery have evolved under different monetary and fiscal policy scenarios; ii) whether Bank Rate adequately reflected the stance of monetary policy.

Figure 3 provides a summary of the baseline historical decomposition, while figure 4 shows the full month-by-month evolution. Figure 3 breaks the period down into five subperiods, based on the turning points that Mitchell et al. (2012) identified when constructing monthly GDP estimates for the period. Each panel

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[9]Roughly, the ratio of the £-million change in GDP that follows from a £-million change in fiscal policy.

shows the start and end level of unemployment or the price level (in grey and expressed as the cumulative shock-driven deviations from the model's endogenous dynamics) and the contribution of each of the model's shocks to the change in level over the period. Figure 4 is simpler and shows month-by-month the contribution of identified shocks to each variable's deviation from the model's endogenous dynamics. Taken together, figure 3 offers a broad characterisation of each period, while figure 4 helps reveal some nuances.

Figure 3: Historical decomposition of prices & unemployment over five periods
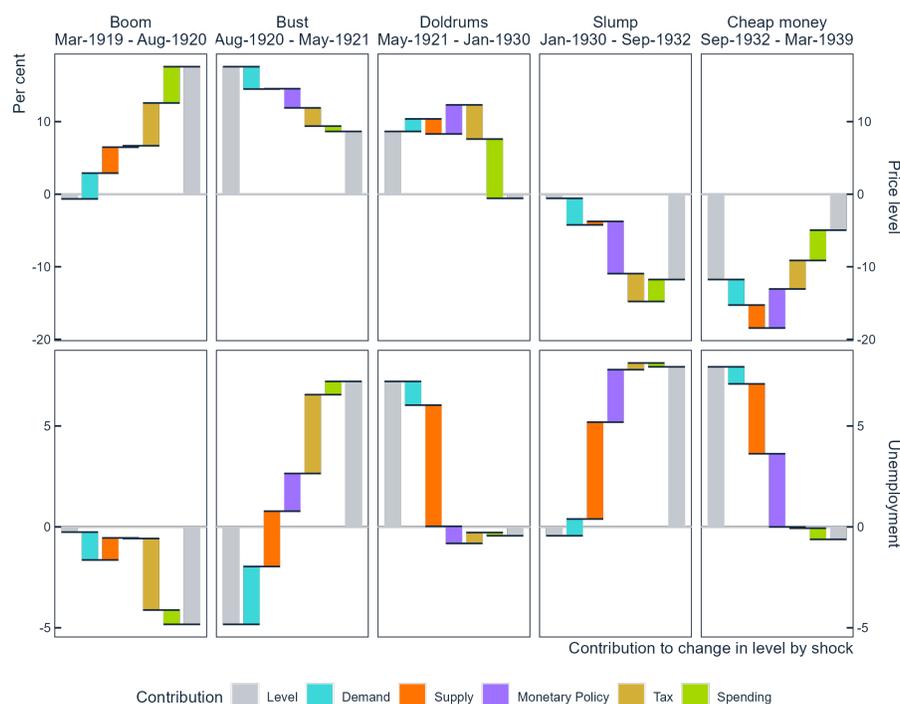
Notes: Grey bars denote the total deviation of the variable accounted for by identified shocks at the start and end of each sub-period, with coloured bars showing the contribution from each shock to the difference between the start and end of the period. The price level is expressed as the percentage deviation, while unemployment is the percentage point deviation. Initial conditions are not reflected in the chart. Estimates are based on pointwise medians. Subperiods are based on the turning points identified in Mitchell et al. (2012).

March 1919 to August 1920 — Postwar Boom. The British economy boomed

Figure 4: Month-by-month historical decomposition of prices & unemployment
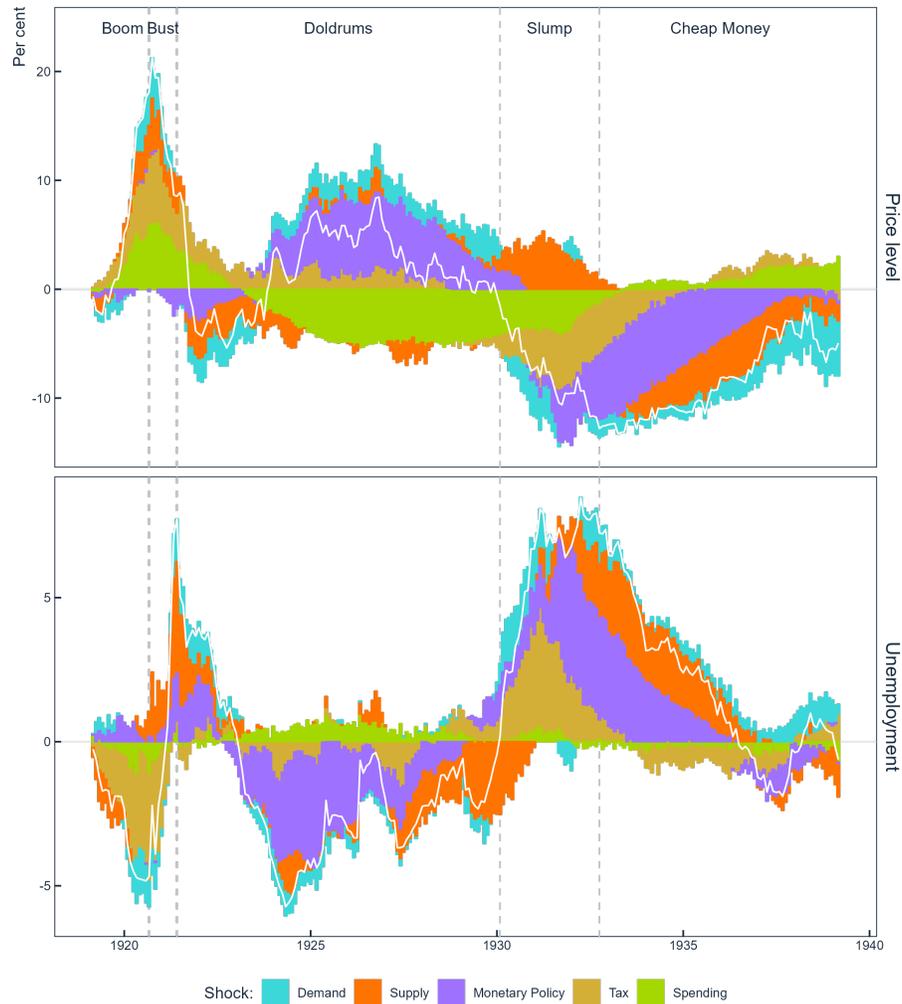
Notes: Solid white lines denote the total deviation of the variable accounted for by identified shocks at each point in time, with coloured areas denoting the contribution from each shock. The price level is expressed as the percentage deviation, while unemployment is the percentage point deviation. Initial conditions are not reflected in the chart. Estimates are based on pointwise medians. Episodes are based on the turning points identified in Mitchell et al. (2012).

after the end of the First World War; unemployment was low and inflation picked up quickly. This period is the most challenging for the model to explain, given the short run of data[10]. The established literature for this period has tended to emphasise the role of pent-up demand being released in a context of ongoing wartime supply constraints, while some authors have blamed expansionary monetary policy (Dimsdale, 1981; Eichengreen, 1992; Solomou, 1996). In contrast, what stands out here is the prominent role played by fiscal shocks, essentially the continuation of wartime levels of taxation and spending; monetary policy is notable primarily for its absence.

August 1920 to May 1921 — Postwar Bust. In mid-December 1919, the government announced its intention to return to the gold standard at the prewar parity and the Bank raised Bank Rate by 200 basis points, in two equal steps in November 1919 and April 1920 — the so-called "dear money" policy (Dimsdale, 1981; Howson, 1974). Meanwhile, military spending had been reduced steadily since 1918 and Austen Chamberlain's 1920 budget raised taxes to bring the budget back into surplus (Cloyne et al., 2023; Eichengreen, 1992). Following the cyclical trough in unemployment reached in summer 1920, unemployment rose by nearly 20 percentage points over the next year, while the price level dropped by nearly 15 per cent — "a period of deflation the intensity of which it would be hard to match from the economic history of the past two centuries", in the words of Ralph Hawtrey (cited in Hicks, 1938). Policy was prominent in both developments: monetary and fiscal policy played even roles in the fall in prices, accounting for roughly $\frac{1}{3}$ each, while fiscal policy's role (especially tax) was more prominent in the rise in unemployment, contributing around $\frac{2}{5}$ of the increase, against $\frac{1}{6}$ for monetary policy. Although recessions were a global occurrence in the early 1920s, that experienced by the UK was

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[10]Unemployment and the price level at the start of the sample are both some way away from the model's steady state. With no back series of estimated shocks, the model cannot explain these deviations, which are mopped up as "initial conditions", not shown here.

notably more severe than in peers — and these results suggest that the scale and pace of policy normalisation may well have been an important part of that difference[11]. Traditional accounts of this recession have emphasised the roles of tight monetary policy and falling exports (Eichengreen, 1992; Solomou, 1996); as in the postwar boom, this treatment brings to the fore an underappreciated role for fiscal policy.

May 1921 to January 1930 — The Doldrums. The remainder of the 1920s were characterised by a long but sluggish expansion. Unemployment drifted down slowly, though with a trough around 10 per cent it remained higher than either before or immediately after the First World War. Prices declined until gold parity was restored in 1925, the major policy event of the period. The more mixed developments over this period are easier to interpret looking at the more granular figure 4. Strikingly, the consolidation of government spending looks to have been a key driver of the downward pressure on prices and hence also of the UK's return to gold; Eichengreen (1992) argues that the stabilisation of fiscal policy persuaded currency markets that fiscal discipline would be sustained, accelerating the shift in the exchange rate — this analysis suggests it also directly helped to achieve the deflation necessary to reach parity. In contrast, monetary policy actually eased through much of the period leading up to parity, reducing unemployment and undermining the attempt at deflation. However, monetary policy had to be tightened as part of staying on gold, and from 1925 it acts to push unemployment back up, something that became more pronounced as policy reacted to the events of 1929 in the United States.

January 1930 to September 1932 — The Great Slump. The literature has tended to see the Slump as having been imported to Britain from the Great Depression in the United States (Middleton, 2010). These results add some

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[11]France, for example, saw significant delays in normalising fiscal policy as a result of deep political divides — it saw a milder recession, but much higher inflation (Eichengreen, 1992).

nuance to that. Where fiscal policy played a major role in the 1920s recession, it is monetary policy that stands out in the early 1930s. The Bank raised Bank Rate rapidly in 1929, following the tightening in the United States, and again in 1931 to defend sterling against reserve outflows (Accominotti, 2012; Eichengreen, 1992). Unemployment surged by more than 10 percentage points, of which monetary policy accounted for $\frac{1}{4}$. Prices fell by more than 12 per cent, with monetary policy making the largest contribution. Of course, these weren't arbitrary policy decisions; rather, they were steps necessitated by adherence to the gold standard — these results corroborate those who argue that the functioning of the gold standard played an important part in the propagation of the Depression, with monetary policy an important channel of that (Eichengreen, 1992). The role of fiscal policy here is relatively muted, despite policymakers' attempts at overriding the automatic stabilisers and the attention that has been given to whether fiscal stimulus ought to have been actively pursued.

September 1932 to March 1939 — Cheap Money. Over the remainder of the 1930s, figure 3 is consistent with the key arguments in the literature. This has argued that "cheap money" was instrumental in Britain's robust recovery (Crafts, 2013), something evident here in the material role monetary policy plays in reducing unemployment. The literature has also advanced the argument that fiscal policy became more supportive later in the decade, particularly through rearmament (Crafts, 2013; Middleton, 2010). Again, that is visible here in the modest contribution of public spending shocks in reducing unemployment and, more markedly, in supporting prices.

Could Lloyd George have done it? As noted earlier, a long-standing area of controversy for this period is whether fiscal stimulus might have materially improved outcomes, as proposed in The Liberals' 1929 election campaign and supported by Keynes and Henderson (1929). Keynes and Henderson agreed that

a £100m per-year deficit-financed programme of public works, sustained over three years, could have reduced unemployment by around 500,000 within the first year of the programme — indeed, they believed the effect might be even larger than this. Subsequent authors have found it hard to resist revisiting these numbers: Matthews (1989) thought a permanent reduction of 550,000 might have been attainable; in contrast, Dimsdale and Horsewood (1995) thought the stimulus programme might reduce unemployment by 300,000-330,000, while Crafts and Mills (2013) came in below even that, at an upper bound of 200,000. Cloyne et al. (2023) found that a one per cent of GDP cut in taxes could take around $1\frac{1}{2}$ percentage points off unemployment (although this effect is not statistically significant), which, scaled to the size of cut proposed, equates to a reduction in the numbers unemployed of around 400,000.

Figure 5: Could Lloyd George have done it? Three policy scenarios compared.
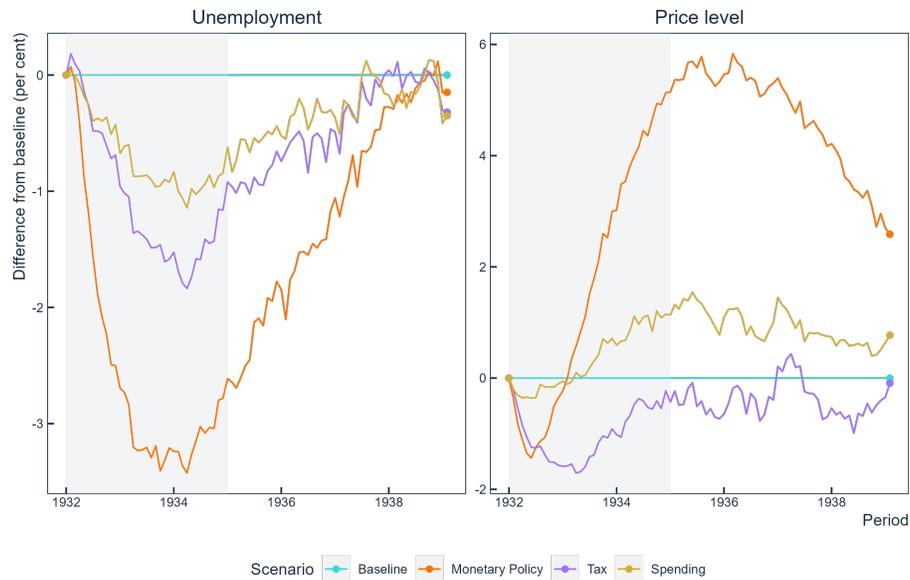
Notes: shaded area represents the period for which conditioning paths are applied. The solid lines are the pointwise median estimates. Units are differences from the baseline, so percentage points for unemployment and per cent for the price level.

To draw my own comparison against this literature, I conducted a counterfactual exercise using conditional forecasts, the results of which are summarised in figure 5. The thought experiment is thus: imagine an incoming government following the 1931 exit from the gold standard; with the economy stabilised and emboldened with a new sense of freedom, they consider three possible policy paths to foster recovery in early 1932. First, a deficit-financed £100m per year boost to public spending, sustained over three years — essentially the Liberals' 1929 election platform[12]; second, a deficit-financed tax cut of the same magnitude and duration; third, an immediate cut in Bank Rate to 2 per cent, a simplified version of the "cheap money" policy that was in fact adopted. Each of these three scenarios was used to produce a conditional forecast, whose results were then compared against the unconditional forecast of the model to determine the relative effects of each policy path on unemployment and the price level.

The outcomes are as you might expect, given the impulse responses discussed in Section 3. Monetary stimulus had the most pronounced effect, taking a peak $3\frac{1}{2}$ percentage points off the unemployment rate; a tax cut would have taken around $1\frac{5}{6}$ percentage points off, while spending, with the smallest effect, would have brought unemployment down a little more than 1 percentage point. The peak effects come through more slowly than Keynes and Henderson (1929) thought they might, with the peak effect two years into the stimulus. Given prevailing unemployment rates in these years, these represent reductions of around 440,000 unemployed in the case of monetary policy, 235,000 for the tax scenario and 145,000 for the spending scenario — somewhat at the lower end of the results noted above.

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[12]In practice, I implement this by raising annual spending £100m above the average level of spending over the preceding 12 months and hold it at that level over the course of three years, while holding taxes fixed at the average level of the preceding 12 months for the same duration; the tax exercise is analogous.

Of course, that doesn't necessarily lead to the conclusion that Keynes and Henderson (1929) were wrong to think fiscal stimulus would have been helpul, or even that they were overly optimistic. These results show that fiscal stimulus would have helped recovery — and don't preclude the idea that they could have reinforced the effects of "cheap money". More profoundly, Keynes and Henderson were considering a deficit-financed increase in *public investment*. The measure of government spending here is primarily spending on the armed forces and civil service — so while I can conclude that boosting this dimension of public spending wouldn't have had the effects that Keynes and Henderson hoped for, the effects might well have been different in the case of public investment, since increased public investment might have boosted the supply capacity of the economy, not just raised demand; a vector autoregression framework is not well set up to capture such permanent effects.

Does Bank Rate adequately capture the stance of monetary policy? Thus far, this paper has taken as given that Bank Rate is an adequate metric of the stance of monetary policy. There are good reasons to question such an assumption. As already noted, at the beginning the period the tap rate on Treasury bills was the short rate that mattered. More materially, one striking feature of Bank Rate in this period relative to the prewar years is how little it moves (Eichengreen et al., 1985). That has raised the question of whether other tools were being used in Bank Rate's place, such as open market operations (as explored, for example, in Römer 2023). Most fundamentally, the literature on macroeconomic policy shocks has recently grappled with the issue of "foresight" — the idea that policy changes might be anticipated and therefore a standard vector autoregression using only current and lagged values of a variable may not adequately identify "surprises" in its residuals (Ramey, 2016). Foresight is an even more acute issue when policymakers explicitly give signals about the likely

Figure 6: Different measures of monetary policy compared
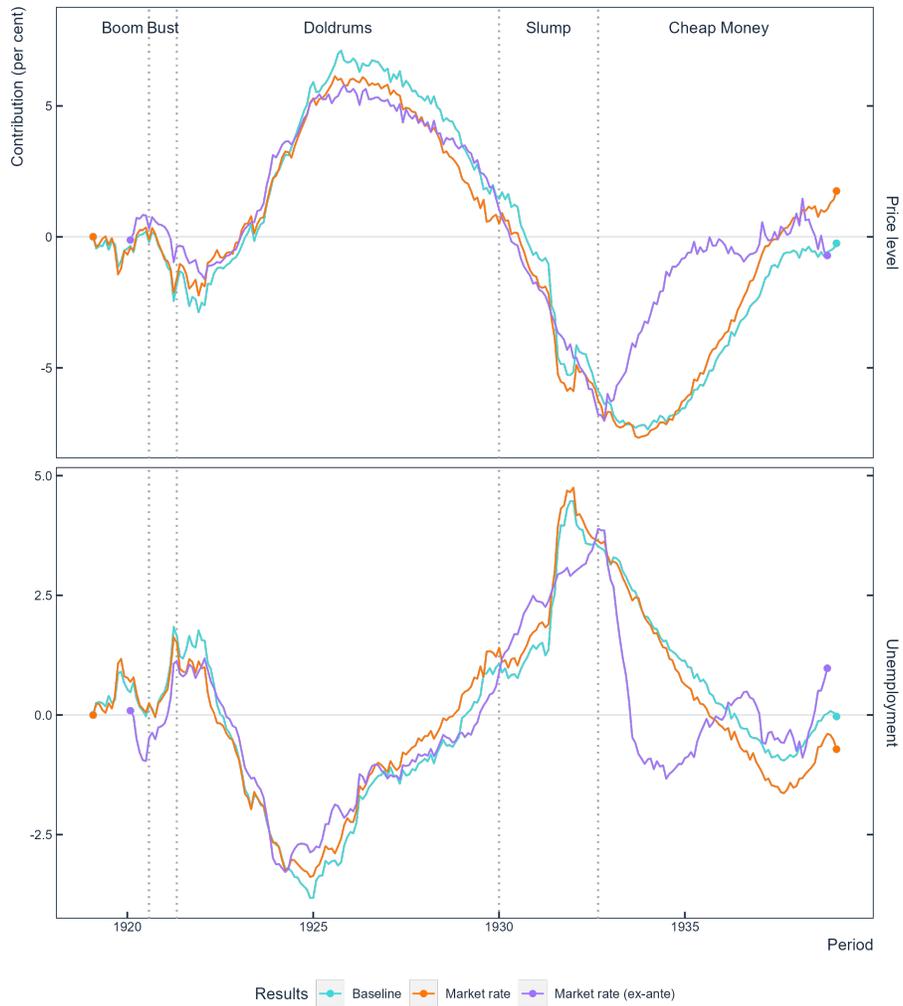
Notes: The solid lines reflect the contribution of monetary policy shocks to the deviation of unemployment and prices. The price level is expressed as the percentage deviation, while unemployment is the percentage point deviation. Estimates are based on pointwise medians. Episodes are based on the turning points identified in Mitchell et al. (2012).

future stance of policy, as arguably they did in 1919, when announcing the plan to return to gold at the prewar parity, and again in 1931, with the exit from gold (Crafts, 2013; Ellison et al., 2024; Solomou, 1996).

To explore these issues, I estimate two variants of the baseline model. In the first, I replace Bank Rate with a market-based measure of short-term interest rates (the discount rate on "best" three-month bills, as reported in Capie and Collins (1983)), which should both reflect the influence of tap rate early in the sample and should reflect any forward-looking expectations held by market participants. Second, I adjust this measure for inflation expectations (as estimated by Lennard et al., 2023) to create an ex-ante real measure of short-term rates, which captures both market expectations around the short-term path of interest rates and wider expectations for the path of prices. Figure 6 plots the results, showing how the influence of monetary policy on unemployment and prices differs across the baseline specification and these two variants[13]. The replacement of Bank Rate with a market-determined short-rate makes little difference to the estimated effects of monetary policy; the shift to an ex-ante rate is much more material. Unfortunately, the inflation expectations series only starts in 1920, so it has little capacity to enrich our understanding of the effects of the 1919 announcement of the plan to return to gold. But in the Lennard et al. (2023) estimates, inflation expectations rise strongly following Britain's exit from gold — combined with the nominal cuts in Bank Rate, this leads to a much sharper loosening of monetary policy than in the baseline specification, and a correspondingly much stronger contribution from monetary policy to the 1930s decline in unemployment and reflation of the economy. That would be consistent with those who have argued that this "regime change" was instrumental in fostering recovery (Crafts, 2013; Ellison et al., 2024; Lennard et al., 2023), though in this analysis I make no attempt to structurally identify the

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[13]See also appendix A on these alternative specifications.

cause of the change in expectations.

5   Conclusion

Policymakers in the interwar years had an unenviable task — in the face of multiple shocks, they had to balance competing objectives and manage sharp trade-offs. By bringing a flexible framework to contemporary data, I can answer a question that contemporaries grappled with — what was the role of policy choices in driving unemployment and price dynamics?

The results here suggest that macroeconomic policies played an important role, both because the effects of policy — especially monetary policy and taxation — could be large and because of the way they were deployed. The results also raise some challenges to the existing literature: for the 1920s, these results suggest the role of fiscal policy has been under-appreciated; and for the 1930s, the opposite is true — the focus on fiscal policies not deployed has led to a neglect of the successful "cheap money" policy that was actually put in place, with its effects reinforced by a surge in inflation expectations. Armed with these results, policymakers could have used policy less pro-cyclically and delivered better outcomes for unemployment and prices.

Of course, in hindsight it is easy to argue that domestically focused monetary policy and less procyclical fiscal policy would have delivered better domestic outcomes — but that was far from clear to contemporaries, who faced a range of competing objectives and uncertainties. One key uncertainty was inflation — watching hyperinflation unfold in central Europe, or even just elevated inflation in France and Belgium, deterred British policymakers from debating more seriously the possibility of pegging sterling to gold or the dollar at a devalued level (as France and Belgium did — the UK debate focused on when to return to gold, not at what level (Moggridge, 1972)). Relatedly, some have argued that

Britain was able to abandon gold before peers in the 1930s partly because it had not had a period of very high inflation in the 1920s — France was the last major country to abandon its gold peg, in part because the experience of high inflation in the 1920s made them reluctant to unpeg from gold (Solomou, 1996). Perhaps even more constraining than the risk of inflation was the broader set of beliefs that underpinned the prewar policy orthodoxy. In this world, the gold standard was a commitment to honour liabilities in their original value, a commitment not to inflate them away, and it was widely believed that the gold standard was the foundation of Britain's central role in the global economic and financial system, alongside balanced budgets and free trade — it took the trials of these decades and the crisis of 1931 to overturn these orthodoxies (Daunton, 2007), and even then the process of accommodation with the new possibilities was only gradual.

This paper leaves open one obvious question that would be worth exploring in more detail: what was the transmission mechanism for policy? For monetary policy, the emphasis of the literature on the 1920s has been the role of overvaluation and exports; in the 1930s it has focused on the role of investment, and especially housing investment. And across both periods, expectations have been emphasised, both the announcement of the objective of returning to gold in 1919 and the exit from gold in 1931. There has been less work on fiscal policy, though one would expect taxation to work primarily through reduced consumption and (possibly) investment and spending (of the kind captured here, at least) to work through lower aggregate household income and so consumption. Fiscal policy could also affect expectations, as Eichengreen (1992) emphasised for the return to gold and Crafts (2013) and Crafts and Mills (2013) emphasised for rearmament.

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A   Extensions & Robustness

This appendix reports further detail on a number of extensions and robustness tests. First, three variants of the model are estimated: i) using GDP in the place of unemployment, ii) using a short-term market rate in nominal terms in the place of Bank Rate; iii) using a short-term market rate in ex-ante real terms in the place of Bank Rate. Second, some alternative model specifications are considered, varying the lag-length and duration of restrictions. All these different variants are compared in figure 7.

A GDP-based model variant. As noted in Section 3, I estimated a variant of the model employing GDP in the place of unemployment, to facilitate comparison with the wider literature. This involved a number of changes to the baseline specification. Unemployment was replaced with log GDP per capita (as per Mountford and Uhlig (2009)); the GDP estimates are taken from Mitchell et al. (2012) while the population figures were obtained via a linear interpolation of the annual figures for Great Britain and Northern Ireland reported in Broadberry et al. (2015). Similarly, the revenue and expenditure measures were employed in logged per capita terms. Sign restrictions were normalised to correspond to a decrease in GDP (as opposed to an increase in unemployment). Because GDP estimates are only available for the period 1920-1938, the sample here is truncated relative to the baseline specification.

Alternative measures of monetary policy. As noted in Section 4, I estimated variants of the baseline model employing market-based measures of short-term rates (nominal and ex-ante real), in the place of Bank Rate. These changes were straightforward, though, as above, since inflation expectations estimates are only available for the period 1920-1938 (Lennard et al., 2023), the sample for the ex-ante real rates specification is truncated relative to the baseline.

Figure 7: Forecast Error Variance Decomposition at 24 months - model variants

Notes: Each box shows the median estimated contribution (centre) and 68% credible set (upper and lower bounds) at the 24-month horizon. The horizontal dashed line represents the median in the baseline specification, extended across the plot for ease of comparison. The "unemployment" share for variant 1.b GDP is actually the contribution to the forecast error variance of GDP per capita.

Alternative specifications and identifying restrictions. I conducted a range of further robustness tests. By and large, these variants yield only minor changes and none provided a preferred specification. These involve extending the lag length from 2 to 12; setting the duration of all restrictions to the first month only; extending the duration of sign restrictions from 3 months to six months.