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Reparations, Deficits, and Debt Default: The Great Depression in Germany

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ABSTRACT

Germany's Great Depression of the early 1930s started in 1929 with a sudden stop in the current account. It ended after a foreign debt default that unfolded in several stages from 1931 to 1933. This chapter reviews Germany's macroeconomic history between the gold-based stabilisation of 1924 and the transition to autarky and domestic credit expansion in 1933. During the Dawes Plan of 1924-29, Germany borrowed abroad massively to pay reparations out of credit, a phenomenon that gave rise to the debate about the transfer problem between Keynes and his critics. An incentive based interpretation of the transfer problem is sketched to explain the later current account reversal. Time-varying VARs are employed to trace the propagation of the resulting macroeconomic shock, and to obtain estimates of fiscal multipliers.

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1. Introduction

Plagued by structural unemployment throughout the 1920s, the German economy went through a sharp contraction after 1929, followed by complete recovery and the restoration of full employment around 1937. Both the timing and the severity of the contraction set Germany apart from European developments at the time, bearing similarities to the U.S. depression instead. Like the U.S., Germany experienced a strong economic rebound between 1933 and 1936, surpassing growth rates in most European countries. In a significant departure from the U.S. pattern, however, Germany's recovery continued after that year, joining the economies of Northwestern Europe in avoiding the recession of 1937/38 ([see Feinstein, Temin and Toniolo, 1997](#)).

Between the return to the Gold Standard in 1924 and the beginning of World War II, the German economy went through a succession of reparation arrangements, which coincided with balance of payment regimes. These were characterised by increasingly tight foreign borrowing constraints and growing levels of debt default. Germany went from being a massive capital importer during the Dawes Plan of 1924-29 to a sudden stop in its current account under the Young Plan of 1929/30, and on to an autarkic command economy with tight capital and foreign exchange controls after the end of the Young Plan in 1932. The timing of these regime switches coincided with the turning points of the German business cycle and defined the limits and scope for domestic macroeconomic policies.

This chapter reviews Germany's macroeconomic performance between 1924 and 1938 with a view to the reversals in its international payments position and their consequences. The main observation is that the quick succession of reparation arrangements, each with its own incentive problems and borrowing constraints, created distinct macroeconomic policy regimes. After the gold-based stabilisation under the Dawes Plan of 1924 and a short-lived adjustment crisis, Germany experienced recovery led by large short-term capital inflows. This enabled Germany to pay reparations on credit – an effect soon named the transfer problem, which had been predicted by Keynes and which was discussed controversially with his critics at the time ([Keynes, 1922](#); [1929](#); [Ohlin, 1929](#)). The same capital inflows also allowed Germany to maintain large current account deficits. With monetary policy largely constrained by the Gold Standard, fiscal policy adopted a neutral stance. While it avoided major deficits, it also failed to generate the surpluses needed to effect reparation transfers, a fact which Keynes' detractors were quick to point out (see [Rueff, 1929](#); [Mantoux, 1946](#)). With tighter terms of reparation payments looming under the Young Plan and a substantial amount of accumulated foreign debt, Germany experienced a sudden current reversal in early 1929, accompanied by the first of a series of public debt funding crises. As a consequence, fiscal policy switched to austerity and forced deflation in the summer of 1929. This change came at the hand of

the Reichsbank, Germany's central bank that had been made independent of the government in 1922 and put under international control in 1924. Violating the letter but arguably not the spirit of its statutory rules, the Reichsbank in mid-1929 began offering short-term credit to the government but imposed a programme of severe budget cuts, which was adhered to through 1931. The open outbreak of the budget crisis was delayed through an international stabilization loan in connection with the Young Plan, which however imposed similar conditions on fiscal policy ([see Ritschl, 2002](#)).

At the core of the analysis of this chapter is an incentive-based interpretation of the German transfer problem under the Dawes Plan. Political scientists and diplomatic historians have long agreed that the foreign exchange arrangements under Dawes Plan gave Germany an incentive to borrow abroad excessively, with a view to driving out reparations in a future transfer crisis (see [Helbich, 1962](#); [Link, 1970](#); [McNeil, 1986](#); [Schuker, 1988](#)). This mainstream argues that the Young Plan with its tighter terms of payment was a response to this incentive problem. As a consequence, the sudden stop in Germany's current account after 1928 was endogenous to Germany's debt levels, restoring an external credit constraint on the German economy that the Dawes Plan had temporarily softened ([see the discussion in Ritschl, 2002](#)).

Historians have been in bitter controversies about alternatives to Germany's fiscal policy during the slump since Borchardt's (1979) claim that the government faced a borrowing constraint ([see the opposing views in Borchardt, 1990](#); [Holtfrerich, 1990](#); [as well as the restatement of the traditional position in Ferguson and Temin, 2003](#)). The austerity policy pursued seems easier to motivate and explain with reference to Germany's mounting foreign debt problems (Ritschl, 2002). Accounting for the foreign dimension of Germany's debt problem - notably, the reparations issue - also sharpens the focus on policy counterfactuals and their historical feasibility.

Germany's debt crisis and recovery holds a series of lessons in stock for today's attempts to deal with high levels of national debt. The central bank's conditioning of debt monetisation on a government austerity programme resembles current attempts to reign in the fiscal policy of debtor countries in the Eurozone. Then as now it depends for its success on the willingness of other creditors to fall in line, and at the same time is a test of the central bank's own anti-inflationary credibility.

The rest of this chapter is structured as follows. Section 2 provides a brief survey of Germany's reparations arrangements, in particular the Dawes and Young Plans. The subsequent sections examine the macroeconomic regimes associated with these plans for key macroeconomic variables, with Section 3 looking at monetary policy, Section 4 focussing on fiscal policy, and Section 5 turning to labour demand and investment. Section 6 concludes with implications for the Great Recession after 2008.

2. Germany's Reparation arrangements: a brief refresher

German reparations after World War I were not fixed immediately. The peace conference in Paris ended with compromise formulae on this matter, however without reaching consensus among the Allies on how much to demand from the Germans. The two main building blocks of any reparations were supposed to be indemnities proper, as well as compensation for inter-allied World War I debts. The main instruments of reparation payment were to be confiscation of overseas assets, deliveries out of existing stock, deliveries in kind out of current production, and monetary payments in gold-based foreign exchange. Issuing reparations bonds and floating them on international markets, as France had done with her reparations to Prussia after the war of 1870/1, was considered briefly but discarded. Nevertheless, the concept of denominating reparations in bonds was retained even if flotation in the markets was seen as difficult given the magnitudes involved. During an interim period until the final bill was drawn up, payment consisted largely in confiscations of physical and intellectual property abroad, as well as in deliveries in kind.

Reparations soon came to be seen as odious by much of academia, and indeed by considerable parts of the public. Confronted with rather unrealistic figures on planned reparations, Keynes pulled out in protest from his role as an advisor to the British delegation in Paris and published his scathing criticism in his *Economic Consequences of the Peace* ([Keynes, 1920](#)). Keynes' approach to the issue provided the framework for most of the future discussion, shaping the views even of his critics. He argued that the envisaged reparations would exceed Germany's capacity to pay, and if ever seriously enforced would cause widespread economic disruption, even famine, and ultimately the rise of a dictatorship bent on waging a war of revenge. In later work, Keynes added that reparation transfers would be near-impossible to effect, due to both protectionism in the recipient countries and the difficulties of lowering German wages sufficiently. And if attempted, transfers would be counteracted by capital inflows (on this and the ensuing controversy see [Keynes, 1926](#); [1929](#); [Ohlin, 1929](#); [Rueff, 1929](#)). The transfer problem in the presence of high capital mobility soon became a standard fixture of open economy macroeconomics ([Metzler, 1942](#); [Johnson, 1956](#)).

Reparations as determined by the London ultimatum of 1921 came in three tranches, a net indemnity of 12 bn gold marks (A bonds), a compensation of 38 bn gold marks for inter-allied war debts (B bonds), and an additional, largely notional charge of 82 bn gold marks (C bonds). Depending on which part of these reparations is included, a wide range of debt-to-GNP ratios can be obtained (See Table 2.1).

Legally, all three tranches of the 1921 reparations bill were owed, although there is wide consensus that the largest bit, the 82 bn gold marks of C bonds, was mostly a political bargaining chip and essentially served for domestic policy purposes in London and Paris ([Feldman, 1993](#)).

Taken in isolation, the A bonds amounted to 20% of German GDP of 1913, a burden that was equivalent to France's reparations to Germany in 1871 ([Ritschl, 1996](#)). Adding the B bonds generated a reparations burden of 100% of 1913 GDP. Including also the C bonds raised the reparations burden to over 260% of 1913 GDP. However, it was communicated to the Germans that the C bonds would not have to be paid under any realistic conditions. The Germans had anticipated a burden of 30-40bn gold marks. Hence, the realistic part of the reparation bill was not entirely beyond the imagination of German policy makers (Feldman, 1993; Ferguson, 1998).

News of the reparations bill nevertheless proved toxic for Germany's nascent Weimar Republic. Weimar's new constitution of 1920 had strengthened and centralized tax collection with a view to generating a strong tax base. Tax revenues under the new system initially looked promising and brought post-war inflation to a temporary halt ([Dornbusch, 1987](#)). However, when news broke in late 1920 that reparations might be far higher than expected by the German public, a veritable tax boycott developed. Tax collection plummeted, the monetization of short term government paper resumed, and inflation accelerated again. In a confrontational climate, the finance minister and architect of Weimar's fiscal constitution, Erzberger, was forced to resign and was later assassinated. The government adopted a progressively less cooperative stance vis-a-vis reparations, provoking the French occupation of the Ruhr district in late 1922. A policy of passive resistance against the occupiers was proclaimed, leading to a significant drop in German output, combined with ever-higher hyperinflation in 1923.

Stabilization of the German currency in late 1923 was part of a political settlement that included reparations. Under the Dawes Plan of 1924, reparations were rescheduled but not formally reduced. To assist in the recovery of the German economy, reparation annuities were phased in gradually from a low base to reach a steady state in 1929. Discounted at 5%, the interest rate of the Dawes loan, they amounted to 42bn reichsmarks in present value in 1924, slightly below the sum of A and B bonds fixed in the London ultimatum. The resulting debt/GDP ratio for 1925 was 68%, marginally down from the 70% debt/GDP ratio implied by the sum of A and B bonds. The ominous C bonds were left out of the Dawes Plan but were formally not off the table.

A burden this size was by no means impossible to bear. There is broad consensus on this issue both internationally (see e.g. Marsh, 1998, Ferguson, 1998) and east of the Rhine ([Hardach, 1980](#); [Holtfrerich, 1986](#); [Ritschl, 1996](#)). However, while France's and Britain's debts were largely denominated in domestic currency, Germany's reparation burden was owed in foreign currency and

to foreign claimants, giving rise to Original Sin ([Eichengreen and Hausman, 1999](#)). The sovereign nature of German reparation debt implied willingness-to-pay constraints ([see Eaton, Gersovitz and Stiglitz, 1986](#)), which should potentially limit the amount of credit to be obtained from foreign lenders.

Given these debt constraints, Germany's balance of payments during the mid-1920s presents a paradox: on the one hand, the country owed heavy reparations. On the other, it was able to attract major capital inflows. This evidence seems contradictory, and the capital inflows of the 1920s are indeed at the root of a debt crisis. This crisis would break out in full during the Great Depression and culminate in near-complete debt default in 1933 ([Klug, 1993](#)).

Indeed, the debt burden implied by the Dawes Plan was higher than just the present value of the Dawes Plan annuities themselves. While excluded from the Dawes Plan payment scheme, the ominous C bonds had not been formally rescinded and still loomed as a risk, all the more so as reparations were a first charge on Germany under the peace treaty. Including the C bonds, the reparations total under the Dawes Plan amounted to 180% of German GDP in 1925. This makes it less than straightforward that Germany was able to attract foreign credit in significant measure after 1924. Even ignoring the C bonds, the Dawes Plan's 68% charge on Germany's 1925 GDP left only limited room for foreign credit if a sovereign debt crisis was to be avoided.

However, the Dawes Plan created a loophole by giving commercial claims on Germany transfer protection against reparations. Transfer protection implied that at the central bank's foreign exchange window, transfers of dividends and interest on commercial loans would take precedence over transfers of reparations. This had the effect of making reparation recipients the residual claimants on German foreign exchange surpluses. While not repudiating the peace treaty's principle that reparations were first rank, transfer protection for commercial claims reversed seniority in terms of foreign exchange. Thus, reparations were effectively turned into junior debt. ([Ritschl, 1996](#); [2002](#)).

This created a double moral hazard problem. With reparations effectively being of lower rank, the German government had little incentive during the Dawes Plan to stem the inflow of foreign credit. On the contrary, the more funds came in, the less would have to be paid out in reparations. This logic was understood and widely accepted in German government circles. Already in 1924, a memorandum in Germany's Foreign office pointed out that foreign debt would turn Germany's commercial creditors into hostages of future editions of the reparations conflict (Link, 1970; McNeil, 1986). Opposition came only from the Reichsbank, which was worried that paying reparations on credit would only perpetuate the reparations conflict. If a crisis of reparations was inevitable, it was preferable to have it sooner than later, before Germany's foreign creditworthiness was irreversibly damaged ([James, 1985](#)).

Moral hazard existed also on the part of commercial creditors. As long as Germany's commercial debt was small relative to her gains from trade (the ultimate measure of her willingness to continue participating in international credit markets), lending seemed perfectly safe, even if it has the effect of crowding out reparations at the margin. Only if the level of commercial debt threatened to approach the willingness to pay constraint (or alternatively, if transfer protection was only imperfectly credible) did commercial creditors have an incentive to take a closer look before the signed up. Matters were not helped by the fact that the Dawes Plan itself was drawn up by New York bankers ([Schuker, 1976](#)).

Transfer protection proved quite effective in attracting foreign credit, and created a distinct macroeconomic regime. In all years of the Dawes Plan, the current account was negative, implying that Germany borrowed more than needed to recycle reparations. (See Table 2.2)

The current account deficits indeed exceeded reparations in most years; reparations thus only played a secondary role in the built-up of foreign debt. Up until 1928, reparation payments were roughly matched by long term capital imports. On balance, the current account deficit was financed with short term capital imports.

This caused concern both among reparation claimants and, once debt levels were high enough, among commercial creditors. An Agent General for Reparations, located in Berlin to monitor German compliance with the Dawes plan, lobbied against German foreign borrowing. With arguments similar to the Reichsbank, his reports urged that capital inflows into Germany must be stopped and suggested that withdrawing transfer protection of the returns on these investments would be the way forward ([Gilbert, 1925-30](#)). However, 1928 was an election year in the U.S., France, and Germany, and as transfer crisis was seen as the likely outcome of this change, no decisions were taken.

Negotiations over a new reparations deal with tighter terms of payment began in late 1928. The German side hoped that in return for abandoning transfer protection, it could achieve considerably lower annuities. On the Allied side, the stabilization of the Franc in 1928 and the Bérenger/Mellon accord on the resumption of French debt service on inter-allied war credits aligned the incentives of U.S. and French policy makers and resulted in a hardened position. The new plan envisaged reparations equivalent to the remaining inter-allied war credits still owed to the US by France and Britain. The scheme was deemed final, which removed the remaining uncertainty about the C bonds.

News on this was leaked in March 1929. Under the new scheme, commercial transfers would only be protected for up to one year, after which reparation transfers would regain seniority. Reparation annuities were to decrease only marginally, but a new stabilization loan was to be floated

once the plan was ratified. The immediate effect of the news leak was a first confidence crisis in money and bond markets in the same month. The central bank lost reserves; a central government bond flotation failed, and a sudden stop in long-term capital inflows ensued: net capital long-term imports in 1929 declined by 75% from the previous year. Commercial debt alone now equalled 30% of GDP; about two thirds of that debt was short term. Including reparations, total foreign debt would reach 80% of GDP in 1929, or 75% under the reduced Young Plan annuities if Germany accepted the new plan. The offer included a full withdrawal of French troops from the remaining territories occupied in 1923, as well as an end to international control over the railway system. This and a threatening budget squeeze induced Germany to accept the Young Plan, despite the risk of being cut off from international capital markets. (See Table 2.3)

Transition to the Young Plan brought about major political change in Germany. Within a year from the March 1929 crisis, the finance minister, his budget director, the Reichsbank's president, and finally the government itself were out of office. A government of technocrats was appointed and the country ruled by presidential emergency decree, activating the same reserve constitution that had been employed in preparation of currency stabilisation during 1923. Political historians tend to agree that this transition marked the end of Weimar as a democracy, almost three years before its final demise.

The stabilisation loan floated in 1930 temporarily alleviated the pressure and postponed the current account reversal until 1931. The data in Table 2.2 show that in the commercial long-term market, Germany became a capital exporter, losing long-term loans for the first time since the stabilisation of 1924. With national output in decline, the ratio of foreign debt to national income increased quickly. Failure to win parliamentary approval for the 1930 austerity budget brought about parliamentary elections in September 1930, which saw the extreme right and left increase their combined vote to almost 40%. Foreign credit to the central government after that date was not forthcoming, and further fiscal tightening ensued.

German politics found itself caught between increasing domestic pressure to unilaterally default on the Young Plan and international demands to stay current on her payments if a return to sanctions or military action was to be avoided. By spring 1931, the ratio of foreign debt to GDP approached 100%, and reserve losses accelerated after an Austro-German customs union project failed under foreign pressure, prompting the resignation of the Austrian government and coinciding with the near-collapse of Creditanstalt, Austria's largest commercial bank ([James, 1986](#)).

Breaking away from an earlier commitment to fully comply with the Young Plan during its first year, the German government in early June warned publicly it might not be able to fully transfer both foreign debt service and reparations for the year. With this announcement, the issue of seniority of

reparations over commercial foreign debt was open again. A series of negotiations and an international conference in the same month failed to produce clear results. While France was willing to extend short term credit in exchange for foreign policy concessions from Germany, both Britain and the U.S. were opposed, as injecting fresh money implied a return to recycling reparations through credit.

Under heavy international pressure, Germany refrained from taking unilateral steps and would neither declare default nor leave the Gold Standard. Instead, the moratorium proposed by U.S. president Hoover introduced a one-year reparations holiday, combined with an offer to negotiate a standstill on short term debt ([see Schuker, 1988, for a detailed account](#)). However, no fresh money would be injected into the German economy this time, and no substantial central bank credit was given to replenish Germany's foreign exchange reserves. The price of this arrangement was a full-fledged banking and payments crisis. Shaken by the fraudulent bankruptcy of a major industrial client, DANAT, a major bank, became insolvent. In response to the banking crisis, credit restrictions were imposed and bank holidays declared. In a rescue operation, four out of five of Germany's largest banks were recapitalised and placed under government control ([Schnabel, 2004](#)).

As a consequence of the 1931 crisis, the Young Plan was suspended though not yet gone. Amidst negotiations about its future, Germany tightened her deflation policy further to demonstrate willingness to pay, while an international commission investigated her capacity to pay. Published in the Beneduce report of November 1931, its findings were that given the international slump, reparations under the Young Plan should not be resumed ([Toniolo, 2005](#)). A political settlement was delayed by parliamentary elections in France, as well as presidential elections in Germany due in the spring of 1932. Reparations were cancelled in August 1932.

August 1932 marked the trough of the depression in Germany. In the following month, the first steps were taken towards expanding domestic credit behind a firewall of foreign exchange controls. However, these controls were still far from complete. For the time being, Germany remained current on her foreign long-debt, while the short-term debt was rolled over in a process of continuous renegotiations, with foreign creditors carefully monitoring every step of German credit policies ([Klug, 1993](#)).

Transition to full-fledged capital controls came only after Germany's unilateral debt default in May 1933, and even then with a delay. In a reversal of strategy, Germany now attempted to minimize transfers on long-term debt while staying current and in cases resuming debt service on parts of her short-term standstill debt, discriminating among trading partners. This uncooperative approach was initially less than successful, and transfers increased again. A balance of payments crisis threatened in

1934 when credit expansion began in earnest. The response was the establishment of a state monopoly on foreign exchange, which completed Germany's foreign debt default.

3. The Reichsbank and the Effects of Monetary Policy

The various reparations plans translated themselves into distinct macroeconomic policy regimes. Stabilization from the hyperinflation was seen by policy makers and contemporary observers as being primarily a monetary task. Stabilization in late 1923 created new currency units, converted from the inflated paper mark at 1012: 1. The new currency was initially based on gold-indexed mortgage bonds and later linked to gold at the pre-war parity, however without revaluing most of the outstanding public debt. To lend credibility to the stabilization, the Reichsbank was placed under international supervision and received a set of strict rules, including a tight cap on lending to the government. A 60 % gold cover for notes in circulation and deposits at the Reichsbank was prescribed (See Table 3.1).

Even under this strict regime, monetary aggregates in the second half of the 1920s increased faster than real output, making it plausible that the stabilisation from the hyperinflation was more fiscal than monetary in nature ([Sargent, 1982](#)). The foreign credit boom under the Dawes Plan was reflected by inflows of gold and currency reserves to the central bank. Eager to build up a buffer stock of reserves, the Reichsbank partly sterilized these inflows but still allowed a substantial increase in the monetary base. Owing to a rapid recovery in deposits, the quantity of money increased even faster; real M1 grew by 40% in a matter of five years.

With its hands tied by the Gold Standard and the transfer protection clause, the central bank relied on indirect means to make its influence felt. These included moral suasion, announcements and repeated forays into the domain of fiscal policy. The Reichsbank in 1926 began a political campaign to stem the inflow of foreign funds, lobbying in vain to be given control over the foreign borrowing of states and municipalities. In May 1927 it threatened credit rationing in the money market if foreign inflows did not recede. This and repeated warnings by the Reparations Agent about German borrowing helped to cool off the mood of international investors, and both investment and the stock market began a slow decline.

Having acted as a whistle-blower on German borrowing, the Reichsbank in late 1928 became involved in the negotiations over a revised reparations package. The confidence crisis caused by the news of March 1929 gave the Reichsbank sufficient leverage to influence fiscal policy. Under the impression of the bad news on reparations, a major loan flotation planned for the the same month

failed, leaving government in a scramble for cash. In conflict with its statutes, the Reichsbank stepped in and began providing short-term loans to the government, however under strict conditionality. These conditions included a sharp turn towards deflationary policy, as well as the creation of a sinking fund with senior claims to the government to ensure the reduction of short term government debt according to a fixed schedule. Meeting these conditions and continuing debt service to this sinking fund became the basic tenets of government policy until after the end of the Young Plan in 1932.

As output began to fall in mid-1929, monetary aggregates declined as well. GDP in 1930 was 7% below the 1929 level, and M1 declined by the same amount. Initially this decline was driven in equal measure by a loss in deposits and gold reserves. Losses of reserves became massive in the run-up to the crisis of summer 1931, outpacing the loss of deposits. Desperate attempts to secure international central bank credit remained unsuccessful. The crisis grew into a banking panic, to which the Reichsbank responded by imposing bank holidays, closing the stock exchanges and placing four of five leading commercial banks under public control. At the same time, it reduced the gold cover to 20% and increased the monetary base to a level beyond the 1929 peak. However, further reserve losses during the spring of 1932 and the attempt to defend the lower gold cover led to renewed monetary contraction.

Monetary expansion only began in early 1933 when the Reichsbank suspended gold convertibility. The gold parity was formally not abandoned but became increasingly meaningless as foreign exchange controls were tightened progressively. A complex network of bilateral exchange agreements with split exchange rates emerged during 1934. Designed primarily to complete the foreign debt default and minimize its domestic consequences, the transition to foreign exchange control resulted in an average devaluation of 30-40%.

Already during the gold standard, the Reichsbank relied on a network of public proxy banks to carry out operations not within its own remit. These off-balance-sheet institutions would lend against bills that did not meet the Reichsbank's eligibility standards, and conducted open market and buyback operations. This system of proxy institutions gained importance after 1931 and took a key role in financing the public shadow budgets beginning in 1933. Plans had existed already in 1930 to use this network to finance public borrowing in the money market, given that overt government borrowing would lead to renewed reparation demands. Public banks would be used to accept bills of exchange issued in conjunction with public works. These bills would be formally private and designed to meet the eligibility criteria at the central bank's discount window. Though formally created as three-monthly paper, these bills carried prolongation coupons for up to five years. This gave investors the option value of redeeming the bills at par quarterly horizons. The Reichsbank would receive short-term treasury bills as collateral from the government. It was hoped that in this way, liquid money market

assets could be created that were attractive for private investors to hold and would not have to be monetized at the central bank. These plans did not materialize before the end of 1932; an attempt by the Brüning government to finance a first wave of work creation in this way in the spring of 1932 – when international, notably French opposition to domestic credit expansion in Germany was considerably weaker than a year before – was struck down as unconstitutional upon intervention of the Nazi party (Ritschl, 2002).

With the Nazi party in power, work creation between 1933 and 1936 was financed according to the same concept. The central bank received short term treasury bills as collateral. Instead of floating these in the market directly – which was deemed difficult given the low credibility of the government –, its proxy banks accepted an equivalent amount of bills of exchange issued by contractors carrying out the public work projects ([Silverman, 1998](#)). As had been hoped, private sector firms were content to keep these work creation bills in their portfolios to maximum maturity. As a consequence, the work creation bills did not flow back to the central bank for rediscounting. This enabled the Reichsbank to tap the money market for public borrowing without inflating the monetary base.

Broadly similar procedures were followed with the Mefo armament programme. An entity very similar to modern special purpose vehicles, Mefo was set up by the Reichsbank in cooperation with industry leaders, and accepted bills of exchange issued by suppliers to the military. In contrast to the work creation programmes, no collateral paper was issued by the government. As a consequence, Mefo debts were effectively hidden from the government debt statistics. Again these bills were mostly kept to maturity by the original issuer. To preserve secrecy and prevent the bills from circulating within the private sector, the Reichsbank operated a buyback programme on behalf of the government.

The Mefo bills flowed back to the Reichsbank in 1938 when the programme ended but were only partly redeemed through long term debt. Large scale monetization and a sharp increase in money supply was the immediate consequence. A formal protest submitted by the bank in early 1939 led to the dismissal of its directorate including its president ([James, 1986](#)).

With government borrowing siphoning off excess liquidity from the money market, monetary aggregates expanded at a slower rate than nominal income and real output. By the mid-1930s, financial depth, measured crudely as the ratio of M1 to real output, had fallen to the level of 1925. It was still below its 1929 level in 1938 when inflationary war finance was beginning in earnest.

The mostly adaptive role of monetary policy since the stabilization of 1924 is also reflected in the time series evidence. The succession of several monetary regimes paired with deflation and depression suggests the presence of structural breaks in the money/income relationship. To obtain

such breaks endogenously, this and the following sections will specify time-varying VARs, which relate the respective policy instrument to outcomes via a plausible transmission mechanism, following related procedures in the literature.

Let y_t be an $[n \cdot 1]$ vector of $i = 1, \dots, n$ time series y_i , observed at time $t = 1, \dots, T$. Let x_t be an $[(np+1) \cdot 1]$ vector that includes the first p lags of the same time series,

$$\mathbf{x}_t = [1, \mathbf{y}_{t-1}^1, \dots, \mathbf{y}_{t-p}^1]^1$$

and let u_t be an $[n \cdot 1]$ vector of disturbance terms. Then, the i -th equation of a vector autoregression is:

$$y_{i,t} = \mathbf{x}_t^1 \mathbf{b}_t + u_{i,t}$$

Here, the vector $\mathbf{b}_t = [\mathbf{c}' \ \boldsymbol{\beta}_t']'$ includes the vector of constants \mathbf{c} , as well as the $[p \cdot 1]$ vector of coefficients $\boldsymbol{\beta}_t$, which links the variables of the system to their own lagged values in the VAR. $\boldsymbol{\beta}_t$ is our object of interest. We assume that this coefficient vector evolves according to the following state equation:

$$\boldsymbol{\beta}_t = \pi \cdot \boldsymbol{\beta}_{t-1} + (1 - \pi) \cdot \bar{\boldsymbol{\beta}} + \mathbf{v}_t$$

where \mathbf{v}_t is an i.i.d. disturbance term, and where $\bar{\boldsymbol{\beta}} = (0, 1, 0, \dots, 0)$ is the unit root prior in time series y_t . The law of motion of these coefficients also depends on prior assumptions about parameter π . Setting the latter to zero, the coefficients would be stationary. Setting it to one, they follow a random walk¹.

I obtain time-varying impulse response functions from these VARs, employing the standard Cholesky decomposition of the variance-covariance matrix. Figure 3.1 shows the responses of output to monetary shocks from a time-varying VAR that relates M1 to consumer prices, producer prices, and a quarterly series of gross domestic output (all data from Ritschl, 2002).

Figure 3.1 shows the results from under a standard ordering of money behind output and prices. Assuming – based on the evidence gathered in the previous section – that capital mobility was high, this ordering is also consistent with the implications of the Mundell/Fleming model, in which

¹ I adopt the standard choice of $\pi = 0.999$. Estimation is by Kalman filtering, using standard parameter choices for time-varying Bayesian VARs (Hamilton, 1994). For a more detailed discussion and the data in this and the subsequent VARs see Ritschl (2002).

monetary policy must passively accommodate both nominal and real fluctuations under fixed exchange rates.

Up to 1929, the evidence from Figure 3.1 is precisely what the Mundell/Fleming paradigm would predict: for fixed exchange rates and high capital mobility, the money multiplier is zero, and so is its share in the variance explanation of output. Beginning with the German currency crisis of early 1929, however, things go awry: the measured money multiplier becomes increasingly negative, the more so the longer the lag after the initial shock. The decline is only reversed in late 1931. Beginning with the transition to a pure paper currency in early 1933, the multiplier turns into positive territory, suggesting moderate effects on output. The downward spike in the multiplier during the slump is mirrored by an increase in the variance explanation, as well as its subsequent fall.

This result may be an artefact of assuming money to be endogenous when it was not. Under looming debt constraints, inward capital mobility is reduced while outward capital mobility temporarily increases as foreign investors rush for the exit. The basic tenets of the Mundell/Fleming model then cannot apply, as money becomes temporarily exogenous to output. Figure 3.2 shows the results from going against the logic of the Mundell/Fleming model and assuming money to be exogenous to output. This ordering would reflect the prior belief that reserve flows under the Dawes and Young Plan responded to other things than German output and may themselves be causal for domestic adjustments.

Again, assuming money to be exogenous to output under a fixed exchange rate regime is not innocuous. In the absence of sovereign debt limits, both the Keynesian and the monetary approach to the transfer problem predict that cross-border capital movements ensure domestic currency is endogenous to domestic output (see [Metzler, 1942](#); [Johnson, 1956, respectively](#)). Conversely, if limits to borrowing abroad exists and debt levels approach these limits, inward capital movements and reserve flows become restricted and may cease altogether. This places an upper bound on the circulation of a currency that is subject to international reserve requirements. As a consequence, money becomes exogenous to output whenever the debt limit threatens to become binding.

Potentially, this could add explanatory power to the “Golden Fetters” ([Eichengreen, 1992](#)) channel of crisis propagation under the interwar gold standard. The short-term responses of output to a monetary shock indeed seem quite robust over time. The forecast error decompositions on the right-hand side of Figure 3.1 suggest that slightly more than 20% of the output variation would be explained by monetary shocks at a 6-month horizon. This is close to standard results for postwar evidence, (see e.g. [Leeper, Sims and Zha, 1996](#); [Bernanke and Mihov, 1998](#); [Uhlig, 2005](#)).

Time variation does affect the money/income relationship at longer horizons, though. Counter to expectation, the monetary transmission mechanism during the crisis became weaker, not stronger. After a peak in late 1926, the long term relationship weakened already in 1927, and even further in 1929, not to recover until 1932. Only then does the impulse response function recover the hump-shaped pattern familiar from post-war evidence, with responses reaching their maximum around two years after the shock.

The timing of the structural breaks suggested by the time-varying parameter structure is informative about the regime changes governing German monetary and balance of payments policies. The 1926 spike and subsequent decline in the responses, especially at longer intervals, coincide with the Reichsbank's intensified efforts to sterilise capital inflows. A further break in late 1928 marks the exit of foreign lenders from the German market, as well as the start of negotiations about the Young Plan. The next break is visible in the last quarter of 1930, after the last tranche of the Young Plan's stabilization loan to Germany was disbursed. The monetary multiplier at longer intervals recovers during 1932, surpassing its 1927 levels in the third quarter when the Young Plan was finally abandoned.

The weakness of the responses to a monetary shock during the slump is also reflected in the variance decompositions. Beginning in the spring of 1929, the variance explanation of output at longer horizons starts a precipitous decline, which continues to the last quarter of 1931, after the introduction of capital controls and Britain's departure from the Gold Standard.

The evidence in Figure 3.2 suggests that during the contraction from 1929 to 1933, the money-output relationship was limited to the short term impact. Further than that, the monetary transmission mechanism appears to have lost traction: at horizons larger than four quarters, money comes out as near-neutral. This effect is reversed in the recovery of the mid-1930s, in the environment of a low-inflation command economy with substantial financial repression and initially moderate money growth.

Several observations suggest themselves from the evidence gathered in these figures. First, results are extremely sensitive to the identification procedure, suggesting a fragile and unstable monetary transmission mechanism before 1933. Secondly, both exercises agree in assigning no active role to the money multiplier during the downturn after 1929. Thirdly, the hiatus of the depression separates two distinct monetary policy regimes from each other, with low effects in the 1920s and arguably higher effects in the 1930s. These regimes are easily identifiable as the Dawes Plan, ended by the sudden stop in the balance of payments after 1928, and the transition to credit expansion in an autarkic economy beginning in 1933. The hiatus in between coincides with the Young Plan and its end in mid-1932. Solving the identification problem that sets the two estimates apart is beyond the

scope of this chapter. But despite their vast discrepancies in results, both specifications suggest that monetary policy during the Young Plan was not the dominant mechanism propagating the depression in Germany.

4. Fiscal Policy: from Rules to Discretion

Stabilization after the hyperinflation of 1923 was as much a fiscal as a monetary phenomenon, with a ban on the Reichsbank discounting treasury bills as a critical element ([Sargent, 1982](#); [Dornbusch, 1987](#)). Fiscal policy was kept under close surveillance during the Dawes Plan of 1924. A reparations agent, Parker Gilbert, was installed in Berlin effect the transfer of reparations into foreign exchange, and to report on German fiscal and monetary policy under the plan. As Germany's currency was shielded from reparations under transfer protection, his reports on Germany's progress towards increasing output, productivity, and hence her capacity to pay, were seen as critical for securing the inflow of funds from abroad. As a consequence, the central government budget – which the agent's office tracked closely – went from deficits during a mild recession in 1926 to surplus in the boom of 1927/28 (Table 4.1 below). At the same time, however, lower-level government budgets as well as the social insurance system remained in deficit.

In the aggregate, the public sector during the Dawes plan never generated the fiscal surpluses required to pay for reparations. Table 4.1 permits a rough calculation of the fiscal sacrifice required to transfer reparations out of surpluses. Reparations amounted to less than 2.5% of GDP, and in some years were much lower. The cost of generating fiscal surpluses to transfer reparations would nevertheless have been higher than that, given the prevailing public sector deficits. Simply adding each year's fiscal surplus (i.e., subtracting the deficit) to reparations would place the total resource cost – including the elimination of the public deficits themselves – at 4-5% of GDP during the 1920s. With ratios of public spending to GDP gradually approaching 30%, this would have required a change of roughly 15% in either public spending or tax revenues even if tax elasticities were zero. (See Table 4.1.)

While such adjustments would have been substantial, they were not outside the norm: as the data bear out, central government expenditure almost doubled between 1924 and 1929, fell by 20% during the slump, and then grew fourfold from 1933 to 1938. The public sector share in GDP grew from 24% in 1924 to 29% in 1929, and continued to grow from 33% in 1932 to 36% in 1936, with a further jump to 42% in 1938

However, given the political constraints on raising taxes in the presence of foreign reparation demands, the government found itself in a funding crisis as soon as the supply of foreign funds dried out. A major loan flotation in March 1929 failed after the news on the forthcoming Young Plan had reached the market. After that date, the government found itself essentially cut off from the credit market and relied on the central bank instead. The price to be paid for that was a rigid deflationary programme imposed and monitored by the bank. Except for the Young loan, which was internationally guaranteed, carried 7% interest, and was hence well received by the market, Germany did not place a single bond issue on the market between early 1929 and mid-1934. During this time, the central government went through a succession of funding crises, being pushed into ever more severe deflationary measures in order to be able to roll over its short-term debt.

Stabilization of the central government budget was to some extent due to window dressing: as the data show, deficits persisted at lower level governments, and especially in the social security system. However, the budget squeeze is visible here as well. Exactly the reverse tendency becomes visible during the upswing of the 1930s: both the lower level budgets and the social security system went into surplus, while deficit were piling up in the central government account. As a consequence of these asymmetries, the share of public borrowing in GDP fluctuated markedly less during the 1930s than the central government deficits would suggest.

The extent to which the onset of the fiscal crisis in early 1929 affected Germany's borrowing dynamics is also borne out by time series evidence. To measure the effects of fiscal policy, I specify a time-varying VAR in output and central government deficits. To obtain the impulse response functions, shocks to these series enter a Cholesky decomposition in the same order. This helps to account for automatic stabilizers that affect the deficit contemporaneously with shocks to output. At semi-annual intervals, Figure 4.1 shows the impulse response function of deficits to their own impulse, i.e. the persistence of a deficit shock. (See Figure 4.1)

As the figure shows, the second quarter of 1929 marks a sudden regime change in fiscal policy: the persistence of deficit shocks at longer horizons drops to nearly zero, reflecting the pressure to swiftly restore budgetary in the face of a hardening credit constraint. Persistence recovers only during 1934, the year when military deficit spending began in earnest.

The same VAR also yields results on the dynamic multipliers of the central government's fiscal policy. Figure 4.2 shows the cumulative multipliers of a shock to central government budget deficits. Identifying fiscal policy solely through the deficit implicitly assumes the multipliers of spending shocks to be equal to those of taxation shocks. This comes at a cost, as the traditional Keynesian income-expenditure paradigm would predict that spending multipliers exceed tax multipliers. On the other hand, recent studies on fiscal multipliers ([Bernanke and Mihov, 1998](#)) have consistently found that

responses to tax shocks exceed the multipliers of spending shocks, at least at longer horizons. Depending on the methodology applied, this discrepancy can be quite large (see also Table 4.2 below).

The principal justification for this reduced form is that it implies a temporal Cholesky ordering: if both taxation and spending are a mixture of automatic and discretionary components, an ordering that places deficits after output emerges quite naturally, and the discretionary component of fiscal policy is identified without artificial assumptions about timing. (See figure 4.2)

Results for the multiplier of the discretionary component of the deficit are shown in Figure 4.2 for semi-annual intervals. As before, the dominant structural break occurs in 1934, when multipliers and explained variance go up sharply. Before that year, the multiplier effects of deficits are miniscule, as are the deficits themselves (see Table 4.1 above). After 1934, the variance decompositions suggest that fiscal deficits explain between 3 and 7 % of the forecast error variance in output, which is close to standard results from postwar evidence. Before that date, however, they indicate virtually no explanatory power for output at all.

That the lack of deficit spending before 1933 should have had such little effect on the German economy is not a foregone conclusion. As Table 4.1 above bears out, budget cuts during 1930-32 reduced the central government's real expenditure by over 20%; similar figures obtain for the public sector as a whole. Keynesian orthodoxy would predict a balanced budget cut of 4-6% of 1929 GNP to reduce aggregate output and income by the same amount. By contrast, Figure 4.2 implies a multiplier of hardly more than 0.1, with a maximum at 0.17 – i.e., of merely 17 pfennigs of GNP lost per 1 reichsmark of public budget cuts.

Even these results still look pessimistic in the light of the postwar evidence gathered in Table 4.2. For a balanced budget variation, the multipliers found for U.S. data ([in the wake of Blanchard and Perotti, 2002](#)) suggest the reverse effect: balanced budget cuts may have positive rather than negative effects on output at longer horizons. In contrast, international evidence collected by ([Ilzetzki, Mendoza and Végh, 2010](#)) finds that in economies operating a fixed exchange rate, fiscal shocks have small but generally positive effects on output. Even smaller but still mostly positive multiplier effects obtain for economies with high ratios of public debt to GDP. The results obtained in Figure 4.2 above for Germany between 1929 and 1933 seem broadly consistent with this evidence. (See Table 4.2)

As deficits grew in 1934, so does the deficit multiplier measured in Figure 4.2. The maximum multiplier of 0.97 is comparable to the Blanchard and Perotti (2002) estimates of deficit financed spending shocks, but builds up far more slowly. In this it is comparable to the temporal profile found by Mountford and Uhlig (2009) although it comes out somewhat higher. In Table 4.2 we also note

the nearly perfect fit with the multipliers for closed economies found by Ilzetzky, Mendoza and Veigh (2011). Clearly, the effects of deficit spending in the German upswing after 1933 are very much in line with the postwar experience.

The effects of fiscal tightening have been the subject matter of intense debate also for the Great Recession after 2008. While a consensus on positive short term effects of fiscal stimuli seems to have emerged (see [Corsetti, Meier and Mueller, 2009](#); [Cwik and Wieland, 2010](#); [Coenen, Straub and Trabandt, 2011](#)), there is evidence casting doubt on the conclusion that by symmetry, austerity in the presence of high debt levels has contractionary effects ([Alesina and Ardagna, 2010](#); [Cochrane, 2011](#); [Corsetti et al., 2011](#)). Earlier research on episodes of fiscal austerity found mixed evidence but emphasized the possibility of favourable outcomes (see [Alesina and Drazen, 1991](#); [Bertola and Drazen, 1991](#)).

By comparison, the evidence in Figure 4.2 points to an intermediate case: fiscal multipliers for during the contraction period of 1929 to 1932 are small but still positive, indicating that austerity did contract economic activity, although probably not by as much as has commonly been taken for granted in the historical literature.

Drawing the results of this section together, the evidence shows how fiscal austerity during the slump after 1929 changed the time series characteristics. Fiscal shocks lost their persistence in mid-1929 when the first funding crisis occurred, and regained it when deficit spending began in 1934. Fiscal multipliers during the recession remained small overall. Multipliers increased again with the transition to exchange rate control and managed credit expansion. For both regimes, the multiplier estimates are in line with post-war evidence. Overall, these results assign a minor role to fiscal policy during the slump, but also suggest only a limited contribution to recovery after 1933.

5. The Wage Channel of Crisis Propagation

As a consequence of revolution in 1918, the German economy arrived to the reconstructed Gold Standard with a highly interventionist labour market regime. This included the eight-hour day, workplace councils, collective bargaining and mandatory state arbitration of labour disputes. Wage determination soon was a matter of party coalition politics, and arbitration by government officials became the rule ([Feldman, 1993](#)). Until 1929, wages increased substantially, and wage compression favoured unskilled workers ([Bry, 1960](#)). Still, output and to a lesser extent employment increased as well, as the economy continued to recover from the hyperinflation of the early 1920s. (See Table 5.1e)

As the data in Table 5.1 bear out, wages outstripped productivity growth during the late 1920s, leading to a substantial rise in unit labour cost. In spite of the drastic fall in output and employment during the subsequent slump, both real wages and productivity continued to grow. Again, however, wages increased faster. Only after 1934 was this tendency reversed, and unit labour cost gradually declined to the levels of the mid-1920s.

To identify regime changes that may have influenced the labour demand schedule, we employ the same time varying VAR technique as before. In a setup that controls for output and ex-post real interest rates, the responses of labour demand to real wage shocks again reveal a regime-dependent pattern². (See figure 5.1)

At a 6-month horizon, the wage elasticity of labour demand remains more or less stable at values around -1, which conforms to theoretical priors and to earlier results for interwar Germany and Britain ([Broadberry and Ritschl, 1995](#)). At longer lags, the effects are again strongly regime dependent. From 1927 into early 1930, the labour demand schedule at longer horizons almost appears to break down. During the downturn, it recovers dramatically, suggesting strong and persistent effects of real wage shocks on labour demand. The schedule goes back to standard parameter values and loses its volatility during the recovery of the mid-1930s. A look at the variance decomposition suggests high explanatory power for wage shocks throughout; wage shocks during 1931/2 explain up to 65% of the forecast error variance in output. This is gradually reduced as recovery sets in.

These results suggest that real wage rigidity – or more precisely, the continuing rise of unit wage cost in excess of productivity growth – was a major channel crisis propagation, consistent with findings of Borchardt (1990). Keeping real wages high through political arbitration had strong, pernicious effects on employment after 1929.

Prior to the depression, however, wages apparently did not affect employment very much. This anomaly coincides with the period of heavy capital inflows – of commercial credit until 1928 and of stabilization loans further until 1930 – into the German economy. These inflows temporarily alleviated the wage pressure emanating from collective wage bargaining and arbitration. This would be consistent with findings that attribute little effect to wage pressure during the late 1920s ([see e.g. Voth, 1995](#)). As soon as the music stopped, however, adjustment set in rapidly, with detrimental consequences for employment.

² The variables included are (in this order of exogeneity in the Cholesky decomposition) quarterly GDP, commercial paper rates, non-agricultural total hours and real wages per person employed. All data from Ritschl (2002, Appendix C.2).

Similar patterns become visible in the responses of investment activity to wages. Controlling for output and the cost of capital, the dynamic relationship between investment and wages until 1929 appears to be weak and ambiguous, with responses changing signs at longer horizons. After that, however, investment responded strongly and negatively to wage shocks at longer horizons. This effect persists until 1933 and only gradually weakens as recovery gets underway. (See Figure 5.2)

Figure 5.2 shows the wage elasticity of the demand for capital goods, measured by orders of factory equipment (data from [VDMA, 1927; 1930](#)). According to these results, wages seem to have little explanatory power for investment in the late 1920s (see on this [Ritschl, 1994; Spoerer, 1994; Voth, 1994](#)). However, this changes abruptly in early 1929; during the depression over 50% of investment activity is explained by wage shocks at longer lags. This suggests a second wage channel of propagation of the depression in Germany, which goes beyond the labour market itself ([consistent with a claim by Borchardt, 1980](#)).

Drawing the results of this section together, wages come out as the predominant channel of crisis propagation in Germany during the depression. Wages appear to have affected economy activity in two ways: directly, going through the labour market, and indirectly, by their effects on the decision to invest. The wage channel provides what we could not find for monetary and even fiscal policy during the slump: a quantitatively important transmission mechanism that translated the sudden stop in the German current account after 1928 into a decline in output and employment.

6. Conclusions and Implications for Today

Fiscal austerity programmes have a reputation for facing a Keynesian Laffer curve and thus be self-defeating. Potential dangers and pitfalls of this policy have been highlighted prominently during the Great Recession after 2008 (prominently by [Krugman, 2008, in a fiery criticism of German plans to balance the budget after 2008](#)). Germany's fiscal policy during the Great Depression of the 1930s was just such a policy: it was strictly deflationary, aimed to balance the budget, and followed many of the precepts implicit in the later Washington Consensus. Applied during a slump of catastrophic proportions, Germany's strategy of deflation has drawn the ire of commentators at all times.

This chapter has placed this policy in the context of Germany's mounting foreign debt crisis during 1929-1931. German fiscal policy adhered to orthodox recipes, not so much out of misguided ideology but in an attempt to avoid defaulting on reparations. Transition from the earlier Dawes plan with its lax payment conditions to the much stricter Young Plan had marked a sudden regime change in fiscal policy. From mid-1929 to late 1933, balancing the budget was the paramount fiscal priority.

Success of this policy was mixed. Whilst it reached the limited goal of averting outright default on reparations, it ultimately failed in its attempt to keep current on Germany's commercial foreign debt. There is general agreement that this course of action contributed to political radicalisation. Political pressure to pay by creditors abroad and to default by voters at home put the government in the precarious position of an agent with two principals having diametrically opposed interests. The effects on the legitimacy of the Weimar Republic in the eyes of the population were detrimental.

This chapter has argued that the 1929 fiscal reversal in Germany came as a consequence of a sudden stop in the current account, following a pattern that closely resembles post-war sovereign debt crises. Cut off from foreign credit markets, the German government resorted to seeking a political stabilization loan as well as assistance from the central bank. Both came with a long laundry list of conditions, ranging from budget and wage cuts to reductions in administered prices; essentially the same conditionality that has been attached to recent relief programmes in Southern Europe. Germany's deflationary policy is thus an early case of an international stabilization programme having run into trouble.

The quantitative evidence presented in this paper suggests that, nevertheless, neither fiscal nor monetary policy were the principal mechanism of crisis propagation in Germany. Fiscal multipliers during the austerity phase were positive but low, which would be consistent with post-war evidence on balanced budget variations. The dominant channel of crisis transmission and propagation we found is real wage rigidity: though nominal wages did fall, producer prices declined faster, with direct effects on labour demand and indirect effects on investment. This highlights a fundamental dilemma of German deflationary policy, the inability to enforce wage cuts that would outpace price declines and thus result in real wage decline. As a consequence, real wages in Germany rose during the depression, as did unit labour cost.

The political economy of this phenomenon is not difficult to understand, and it gives reasons for concern. There is general agreement that unemployment after 1929 caused the rise of Nazi and communist votes and thus brought about the political collapse of the Weimar Republic. However, the mechanism linking the two does not appear to be as straightforward as early research ([Frey and Weck, 1981](#); [critiqued by Falter, 1986](#)) would have it. Recent research suggests a potential for right wing extremism that had deep historical and cultural roots, although this would not itself explain the rise of the extremist vote since 1930 ([Voigtlaender and Voth, 2012](#)). Indeed, the increase in the Nazi vote came predominantly from the lower middle class worried about being thrown into unemployment and deprivation ([King et al., 2008](#)).

Similar destabilising mechanisms might be threatening countries with weak institutions today. Governments confronted with a voter base susceptible to radicalisation would find it politically

expedient to eschew radical austerity measures. In a two-party system and its derivatives, participants might then play a waiting game, with each side attempting to place the onus on the other in a quick succession of unstable governments, thus postponing stabilization ([Alesina and Drazen, 1991](#)).

Germany's case is also instructive about the option of currency devaluation. Given that her debt was gold denominated, Germany opted for capital controls instead of open devaluation, a decision largely due to creditor pressure: U.S. negotiators signalled to the Germans during 1931 that imposing capital controls would be more acceptable than open devaluation and default on the gold clauses in the loan contracts ([Ritschl, 2002](#)). Last, the German crisis provides lessons about the international repercussions of a large economy defaulting, including transatlantic feedbacks on the U.S. economy ([Ritschl and Sarferaz, 2010](#)), the breakup of fixed exchange rate arrangements (Accominotti 2011) and the increase of protectionism.

In the light of these lessons, it is instructive to pursue the parallels between Germany's debt crisis in 1931 and the Southern European debt crisis since 2009/10 a bit further. The first parallel is that the debtor country would adopt internal, fiscal devaluation instead of an open breakaway from the common monetary standard. This is all the more striking as the interwar gold standard was not a currency union: both the national currencies and the respective national payment systems continued to exist, enabling the member countries to exit at low transaction cost. The second parallel is the internal devaluation itself: Germany's policy of deflation between 1929 and 1932 is the quintessential economic history textbook example of a pre-Keynesian policy response to a recession, when in fact it was a policy of austerity in the face of a looming sovereign debt crisis. The third parallel is a government of technocrats with only weak public support, installed to carry out austerity policies at the behest of the foreign creditor countries. In Germany, this arrangement eroded the support for democratic parties among voters and hastened social unrest, mass protests, and politically motivated violence – in 1932 alone, authorities counted 2000 deaths in such incidents ([Thamer, 1986](#)). Violent mass protest against austerity measures in southern Europe has not been the norm but recent incidents suggest a potential for radicalization and societal disintegration. The fourth parallel is the failure of real wages to fall during the austerity period. In spite of emerging mass unemployment, real wages and unit labour costs continued to increase in Germany during 1929-32, a phenomenon that has been observed in the Mediterranean basin during the recent crisis as well ([see e.g. EEAG, 2012](#)). The last – potential – parallel is the breakup of the currency system by contagion. Germany itself, pressed but also incentivised by its creditors, responded to its own financial meltdown by financial repression and capital controls instead of devaluation. However, the knock-on effects of Germany's financial crisis on Britain's banking system seem to have been instrumental in Britain's departure from Gold (Accominotti, 2011).

We do not have the counterfactual of what would have happened had different policies toward the German crisis been pursued. Finding a feasible counterfactual was perhaps the biggest and most contentious issue of Weimar historiography in the 1980s and 1990s. The essence of the criticism was that Germany should have devalued openly and at an early stage, thus avoiding excessive fiscal contraction ([Holtfrerich, 1982](#); [Ferguson and Temin, 2003](#)), while others have pointed out that given Germany's recent hyperinflation ([Borchardt, 1979; 1984](#)), the actions of her foreign creditors ([Ritschl, 2002](#)), and the weakness of her national banking system ([Schnabel, 2004](#)), devaluation was not an easy game to play. Very similar counterfactuals have been popular in the current crisis of the European periphery. While it is too early to tell whether the analogy with interwar Germany will carry through, the indication again seems to be that creditor pressure, not lacking economic insight is what might keep the debtor countries of Southern Europe within the Eurozone.

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Figure 3.1: The dynamic multiplier effects of money demand shocks on output in a time-varying VAR

Output and prices assumed exogenous to money

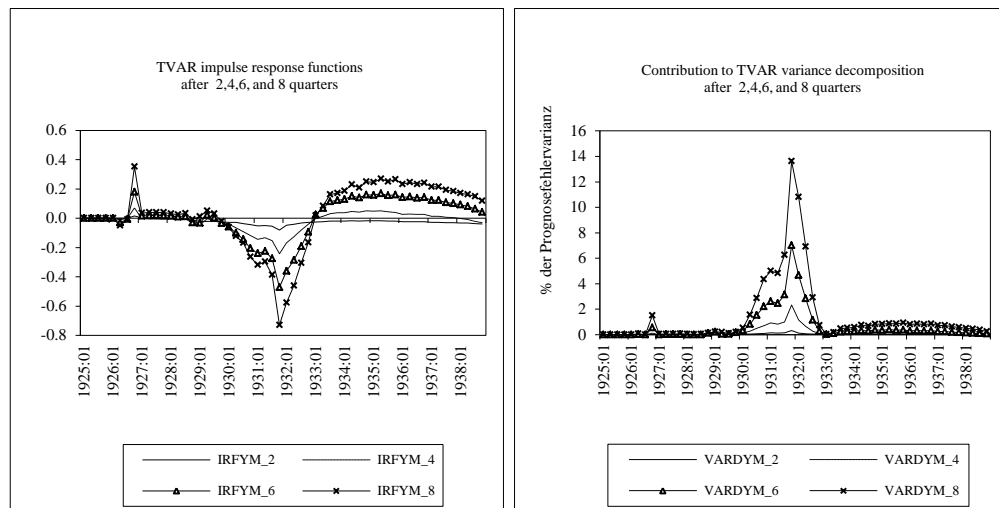


Figure 3.2: The dynamic multiplier effects of money demand shocks on output in a time-varying VAR

Money assumed exogenous to output and prices

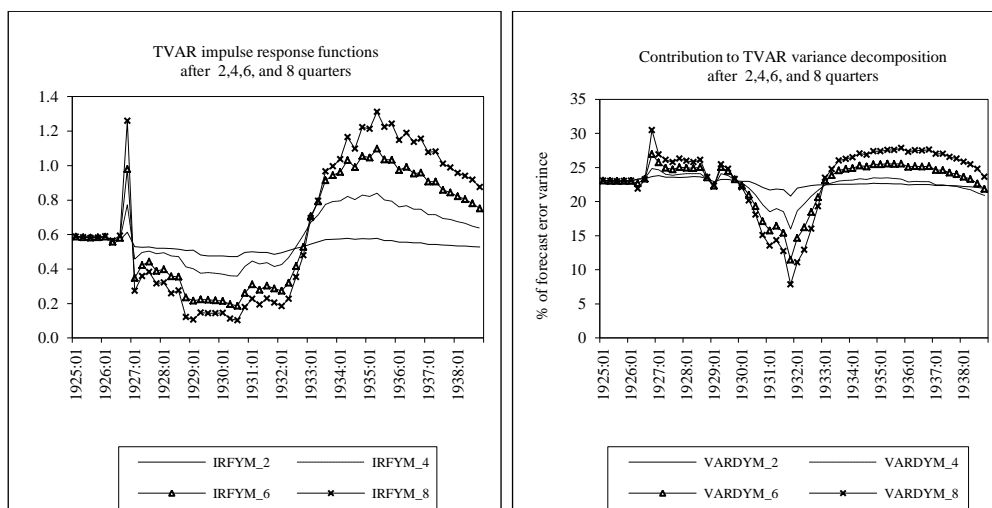


Figure 4.1: The persistence of central government budget deficit shocks in a time-varying VAR

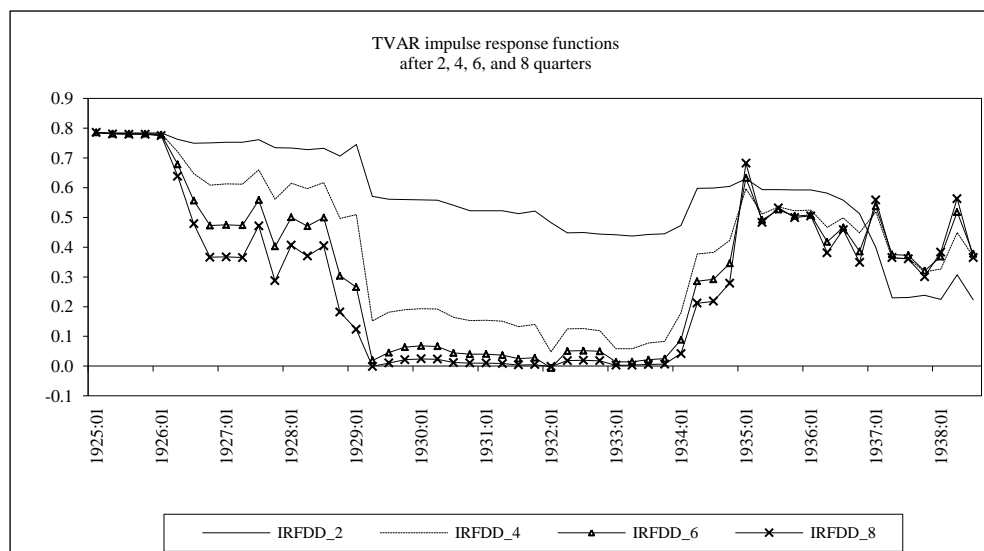


Figure 4.2: The dynamic multiplier effects of central government budget deficits shocks on output in a time-varying VAR

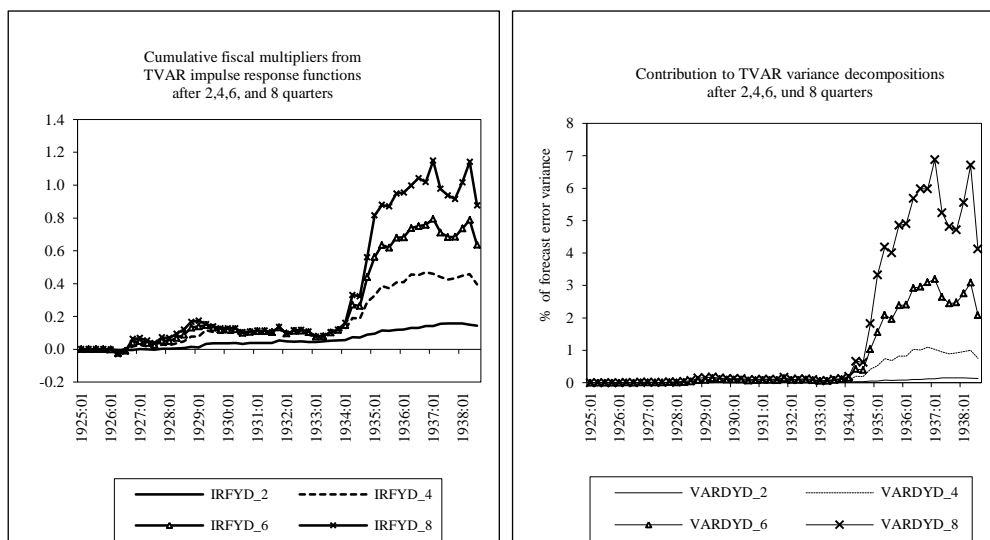


Figure 5.1: The dynamic multiplier effects of real wage shocks on labour demand in a time-varying VAR

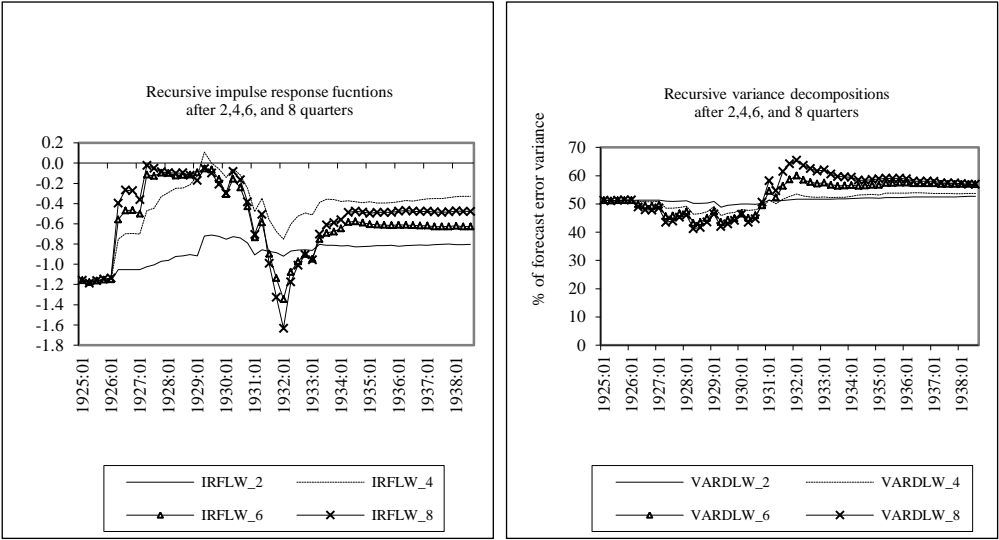


Figure 5.2: The dynamic responses of planned investment to real wage shocks

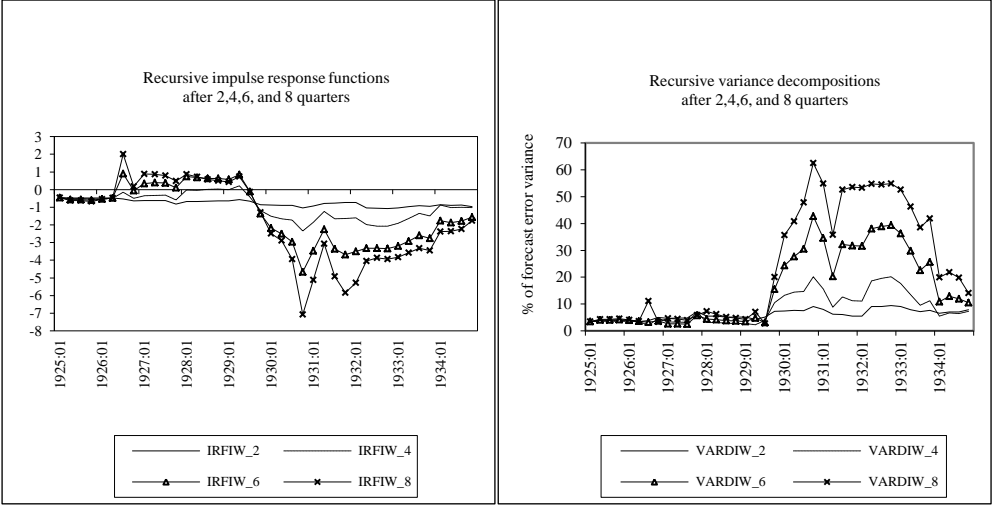


Table 2.1: Reparations and German GNP

		1913	1925	1929	1931
Nominal GNP (bn reichsmarks)		51	71.1	88.4	68.0
Reparations (bn gold marks / reichsmarks)		--- as percentage of nominal GNP ---			
(a) London ultimatum					
A bonds (net indemnity)	12	23.5	16.9	13.6	
A + B bonds (38 bn, for inter-allied war debt)	50	98.0	70.3	56.5	
A + B + C bonds (82 bn)	132	258.8	185.5	149.2	
(b) Dawes Plan of 1924		46	59.0	47.5	
(c) Young Plan of 1929/30		37		41.8	54.4

Source: Hardach (1980), Holtfrerich (1990), Ferguson (1998), Ritschl (1996, 2002)

Table 2.2: The German Balance of Payments
-- million reichsmarks

	Exports ¹⁾	Reparations ¹⁾	Current Ac- count ¹⁾	Long Term Credit (Net)	including: Stabilisation Loans ²⁾	GDP
1924		281	-1664	1000	281	
1925	10257	1057	-3710	1124	519	71151
1926	11519	1191	-763	1376		73830
1927	12211	1584	-5028	1765		83166
1928	13806	1990	-4030	1698		89049
1929	15282	2337	-3476	414		89248
1930	13709	1706	-1317	805	1470	82935
1931	11156	988	647	-85		69153
1932	7197	160	257	14		56444

Notes: 1) Excluding reparations in kind.

2) 1924/25: Proceeds from Dawes Loan; 1930: Proceeds from Young Loan

Sources: Statistisches Jahrbuch fuer das Deutsche Reich, various issues; Bundesbank (1976), Ritschl (2002).

Table 2.3: Foreign Debts and GDP
-- million reichsmarks --

	Commercial	Reparations	GDP	Foreign Debt/GDP (%)
1928	27	40	89.0	75.2
1929	31	46/37	89.2	86.3/76.2
1930	32.6	35	82.9	81.5
1931 (mid- year)	33.6	34	68.5	98.7
1931 (end)	26.6	34	58.1	104.3
1932	25.9	--	56.4	45.9
Notes:	Figures in italics are quarterly, annualized. Reparations 1929: Dawes Plan / Young Plan (NPV)			
Sources:	Bundesbank (1976), Ritschl (2002).			

**Table 4.1: Key indicators of public expenditure
(thousand mill. reichsmarks, current values)**

	Gov't Expenditure and Transfers		of which:	Surplus/Deficit		GDP	CPI ¹⁾
	Central gov't	Public sector	Repara- tions	Central gov't	Public sec- tor		
1924				0.77			
1925	5.38	16.92	1.08	-0.29	-0.52	71.15	141.9
1926	6.12	19.13	1.30	-0.78	-1.91	73.83	142.2
1927	6.55	21.93	1.71	0.01	-0.93	83.17	147.9
1928	6.87	23.77	2.16	0.15	-0.64	89.05	151.7
1929	7.75	26.05	1.96	-0.77	-2.23	89.25	154.0
1930	7.93	26.27	1.88	-0.16	-2.36	82.93	148.1
1931	6.52	22.71	0.99	0.36	-1.07	69.15	136.1
1932	5.75	18.91	0.18	0.13	-0.60	56.44	120.6
1933	6.49	19.84	0.15	-0.80	-0.78	57.72	118.0
1934	9.62	23.13	0.05	-3.41	-2.82	64.38	121.1
1935	11.85	25.08		-4.37	-3.22	71.75	123.0
1936	13.25	26.36		-3.52	-1.67	79.65	124.5
1937	18.62	32.06		-6.04	-3.61	89.11	125.1
1938	26.05	41.29		-9.46	-7.78	99.19	125.6

Notes: 1) 1913 = 100.

Sources: Statistisches Jahrbuch fuer das Deutsche Reich, various issues.
German Federal Archive, Economics Ministry Collections, R7.

Table 4.2: Multiplier effects of a public spending increase
Results for Germany 1934-38 vs estimates and calibrations for post-war data

I. Deficit-financed spending shock	1 quarter	4 quarters	8 quarters
Germany 1934-38	0.14 ^{*)}	0.42	0.97
Postwar data			
Blanchard/Perotti (2002)	0.9	0.55	0.65
(Simulation) anti- pated	1.8	1.7	1.7 to 2.2
(Simulation) unanti- pated	1.2	0.8	0.9
Mountford/Uhlig (2006)	0.44	0.42	0.67
Leeper et al. (2011)			
NK autarky, G non- traded	1.18	0.91	0.64 ^{**)}
Ilzetzky/Mendoza/Veigh (2011)	0.11	0.6	0.9
Closed economy			
II. Balanced-budget spending shock	1 quarter	4 quarters	8 quarters
Germany 1929-33	0.04 ^{*)}	0.10	0.12
Postwar data			
Blanchard/Perotti (2002)	0.2	-0.52	-0.67
(Simulation) anti- pated	1 to 1.5	0.3 to 1	0.1 to 1.1
(Simulation) unanti- pated	0.6	-0.1	0.4
Mountford/Uhlig (2006)	0.25	-0.79	-2.55
Ilzetzky/Mendoza/Veigh (2011)	0.04	0.25	0.5
Fixed exchange rate	0.06	0.06	-0.75
High-debt/income ra- tio			
^{*)} 2 quarters		^{**)} 10 quarters	

**Table 5.1: Real Wages and Productivity
(1925 = 100)**

	Wages	Output	Employment	Unemployment - per cent -	Productivity	Unit Labour Cost
1925	100.0	100.0	100.0	4.0	100.0	100.0
1926	118.5	101.4	92.8	11.8	109.3	108.5
1927	121.3	111.8	101.0	7.1	110.7	109.6
1928	119.2	115.4	105.5	7.7	109.4	109.0
1929	127.0	113.6	103.4	10.4	109.9	115.6
1930	132.0	106.0	96.4	17.2	110.0	120.0
1931	142.2	93.8	83.5	25.5	112.3	126.5
1932	144.5	84.9	73.2	31.5	116.0	124.6
1933	149.7	91.2	75.3	27.2	121.1	123.7
1934	143.9	100.9	85.8	15.7	117.5	122.5
1935	140.9	113.2	92.2	12.1	122.8	114.8
1936	138.4	125.9	100.1	9.6	125.8	110.0
1937	135.4	140.0	107.8	5.0	129.8	104.2
1938	133.4	153.4	114.9	2.2	133.5	99.9

Source: Statistisches Jahrbuch fuer das Deutsche Reich, various issues; Ritschl (2002)

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