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ABSTRACT

In 1953 the Western Allied powers implemented a radical debt-relief plan that would, in due course, eliminate half of West Germany's external debt and create a series of favourable debt repayment conditions. The London Debt Agreement (LDA) correlated with West Germany experiencing the highest rate of economic growth recorded in Europe in the 1950s and 1960s. In this paper we examine the economic consequences of this historical episode. We use new data compiled from the monthly reports of the Deutsche Bundesbank from 1948 to the 1960s. These reports not only provide detailed statistics of the German finances, but also a narrative on the evolution of the German economy on a monthly basis. These sources also contain special issues on the LDA, highlighting contemporaries' interest in the state of German public finances and public opinion on the debt negotiation. We find evidence that debt relief in the LDA spurred economic growth in three main ways: creating fiscal space for public investment; lowering costs of borrowing; and stabilising inflation. Using difference-in-differences regression models comparing pre- and post-LDA years, we find that the LDA was associated with a substantial rise in real per capita social expenditure, in health, education, housing, and economic development, this rise being significantly over and above changes in other types of spending that include military expenditure. We further observe that benchmark yields on long-term debt, an indication of default risk, dropped substantially in West Germany when LDA negotiations began in 1951 and then stabilised at historically low rates after the LDA was ratified. The LDA coincided with new foreign borrowing and investment, which in turn helped promote economic growth. Finally, the German currency, the deutschmark, introduced in 1948, had been highly volatile until 1953, after which time we find it largely stabilised.

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Introduction

In the aftermath of World War II, West Germany experienced a remarkable rate of economic growth.[1] As shown in Figure 1, in 1946 Germany's GDP per capita was only 36% of the UK's and less than 60% of France's. By 1959, Germany had caught up with France and, by 1970, with the UK. This prolonged period of strong growth was not simply a short-term rebound from the wartime devastation of infrastructure and enterprise. Almost all other European nations embroiled in World War II suffered economic collapse from falling trade and dis-investment, demographic catastrophe and political upheaval, yet none had such a rapid and sustained growth as did West Germany (Eichengreen 1995a). This growth – the highest rate in Europe – came to be called 'Wirtschaftwunder' or 'The Miracle on the Rhine', achieving a compound annual growth rate of 7.5% in the 1950s and virtually full employment by the 1960s.

[Figure 1 about here]

There are many competing explanations for why West Germany fared so well (Crafts 1995; Eichengreen 1996; Eichengreen and Ritschl 2009; Temin 2002). One is that it simply returned to its long-term growth path after the war (Jánossy 1969). This neo-classical post-war reconstruction hypothesis, however, cannot account for the divergence between East and West Germany, with their shared pre-war history, nor for German performance compared to other equally devastated western European nations. Clearly, other policy and institutional factors must have played a role. A second common explanation contends that the war created an opportunity to re-allocate employment from low-productivity sectors like agriculture to high-productivity ones like manufacturing (Temin 2002). Yet, in Germany increases in labour productivity owed more to changes in the services sector than in manufacturing as the former absorbed most of the transfer of employment from agriculture after WWII (Broadberry 1997). A third explanation proposes that growth arose from the formation of new trade partnerships in the late 1940s and 1950s (Bordo, Eichengreen and Irwin 1999; Sachs and Warner 1995). Yet, during the 1950s the degree of openness of the economy, reflected by the sum of exports and imports as a share of GDP, was actually lower in Germany (24.5%) than in the UK (43.2%), Austria (38.5%) and France (26.7%) (Penn World Tables 2015). Others emphasise the role of the end of Nazi state planning and subsequent introduction of

[1] Unless otherwise stated, Germany refers to West Germany or the Federal Republic of Germany. West Germany was the territory occupied by the US, the UK and France from 1949 until 1955.

free-market reforms following US, UK and French intervention (De Long and Eichengreen 1993; Eichengreen 1996).

Current economic turmoil in Europe has led some scholars to revisit the experience of West Germany's debt relief (Piketty and Zucman 2013). In June 1951, as part of the Marshall Plan, the Western Allied powers began to negotiate a plan that would, in due course, eliminate half of Germany's external debt and stipulate generous repayment conditions for the remainder (for a review of the process see Abs 1991).[2] The final agreement, called the London Debt Agreement (LDA), was reached in London in 1953. As shown in Figure 2, the LDA resulted in the reduction of the total pre-war and post-war debts that Germany owed from DM 29.7 bn to DM 14.5 bn (Deutsche Bundesbank 1959; Guinnane 2015),[3] which, in nominal terms, was equivalent to 22% of the German GDP in 1952 (Sinn 2012).[4] The LDA also linked repayment of the remaining debt to Germany's economic growth and exports (so that the debt service/export revenue ratio could not exceed 3%). There were also provisions for creditor countries to renegotiate the terms of repayment if circumstances made debt service more onerous than originally thought; this was not necessary given Germany's good financial and economic performance in the 1950s and 1960s (Guinnane 2015).

[Figure 2 about here]

Could this debt relief explain West Germany's growth miracle? Several commentators support this view to varying degrees. Ritschl, for example, claims that, "West Germany's economic miracle, the stability of the deutschmark and the favourable state of its public finances were all owed to this massive haircut" (Ritschl 2011). Other scholars suggest it played a lesser, albeit important, role. Eichengreen and Ritschl argue that "The German balance of payments benefited from the country's debts having been written down by the currency reform of 1948 and the London Agreement of 1953" (Eichengreen and Ritschl 2009:214). Similarly, Piketty and Zucman (2013:93) state that the debt relief, "… help[ed] Germany move from a large net debtor position at the end of the war to a creditor position by the middle of the 1950s." This view is also shared by Kampffmeyer (1987:54), who argues that "it was not only the deciding factor in the early restoration of the Federal Republic's

[2] The signatory powers were Belgium, Canada, Ceylon (the former Sri Lanka), Denmark, the French Republic, Greece, Iran, Ireland, Italy, Liechtenstein, Luxembourg, Norway, Pakistan, Spain, Sweden, Switzerland, the Union of South Africa, the UK, the US and Yugoslavia.

[3] As reported by the Deutsche Bundesbank (1959:4) "At the time of the London Debts Conference the total amount of the pre-war and post-war debts to be settled had been estimated at a maximum of DM 14.5 billion".

[4] There are alternative estimates, including those by Kaiser (2013), at 10% of 1953 GDP. What is clear, however, is that the reduction was substantial.

international creditworthiness but subsequently paved the way for an extensive liberalization of capital transactions with other countries." Other commentators suggest that debt relief enabled institutional reforms and inspired investor confidence. According to Sachs, "Germany's new democracy needed the relief, and Germany needed a fresh start. The London agreement played a major role in the economic recovery and construction of Germany's democratic institutions" (Sachs 2015). Guinnane views debt relief as a necessary precondition for investment, and argues that "Settling the debt issue was not just a matter of reckoning with Germany's past –although that was necessary– but also of normalizing economic relations with the rest of the world" (Guinnane 2015:336).

To our knowledge, there is scant empirical evidence to address the validity of these hypothesised benefits. Virtually all economic history studies of the impact of the LDA have been descriptive, covering the details of the meeting itself from personal experiences (Abs 1991) or with a narrative about the development of the conference and its agreements (Guinnane 2015). To our knowledge there has yet to be an analysis of the economic consequences of this debt relief even though, as several commentators have argued, the lessons from the LDA may be relevant to Europe's current debt crises, in Spain and Greece, among others (Kaiser 2013; Sachs 2015). Through our analysis, we will assess the extent to which this analogy applies and argue that such calls for simple replication of the LDA are based on a misinterpretation of the events of 1953 and their sequelae.

Here we take advantage of a new dataset to investigate the impact of the LDA, extracted from the official monthly reports of the Deutsche Bundesbank (the Central Bank of the Federal Republic of Germany). These reports are available from August 1948 until today and provide an accurate picture of German economic activity and public opinion. Moreover, from 1953 to the early 1970s, they contain numerous statistics and special issues on the LDA, underlying the inherent interest in the state of German public finances and public opinion of the debt cancellation. The rest of the paper is as follows: first we review the context of the LDA and its role within the Marshall Plan (Section 2). Then, we outline the economic benefits of the LDA, exploring three potential mechanisms in which the LDA fuelled economic growth (Section 3) and changed the government's budget constraint. Using Difference in Differences (DiD) we explore the extent to which the LDA freed resources to invest, showing that the LDA increased spending in social categories such as health and education. Then using data on bond yields we show that the LDA potentially stabilised German finances in the short-run allowing for a great deal of new German borrowing and better capital access to capital markets. Another major economic benefit was to stabilise inflation. In Section 4 we highlight the lessons that we might learn from this historical episode.

The context of the London Debt Agreement

Before analysing the consequences of the LDA, it is first crucial to contextualise it within the wider Marshall Plan (1948-1951). Officially termed the European Recovery Programme (ERP), the Marshall Plan was a manifestation of American interest in European reconstruction, aiming to foster long-term recovery through a set of economic aid and reform programmes. The ERP had economic and political goals, including combatting Communism and incentivizing market-based economic activity. The Marshall Plan mobilised large sums of financial aid to help rebuild and stabilize Europe's economies, amounting to a total of $13 bn (roughly $115 bn at 2010 prices or 5% of the 1948 US GDP) (Eichengreen 2010). However, in monetary terms, the value of Marshall Plan aid to Germany was relatively small ($1.4 bn) compared with sums provided to the UK and France.[5]

For Germany, the other key economic elements of reconstruction besides the Marshall Plan involved three main structural reforms. First, the currency reform of 1948 introduced the DM, that converted most savings at a rate of 6.5 DM to 100 Reichsmarks and completely wiped out all government securities and eliminated domestic public debt (Lutz 1949; Piketty and Zucman 2013).[6] Second, the European Payments Union (1950-1958) liberalised capital and trade (Bordo 1993; Eichengreen 1993). It was only after these first two measures had been adopted, in 1953, that the third critical element, the LDA, was introduced (Berger and Ritschl 1995; Guinnane 2015; Ritschl 2012). The LDA was the most fragile element of the plan because it depended on the success of the first two. It was only undertaken once the USA, UK and France were satisfied that these prerequisites were fulfilled that the macroeconomic benefits of the LDA could begin.[7]

Hence, since West Germany's sovereign debt relief programme would not occur until some years after the currency reform and the European Payments Union, the Marshall Plan took

[5] Along with the Marshall Plan, the US launched another recovery programme, the Government Aid and Relief in Occupied Areas (GARIOA), with emergency aid to Japan, Germany and Austria in the form of food to alleviate starvation. This programme amounted to $1,793 million between 1945-1952, which was more than what was initially projected under the Marshall Plan (Berger and Ritschl 1995).

[6] The currency reform also involved a comprehensive set of changes to wages, prices and banking reform. See Lutz (1949) for the details.

[7] Another reason why the LDA was delayed until 1953 is that the LDA could not occur until the US emergency plans ended. For example, the GARIOA only ended in 1952.

account of this gap and explicitly blocked claims by creditor countries against Germany until 1953 (Dernburg 1953; Kampffmeyer 1987:49-50; Ritschl 1996). To do so, in 1947 the USA asked recipients of Marshall Plan aid receivers to block claims against Germany until Germany had first repaid Marshall Plan aid (Berger and Ritschl 1995; Dernburg 1953; Ritschl 2012). Moreover, since West Germany was occupied until 1955 (although, in 1949, with the creation of the Federal Republic the military governors were replaced by civilian high commissioners), the plans to foster the restoration of sovereignty and restructuring the burden of debt were two sides of the same coin (Guinnane 2005).

Implementation of the LDA

The LDA aimed to establish a macroeconomic equilibrium in which the amount that Germany would be required to pay would be linked to its ability to generate trade surpluses and its annual export earnings (with payments limited to 3% of annual exports). In other words, Germany would only pay debt from its export growth. This would ensure that debt relief was sustainable and avoid problems which bedevilled Germany following the Treaty of Versailles (Keynes 1920). There were also provisions for creditor countries to renegotiate the terms of repayment if circumstances made debt service more onerous than originally thought.

At the time, critics expressed doubt that the LDA could actually solve such problems, as even though Germany had been running large surpluses with the European Payments Union area since 1951, no one could anticipate the 'Wirtschaftwunder' and if surpluses were likely to persist, or if they would level off at a moderate amount (Dernburg 1953; 1954). Clauses for renegotiating terms also could create a 'moral hazard', as such flexibility might encourage a German successor government to flout their international obligations, such as by 'gaming' conditions so to avoid debt repayment (Dernburg 1953). Critics further argued that the plan could perversely encourage risky financial behaviour in the future (yet another manifestation of moral hazard this time by lenders), so increasing the risk of a future debt repayment problems.

The LDA responded to concerns about moral hazard by incorporating Germany into the multilateral negotiations with private and public creditors creating a realistic repayment scheme. The LDA minimised the incentives for creditors to lend without evaluating the risk of the new loans, as the creditors assumed part of the losses if Germany was unable to pay. Hence both parties shared the costs of hazardous or risky behaviour. It was also unlikely that other highly-indebted countries would seek a similar write-off of debt; Germany occupied a unique position as the only country in Europe expecting help because of its importance to a wider European recovery after WWII and, politically, to counteract threats in the Cold War.

It was also pointed out that the LDA forced West Germany to accept responsibilities for debts issued by political entities that no longer existed (such as Prussia) and that West Germany was also paying the debts for the German Democratic Republic (East Germany). Critics further questioned the calculations of the total amount owed (e.g., the depreciation of the different currencies in which debt was owed altered the real amount of repayment and the calculation of the compound back interest) (Abs 1991). Nonetheless, despite these and other criticisms, Dernburg (1953:309) clearly echoes that at that time the press reactions indicated that for European citizens the economic conditions that Germany acceded in 1953 were much better than had been anticipated during the negotiations between 1951 and 1952, and this was attributed by some commentators to the strong desire on the side of Germany to restore its credit.

The economic benefits of the LDA

Did the LDA contribute to West Germany's subsequent growth? If so, how? Reinhart and Trebesch (2016) have recently examined the aftermath of debt relief in 45 countries between 1920-1939 and 1978-2010 and find that the economic situation of debtor countries improves significantly after debt relief, but only if these contain debt write-offs. They calculated that, on average, write offs on the magnitude of 40-50% during the interwar period led to increases of 20% GDP during the five years following the debt cancellation (and 11% during the most recent decades). However, while Reinhart and Trebesch (2016) look at the impact of debt restructuring during the interwar period and in recent decades, they do not look at what happened after WWII, thus excluding the LDA.

Debt relief can fuel growth in several ways. Figure 3 summarises the three main hypothesised mechanisms. The most obvious economic benefit is the extent to which debt relief reduces debt repayments, so freeing money to invest (Ghosh et al. 2013; Krugman 1988). Second, the LDA also provided stability to German finances after decades of political and economic instability, thus reducing the likelihood of a new default, waterproofing financial stability and lowering the cost of borrowing (Reinhart, Reinhart and Rogoff 2015; Reinhart and Trebesch 2016). Ultimately, the LDA led to a great deal of new German debt issues, equivalent to the sums originally relieved by the LDA. Through the reduced interest rates and risk premia, the LDA improved the confidence of the international capital markets in new German issues. Finally, debt relief also brought an inflation stabilising component to the German economy (Piketty and Zucman 2013). We consider each of these mechanisms in turn.

[Figure 3 around here]

Benefit 1: Creating fiscal space for investment and social spending

One of the principle economic benefits of the LDA was reducing total debt, thereby lowering debt repayment and freeing up fiscal space for domestic investment (Eichengreen and Ritschl 2009; Guinnane 2015). These new funds prioritised spending on social welfare, rather than spending on infrastructure and emergency relief, because the Marshall Plan and the aid programme under the Government Aid Relief in Occupied Areas (GARIOA), which ended respectively in 1951 and 1952, were the main elements of the Marshall Plan to provide relief assistance and invest in infrastructure damaged by war (De Long and Eichengreen 1991; Dernburg 1953). Hence, during the 1950s, the most important category of expenditure was that of social welfare (26.9%). This was followed by investment in defence (15.4%), education (8.9%), housing (8.6%), economic development (6.5%) and health (4.75%) (Weitzel 1967).

To explore in more detail the impact of the LDA and the new funds associated with the debt relief on German finances, we run a DiD model that explains variations in 14 different types of expenditure in the budget, using as a dependent variable the level of expenditure (in marks) per capita adjusted for inflation. Specifically we run the following regression:

$$y_{ct} = \alpha_0 + \sum_{s=1}^{4} \beta_s \,(social_s) \cdot Post_t + Post_t + social_s + \varepsilon_{ct}$$

where $y_{ct}$is real expenditure per capita for spending category c, $social$ is an indicator equal to one for four social spending categories (economic development, education, health, and housing), $Post$ is an indicator equal to one from 1953 until 1962 and ε is the error term.

We hypothesize that social expenditure will grow relative to the other 10 categories from 1953 following implementation of the LDA. We use the data from Weitzel (1967) and aggregate the budget expenditure into 14 consistent categories for the period 1948-1962.[8] The post-treatment period begins in 1953, so the indicator $Post$ equals zero for the years 1948 to 1952 and one otherwise. Additionally, we explore DiD regressions where the treatment group is social expenditure, which groups the spending categories of health, education, economic development, and housing. The control group contains the remaining 10 categories. Figure 4 shows that while spending in social and non-social categories was about the same in 1948 and grew at roughly the same speed as other categories between 1949 and 1952, after 1953 spending in social categories grew much faster than spending in non-social categories. In the Appendix 1 we also graph each component of the social category.

[Figure 4 around here]

Next, we present the results of the DiD regression model (Table 1). Results suggest that each category of social expenditure grew much more quickly after 1953 than before and relative to other categories. All coefficients are statistically significant. Indeed, results are consistent with the idea that the LDA loosened the public budget constraint. The largest increase is in health expenditure followed by roughly equal increases in education relative and economic development. Housing expenditures also rise on a per capita basis but by half the amount of education and economic development. This is the case because, as already seen, the Marshall Plan and the GARIOA were the main elements of the Marshall Plan to provide relief assistance and invest in infrastructure damaged by war. For instance, in the Housing Act of 1950 the West German government provided publicly subsidized housing and gave big tax breaks to builders (Diefendorf, et al. 1993). Overall our results are consistent with observations by Deutsche Bank (1963:47). Debt repayment under the LDA determined to a large extent the course of public investment and expenditure in the German economy and as debts were repaid (or cancelled) this freed up new resources to further public investment. Additionally, repayments made a genuine contribution towards easing the balance of payments, which allowed Germany to accumulate foreign reserves, lessening the potential financial constraints imposed by the balance of payments (Eichengreen and Ritschl 2009).

We tested the robustness of this baseline difference in differences regression in several ways. First we ran a fixed effects regression allowing for separate intercepts for each of the 14

[8] These are: administration of justice, agriculture, church and culture, defence, economic development, education, financial management, health, housing, internal administration, public safety and order, regional and community spending, trade and commerce and war burdens. We aggregate some of the categories initially proposed by Weitzel (1967) and for example, primary, secondary and higher education were collapsed in a single category, education.

expenditure categories. Point estimates are exactly the same, but standard errors are significantly smaller. We then explored three specifications which aggregate all four social spending categories into one treatment group. We use the level of real spending per capita, the logarithm of real spending per capita and the level of the expenditure share (ratio of category expenditure to the total) as dependent variables. All specifications include fixed effects for each of the 14 categories of spending and year fixed effects. These results are reported in Table 2. All point estimates are positive and economically significant. Column 2 suggests the LDA was associated with higher social spending on the order of 0.015 log points or close to 1.5%. Column 3 of Table 2 shows that the share of social spending rose by 1.65 percentage points relative to other categories after 1953. The coefficient in the specification using the logarithm of spending is positive but only marginally significant (p-value = 0.123). Finally we estimated a "fully flexible" DiD model allowing for separate coefficients on the social spending category in each year of the sample (also including year dummies and fixed effects for the 14 expenditure categories). Figure 5 shows the results graphically. While social spending was not generally growing significantly differently from other categories prior to 1953, after 1953, in each year, spending per capita is relatively higher. Most coefficients post-1953 are significantly different from zero and increasingly larger suggesting a lag in the effect.

[Table 1 around here]

[Table 2 around here]

[Figure 5 around here]

Benefit 2: Lower costs of borrowing

A second important economic benefit of the LDA is that it led to an immediate improvement in the sustainability of German finances. This can be seen in data on German long-term bond yields. The yield on such bonds is related in part to the perceived risk of default on foreign creditors.

Figure 6 shows the development of the German 10-year benchmark bond adjusted for the 'risk free' rate using data from the US 10-year treasury yield. Prior to the negotiations of the LDA, bonds fluctuated at 3-3.3%. However, with the first negotiations of the LDA in June 1951, bond yields fell and rapidly declining from 3.14% in June 1951, to 2.51% in June 1952 and 1.83% in June 1953. Given the legacy of interwar experience in defaulted debts and depression, it mattered little that countries restored currency convertibility and were in a position to attract significant amounts of foreign capital (Eichengreen 1995b). What mattered most to regain the confidence of foreign investors in the short-run was to eliminate the likelihood of another default. This only occurred in June 1951, when the negotiations of the LDA began, and the creditor and debtor countries sat down to negotiate together private and public German debts from the interwar period, lowering the total sums owed and establishing mechanisms to foster economic growth.

The LDA also dealt with the German loans and a new series of funding bonds were issued to compensate Dawes and Young Loan bondholders for interest arrears for the period 1945-1952, totalling to DM 220 million (Clement 2004; The agreement on german external debts 1953:Annex 1). The LDA offered the exchange of outstanding bonds for new conversion bonds. Two new bonds were offered for each original bond surrendered by the bondholder and these were validated by the German debt administration (Clement 2004). The Bank for International Settlements (BIS) acted as Trustee for the Young and Dawes Loans conversion bonds (Clement 2004). The Dawes loan bonds issued in 1924 at 7% were lowered to 5.5% with an extension of the maturity from 1949 to 1969 and the Young loan bonds, issued in 1930, were lowered from 5.5% to 4.5% and were extended from 1965 to 1980 (Brown and Burdekin 2002; Clement 2004; Dernburg 1953). Because of guarantees and new extensions of maturities bonds were less likely to fluctuate in value according to short-run changes in expectations.

[Figure 6 around here]

The years that followed the LDA fostered a long-run continuation of this stabilisation effect, with bond yields fluctuating around 2-3%. However, after 1953, Germany took advantage of the LDA and borrowed massively abroad. Ironically, the LDA led to a great deal of new German indebtedness, as a consequence of the German's ability to sell new debt at sustainable yields and the willingness of investors to roll over debt after restructuring given the new financial situation enjoyed by Germany. New indebtedness was related to the fast-growing German economy and increasing interest of foreign investors in acquiring German securities. In 1960 the Bundesbank reported that from 1954 large amounts of external bonds had been repatriated to Germany. They claim that this was partly due to the new position of Germany in the international markets (a persistent surplus on the trade balance) and because the LDA restructured and fixed the external debt of post-WWI Germany.

While it is particularly difficult to calculate the post-LDA indebtedness to foreign countries, the calculations made in the monthly reports of the Bundesbank show that new indebtedness can be estimated at DM 15 bn between 1953 and 1964 (Deutsche Bundesbank 1964:10) or around 23% of the nominal GDP in 1952 (Sinn 2012). The monthly reports of the Bundesbank also allow to disaggregate this figure, showing that net purchases from 1960 of foreign holdings of German fixed-interest-bearing securities amounted to DM 6.1 bn (Deutsche Bundesbank 1964:10). Additionally, net purchases of public authorities' loans from 1958 amounted to DM 2.9 bn. The sale of securities to foreigners and the acquisition of fixed-interest loans abroad amounted to DM 2.5 bn between 1948 and September 1957 (Deutsche Bundesbank 1961:44) and the long-term credit and loans granted to the German economy from 1952 amounted to DM 3.4 bn (Deutsche Bundesbank 1964:10).[9]

Benefit 3: Stabilising inflation

A final major economic benefit was to stabilise inflation. While Germany started to reduce its inflation after WWII through monetary reform, Figure 7 shows that the debt relief and the restoration of the financial stability was accompanied by stable inflation fuelling trade (De Long and Eichengreen 1993). Stabilisation of the inflation can also be seen comparing the value of the DM and the dollar. In 1949 the value of the DM against the dollar was 3.3 and after 1950 it depreciated to 4.2 and pegged right around 4.2 until 1960 (Bidwell 1970).

[Figure 7 around here]

Discussion

The LDA, designed over 60 years ago by the Allied forces and market participants together with Germany, eliminated roughly half of the principal of accumulated German pre-war and post-war debt. This plan, the LDA, formed a sort of sequel to a broad range of measures for European and German economic recovery, first formally articulated in the Marshall Plan, which recognised the need for a satisfactory arrangement on German debt due to its poor history of debt repayment.[10] Our analysis provides evidence consistent with the idea that the

[9] These calculations exclude indemnification liabilities to foreign beneficiaries and liabilities resulting from foreigners' direct investments in the Federal Republic.
[10] As some other authors have argued (Ritsch 2012), "the financial core of the Marshall Plan was something much bigger, an enormous sovereign debt relief programme" that waterproofed economic recovery until the days that Marshall aid was repaid and the EPU would be dissolved.

LDA contributed to accelerating economic growth, by freeing resources for domestic investment and stabilising German finances. The LDA helped pave the way for the 'Wirtschaftwunder' or 'The Miracle on the Rhine'.

This analysis has several limitations. While we can account for the proximate fiscal transformation that accompanied the LDA, it is more difficult to precisely quantify the impact on overall economic growth. The German economy was already growing between 1950 and 1952 at a historically remarkable annual growth rate of 8%. It is difficult to envisage whether the conditions for restructuring debts would have been the same without initial signs of recovery from Germany. Indeed, since debt restructuring was tied to the Marshall Plan and formed part of a broad range of measures for European recovery, it is difficult to see the success of the LDA without the preconditions that created the currency reform of 1948 and the creation of the European Payments Union.

For understanding policy making, the LDA may have implications for contemporary management of debt. In 2012, the Greek prime minister, Alexis Tsipras, called for similar relief of Greek debt, receiving much media attention (Smith 2012). However, arguably, the historical analogy has at least two major political-economy differences. One is that Germany's debt crises arose in the context of two massively destructive World Wars, with 60-80 million military and civilian casualties and devastated infrastructure. This situation clearly impacted the capital labour ratio, with a shift of resources from agriculture to services; by late 1960 Germany had overtaken Britain in terms of aggregate labour productivity (Broadberry 1997). Germany also represented 15.4% of the Western European population in 1953 compared with indebted nations such as Greece today, with 2.1%. Moreover, Germany was an important ally in the Cold War and the American-led fight against the expansion of the Soviet Union.

Nevertheless, what the LDA shows is that debt relief can help stimulate growth and provide the foundations for more equitable fiscal outcomes.[11] In fact creditors received a substantial amount of their money back by linking the repayment of rescheduled debts to Germany's

[11] Nevertheless, although few, there are other successful examples in which creditors countries linked repayments to its ability to pay. In 1881 the Ottoman public debt was reduced from £191 million to £106 million and repayments to the European powers were organised by the creation of the Ottoman Public Debt Commission (Murat 2010). In 1991 the Western governments also agreed to forgive about half of the $33 bn that Poland owed which fuelled economic growth and the transition towards a market economy (Greenhouse 1991).

ability to grow.[12] The debt restructuring proved to be a success and while there had been a problem of debt just prior to 1953, a decade later there was none. Moreover, it is not the mere relief applied to the German finances that demands our attention, but the philosophy of the agreement, namely, "to make a contribution to the development of a prosperous community of nations" (The agreement on german external debts 1953:B3).

The conditions imposed by creditor countries in recent years, with harsher conditions and through giving new loans, could not be more different. Today, countries that borrowed money from the IMF had much harsher conditions for repayment. While in the LDA debt repayments were limited to 3% of the value of annual exports, in 2013 the IMF defined repayment/export ratios as 'sustainable ones' at much higher rates, above 15%-20% in the Caribbean (15.8% in St. Vincent and the Grenadines, 16.8% in Grenada and 25.9% in Jamaica) and Latin America (28.2% Brazil, 20.8% Costa Rica and 17.1% El Salvador). Even higher debt burdens are observed in Eastern Europe, in Ukraine (42.3%), Montenegro (17.5%) and Armenia (46.4%), while in African countries illustrative figures are (15.3% Morocco or 13.7% Burundi).[13]

Finally, in assessing post-war German debt relief, we must disentangle the political motivations (in particular those pertaining to foreign policy) from the goals. Even if we were to ascribe the most cynical and instrumental motivations to the LDA of 1953 (namely, the need for a strong Germany in the context of the Cold War of the 1950s, in addition to the realization of the errors of the Versailles Peace Conference and their subsequent effects), it is clear that this debt relief was emphatically designed to help Germany grow and always prioritized German economic health over the repayment of the debt. This involved significant sacrifices by creditors (in the form of renouncing a significant part of their debt), but also the implementation of mechanisms to avoid any risk of stagnating the German economy by the burden of debt repayments. It is in this respect that the contrast is most striking with the recent and current policies in relation to the Southern Eurozone countries. We might readily accept that the foreign policy motivations of Germany and other European countries in the late 2000s and early 2010s are very different from those of the USA and its allies in the 1950s, but the fact remains that the programme designed to restore the finances of heavily

[12] Although the German debt negotiated in the LDA was held by private and public organisations it was mostly owed to governments. Private debts were recognized by Germany as long as the debtors lived in Western Germany (Guinnane 2005).
[13] The debt service ratio defined by the IMF is the ratio between the total debt service as percentage of exports of goods, services and primary income. Data from the World Bank (http://data.worldbank.org/indicator/).

indebted Eurozone countries had a conspicuously different goal, one that prioritized the repayment of the debt and economic reform (by way of austerity measures) over the rehabilitation of the affected economies. By revisiting the 1953 LDA and its subsequent effects, we can see a much clearer image of the policies (including their motivations and objectives) that were developed to prevent the financial crisis in the Eurozone.

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Figure 1: GDP per head in Germany and in Austria, France, Hungary, Poland and the UK, 1946-1974.

Source: Data are from Maddison Project Database (Bolt and van Zanden 2014).
Notes: GDP per head is in 1990 International Geary-Khamis dollars (GK$) where the units of measurement are 'purchasing power adjusted' dollars of 1990, so that account has been taken of differences in internal price levels.

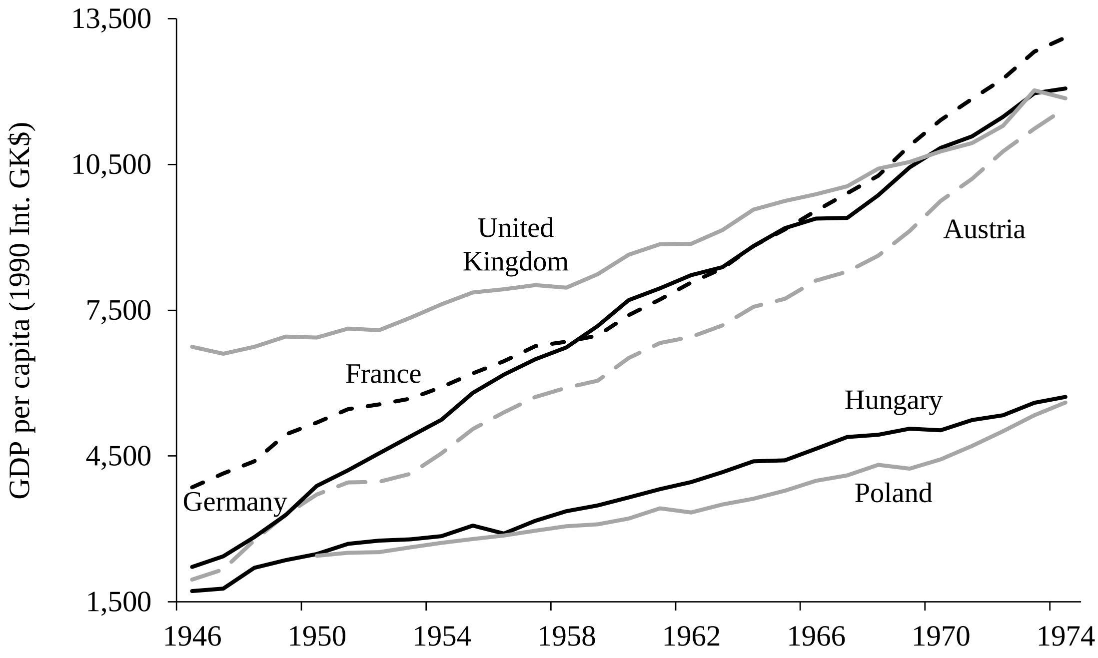


Figure 2: How the London Debt Agreement reduced Germany's foreign debt over the 1950s.

Sources: Data are from the monthly reports of the Deutsche Bundesbank.
Notes: Since no statistics were reported for pre-1953 years we added the totalling debt relief to the reported 1953 debt statistics. For the years between 1953 and 1960 we add the external debt from the German State, 'Länder' and 'Gemeinden'.

Figure 3: Conceptual framework

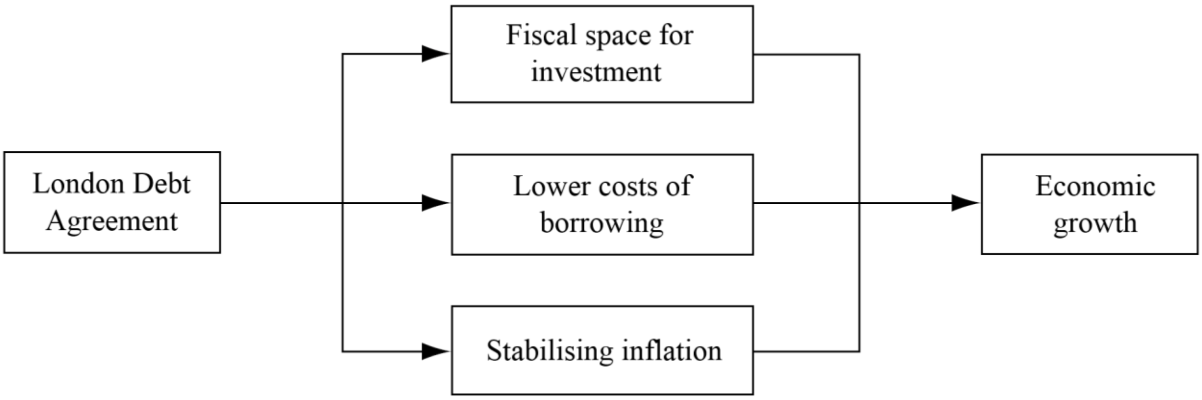


Figure 4: Budget expenditure on social categories (health, education, economic development, and housing) and non-social categories, per capita basis and inflation adjusted.

Source: Data are from Weitzel (1967).
Notes: 'All other spending categories' include administration of justice, agriculture, church and culture, defence, financial management, internal administration, regional and community spending, public safety and order, trade and commerce and war burdens.

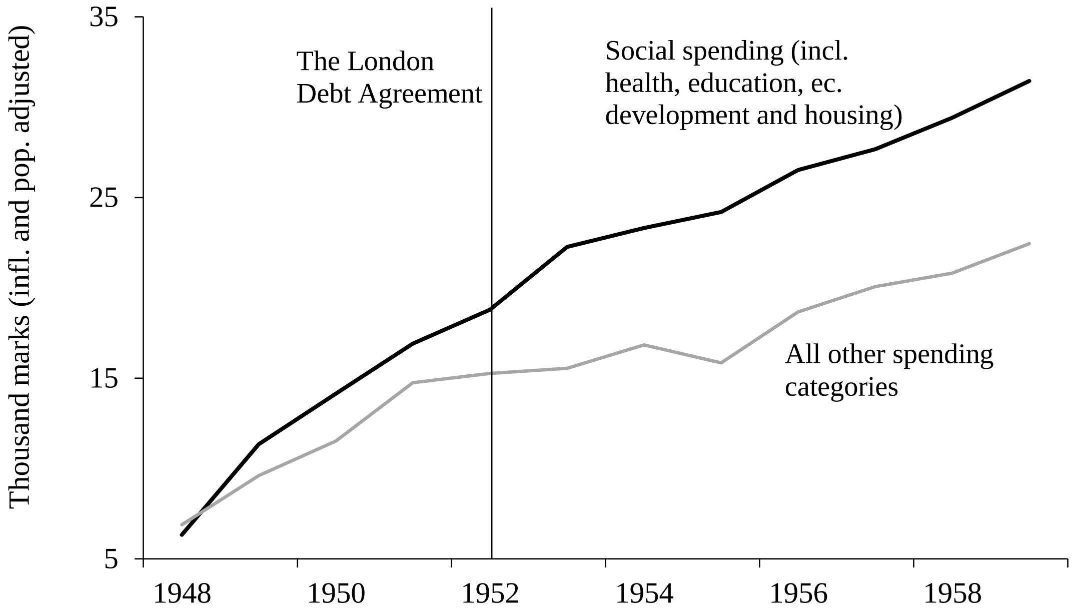


Table 1: DiD using the spending categories of health, education, economic development and housing as the treated group and the other categories as the control group, population and inflation adjusted.

Source: Data are from Weitzel (1967).
Notes: 'All other spending categories' include administration of justice, agriculture, church and culture, defence, financial management, internal administration, regional and community spending, public safety and order, trade and commerce and war burdens.

Government spending category	Pre-LDA	Post-LDA	DiD
Economic development	0.001	0.004	0.002 (0.001) 0.006*** [2.79]
Non-social spending	0.001	0.002	
Diff (T-C)	0.000 (0.000)	0.002 (0.000)	
Education	0.002	0.006	0.002 (0.001) 0.000*** [3.89]
Non-social spending	0.001	0.002	
Diff (T-C)	0.001 (0.000)	0.004 (0.001)	
Health	0.008	0.015	0.007 (0.001) 0.000*** [5.08]
Non-social spending	0.001	0.002	
Diff (T-C)	0.007 (0.001)	0.013 (0.001)	
Housing	0.002	0.004	0.001 (0.001) 0.023** [2.30]
Non-social spending	0.001	0.002	
Diff (T-C)	0.001 (0.000)	0.002 (0.000)	

Means and Standard Errors are estimated by linear regression. Robust standard errors are in parentheses. P-values are immediately below the standard errors and robust t-statistics are in brackets. *** p<0.01; ** p<0.05; * p<0.1.

Table 2: DiD regressions for social spending per capita

Source: Data are from Weitzel (1967).
Notes: Other spending categories include administration of justice, agriculture, church and culture, defence, financial management, internal administration, regional and community spending, public safety and order, trade and commerce and war burdens.

	(1) Spending/person	(2) ln(spending/person)	(3) Expenditure share
Social spending	0.003	0.0142	1.65
	(0.001)	(0.086)	(0.766)
	0.028**	0.123	0.049**
	[2.48]	[1.65]	[2.17]
Number of observations	210	210	210
Year fixed effects	Yes	Yes	Yes
Category fixed effects	Yes	Yes	Yes

Regressions are estimated by linear regression. Robust standard errors clustered on expenditure category are in parentheses. P-values are immediately below the robust standard errors. Robust t-statistics are in brackets. *** p<0.01; ** p<0.05; * p<0.1.

Figure 5: Year specific estimates of real social expenditure per capita, 1948-1962

Notes: Coefficients are estimated by OLS. Regression includes fixed effects for each spending category and year indicators. Social expenditure includes four categories of spending: economic development, health, education and housing. 95% confidence bands based on robust standard errors.

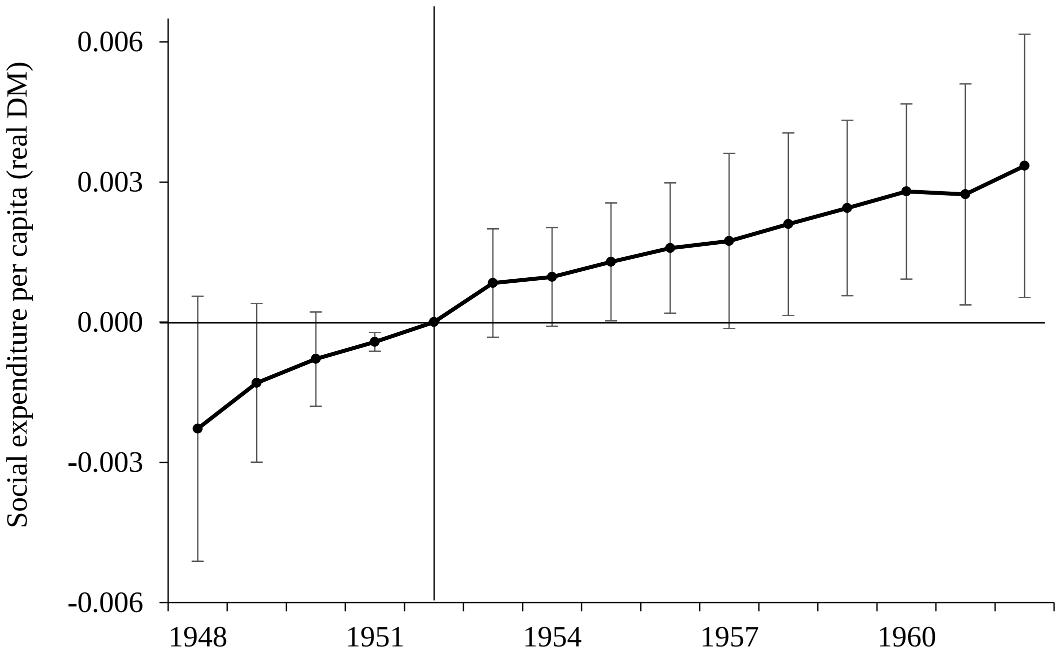


Figure 6: German 10-year Benchmark bond yield minus USA 10-year Treasury bond yield, 1949-1955.

Sources: Data are from the Global Financial Data (https://www.globalfinancialdata.com/index.html) using data from the Deutsche Bundesbank for Germany and from the Federal Reserve Bank for the USA.

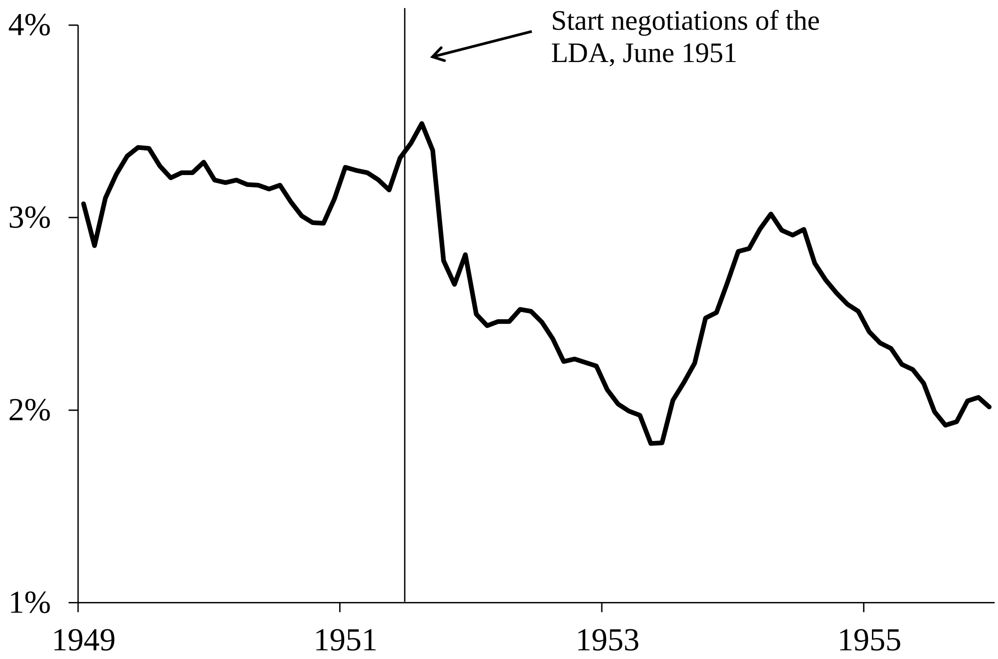
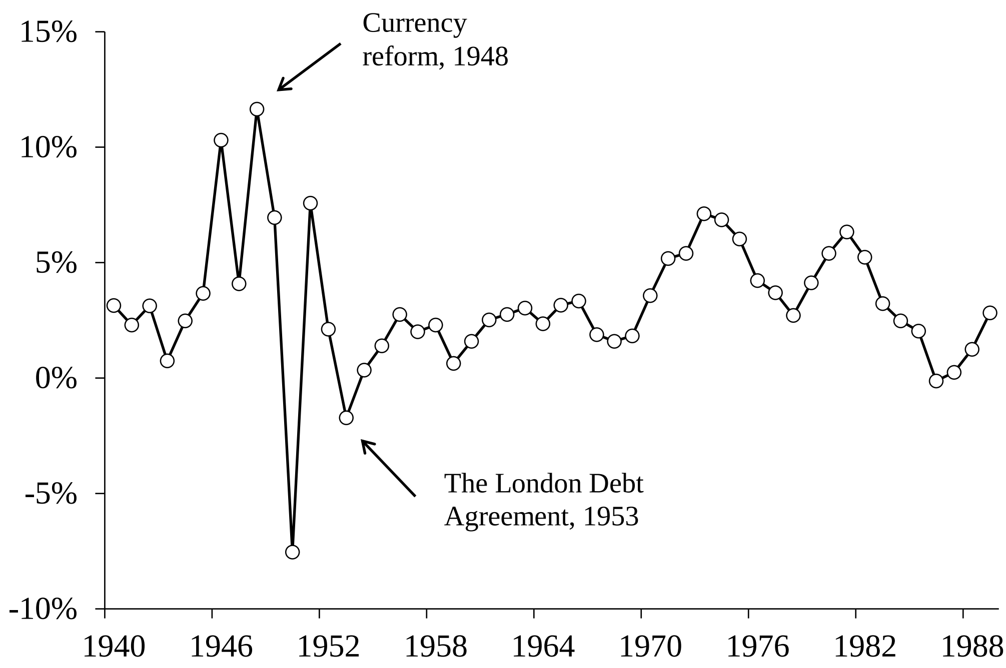


Figure 7: Consumer price inflation in Germany, 1940-1989

Sources: Data are from Piketty and Zucman (2014).



APPENDIX 1

Figure 8: Budget expenditure on social categories, population and inflation adjusted.
Source: Data are from Weitzel (1967).