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Unmasking the Significance of Uncertainty: A Case Study of the German Interwar Economy (1919-1935)

Dan Schläger

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Abstract

This paper offers a comprehensive examination of the role played by economic policy uncertainty in shaping the historical trajectory of interwar Germany. The central argument posits that economic policy uncertainty constituted a significant destabilising force during this tumultuous period, a proposition substantiated through a blend of qualitative and quantitative evidence.

A qualitative investigation grounded in historical newspaper records unveils hesitancy among both companies and households due to uncertainty about fiscal, monetary, and reparation policies. Companies delayed investments due to high irreversible costs during uncertain times, while households adopted a 'wait and see' approach by postponing consumption decisions. This uncertainty stemmed from a lack of clarity about the country's direction, curtailing the joy of creation and commercial enthusiasm, which led to a slackening of economic impetus. On a quantitative front, constructing a novel newspaper-based uncertainty index in conjunction with vector autoregression analysis, this research establishes a resilient linkage between economic policy uncertainty and a cascade of adverse macroeconomic consequences. Remarkably, up to one-third of the overall macroeconomic volatility can be attributed to the pervasive uncertainty surrounding economic policies between 1925 and 1935.

Consequently, this research suggests that a veil of uncertainty hung over the German interwar economy, paralysing sustainable recovery in the aftermath of World War I.

1. Introduction

The 1920s and early 1930s in Germany were a tumultuous and challenging period, characterised by profound economic instability and a succession of formidable obstacles. This turbulent period included the struggles of the young Weimar Republic in the aftermath of World War I, the harrowing hyperinflationary crisis of 1921-1923, the implementation of different reparation payment regimes with the Dawes Plan in 1924 and the Young Plan in 1929, the

devastating impact of the Great Depression, and the twin crisis of 1931, which encompassed both currency and banking turmoil.

This research paper aims to delve into the impact of economic and political uncertainty on the German economy during this turbulent period. Recent studies have shed light on the substantial role played by economic policy uncertainty in driving instability in interwar Britain.¹ Building upon this research, the objective is to investigate whether economic policy uncertainty had a similar and profound influence on the German interwar economy.

Prior research endeavours have sought to illustrate the direct influence of political uncertainty on both stock market volatility and the downturn in economic output within the context of interwar Germany. These studies have contended that the causal relationship primarily emanated from political uncertainty, shaping economic output, rather than the reverse.² However, it is important to acknowledge that exclusively depending on the measurement of uncertainty through stock market volatility, as prior research has often done, may inherently entail limitations. Although stock price volatility can serve as an indicator of uncertainty shifts, it can also be a reaction to alterations in leverage, risk tolerance, or prevailing sentiment.³ This research paper introduces a more nuanced perspective by employing a novel approach to quantify economic and political uncertainty. This approach entails the development of a new uncertainty index by analysing the frequency of specific keywords found in newspapers that are associated with economic policy uncertainty. This method takes into account the fact that newspapers were the main source of information in the interwar period and essentially acted as the mouthpiece of society, reflecting public discourse. Previously conducted Vector Autoregressions (VARs),

¹ Jason Lennard, "Uncertainty and the Great Slump," *The Economic History Review* 73, no. 3 (2020), doi:10.1111/ehr.12970.

² George Bittlingmayer, "Output, Stock Volatility, and Political Uncertainty in a Natural Experiment: Germany, 1880-1940," *The Journal of Finance* 53, no. 6 (1998), doi:10.1111/0022-1082.00090.

³ Michelle Alexopoulos and Jon Cohen, "The Power of Print: Uncertainty Shocks, Markets, and the Economy," *International Review of Economics & Finance* 40 (2015): 9, doi:10.1016/j.iref.2015.02.002.

utilising these uncertainty measures, have revealed a strong association between economic policy uncertainty and adverse economic outcomes, including lower output, increased unemployment, and reduced credit.⁴ This approach offers a more comprehensive understanding of the intricate relationship between economic policy uncertainty and its impact on the economy.

To thoroughly assess the impact of economic policy uncertainty in Germany, this study employs a dual approach, combining both qualitative and quantitative analyses. First, historical newspaper articles from the period are consulted to discern contemporaneous perspectives on uncertainties and their potential repercussions. Secondly, the study employs a Vector Autoregression (VAR) model to precisely quantify the macroeconomic effects of economic policy uncertainty.

Remarkably, there appears to be a gap in existing research regarding this pivotal period of instability in interwar Germany. While Baker et al. did explore the effects of uncertainty on the German economy from 1993 to 2015, no similar analysis has been undertaken for the interwar years.⁵ Consequently, this study is an unprecedented exploration into largely uncharted territory, providing unique insights into a critical era. By investigating the role of economic policy uncertainty in interwar Germany, this paper contributes to our comprehension of the factors that shaped the country's economic trajectory during this transformative era, particularly in the context of the Great Depression and subsequent recovery. The synthesis of both qualitative and quantitative evidence strongly suggests that economic policy uncertainty had a detrimental impact on the economy, thus contributing to the body of research on the reasons for Germany's interwar instability.

⁴ Lennard, "Uncertainty and the Great Slump"; Scott R. Baker, Nicholas Bloom, and Steven J. Davis, "Measuring Economic Policy Uncertainty," *The Quarterly Journal of Economics* 131, no. 4 (2016), doi:10.1093/qje/qjw024; Alexopoulos and Cohen, "The power of print: Uncertainty shocks, markets, and the economy"

⁵ Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty"

The subsequent sections are organised as follows. Section 2. provides a review of relevant theoretical and empirical literature. Section 3. addresses the measurement of economic policy uncertainty. Section 4. examines the macroeconomic impact through qualitative and quantitative evidence, alongside robustness checks. Lastly, Section 5. presents the conclusions.

2. Literature Review

Uncertainty has long been a point of contention in economic literature, with theorists debating its dual nature of either stimulating or depressing economies. In the theoretical literature, three main channels are mentioned through which uncertainty has a depressing effect on the economy.

First, uncertainty, as introduced by Bernanke in 1983 and expanded upon by Bloom in 2009, often results in firms delaying investment decisions due to the irreversibility of these commitments.⁶ Uncertainty essentially compounds the potential costs of bad investment decisions, causing firms to avoid investments and hiring until there is greater clarity. This phenomenon is known as the real options effect, which drives companies to adopt a ‘wait and see’ approach.

Second, as pointed out by Romer in 1990, individuals too can delay or cancel major purchases, from cars to homes, when faced with uncertainty.⁷ This curtails consumption and, consequently, can slow economic growth. Third, uncertainty can escalate financing costs. Higher risk associated with uncertainty can lead to elevated interest rates, especially because much of policy uncertainty is macroeconomic uncertainty that is hard to diversify away for individual companies. For businesses, this becomes a substantial deterrent for taking on new ventures or expansions.⁸

⁶ Ben S. Bernanke, “Irreversibility, Uncertainty, and Cyclical Investment,” *The Quarterly Journal of Economics* 98, no. 1 (1983), doi:10.2307/1885568; Nicholas Bloom, “The Impact of Uncertainty Shocks,” *Econometrica* 77, no. 3 (2009), doi:10.3982/ECTA6248.

⁷ Christina D. Romer, “The Great Crash and the Onset of the Great Depression,” *The Quarterly Journal of Economics* 105, no. 3 (1990), doi:10.2307/2937892.

⁸ Vasia Panousi and Dimitris Papanikolaou, “Investment, Idiosyncratic Risk, and Ownership,” *The Journal of Finance* 67, no. 3 (2012), doi:10.1111/j.1540-6261.2012.01743.x; J. P. Ferderer and

However, the relationship between uncertainty and investment remains a subject of ongoing debate.⁹ The "growth options" theory, for example, suggests that the lure of potentially higher rewards due to uncertainty can actually spur investment.¹⁰ Also, the Oi-Hartman-Abel effect adds that, given convex profit conditions, investment responds disproportionately to changes in demand or costs due to uncertainty. Specifically, in industries where technological advancements are rapid and transformative, a spike in uncertainty can lead to increased investments as firms strive to stay ahead of competitors.¹¹

When it comes to measuring uncertainty, earlier methodologies relied heavily on asset price volatility, such as fluctuations in stock prices¹² or implied volatility measures from options such as the VIX index.¹³ However, the validity of these measures for measuring uncertainty is questioned because although stock prices are correlated with uncertainty, they are also influenced by other factors such as leverage or sentiment.¹⁴ In response, indices were developed using newspaper archives to measure economic and policy uncertainty based on the frequency of specific keywords. These indices have the benefits that they are more reliable in actually measuring uncertainty, they are flexible to measure different aspects of uncertainty such as economic policy uncertainty and they can be constructed as long as historic newspaper archives are available, compared to often limited availability of historic high frequency asset price data.

David A. Zalewski, "Uncertainty as a Propagating Force in the Great Depression," *The Journal of Economic History* 54, no. 4 (1994), doi:10.1017/S0022050700015503.

⁹ Ricardo J. Caballero, "On the Sign of the Investment-Uncertainty Relationship," *The American Economic Review* 81, no. 1 (1991), <https://www.jstor.org/stable/2006800>.

¹⁰ Nicholas Bloom, "Fluctuations in Uncertainty," *Journal of Economic Perspectives* 28, no. 2 (2014): 166, doi:10.1257/jep.28.2.153.

¹¹ Walter Y. Oi, "The Desirability of Price Instability Under Perfect Competition," *Econometrica* 29, no. 1 (1961), doi:10.2307/1907687; Richard Hartman, "The Effects of Price and Cost Uncertainty on Investment," *Journal of Economic Theory* 5, no. 2 (1972), doi:10.1016/0022-0531(72)90105-6; Andrew B. Abel, "Optimal Investment Under Uncertainty," *The American Economic Review* 73, no. 1 (1983), <https://www.jstor.org/stable/1803942>.

¹² Romer, "The Great Crash and the Onset of the Great Depression"; Scott Baker and Nicholas Bloom, "Does Uncertainty Reduce Growth? Using Disasters as Natural Experiments" (Cambridge, MA, 2013).

¹³ Susanto Basu and Brent Bundick, "Uncertainty Shocks in a Model of Effective Demand" (Cambridge, MA, 2012).

¹⁴ Alexopoulos and Cohen, "The power of print: Uncertainty shocks, markets, and the economy," 9.

Building on news-based indicators from the New York Times, Alexopoulos and Cohen in 2015 found that both general and policy-related uncertainty shocks adversely affect economic activity and amplified stock market volatility between 1985 and 2007.¹⁵ News-based uncertainty measures also found resonance in analyses of the 2008 recession.¹⁶ However, some studies found no or only limited effects of uncertainty in specific periods and cases.¹⁷

Baker et al. crafted a novel economic policy uncertainty index (EPU) using ten different US newspapers, which shows shifts in economic policy uncertainty during significant events like elections, fiscal policy disputes and wars. The EPU index, initially designed for the US (1985-2014), has been expanded to other nations and broader US timelines, showing a strong correlation with stock volatility and economic downturns in major economies.¹⁸ Building upon this approach, Lennard in 2020 and Mathy in 2020 delved into the interwar periods of Britain and the US respectively, employing diverse uncertainty indicators such as newspaper data and stock market fluctuations. Their research emphasises that economic policy uncertainty and general economic uncertainty significantly impacted output and employment in both nations, adding to the instability of their interwar years.¹⁹

Diving deeper into history, Lopez and Mitchener's study in 2021 of post-WWI Europe revealed the decisive role of economic policy uncertainty in causing hyperinflation in certain countries, notably Germany, Austria, Poland, and

¹⁵ Ibid.

¹⁶ Daniel Shoag and Stan Veuger, "Uncertainty and the Geography of the Great Recession," *Journal of Monetary Economics* 84 (2016), doi:10.1016/j.jmoneco.2016.11.002; Andrea Carriero, Todd E. Clark, and Massimiliano Marcellino, "Measuring Uncertainty and Its Impact on the Economy," *The Review of Economics and Statistics* 100, no. 5 (2018), doi:10.1162/rest_a_00693.

¹⁷ Gabriel Mathy and Nicolas L. Ziebarth, "How Much Does Political Uncertainty Matter? The Case of Louisiana Under Huey Long," *The Journal of Economic History* 77, no. 1 (2017), doi:10.1017/S002205071700002X; Benjamin Born, Sebastian Breuer, and Steffen Elstner, "Uncertainty and the Great Recession," *Oxford Bulletin of Economics and Statistics* 80, no. 5 (2018), doi:10.1111/obes.12229.

¹⁸ Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty"

¹⁹ Lennard, "Uncertainty and the Great Slump"; Gabriel P. Mathy, "How Much Did Uncertainty Shocks Matter in the Great Depression?," *Cliometrica* 14, no. 2 (2020), doi:10.1007/s11698-019-00190-1.

Hungary (GAPH), while other European countries with more stable economic environments were able to maintain credible fiscal and monetary policy commitments and avoid hyperinflation.²⁰

Closely related literature examines inflation expectations measured through newspapers to assess their impact on the real economy. It is important to distinguish between expectations, which refer to predictions about future events, and uncertainty, which relates to the lack of confidence or surety in those predictions.²¹ Noteworthy, Daniel and ter Steege's study in 2020 found that during Germany's recovery from the Great Depression starting in 1932, inflation expectations remained stable. Although isolated events sporadically sparked fears of inflation, media coverage indicated these sentiments were not consistently held.²² While increased inflation expectations caused by President Roosevelt's commitment to expansionary policies have been shown to be important to explain the U.S. recovery from the Great Depression,²³ Daniel and ter Steege find that the German recovery wasn't driven by these expectations. Instead, they hypothesise that a reduction of economic policy uncertainty, following the Lausanne Conference in 1932 — which resolved the long-standing reparation payment disputes — might have bolstered public confidence, potentially explaining Germany's economic revival. However, they did not analyse this aspect further.

3. Quantifying Economic Policy Uncertainty

To measure economic policy uncertainty for interwar Germany, data is extracted from the *Deutsches Zeitungsportal*, which is provided by *Deutsche Digitale Bibliothek*. This platform encompasses an extensive collection of over 4.1 million

²⁰ Jose A. Lopez and Kris J. Mitchener, "Uncertainty and Hyperinflation: European Inflation Dynamics After World War I," *The Economic Journal* 131, no. 633 (2021), doi:10.1093/ej/ueaa067.

²¹ Lennard, "Uncertainty and the Great Slump," 847.

²² Volker Daniel and Lucas ter Steege, "Inflation Expectations and the Recovery from the Great Depression in Germany," *Explorations in Economic History* 75 (2020), doi:10.1016/j.eeh.2019.101305.

²³ Peter Temin and Barrie A. Wigmore, "The End of One Big Deflation," *Explorations in Economic History* 27, no. 4 (1990), doi:10.1016/0014-4983(90)90026-U.

digitised newspaper pages, covering the sample period spanning from January 1919 to December 1935. On average, this collection comprises 20,138 digitised pages per month.²⁴

The approach followed in this research is primarily based on the methodology employed by Lennard and Baker et al.²⁵ The search process involves refining the search criteria to identify articles related to economic policy uncertainty, using specific terms and their variations. For a full text page to be deemed relevant for this study, it must contain at least one economic, policy and uncertainty related keyword. The economic terms consist of 'Wirtschaft' (= economy), 'wirtschaftlich' (= economic), 'Unternehmen' (= business), 'Industrie' (= industry). Policy-related terms comprise 'Reichsbank', 'Zentralbank' (= central bank), 'Geldpolitik' (=monetary policy), 'Banksatz' (= bank rate), 'Inflation', 'Budget', 'Defizit' (= deficit), 'Haushaltsdefizit' (= budget deficit), 'Schulden' (= debt), 'Kredit' (= credit), 'Zoll' (= duty), 'Wirtschaftspolitik' (= economic policy), 'Politik' (= policy), 'Regulierung' (= regulation), 'Gesetz' (= law), 'Steuer' (= tax), 'Krieg' (= war), 'Reparationen' (= reparations), 'Reparationszahlungen' (reparation payments), and 'inflation'. The uncertainty related keywords are 'unsicher' (= uncertain), 'Unsicherheit' (= uncertainty) as well as its plural form, 'Unsicherheiten' (= uncertainties).

Based on reviews and audits, Baker et al. introduced a specific set of keywords to measure economic policy uncertainty, validating their method with human readings of 12,000 articles.²⁶ Lennard refined this approach, finding that terms like 'Bank Rate' decreased false negatives.²⁷ This study adheres to established best practices but incorporates unique keywords to capture nuances of German interwar policy uncertainty. Specifically, 'Reparationen' and 'Reparationszahlungen' are included due to their relevance to German interwar

²⁴ Deutsches Zeitungsportal. <https://www.deutsche-digitale-bibliothek.de/newspaper> (last accessed: 31.08.2023)

²⁵ Lennard, "Uncertainty and the Great Slump"; Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty".

²⁶ Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty," 1595.

²⁷ Lennard, "Uncertainty and the Great Slump," 848.

policies. Additionally, 'Kredit' and 'Schulden' are included to account for the economic uncertainty linked to foreign capital inflows, particularly short-term credit.²⁸ These terms relate to different reparation payments regimes and political arrangements like the transfer protection clause, hence their inclusion in the politics section.²⁹ 'Inflation' is also included as hyperinflation in the early 1920s was strongly linked to fiscal news and policy decisions.³⁰ Incorporating 'inflation' is indispensable for the study of interwar Germany, given the well-established connection between inflation expectations, economic policy uncertainty, and the hyperinflation during that period.³¹

While simple queries can be performed within the online portal, downloading word counts for a specific set of keywords is not supported. Hence, an API is used to extract the required data. However, a significant challenge is the inability to extract word counts by article and month for normalisation. The data archive only permits extraction of search hits on full-text pages, for example, recorded monthly. As a workaround, an alternative approach is employed to normalise the occurrence of relevant keywords by counting the digitised full-text pages per month, which serves as a suitable proxy for text length.³²

In this study, two EPU indices are constructed. The first encompasses all newspapers from *Deutsches Zeitungsportal*, including prominent ones like *Berliner Börsen-Zeitung* (up to December 1930), *Berliner Tageblatt und Handelszeitung* (up to December 1928), and *Deutsche Allgemeine Zeitung* (up to

²⁸ Olivier Accominotti and Barry Eichengreen, "The Mother of All Sudden Stops: Capital Flows and Reversals in Europe, 1919-32," *The Economic History Review* 69, no. 2 (2016), doi:10.1111/ehr.12128.

²⁹ Albrecht Ritschl, "The German Transfer Problem, 1920-33: A Sovereign-Debt Perspective," *European Review of History: Revue européenne d'histoire* 19, no. 6 (2012), doi:10.1080/13507486.2012.739147.

³⁰ Steven B. Webb, "Fiscal News and Inflationary Expectations in Germany After World War I," *The Journal of Economic History* 46, no. 3 (1986), doi:10.1017/S0022050700046878.

³¹ Lopez and Mitchener, "Uncertainty and Hyperinflation: European Inflation Dynamics after World War I"

³² The efficacy of this method was verified using reference keywords, serving as proxy indicators for text length, including articles such as 'der, die, das, ein, einer, eine' and conjunctions like 'und, oder, aber, dann, denn, weil, dass, damit, wie, obwohl'. The outcomes closely matched the count of digitised full-text pages.

December 1930). However, their coverage during key periods, particularly the Great Depression, is limited. Consequently, a second EPU index is crafted using three newspapers, carefully chosen for their diverse readerships, regional focuses, and political ideologies: *Kölnische Zeitung mit Wirtschafts- und Handelsblatt*, *Vorwärts (Berliner Volksblatt)*, and *Stuttgarter Neues Tagblatt*.

The *Kölnische Zeitung* was a leading German-language newspaper with a (national) liberal stance. The newspaper actively opposed Nazism in the early 1930s, but later adapted during the Nazi era for survival and to maintain its global standing. Although it originated in Cologne with a regional focus, it swiftly attained national and global importance, as highlighted by its Berlin office, internationally distributed weekly edition, and global coverage.³³ *Vorwärts* was the central organ of the Social Democratic Party of Germany (SPD), serving as a key information and propaganda tool during the November Revolution and a staunch opponent of Nazism at the end of the Weimar Republic. *Vorwärts* was based in Berlin from 1890 onwards, becoming a nationwide identification point for the trade union members and the labour movement. The last issue of the *Vorwärts* appeared on February 28, 1933, due to a ban by the National Socialists.³⁴ The *Stuttgarter Neues Tagblatt* served as a liberal bastion and an important ally of the German People's Party (DVP) in the Weimar Republic era, only to be subjugated by the Nazis during World War II. Prior to 1945, it stood as a critical force in Württemberg and across Germany. Catering predominantly to a liberal and republican audience, it held a significant place in the German media landscape of the time.³⁵ The political ideologies of the three newspapers can be classified on the spectrum from left to right as follows: *Vorwärts* aligns with the center-left, *Stuttgarter Neues Tagblatt* sits in the center, and *Kölnische Zeitung* is positioned on the center-right.

³³ zeit.punkt NRW, Kölnische Zeitung. <https://zeitpunkt.nrw/ulbbn/periodical/titleinfo/9715711> (last accessed 31.08.2023)

³⁴ Friedrich Ebert Stiftung, Vorwärts. <https://www.fes.de/adsd50/vorwaerts> (last accessed 31.08.2023)

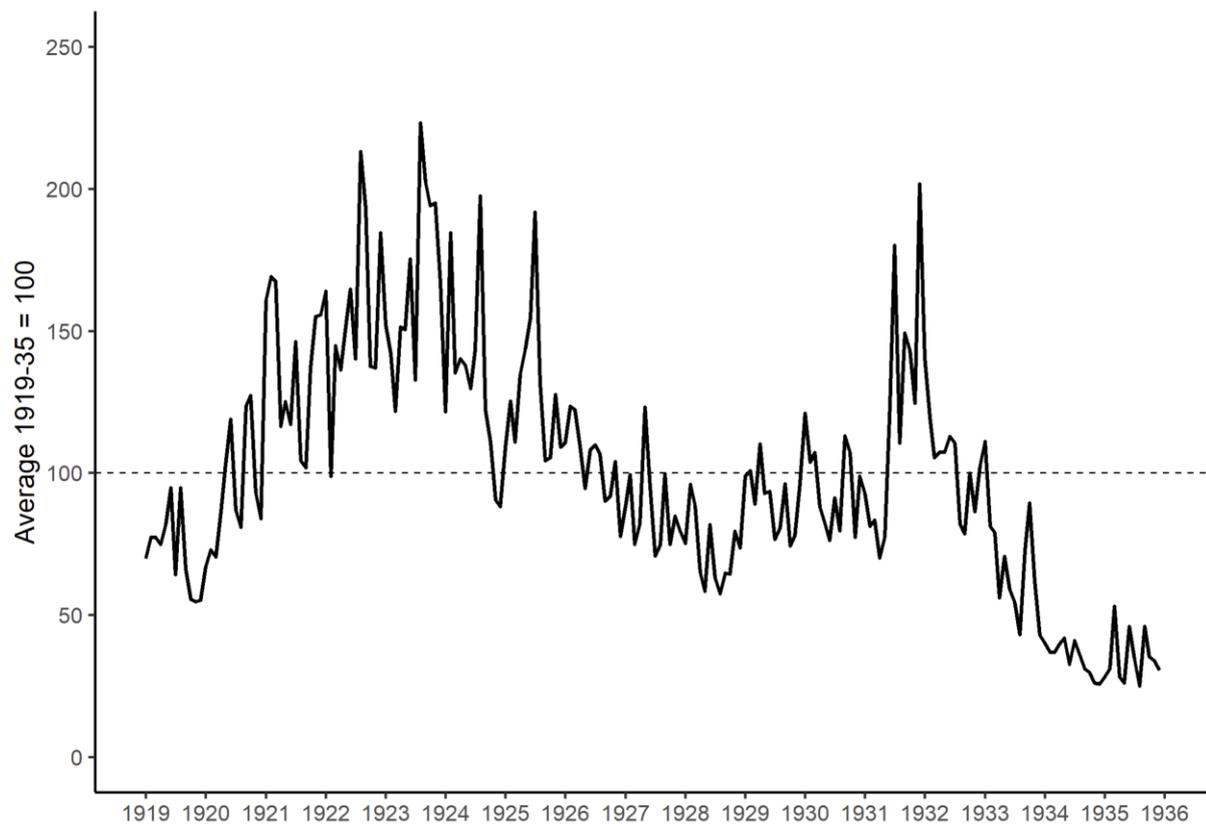
³⁵ Württembergische Landesbibliothek, Das Stuttgarter Neues Tagblatt – endlich digital! <https://www.wlb-stuttgart.blog/das-stuttgarter-neues-tagblatt-endlich-digital/> (last accessed 31.08.2023)

The procedure to construct the EPU index is similar to the one applied by Lennard:³⁶ First, counting keywords related to economic policy uncertainty in newspaper i ($=1, 2, 3$) during month t : X_{it} . Second, counting the total number of digitised full-text pages in newspaper i during month t : N_{it} . Third, calculating the keyword-to-page ratio in newspaper i and month t : $Y_{it} = \frac{X_{it}}{N_{it}}$. Fourth, normalising the newspaper-specific ratios: $Z_{it} = Y_{it} \times \sigma_i$, where σ_i is the sample standard deviation of Y_{it} . Fifth, computing a basic index by averaging the normalised ratios: $Z_t = \frac{\sum_{i=1}^3 Z_{it}}{3}$. And sixth, dividing the basic index, Z_t , by its mean, \bar{Z} , and multiplying by 100 to construct the final index: $\text{EPU}_t = \frac{Z_t}{\bar{Z}} \times 100$. The calculation of the overall EPU index, obviously does not include the newspaper specific calculations but incorporates the whole set of available newspapers in the portal.

Figure 1 displays the new economic policy uncertainty index based on the total newspaper coverage available. A straightforward interpretation reveals that higher values indicate heightened economic policy uncertainty, while diminished values suggest the opposite.

³⁶ Lennard, “Uncertainty and the Great Slump,” 847.

Figure 1: New economic policy uncertainty index for Germany, 1919-1935

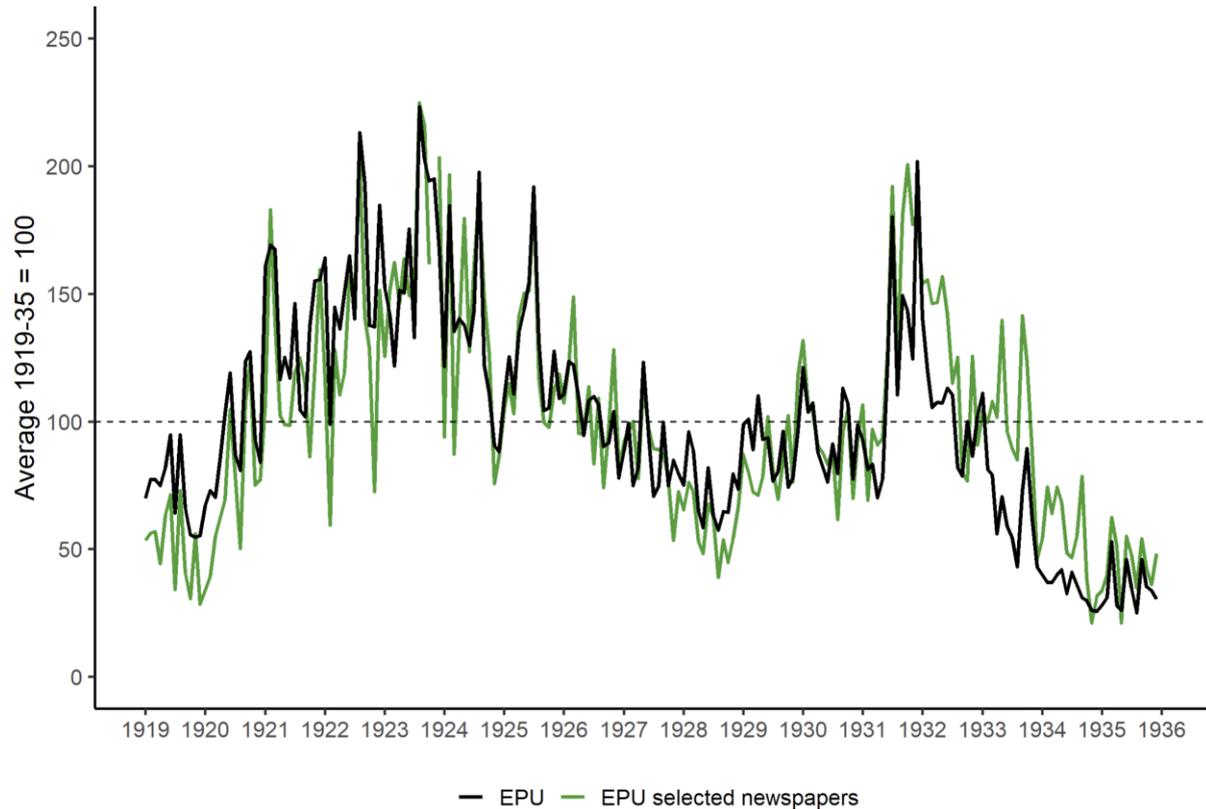


Source: See text, section 3.

Besides the EPU index introduced in figure 1, figure 2 also shows the EPU index based on the three carefully selected newspapers. The EPU index exhibits a robust correlation of 0.85 ($p < 0.01$) with the selected newspaper's EPU index from 1919-1935. However, they aren't perfectly aligned, suggesting uncertainty coverage varies with a newspaper's political ideology. This becomes evident in cross-newspaper correlations of EPU indices: The correlation is 0.51 ($p < 0.01$) between *Stuttgarter Neues Tagblatt* and *Vorwärts*, 0.64 ($p < 0.01$) between *Stuttgarter Neues Tagblatt* and *Kölnische Zeitung*, and 0.46 ($p < 0.01$) between *Vorwärts* and *Kölnische Zeitung*. This reveals a greater discrepancy between left and right-leaning newspapers compared to the centre one, which exhibits the highest average correlation with both. In contrast to Baker et al., who noted consistent EPU index fluctuations across newspapers, these findings align with

Lennard, who found differential uncertainty reporting depending on the political orientation of newspapers in interwar Britain.³⁷

Figure 2: Selected newspapers and overall economic policy uncertainty index, 1919-1935



Source: See text, section 3.

While there exists strong empirical support for employing newspaper based EPU indices and acknowledging uncertainty's impact on the economy, it is crucial to acknowledge certain limitations. One notable challenge is the intricate issue of establishing causality. Specifically, determining the direction of causation—whether, for instance, fluctuations in output drive uncertainty or the reverse—is a complex matter that cannot be definitively asserted due to potential endogeneity issues.³⁸ However, an exploration of the German interwar period

³⁷ Baker, Bloom and Davis, “Measuring Economic Policy Uncertainty,” 1595; Lennard, “Uncertainty and the Great Slump,” 851.

³⁸ Sydney C. Ludvigson, Sai Ma, and Serena Ng, “Uncertainty and Business Cycles: Exogenous Impulse or Endogenous Response?,” *American Economic Journal: Macroeconomics* 13, no. 4 (2021), doi:10.1257/mac.20190171.

offers a compelling case study. Prior evidence suggests that uncertainty, as measured by stock market volatility, responded to political events, with periods of political stability experiencing reduced volatility. This highlights the potential influence of economic policy uncertainty on the economy, rather than the reverse.³⁹

An additional concern emerges from the alignment of the press with Nazi ideals following their ascent to power, potentially resulting in a reduction in uncertainty-related coverage. However, despite the enactment of the preliminary enforced conformity ('Gleichschaltung') law in late March 1933, the EPU indices for the chosen newspapers continue to display significant disparities and volatility. This suggests that the influence of the law on reporting uncertainties may not have been consistent across all newspapers, or its effects may have unfolded only gradually over time.

4. The Impact of Economic Policy Uncertainty on the Economy

To unravel the causes of fluctuations in the EPU index and its macroeconomic effects, a qualitative approach is first taken. This involves analysing newspapers as well as a broader range of sources, granting insights into the prevalent sentiments and potential drivers of public economic policy uncertainty during pivotal moments. The motivation for this approach stems from a crucial observation: traditional quantitative forecasting tends to be anchored in historical data, often limited by the available variables. In contrast, narrative evidence has the ability to capture the zeitgeist and take perspectives that can transcend past events and the limitations of available data sets. This method is particularly useful for identifying trends and explanations that might elude time series analysis.

³⁹ Bittlingmayer, "Output, Stock Volatility, and Political Uncertainty in a Natural Experiment: Germany, 1880-1940"

Building on the foundation of the qualitative analysis, a Vector Autoregression (VAR) will be applied, aiming to rigorously evaluate the predictive potency of the newly introduced EPU indices on the economy.

4.1 Qualitative Evidence

In the wake of World War I, the young Weimar Republic's media discussions focused on general economic uncertainty intertwined with public finance debates, reparation payments and sporadic territorial disputes. The EPU index surged by 70.2 percent from January 1919 to June 1920, indicating intense post-war uncertainty. High EPU levels persisted until the mid-1920s, reflecting a tumultuous era.

Considerable economic policy uncertainty likely stemmed from the question of reparation payments. It took two years after the signing of the Treaty of Versailles to finalise the amount Germany was obligated to pay. This decision was reached with the 'London Ultimatum' in May 1921, where the Reparation Commission set the amount at 132 billion gold marks. Until then, Germany struggled with the uncertainty of the exact magnitude of its financial obligation. This unease was clearly expressed by Finance Minister Joseph Wirth, Erzberger's successor from March 1920, in a speech in which he expressed his displeasure at the failure of the Spa Conference in July 1920 to produce any results regarding reparations. His remarks were reproduced in the *Deutsche Allgemeine Zeitung*:

'[...] the negotiations in Spa have taken a course which has not fulfilled our expectations. The clarity necessary for a far-sighted financial policy was not created there. But it is absolutely necessary that we and the whole world finally get out of the feeling of uncertainty.'⁴⁰

Germany accepted its new western borders, but still faced uncertainty over territorial integrity since France and Belgium were using the threat of invasion as a 'stick' in negotiations over reparations payments. In the event that the allies

⁴⁰ Deutsche Allgemeine Zeitung, 28.10.1920, p.2.

determined that Germany was not meeting its obligations, the allies reserved the right to impose export levies, occupy territory, and confiscate output or assets.⁴¹ In the context of the discussion about the so-called C-bonds, which at 82 billion gold marks were to make up the largest part of the reparations payments and were to be made dependent on the German capacity, the *Mannheimer Generalanzeiger* wrote in advance of the conference about Germany's payment plan in London in 1921: 'These provisions mean nothing other than the permanent declaration of uncertainty in Germany and in Europe'⁴²

In an issue of the *Berliner Börsen-Zeitung* of June 1921 an assessment of various industries and the economy as a whole can be read: 'The uncertainty of all circumstances, caused in particular by the political uncertainty, has greatly inhibited the development of the entire German economy [...].'⁴³ It goes on to say that orderly conditions would have arisen in business 'if there had not been a constant uncertainty over all activities, which almost caused the joy of creation and commercial impetus to slacken'.⁴³

In 1922, debates about the uncertainty of the German balance of payments and the volatility and downward trends of the exchange rate take centre stage. An article in the *Berliner Börsen-Zeitung* ascertains that 'the uncertainty of the overall economic situation' is manifested in high volatility and the nosedive of the Mark's exchange rate.⁴⁴ According to the article, the reasons for this include 'the amount of the reparation payments, the liquidation of German assets in the Allied countries, the territorial separations of resource and agricultural surplus areas, and the disruption of international trade relations.'⁴⁵ Fluctuations in the Mark's exchange rate complicate calculations for both the public budget and companies. The volatility and uncertainties during that period are evident in the pronounced fluctuations of the EPU index. Fears about confiscating output

⁴¹ Lopez and Mitchener, "Uncertainty and Hyperinflation: European Inflation Dynamics after World War I," 456.

⁴² *Mannheimer Generalanzeiger*, 16.02.1921, p.1.

⁴³ *Berliner Börsen-Zeitung*, 24.06.1921, p.5.

⁴⁴ *Berliner Börsen-Zeitung*, 24.04.1922, p.9.

⁴⁵ *Ibid.*

turned out true when France and Belgium eventually occupied the Ruhr region in 1923. In connection with this, contemporaries repeatedly emphasise the factor of uncertainty, e.g., in the *Lüdenscheider Zeitung* in June 1923:

‘For years, Germany has suffered in the uncertainty in which it must live. It took a long time to finally establish the level of payments that were finally dictatorially imposed on Germany. The long uncertainty contributed its part to the German currency going downhill.’⁴⁶

Previous research supports this assertion, demonstrating that government deficit news fuelled inflationary expectations, resulting in heightened inflation and currency depreciation. On the other hand, positive fiscal announcements aided in re-establishing price stability by diminishing inflationary expectations.⁴⁷

Following the devastating hyperinflation of the early 1920s, Germany witnessed a period of economic stabilisation. The transition from the German Mark to the Rentenmark in 1923, the adoption of the Dawes Plan as a new reparations payment framework in 1924, and a political shift resulting in electoral losses for radical parties collectively catalysed this change.⁴⁸ The political stabilisation reduced the prevailing uncertainties, as evidenced by a 53.3 per cent drop in the EPU index from its peak in August 1923 to September 1925. Following this decline, there was a surge in share prices, and by mid-1925, industrial output, consumption, investment, and overall economic activities began to recover.

The Dawes Plan incorporated a transfer protection clause that subordinated reparation debt to commercial debt. This positioning of commercial debt as senior improved Germany's appeal to international investors. This not only made it easier for Germany to cope with its budgetary constraints, but also ensured that it had sufficient foreign exchange reserves to meet its reparations

⁴⁶ *Lüdenscheider Zeitung*, 08.06.1923, p.1.

⁴⁷ Webb, “Fiscal News and Inflationary Expectations in Germany after World War I”

⁴⁸ Bittlingmayer, “Output, Stock Volatility, and Political Uncertainty in a Natural Experiment: Germany, 1880-1940,” 2249.

obligations despite a current account deficit.⁴⁹ Consequently, with reparations largely funded through credit, some termed them as 'American Reparations to Germany' given the credit-cycle approach.⁵⁰ However, the relative economic stabilisation bolstered economic sentiment and further reduced uncertainty. This is evidenced by a 41.4 per cent drop in the EPU index from November 1925 to March 1927, during which time the EPU index also became notably less volatile. While the standard deviation stood at 33.1 points from 1922 to 1925, it sharply decreased, almost halving to 16.9 points between 1926 and 1929.

Yet, how did Germany shift from this stabilisation to a subsequent tumultuous economic phase?

During the mid-1920s, economic policy uncertainty settled, and there was a credit boom fuelled by abundant liquidity. However, some newspapers did point out potential imbalances and expressed concerns about the potential repercussions once the credit influx ceased. These apprehensions, though, weren't overly noticeable, as indicated by the still declining EPU index. An illustrative piece from the *Dresdner Neueste Nachrichten*, for instance, underscored the critical role of the 'Dollarcredit' from the United States in buttressing German firms. Yet, it painted a troubling portrait of a looming credit halt from the US, invoking a mood of 'exhaustion and nervous uncertainty' permeating the stock market rooted in fears of dwindling US credit provisions.⁵¹

A pivotal shift was felt in May 1927 when the Reichsbank, Germany's central bank, indirectly tightened lending to equity investors. In its effort to prevent possible stock market speculation, the Reichsbank introduced a policy to restrict lending against shares used as collateral. Non-compliant banks faced severe sanctions, such as diminished or entirely revoked rediscount facilities—a

⁴⁹ Ritschl, "The German transfer problem, 1920–33: a sovereign-debt perspective"

⁵⁰ Stephen A. Schuker, *American "Reparations" to Germany, 1919-33: Implications for the Third-World Debt Crisis* / Stephen A. Schuker (Princeton, N.J.: International Finance Section, 1988).

⁵¹ *Dresdner Neueste Nachrichten*, 10.10.1926, p.6.

considerable threat given their precarious liquidity status.⁵² According to Voth in 2003, this move, though well-intended to dampen the euphoria on the stock markets, inadvertently depressed investments, pushing Germany to the brink of an economic downturn. The policy adopted by the Reichsbank in May is reflected by a 50.3 per cent surge in the EPU index compared to the previous month.

In August 1929, the *Berliner Börsen-Zeitung* stated that the outcomes of the upcoming conference on a new reparation settlement in The Hague would heavily influence investors' judgment regarding their further involvement in Germany. The author contended that the resolution of 'uncertainties in the international money markets' was significantly dependent on the political tensions surrounding reparation payments:

'The solution to the reparation problem, as emphasised by the authors of the Young Plan, will determine whether the lengthy and laborious work of rebuilding Europe suffers further delays that are detrimental to all participating countries.'⁵³

Following the revelation of the new allied reparation demand in spring 1929, amid negotiations concerning the Young Plan, Germany found itself on the brink of an external debt crisis for the first time since its 1924 currency stabilisation.⁵⁴ During this phase, economic policy uncertainty surged, with the EPU rising 49.7 per cent from December 1928 to April 1929.

After the US stock market crash in October, US capital inflows became more restricted, and tensions escalated with ongoing debates over the government's budget deficit. The situation became even more critical when Finance Minister Rudolf Hilferding resigned at the end of December 1929 due to his inability to

⁵² Hans-Joachim Voth, "With a Bang, Not a Whimper: Pricking Germany's "Stock Market Bubble" in 1927 and the Slide into Depression," *The Journal of Economic History* 63, no. 1 (2003): 66–68, doi:10.1017/S0022050703001736.

⁵³ *Berliner Börsen-Zeitung*, Morning Edition, 29.08.1929, p.9.

⁵⁴ Albrecht Ritschl, *Deutschlands Krise Und Konjunktur 1924-1934: Binnenkonjunktur, Auslandsverschuldung Und Reparationsproblem Zwischen Dawes-Plan Und Transfersperre / Albert Ritschl*, Jahrbuch für Wirtschaftsgeschichte. Beihefte 2 (Berlin: Akademie Verlag, 2002), 130.

rally consensus on fiscal policy reforms. Hjalmar Schacht, the Reichsbank president, openly criticised the government's fiscal policies as unsound. Any lingering optimism for financial recovery through the Young Plan dwindled. These developments are displayed in yet another surge in the EPU index from October 1929 to January 1930 by 62.9 per cent. Highlighting the gravity of the situation, the *Berliner Börsen-Zeitung* remarks:

‘Shortly before Christmas, the possibility came very close that the German Reich would no longer be able to meet its payment obligations on New Year's Eve.’⁵⁵

On September 9, 1930, the newspaper *Vorwärts* published an article entitled ‘The way out of the crisis’, in which it argued that despite reduced interest rates and commodity prices, which are typically two strongly stimulating factors, no economic improvement had occurred. This stagnation was ascribed to a deep-seated crisis of confidence and political volatility, given the government's governance through emergency decrees, or ‘Notverordnung’, under Article 48:

‘This crisis of confidence is based on the political uncertainty brought about by the dissolution of the Reichstag, the application of Article 48 and certain adventurous plans for the future. This view is also expressed in the latest report of the German Institute for Economic Research. The uncertainty is further caused by the inadequate reorganisation of public finances [...]’

They continue by stressing that the ‘elimination of political uncertainty’ is especially important with regards to capital flight:

‘Capital flight, one of the most important causes of the severity of the crisis, has assumed an almost devastating scale in recent weeks, as everyone admits. [...] The stagnation on the labour market, the lack of entrepreneurial enthusiasm, the uncertainty of the stock market, these are all symptoms of how dangerous political uncertainty is for economic life’.⁵⁶

⁵⁵ *Berliner Börsen-Zeitung*, Morning Edition, 01.01.1930, p.9.

⁵⁶ *Vorwärts*, 09.09.1930, p.3.

In autumn 1930, the global economic downturn intensified, marked notably by the plummeting of world prices. This downturn had cascading consequences on various economic sectors, spanning agriculture, foreign trade, production, and consumption. An October 1930 article in the *Berliner Börsen-Zeitung* underscored that Germany's economic slump was spurred by a combination of domestic and international factors. This perspective is corroborated by subsequent research.⁵⁷ However, the newspaper piece also highlights the effect of general uncertainty on the economy:

‘The psychological effects of political events on economic life are naturally difficult to determine in detail, and it is impossible to separate to what extent they have influenced the decline in production and sales activity. It suffices to say that they have decisively contributed to the emergence of an atmosphere of general uncertainty, which already posed a significant burden for an economy operating under otherwise normal business conditions but must have an even more severe impact under the given circumstances.’⁵⁸

The tumultuous years of 1931 and 1932 stand as testament to profound economic turbulence, visibly mirrored by the peaks in the EPU index. In 1931, the first sign of financial crisis was the publication of significant losses of the prominent Austrian Bank, Creditanstalt, on 11 May. A cascading sequence of financial turmoil ensued from June to July 1931. In mid-June, news leaked to the press revealing substantial losses at the textile firm, Nordwolle. Consequently, Danat Bank, one of Berlin's leading financial institutions and closely financially intertwined with Nordwolle, found itself in precarious liquidity positions. Matters escalated when the Reichsbank, isolated from international assistance,

⁵⁷ Accominotti and Eichengreen, “The mother of all sudden stops: capital flows and reversals in Europe, 1919-32” Barry J. Eichengreen, *Golden Fetters: The Gold Standard and the Great Depression, 1919-1939* (Oxford: Oxford University Press, 2003); Albrecht Ritschl and Samad Sarferaz, “CURRENCY VERSUS BANKING in the FINANCIAL CRISIS of 1931,” *International Economic Review* 55, no. 2 (2014), doi:10.1111/iere.12052; Isabel Schnabel, “The German Twin Crisis of 1931,” *The Journal of Economic History* 64, no. 3 (2004), doi:10.1017/S0022050704002980; Natacha Postel-Vinay and Stéphanie Collet, “Hot Money Inflows and Bank Risk-taking: Germany from the 1920s to the Great Depression,” *The Economic History Review*, 2023, doi:10.1111/ehr.13277; Thomas Ferguson and Peter Temin, “Made in Germany: The German Currency Crisis of July 1931,” *Research in Economic History* 21 (2003), doi:10.1016/S0363-3268(03)21002-8.

⁵⁸ *Berliner Börsen-Zeitung* Morgenausgabe, 26.10.1930, p.17.

imposed rigorous discount policies on 10 July. The subsequent bankruptcy declaration by Danat Bank on 13 July triggered a cascade of bank runs, deepening the financial morass. The severity of the situation led to the proclamation of a General Bank Holiday on 14 July, swiftly succeeded by the suspension of the gold convertibility of the Reichsmark.⁵⁹ Between May and July, economic policy uncertainty surged by an astonishing 132.6%, reaching its zenith in the tumultuous month of July.

The *Kölnische Zeitung*'s editorial on July 22, 1931, aptly captured the sentiment and relate the loss of confidence in the banking system to the prevailing uncertainty:

‘On the economic side, the current distress is very much a crisis of short-term credit. [...] Germany has financed its economic life to a very considerable extent by means of foreign short-term loans [...]. But the general uncertainty which has prevailed in recent weeks has brought about such a loss of confidence that Germany's banking and credit system has been subjected to a very severe strain.’⁶⁰

Furthermore, economic policy uncertainty likely intensified due to specific policy decisions made right before the financial crisis erupted. Prior to the crisis, Germany grappled with internal demands to unilaterally default on the Young Plan, while simultaneously facing external pressures to continue reparation and debt payments to avert potential sanctions or military responses. Ferguson and Temin in 2003 underscore the significance of policy actions leading up to the crisis. Notably, the German government's advocacy for an Eastern customs union at the end of May jeopardised prospects of long-term credit support from France to deal with its budget deficit. France perceived Germany's economic endeavours in Eastern Europe as a breach of the Treaty of Versailles, straining bilateral relations. Furthermore, in early June, Brüning expressed his criticism of the reparation obligations, asserting that Germany was no longer capable of meeting

⁵⁹ Schnabel, “The German Twin Crisis of 1931,” 853.

⁶⁰ *Kölnische Zeitung* 22.07.1931, p. 1.

these payments.⁶¹ This stance caused alarm among investors. Both policy directions probably heightened economic policy uncertainty, further fuelling capital flight, as also alluded to in the newspaper citation.

In September 1931, spurred by the financial upheaval in Central Europe during June and July, Britain made the pivotal decision to depart from the gold standard.⁶² Highlighting the global implications, the *Karlsruher Tagblatt* remarked on October 7, 1931:

'The abolition of the gold standard in England has brought the gold stocks of the world into a nervous agitation. In most countries the existing uncertainty has caused a flight from currency into gold'.⁶³

Further contributors to economic instability can be found in domestic politics by the end of 1931. Despite facing a vote of no confidence in October, Brüning managed to hold onto power. However, the situation turned more tenuous with the introduction of the emergency decree on December 8, which proposed cuts to prices, rents, wages, and increases in taxes. These measures exacerbated public uncertainty. Capturing the prevailing sentiment, the *Kölnische Zeitung* headlined in November, prior to the enactment of the decree, "Price Reduction Anxieties: Paralysing Uncertainty," noting:

'The scarce information and rumours about the Reich government's economic programme for the coming winter, which is currently being worked on, have caused alarming uncertainty in the economy in various directions. As for the price reductions, about which some information has already been given [...], not only consumers are in more or less sceptical uncertainty, but also producers and trade.'⁶⁴

⁶¹ Ferguson and Temin, "Made in Germany: The German currency crisis of July 1931"

⁶² Olivier Accominotti, "London Merchant Banks, the Central European Panic, and the Sterling Crisis of 1931," *The Journal of Economic History* 72, no. 1 (2012), doi:10.1017/S0022050711002427; Olivier Accominotti, "International Banking and Transmission of the 1931 Financial Crisis," *The Economic History Review* 72, no. 1 (2019), doi:10.1111/ehr.12736.

⁶³ *Karlsruher Tagblatt*, 07.10.1931, p.9.

⁶⁴ *Kölnische Zeitung*, 10.11.1931, p.11.

The article further underscored potential economic disruptions, warning of a potential 'buyer's strike' and the subsequent challenges for retailers uncertain about inventory levels. The confluence of Britain's departure from the gold standard and Brüning's December price reductions are probably the catalysts for the sharp rise in the EPU index up to December 1931. The newspaper *Neue Mannheimer Zeitung* further undermines this, titling 'Dangerous tax plans. Uncertainty instead of trust.', writing:

'[...] since, despite all the consultations, no solution has yet begun to emerge in German economic policy, uncertainty and lack of clarity have continued to spread. One does not know what is coming, one does not know what to trust, because what is being talked about the forthcoming emergency decree is so contradictory and contrary to the economic realities that [...] no one knows what to do.'⁶⁵

Relative stability was restored in early 1932, as the government decisively ruled out any radical measures, including currency devaluation or altering the Reichsbank law on 30 January. This decision eased looming anxieties about potential inflation. Prior to this, Ernst Wagemann, the chief of the statistical office, had introduced a contentious proposal for an expansionary fiscal policy. This suggestion stoked unease and evoked memories of the traumatic hyperinflation experienced in the early 1920s.⁶⁶ Politics then took centre stage with the end of Brüning's minority government in May. This was succeeded by the formation of a new government under Franz von Papen. While Papen's initial economic proposals stirred concerns of inflation, his firm commitment in July 1932 to uphold the currency's value alleviated these fears.⁶⁷ After the EPU showed minimal fluctuations from March to July, it saw a significant drop between July and September 1932, subsequent to Papen's announcement. It is important to emphasise, however, that not all of the discourse on the fear of inflation in 1932 and even before was focused on present risks or uncertainties.

⁶⁵ *Neue Mannheimer Zeitung*, 05.12.1931, p.10.

⁶⁶ Daniel and Steege, "Inflation expectations and the recovery from the Great Depression in Germany"

⁶⁷ *Ibid.*

Rather, it was also about retrospective comparisons with the period of hyperinflation.

In July 1932, the Lausanne Conference provided economic relief by reducing reparations payments by a staggering 90 per cent, enhancing the country's financial flexibility to tackle the prevailing depression.⁶⁸ By January 1933, however, the EPU index reflected heightened uncertainty, surging 28.6 per cent from its November value of the prior year. This turmoil was largely driven by speculation over upcoming leadership and their potential policies. The *Karlsruher Tagblatt* captured the nation's sentiments on 19 January, before Hitler's seizure of power on 30 January:

‘The domestic political limbo in which we have basically been for more than half a year, and the nervous uncertainty associated with it, can no longer be endured. The German public is much less interested in whether today the politician has met mysteriously with that statesman, whether tomorrow one party leader has arranged to have breakfast with the other, they rather want to know which course is now finally to be steered.’⁶⁹

The general downward trend in the EPU index starting in 1932 hints at relative stabilisation, possibly attributable to the dissolution of Brüning's minority cabinet and the outcomes of the Lausanne Conference. This feeds into the academic debate surrounding the precise factors that fuelled Germany's recovery from the Great Depression. While the complete explanation remains elusive, as Daniel and ter Steege have observed, inflationary expectations did not serve as a recovery catalyst for Germany, unlike in the U.S. Instead, it could well be the case, that the Lausanne Conference's resolution on reparations may have reduced economic uncertainties, facilitating economic stabilisation.⁷⁰

Manufacturers' confidence increased noticeably in the second half of 1932, as indicated by reports by chambers of commerce and industry of the most

⁶⁸ J. Adam Tooze, *The Wages of Destruction: The Making and Breaking of the Nazi Economy* (London: Penguin Books, 2007).

⁶⁹ *Karlsruher Tagblatt*, 19.01.1933, p.1.

⁷⁰ Daniel and Steege, “Inflation expectations and the recovery from the Great Depression in Germany”

important German industries.⁷¹ At the same time, machinery orders, a reliable indicator of industrial production, recorded sustained growth, and stock markets had been trending upward since June. This assertion can now also be supported by new evidence, as the EPU index shows significant signs of recovery starting at the beginning of 1932, well before Hitler's rise to power.

This rising confidence is further reflected in primary sources from the period. A January 1933 article from the *Neue Mannheimer Zeitung* cites an analysis from the *Deutsche Bank und Diskonto-Gesellschaft* on the iron industry, emphasising 'that the chances for the future were certainly there, but that everything depended on the restoration and securing of calm internally and externally'. The situation is similar in other industries, such as mechanical engineering:

'The leading organisation of the mechanical engineering industry recently reported a slight improvement in its sector, but attached to this the remark that the economy needs stability and relief from the constant political uncertainty, for which the restoration and stabilisation of confidence, which depend largely on the actions and energy of the government, are the decisive prerequisites.'⁷²

This suggests that 1932 saw a marked improvement in business confidence, coinciding with a decrease in economic policy uncertainty. Yet, the continuation of this recovery was closely linked to continued political stability.

An interesting question is which subjects predominantly contribute to the extensive coverage of uncertainty issues. To investigate this, simple API queries from *Deutsches Zeitungsportal* are carried out: It consists of counting the frequency of subject-specific keywords (two for each subject) co-occurring with any of the uncertainty-related terms on full-text pages. To ensure equitable comparisons, these counts are then standardised by dividing them by the total number of digitised pages for each month, which yields a keyword-to-page ratio

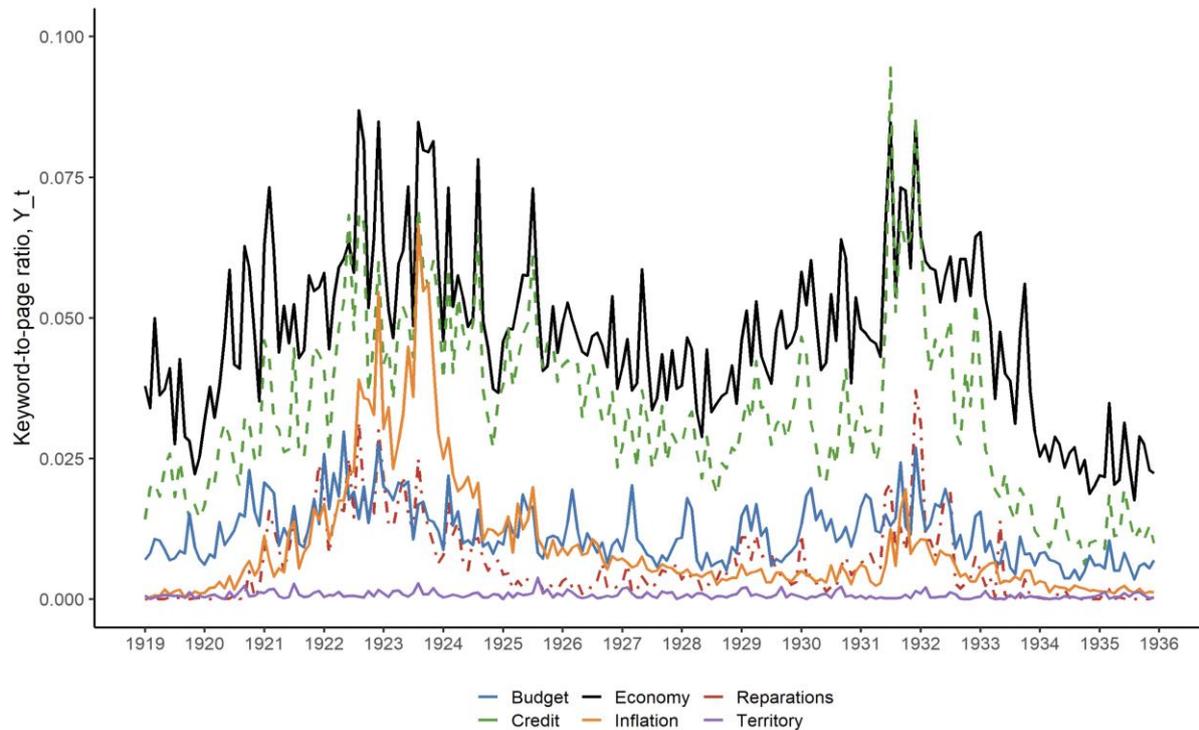
⁷¹ Christoph Buchheim, "Das NS-Regime Und Die Überwindung Der Weltwirtschaftskrise in Deutschland," *Vierteljahrshefte für Zeitgeschichte* 56, no. 3 (2008): 385–86, doi:10.1524/vfzg.2008.0017.

⁷² *Neue Mannheimer Zeitung*, 29.01.1933, p.10.

($Y_t = \frac{X_t}{N_t}$), analogous to the procedure outlined in step three of the methods section

3. The resulting Y_t values, categorised by subject, are visualised in figure 3.

Figure 3: Uncertainty measures for different topics, 1919-1935



Source: Deutsches Zeitungsportal.

Note: The keyword counting process involves examining full-text pages to identify instances where at least one uncertainty-related keyword and one subject-specific keyword co-occur. The uncertainty keywords introduced in section 2 (uncertainty, uncertain, uncertainties) are applied in combination with two topic-specific keywords per topic category identified through the narrative analysis: Economy: ‘Wirtschaft’ (= economy), ‘Volkswirtschaft’; Territory: ‘Territorium’ (= territory), ‘Territorien’ (= territories); Reparations: ‘Reparationen’ (= reparations), ‘Reparationszahlungen’ (= reparation payments); Credit: ‘Kredit’ (= credit), ‘Schulden’ (= debt); Budget: ‘Haushalt’ (= budget), ‘Staatshaushalt’ (= government budget); Inflation: ‘Inflation’, ‘Geldentwertung’ (= demonetisation).

In the hyperinflation era of the early 1920s, the primary drivers of uncertainty were general economic uncertainty, credit-related concerns, conspicuous uncertainty regarding inflation, and, to a somewhat lesser degree, uncertainties surrounding government budgetary matters and reparation payments. However, this landscape underwent a noteworthy transformation in the early 1930s crisis. As the early 1930s crisis unfolded, a shift in the hierarchy of these uncertainties became evident. Notably, inflation-related uncertainty receded in significance, making way for credit-related uncertainty to assume a prominent role as the

foremost contributor during the immediate crisis period. This shift was closely trailed by the enduring presence of general economic uncertainty. Intriguingly, uncertainties pertaining to reparation payments also surged compared to the hyperinflation era. It is worth noting that throughout both crisis periods, territorial uncertainty constituted a marginal aspect of the prevailing uncertainty landscape, playing a negligible role in shaping the broader economic uncertainties.

Qualitative evidence points to a causal chain initiated by economic policy uncertainty, exerting psychological effects that ripple through sales activity, production, inventory management, consumption, and, ultimately, output. This alignment corresponds with the theoretical concepts of the 'real options effect' and 'irreversible investments,' which propose that economic policy uncertainty prompts to adopt a cautious 'wait and see' strategy. A unique element in the German context is the uncertainty surrounding capital inflows, a critical component for financing budget deficits and driving economic expansion—an issue frequently discussed in contemporary newspapers.

The results suggests that, on balance, economic policy uncertainty had detrimental effects. Nevertheless, the precise quantification of these effects will be explored in the subsequent section of this paper.

4.2 Quantitative Evidence

This section examines the extent to which the effects of economic policy uncertainty identified in the qualitative evidence section are consistent with the analysis of statistical data. Similar to the approach of Lennard in 2020, the following VAR model is computed to investigate the macroeconomic effects of uncertainty:⁷³

$$X_t = B(L)X_{t-1} + U_t \quad (1)$$

Let X_t represent a vector of endogenous variables, encompassing the EPU index level and a notable macroeconomic variable, such as the natural logarithm of

⁷³ Lennard, "Uncertainty and the Great Slump," 855.

real GDP or real industrial production. The coefficient matrix is represented by B , while L stands for a polynomial associated with the lag operator, factoring in P lags. U_t is the error term. The model also integrates a time trend and seasonal dummy variable as external factors. The data sample extends from January 1925 to December 1935, since macro data for Germany before 1925 are not available. Previous studies employed three to six lags for variable P .⁷⁴ However, this analysis finds the optimal lag length to be two, as indicated by the minimum values of the Akaike Information Criterion (AIC), Schwarz Bayesian Information Criterion (SBIC), and Hannan-Quinn Information Criterion (HQIC). Therefore, the baseline model will use two lags for P . The robustness of this choice will be confirmed in section 4.3, where alternative specifications with three and six lags are also considered.

In line with previous research, the Cholesky decomposition method is utilised for identification purposes. The sequencing of variables in a VAR is crucial for the Cholesky decomposition. Earlier studies, including those by Alexopoulos and Cohen, and Baker et al., order uncertainty first, indicating that economic policy uncertainty exerts an immediate effect on the economy, whereas the reverse does not hold true within the same period. Contrarily, this investigation adopts a more conservative approach, as also applied by Lennard, by ordering uncertainty last.⁷⁵ This implies that the economy can affect uncertainty, but the influence of uncertainty on the economy is deferred. Nonetheless, as substantiated in section 4.3, the results are robust irrespective of the sequence in which variables are arranged.

While this technique can be considered state-of-the-art in research, it is vital to recognise a noteworthy limitation. A persistent empirical issue arises when spikes in uncertainty align with unexpected, significant events, like a "black swan" event such as a war. If such events simultaneously influence economic

⁷⁴ Ibid.; Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty" Alexopoulos and Cohen, "The power of print: Uncertainty shocks, markets, and the economy"

⁷⁵ Lennard, "Uncertainty and the Great Slump," 855.

conditions and uncertainty levels, it creates a potential omitted variable bias. This could lead to overemphasising the detrimental effects of uncertainty on the economy. It is therefore important to remain cautious when interpreting newspaper-based uncertainty measures.⁷⁶

Table 1: Data sources

Variable	Source	Description
Wholesale price index (general)	Albers (2018) Interwar MacroPanel	1913 = 100; seasonally adjusted
Wholesale prices index (fully manufactured goods)	Albers (2018) Interwar MacroPanel	1913 = 100; seasonally adjusted
Consumer price index (general)	Albers (2018) Interwar MacroPanel	1913 = 100; seasonally adjusted
Notes in circulation	Albers (2018) Interwar MacroPanel	Million Reichsmark
Share price index (weekly)	Ronge (2008) series A1.1	Nominal weekly index
Share price index (monthly)	Wagemann (1936) series 2, p. 8	Average 1924-26 = 100
Bank rate Reichsbank	NBER Macrohistory Database	Discount rate Reichsbank; weighted by the number of days each rate was in effect.
Real GDP	Ritschl (2002) series C.2.3	1925 = 100; quarterly; linear interpolation
Economic activity index	Albers (2018) Interwar MacroPanel	Average 1925-33 = 100
Real industrial production (general)	Albers (2018) Interwar MacroPanel	1928 = 100; seasonally adjusted; Industrial production excluding food and beverages
Real government expenditures, revenues	Wagemann (1936) revenues series 5, p. 164; expenditures series 6, p. 164	Million Reichsmark; seasonally adjusted; data only until 03/1935; deflated using CPI
Real imports and exports	Wagemann (1936) exports series 12M p. 93; imports series 4, p. 91	Million Reichsmark; seasonally adjusted; deflated using WPI; data only until 03/1935
Real domestic machine orders	Wagemann (1936) series 4, p. 62	1928 = 100; deflated using WPI for manufacturing goods; data only until 07/1935

⁷⁶ Ibid.

Real retail sales (total)	Albers (2018) Interwar MacroPanel	1928 = 100; deflated using CPI
Private consumption	Ritschl (2002) series C.2.1	1925 = 100; quarterly; linear interpolation
Private investment	Ritschl (2002) series C.2.6	1925 = 100; quarterly; linear interpolation
Unemployment (%)	Dimsdale et al. (2006)	%; quarterly; linear interpolation
Capital inflows	Ritschl (2002) series B.4.17	Million Reichsmark; yearly data only; yearly sums divided by 12

Note: Seasonal adjustments using X13-ARIMA in RStudio

The sources and definitions for the data used in the analysis are given in table 1. Data on government expenditure and revenue, imports and exports, and domestic machine orders were collected from a primary source: Wagemann in 1936, the *Konjunkturstatistisches Handbuch*.⁷⁷ The remaining data are mostly from Ritschl in 2002 and the Interwar MacarPanel.⁷⁸

The primary economic variable of interest in this study is an economic activity index constructed by Albers in 2018.⁷⁹ This composite indicator is mainly based on industrial production as a measure of output, but it also encompasses a wide array of monthly economic variables, including unemployment, financial activity, and international trade. Additionally, the trend and variance of low frequency annual GDP per capita data are also integral to the composition of the index. Figure 4 shows the variable together with other outcome variables. It is essential to note that capital inflow data is only available in annual intervals. Attempts to derive this data from bank balance sheets proved unreliable due to significant variations in the number of reporting banks each month and the potential skewing effect of reporting fluctuations by large banks.⁸⁰

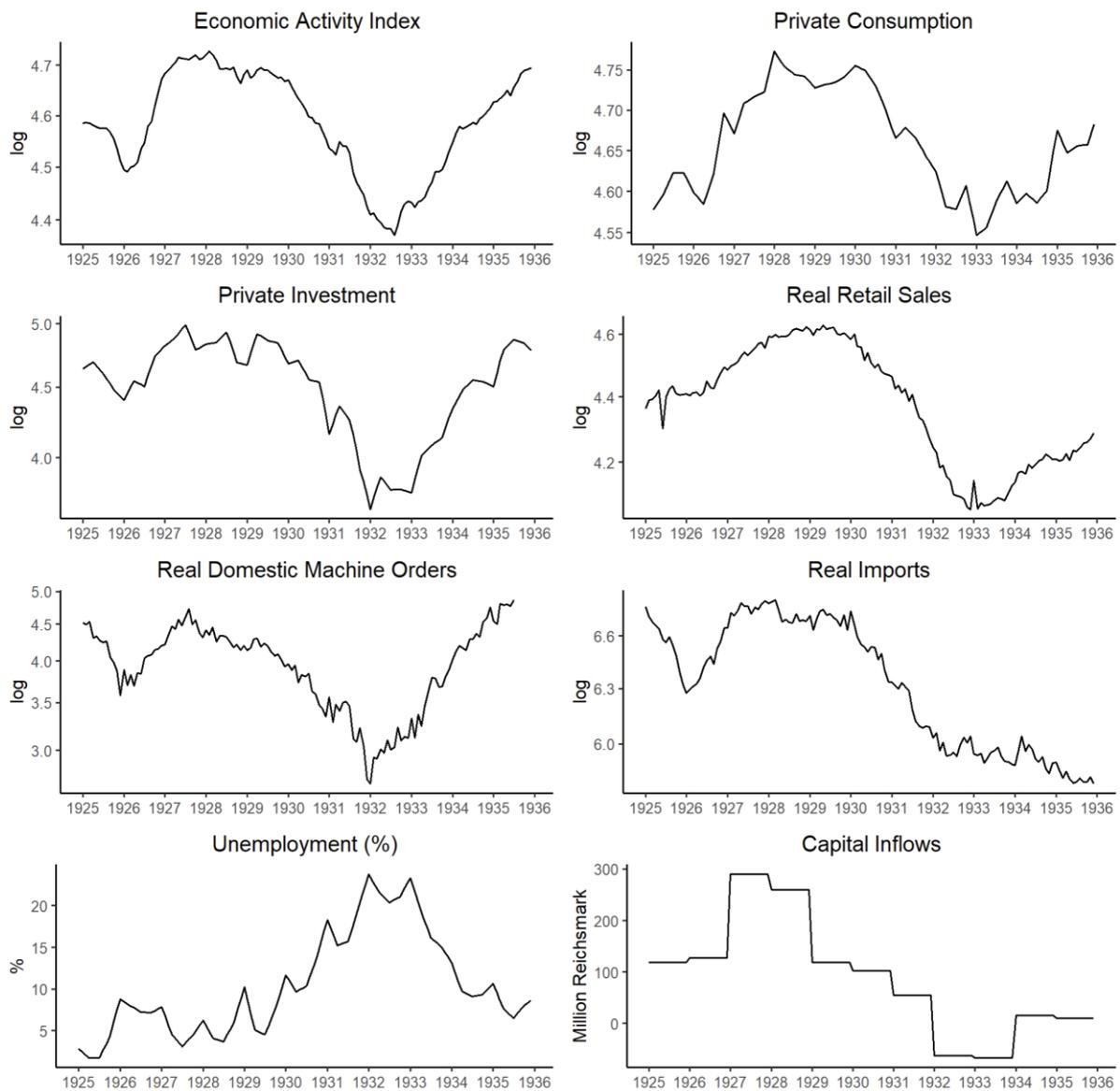
⁷⁷ Many thanks to Hendrik Steinbrecher of TU Dortmund for generously making this data available, sourced from a research project that involved the digitisation of the *Konjunkturstatistisches Handbuch*.

⁷⁸ Ritschl, *Deutschlands Krise und Konjunktur 1924-1934*; Thilo N. H. Albers, “The Prelude and Global Impact of the Great Depression: Evidence from a New Macroeconomic Dataset,” *Explorations in Economic History* 70 (2018), doi:10.1016/j.eeh.2018.08.004.

⁷⁹ Albers, “The prelude and global impact of the Great Depression: Evidence from a new macroeconomic dataset”

⁸⁰ Postel-Vinay and Collet, “Hot money inflows and bank risk-taking: Germany from the 1920s to the Great Depression”

Figure 4: Economic activity index, private consumption, private investment, real retail sales, real domestic machine orders, real imports, unemployment, capital inflows



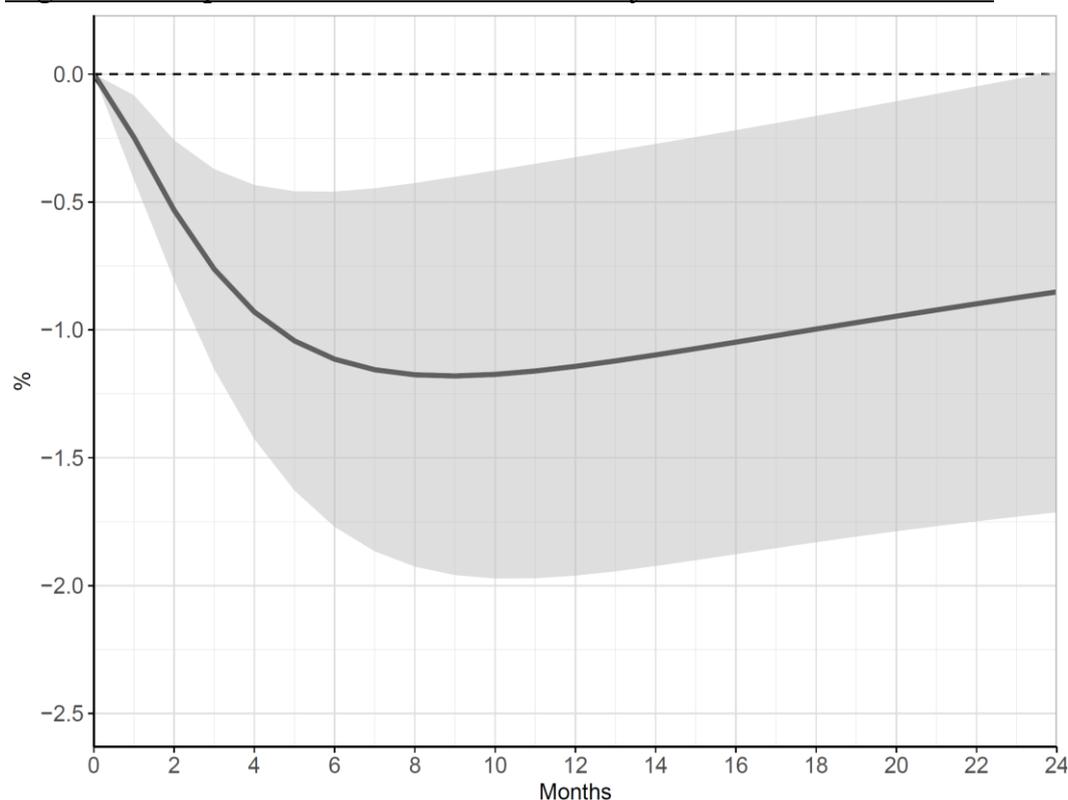
Source: See table 1.

The following analysis sheds light on the significant impact of economic policy uncertainty on various aspects of economic activity. Figure 5 showcases a significant decline in economic activity, represented by a maximum decline of 1.18 per cent ($t = -2.97$) after nine months following a one-standard-deviation

uncertainty shock. This decline is more pronounced than the peak effect of -0.5 per cent observed in a similar study for interwar Britain.⁸¹

The analysis further reveals that the peak economic impact occurs after nine months, which is slightly higher than the findings of Lennard and Baker et al., but more rapid than the 18 months reported by Alexopoulos and Cohen.⁸²

Figure 5: Response of the economic activity index to an EPU shock



Note: The shaded area denotes the 95% confidence interval; Estimation of Equation 1.

Figure 6 underscores that a one-standard-deviation innovation in the EPU index prompts an immediate increase of 17.87 units in the index itself relative to its sample mean, with the effect diminishing over time. This is slightly lower than the 21.6 units found by Lennard.⁸³ However, it implies that the EPU is influenced by its past values, but the influence decreases as the lag increases. Understanding the magnitude of this immediate response is crucial for

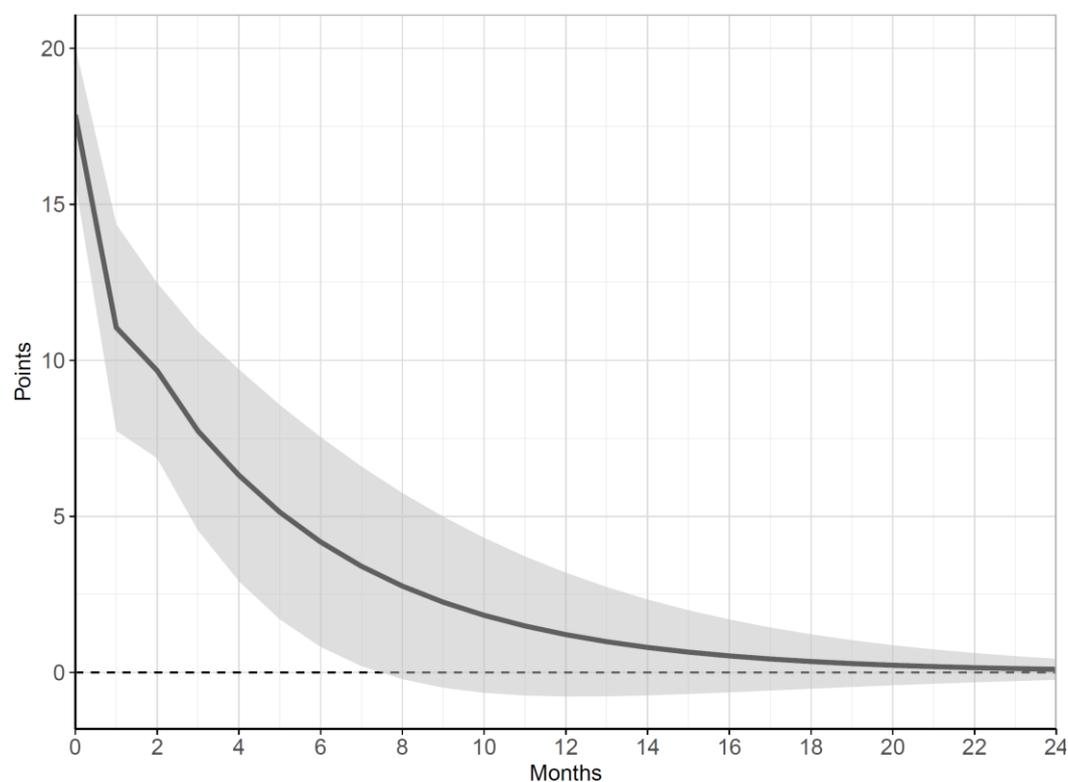
⁸¹ Lennard, “Uncertainty and the Great Slump,” 857.

⁸² *Ibid.*, 858.

⁸³ *Ibid.*, 863.

policymakers and investors to anticipate the potential impact on the economy and financial markets.

Figure 6: Response of an EPU shock to itself



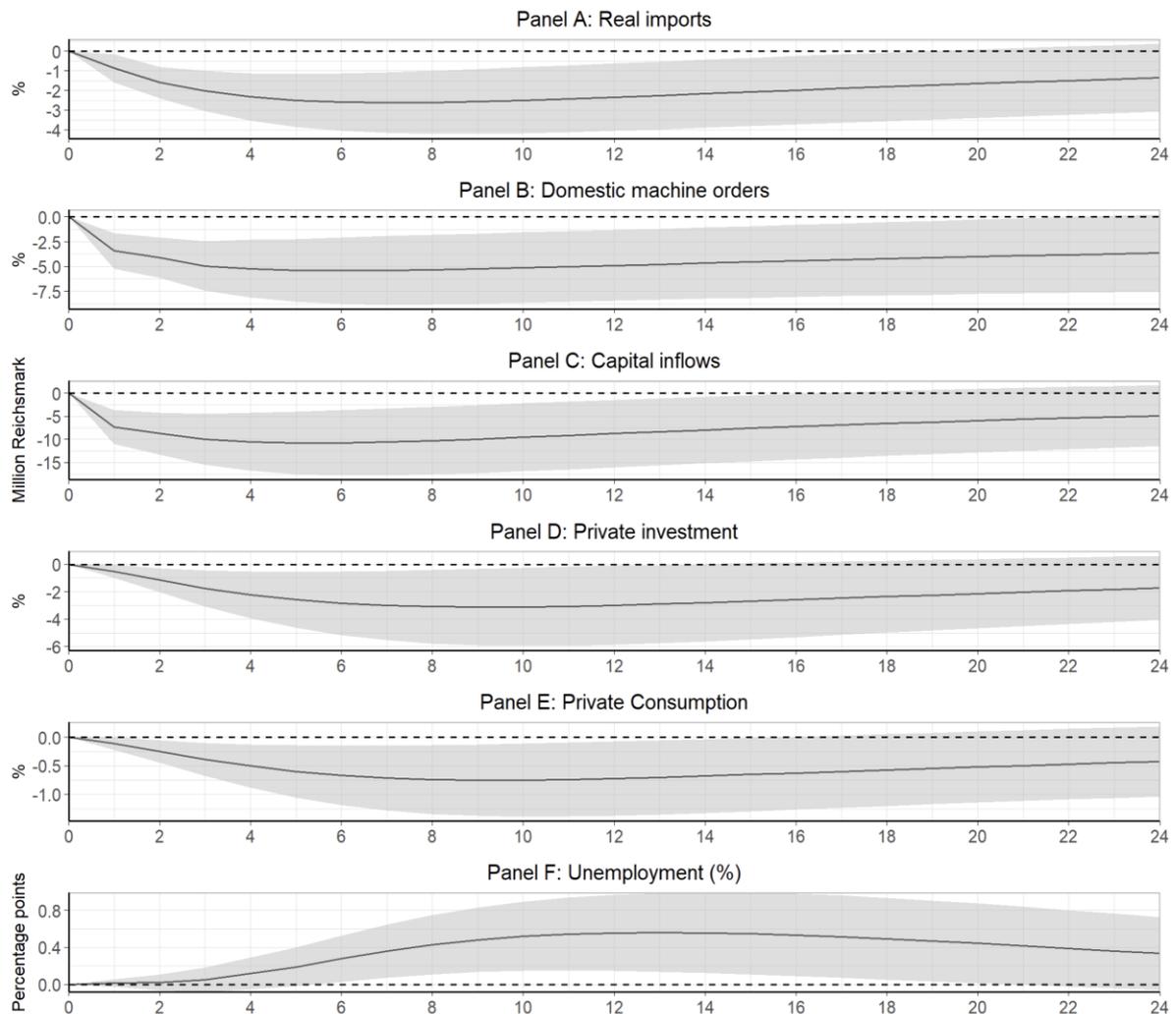
Note: The shaded area denotes the 95% confidence interval; Estimation of equation 1

The results of a variance decomposition reveal that economic policy uncertainty accounted for 33 per cent of the fluctuations in output and a remarkable 44 per cent of the fluctuations in industrial production in the sample period. This is particularly striking when compared to the 22 per cent of output fluctuations attributed to EPU in interwar Britain.⁸⁴ Both figures not only underscore the substantial impact of EPU on the economy during the interwar period but also suggest that its contribution to macroeconomic volatility has been notably underestimated in the literature. This insight is crucial as it not only helps in comprehending the historical economic landscape of Germany during this

⁸⁴ Ibid., 858; Baker, Bloom and Davis, “Measuring Economic Policy Uncertainty”; Alexopoulos and Cohen, “The power of print: Uncertainty shocks, markets, and the economy”

tumultuous period but also in understanding the broader implications of policy uncertainty on macroeconomic variables.

Figure 7: Impulse response functions of EPU shocks for private consumption, private investment, real domestic machine orders, real imports, unemployment, capital inflows



Note: The shaded area denotes the 95% confidence interval; Estimation of equation 1.

To gain a more comprehensive understanding of the predictive power of the EPU index, the analysis extends beyond general economic activity to examine the specific impacts of an EPU shock on other key macroeconomic variables. This is done by rotating a series of alternative variables into X_t . In the previous literature, various channels have been shown through which economic policy

uncertainty can impact the economy, such as lower imports, credit, consumption, investment and higher unemployment.⁸⁵

Figure 7 shows the responses of various economic indicators to a one-standard-deviation uncertainty shock. One channel through which uncertainty can unfold is lower imports: Through a reduction in demand, firms may cut back on orders, including foreign imports, and households may reduce consumption, leading to a decrease in imports. This can be shown quantitatively, as a one-standard-deviation uncertainty shock leads to a reduction in the volume of imports of 2.62 per cent ($t = -3.32$) after 7 months, as depicted in panel A. This is much more pronounced than the results for Britain with 1.2 per cent.⁸⁶ That the fall is larger in trade than in output is consistent with the ‘magnification effect’ documented by Novy and Taylor.⁸⁷ In their theoretical model, firms cut orders of foreign inputs to a greater degree than domestic inputs under uncertainty, as there are larger fixed costs associated with transporting goods internationally. There is therefore a higher option value of waiting when ordering inputs from abroad. As a result, imports fall by more than economic activity.

This is intricately linked to the reduction in domestic orders for machinery and equipment, a key indicator of companies' anticipatory (ex-ante) investment decisions. A one-standard-deviation uncertainty shock leads to a 5.41 per cent reduction ($t = -3.16$) in the volume of machine orders (shown in panel B). This significant reduction underscores the direct and immediate impact of uncertainty on individual firms' investment decisions. Another closely related indicator is general corporate investments. An uncertainty shock leads to a decrease in overall corporate investments of 3.12 per cent ($t = 2.18$), as plotted in panel D. Parallel to this is the impact on private consumption, which declines by 0.75 per cent ($t = 2.35$) in response to an uncertainty shock (presented in panel E). This decline, although notable, is less pronounced compared to the effect on

⁸⁵ Lennard, “Uncertainty and the Great Slump”

⁸⁶ Lennard, “Uncertainty and the Great Slump,” 859.

⁸⁷ Dennis Novy and Alan M. Taylor, “Trade and Uncertainty,” *The Review of Economics and Statistics* 102, no. 4 (2020), doi:10.1162/rest_a_00885.

investment, implying that the reduction in overall output is more driven by the corporate sector rather than the households.

Yet another channel is the labour market. As firms likely delay investment decisions and cut back on orders, there is often a corresponding reduction in the need for labour, leading to job losses. This, in turn, reduces household income and consumption, creating a negative feedback loop that further exacerbates the economic downturn. Unemployment manifests a mound-like trajectory, climaxes at an increment of 0.6 percentage points ($t = 2.59$), as can be seen in panel F. Nevertheless, this approximation warrants careful consideration, given its significance materialises only with a six-month delay. Although it is logical for the labour market to exhibit a stiffer response to uncertainty shocks, owing to employment protection legislation and its inelastic characteristics, this interpretation still necessitates prudence. However, Lennard finds similar results for interwar Britain, where unemployment fell by 0.4 percentage points seven months after an EPU shock.⁸⁸

Building on the foundation laid by Accominotti and Eichengreen in 2016, who highlighted the pivotal role of global economic forces and stock market volatility in elucidating capital surges and abrupt halts during the interwar period, this study augments the narrative by demonstrating the predictive power of domestic economic policy uncertainty on capital inflows in Germany.⁸⁹ Notably, a one-standard deviation increase in the EPU index correlates with a significant reduction, approximately 7.31 million Reichsmark ($t = -3.84$), in capital inflows after one month. This impact amplifies over the course of five months, eventually diminishing to insignificance thereafter, yet it remains a statistically significant determinant for the initial 16 months. The impulse-response function is shown in panel C of figure 7. Consequently, the uncertainty index converges the narratives of country-specific effects and international dynamics, such as foreign

⁸⁸ Lennard, “Uncertainty and the Great Slump,” 859.

⁸⁹ Accominotti and Eichengreen, “The mother of all sudden stops: capital flows and reversals in Europe, 1919-32”

capital inflows. Given the effect of economic policy uncertainty on capital inflows, it is likely that the consequences of an EPU shock are more severe for countries with high foreign credit exposure denominated in foreign currency. This is the case because the uncertainty shock not only has a negative effect on domestic consumption and investment through the channels described, but also through international investors withdrawing money due to uncertainty, therefore reducing available capital and making it harder to finance government budget and current account deficits. A potential avenue for future research could entail examining the newspaper coverage in principal German creditor nations of the era, like the United States and Britain, to assess if the domestic portrayal of Germany's economic policy uncertainty serves as a reliable indicator for capital inflows.

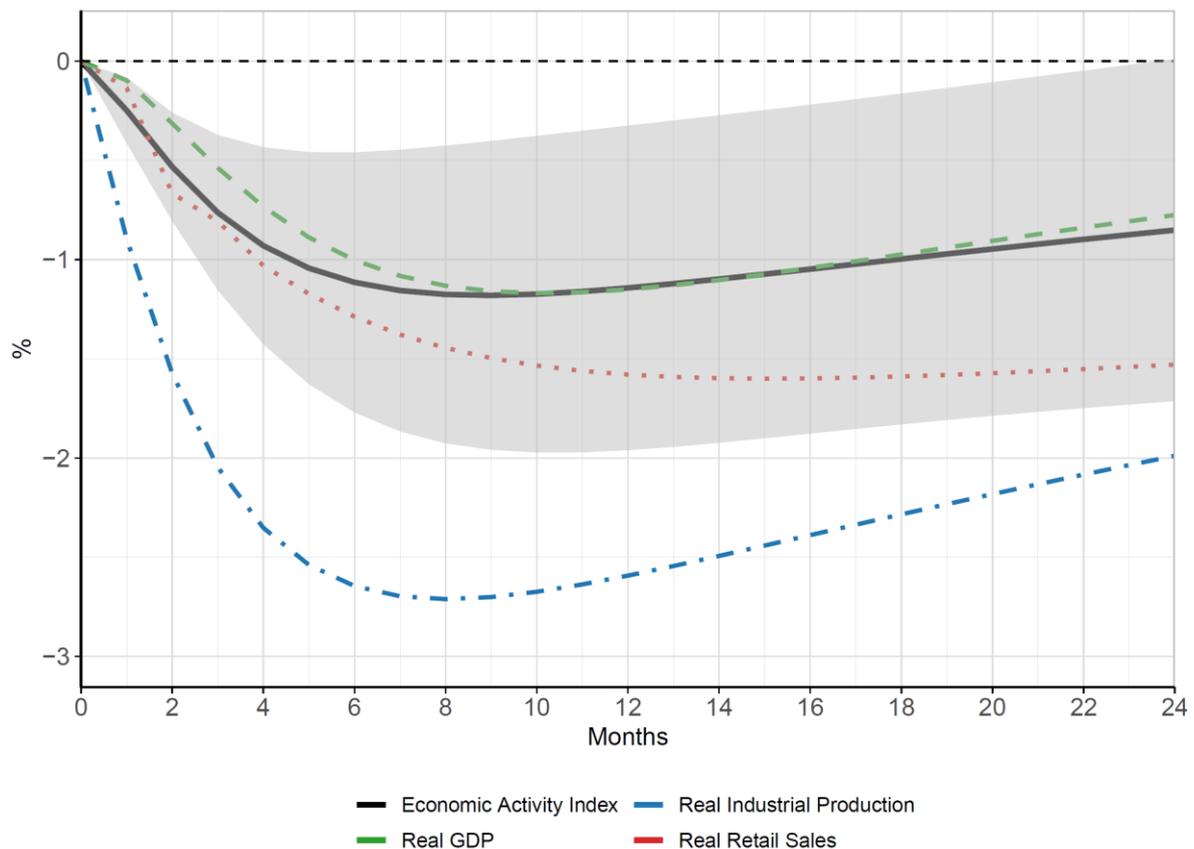
Although the statistical results align with the narrative evidence, suggesting widespread disruption caused by uncertainty, the potential confounding influence of news must be considered. This influence may imply that the estimates represent an upper bound on the true causal effects. Also, less variation due to interpolation of quarterly data into monthly figures likely causes the affected variables to be less significant compared to the ones where monthly data is readily available.

4.3 Robustness Checks

To enhance the rigor of the preceding findings, a series of tests are carried out in this section, involving alternative indicators of economic activity, uncertainty and the incorporation of supplementary control variables.

The economic activity index, a collection of various indicators, is an important measure of economic activity. However, to ensure the robustness of the results, they are compared with three alternative measures of economic activity: real industrial production, real GDP and real retail sales. The impulse-response functions of all three indicators are shown in figure 8.

Figure 8: Alternative measures of economic activity



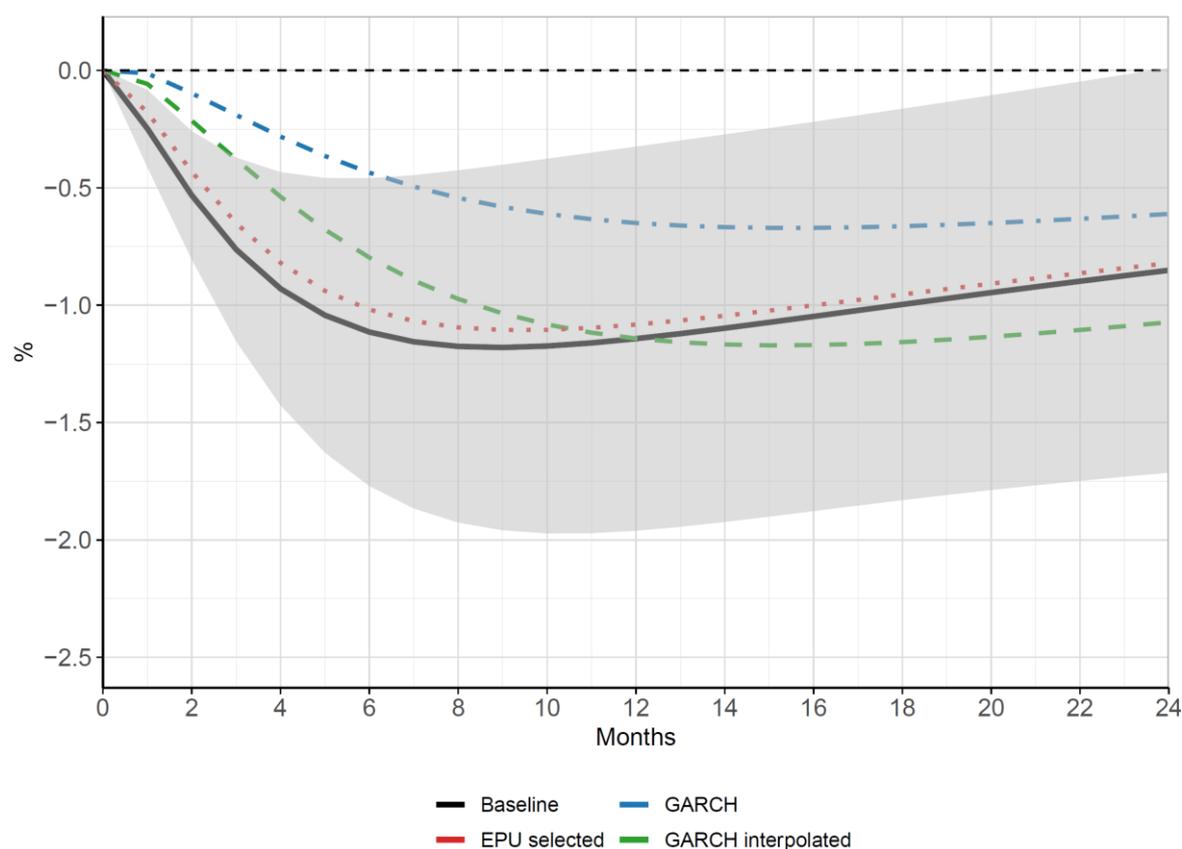
Note: The shaded area denotes the 95% confidence interval; Estimation of equation 1.

Real GDP, as reported quarterly by Ritschl in 2002,⁹⁰ closely mirrors the baseline estimate, but real retail sales show a slightly sharper decline of -1.6 per cent ($t = -2.54$). Strikingly, real industrial production sees a much steeper drop of -2.71 per cent ($t = -3.07$) after an EPU shock. The results are highly statistically significant and align with previous findings that economic policy uncertainty severely impacts domestic machine orders and corporate investments more than consumption. In essence, while all economic activity measures confirm the negative impact of EPU shocks, the drastically larger decline in industrial production underscores its profound influence on the corporate sector.

⁹⁰ Ritschl, *Deutschlands Krise und Konjunktur 1924-1934*.

The robustness of the impact of economic policy uncertainty is further scrutinised using different measures, one of which is stock market volatility, a widely recognised indicator of general uncertainty.⁹¹ Although daily data for the interwar period is inaccessible, a GARCH(1,1) model was applied to the logarithmic changes in weekly share prices,⁹² thereby generating a time-varying measure of the conditional standard deviation of stock returns.⁹³ Subsequently, these weekly standard deviations were aggregated into monthly figures.

Figure 9: Alternative measures of uncertainty



Note: The shaded area denotes the 95% confidence interval; Estimation of equation 1.

⁹¹ Gabriel P. Mathy, “Stock Volatility, Return Jumps and Uncertainty Shocks During the Great Depression,” *Financial History Review* 23, no. 2 (2016), doi:10.1017/S0968565016000111.

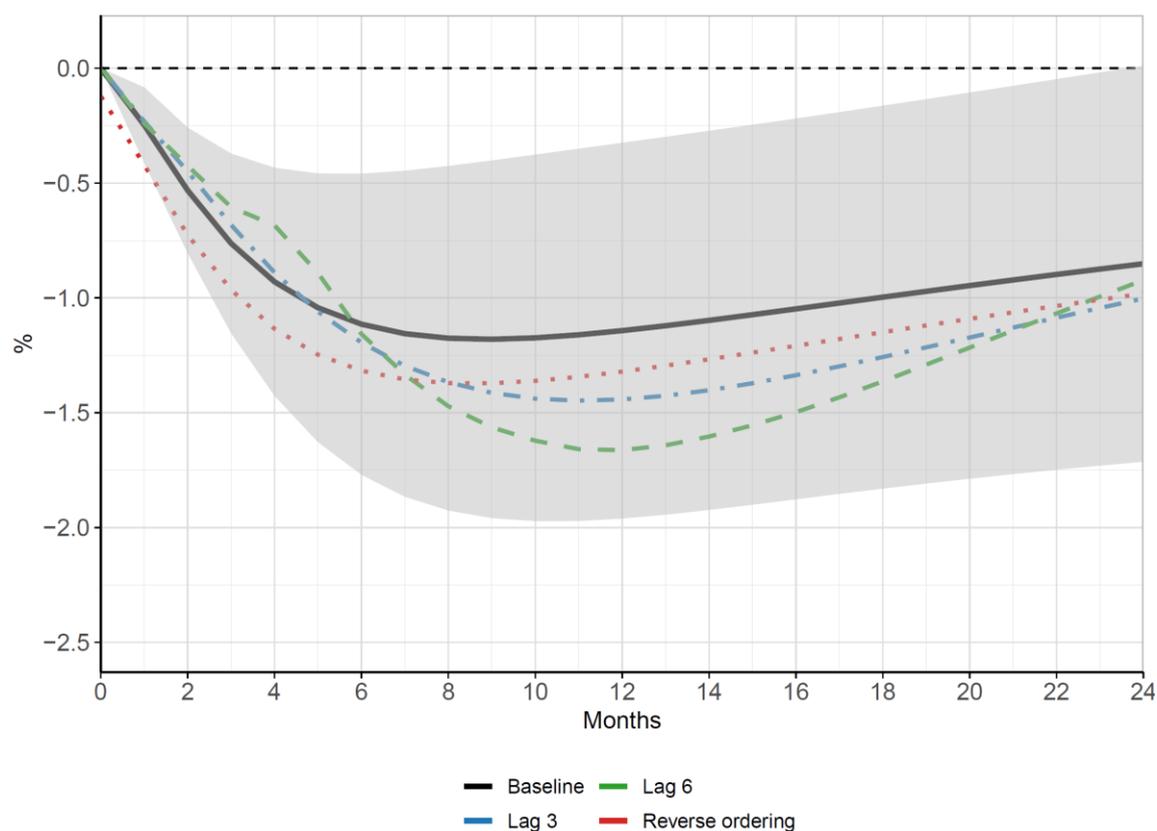
⁹² Weekly share prices come from Ulrich Ronge, “Die langfristige Rendite deutscher Standardaktien 1870 bis 1959” (2008).

⁹³ Robert Engle, “GARCH 101: The Use of ARCH/GARCH Models in Applied Econometrics,” *Journal of Economic Perspectives* 15, no. 4 (2001): 158, doi:10.1257/jep.15.4.157; Lennard, “Uncertainty and the Great Slump,” 860.

Figure 9 depicts the response of economic activity to a one-standard-deviation shock in uncertainty, utilising three distinct measures: the GARCH model, a GARCH model with interpolated values for missing data, and an alternative economic policy uncertainty index constructed from a selected sample of newspapers. The initial GARCH model resulted in a peak effect of -0.67 per cent ($t = -1.25$), statistically insignificant at the 95 per cent confidence level, presumably due to the brief sample period and abundance of missing values. Conversely, the GARCH model with interpolated data, applied during periods when the stock market was closed or data was unavailable (August 1931, October 1932-March 1933), demonstrated a statistically significant peak response of -1.17 per cent ($t = -2.44$) after nine months, closely mirroring the baseline estimate. Although this methodology is technically incorrect because the missing data is not randomly absent, the interpolation of the stock market series for the same time frame has been adopted in previous research.⁹⁴ Furthermore, the EPU index, based on carefully selected newspapers, yields a peak response of -1.11 per cent ($t = -2.77$), which is also consistent with the baseline. While the original GARCH model's limitations resulted in non-significant outcomes, both the interpolated GARCH model and the selected newspaper based EPU index corroborated the baseline estimate, reinforcing the assertion that economic policy uncertainty exerts a discernible adverse impact on economic activity.

⁹⁴ Nicholas H. Dimsdale, Nicholas Horsewood, and Arthur van Riel, "Unemployment in Interwar Germany: An Analysis of the Labor Market, 1927–1936," *The Journal of Economic History* 66, no. 03 (2006), doi:10.1017/S0022050706000325.

Figure 10: Alternative model specifications



Note: The shaded area denotes the 95% confidence interval; Estimation of equation 1.

An additional robustness check involves different model specifications. To establish the baseline model, several decisions were necessary, including determining the number of lags to incorporate. The baseline model includes two months of lag, as recommended by minimising the AIC, SBIC, and HQIC criteria. However, previous research by Lennard and Alexopoulos and Cohen utilised 3 and 6 lags respectively.⁹⁵ Extending the lag length to three elevates the peak effect to -1.45 per cent ($t = -2.67$) after 11 months, while extending it to six lags amplifies the peak effect to -1.66 per cent ($t = -3.37$) after 12 months. Another crucial decision pertains to the causal ordering. In the baseline scenario, the arrangement was such that output preceded uncertainty, suggesting that output had a simultaneous effect on uncertainty, but the reverse was not true. To assess the results' sensitivity to this assumption, the order was reversed, positioning uncertainty first and output second. This adjustment heightened the

⁹⁵ Lennard, "Uncertainty and the Great Slump," 862.

peak effect to -1.37 per cent ($t = -3.34$) in the ninth month. Hence, all alternative model specifications result in only marginal variations in the peak impact of an EPU shock compared to the baseline estimate, as visually depicted in figure 10. All these alternative specifications consistently fall within the confines of the 95 percent confidence interval of the baseline estimate. A bivariate VAR was chosen as the base model, which is appealing due to its simplicity and the extensive usage in previous research.⁹⁶ However, the presence of other determinants of output, correlated with economic policy uncertainty, could influence the impulse responses. Table 2 delineates the peak effects observed in several models. While rows (1) to (9) summarise the already mentioned peak effects of different measures and model specifications, rows 10 to 20 present the results from models where a specific control variable of interest was sequentially included.

The first control set pertains to fiscal policy, encompassing the natural logarithm of real government expenditure and revenue. The second set relates to the broader economy, including natural logarithms of real exports, consumer price index, share price index, a dummy variable for the months during the 1931-32 crisis when the stock market was closed (August 1931 and October 1931 until March 1932), and a dummy for each month with a government change.⁹⁷ The third set involves monetary policy, including the Reichsbank's bank rate and the natural logarithm of notes in circulation.

⁹⁶ Lennard, "Uncertainty and the Great Slump" Alexopoulos and Cohen, "The power of print: Uncertainty shocks, markets, and the economy" Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty"

⁹⁷ For government change dates, see table 1 in: Arthur van Riel and Arthur Schram, "Weimar Economic Decline, Nazi Economic Recovery, and the Stabilization of Political Dictatorship," *The Journal of Economic History* 53, no. 1 (1993): 81, doi:10.1017/S0022050700012390.

Table 2: Robustness tests for peak effects with different models

	Specification	Peak effect
(1)	Alternative economic activity measure: real industrial production	-2.71 (-3.07)
(2)	Alternative economic activity measure: real retail sales	-1.60 (-2.54)
(3)	Alternative economic activity measure: real GDP	-1.17 (-2.89)
(4)	Alternative uncertainty measure: GARCH	-0.67 (-1.25)
(5)	Alternative uncertainty measure: GARCH interpolated	-1.17 (-2.44)
(6)	Alternative uncertainty measure: selected EPU	-1.11 (-2.77)
(7)	Alternative specification: 3 lags	-1.45 (-2.67)
(8)	Alternative specification: 6 lags	-1.66 (-3.37)
(9)	Alternative specification: reverse ordering	-1.37 (-3.34)
(10)	Additional control: real government expenditure	-1.23 (-2.90)
(11)	Additional control: real government revenue	-1.23 (-2.89)
(12)	Additional control: real exports	-1.03 (-2.98)
(13)	Additional control: consumer price index	-0.90 (-3.02)
(14)	Additional control: share price index	-0.66 (-2.41)
(15)	Additional control: stock market closure dummy	-0.66 (-2.41)
(16)	Additional control: government change dummy	-0.64 (-2.38)
(17)	Additional control: bank rate Reichsbank	-0.46 (-2.00)
(18)	Additional control: note circulation	-0.52 (-2.13)
	Baseline	-1.18 (-2.97)
	Maximum	-0.46 (-2.00)
	Minimum	-2.71 (-3.07)
	Mean	-0.96

Note: *t*-statistics in brackets; Estimation of equation 1.

The inclusion of these variables results in adjustments to the magnitude of the estimated responses. The peak effect varies from a maximum of -0.46 per cent ($t = -2.00$) to a minimum of -2.71 per cent ($t = -3.07$), with an average peak effect of -0.96 per cent. The reason for this discrepancy likely lies in the small sample period of available macro data only from January 1925 to December 1935, which compromises the models' predictive capacity. These findings suggest that the initial estimate of economic policy uncertainty's impact on economic activity may have been confounded by other factors considered in the additional controls. As these variables are incorporated, they diminish the estimated impact of economic policy uncertainty, implying the potential presence of omitted variable bias in the initial estimate. In essence, this indicates that the control variables account

for some of the variation in economic activity initially attributed solely to economic policy uncertainty in the baseline model.

Although the size of the estimates decreases with the inclusion of additional control variables, the estimates remain statistically significant and continue to indicate a considerable negative impact of uncertainty on the German interwar economy.

5. Conclusion

In conclusion, this paper argues that economic policy uncertainty played a pivotal role in sowing the seeds of instability within interwar Germany. This hypothesis has been validated by both qualitative and quantitative evidence.

The qualitative investigation uncovered a palpable hesitance among companies, resulting in delayed investments primarily driven by the substantial costs associated with irreversible commitments. Likewise, households adopted a 'wait and see' strategy, deferring consumption decisions. A careful examination of historical newspaper archives illuminated that this hesitancy was linked to the pervasive uncertainty surrounding fiscal, monetary, and reparation policies. These historical accounts resoundingly substantiate the hypothesis that economic policy uncertainty was indeed a formidable adversary in the pursuit of stability and prosperity.

The quantitative evidence, bolstered by a novel index and a VAR analysis, found that economic policy uncertainty was tightly linked to a cascade of adverse macroeconomic consequences including declines in output, imports, consumption, and investment, coupled with a surge in unemployment, with up to one third of overall macroeconomic volatility attributed to this uncertainty. Moreover, the results also highlight an international aspect, as they reveal that economic policy uncertainty had a discernible impact on capital inflows, which likely discouraged international investors from providing their support, particularly in the context

of the early 1930s twin crisis. This finding suggests a promising avenue for future research. By investigating how creditor nations' domestic newspapers cover uncertainty concerning debtor nations, researchers may uncover more profound insights into the mechanisms that trigger sudden reversals in capital flows.

Crucially, the economic significance, statistical robustness, and resilience of these findings to various measures of uncertainty and economic activity underscore their credibility. While acknowledging the mitigating impact of other factors, the evidence presented here suggests that a veil of uncertainty hung over the German interwar economy, paralysing sustainable recovery in the aftermath of World War I. The lessons learned from this historical analysis remain relevant today, reminding us of the enduring importance of sound economic policies and their potential to shape the destiny of nations in times of turmoil.

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