

Macroeconomic Analysis of Hyperinflation in the Weimar Republic

Yide Liu *

Department of Economics, Kenneth P. Dietrich School of Arts and Sciences, University of Pittsburgh, Pittsburgh, Pennsylvania, United States

* Corresponding Author Email: liuyide09@gmail.com

Abstract. This article argues that the hyperinflation in the Weimar Republic of Germany from 1921 to 1923 was not solely caused by "printing too much money", but rather the result of a systemic collapse of the three pillars of fiscal capacity, external balance, and public confidence. By examining the evolution of ideas from Fisher's quantity theory to the endogenous credit mechanism of Wicksell, and then to Lautenberg's institutional credit analysis, this article points out that the rapid expansion of the money supply is largely a passive response to deep-seated structural pressures. As fiscal deficits widen, compensation pressures intensify, and expectations continue to deteriorate, both the state and private sectors require increasingly large nominal currency balances solely to maintain basic transactions. The accelerated loss of public confidence has pushed up the velocity of currency circulation, making price increases a self reinforcing process that ultimately the Imperial Bank cannot control. Therefore, hyperinflation is not a mechanical result of monetary expansion, but the ultimate stage of systemic collapse of fiscal discipline, international solvency, and institutional credibility. This study suggests that sustained monetary stability relies less on limiting the quantity of currency and more on maintaining a credible fiscal foundation, controllable external obligations, and public trust in the currency and the country behind it.

Keywords: Weimar Republic; runaway inflation; Financial leadership; Endogenous currency.

1. Introduction

After the end of World War I, the Weimar Republic faced multiple challenges. The government increasingly relies on the credit of the central bank to maintain expenditure and social stability. In 1923, France and Belgium occupied the Ruhr area, causing industrial production to stagnate. The Imperial Bank was forced to print a large amount of money to support the government's "passive resistance" strike action. This creates a vicious cycle: deficits drive up inflation, inflation erodes real tax revenue, fiscal gaps widen further and thus force more money creation [1].

This article reviews the evolution of ideas from classical quantity theory to endogenous credit theory. This study delves into the triple mechanisms of hyperinflation: fiscal dominance, external constraints, and confidence collapse. Finally, compare the theoretical contributions of Fisher, Wicksell, and Lautenbach and describe the process of the end of hyperinflation.

2. The evolution of ideas from quantity theory to endogenous inflation

2.1. Limitations of Classical Quantity Theory

The classical quantity theory of money is expressed as $MV=PT$ using Fisher's trading equation, where M is the quantity of money, V is the velocity of circulation, P is the price level, and T is the trading volume. This theory assumes that V and T are relatively stable, therefore the price level P changes proportionally to the money supply M . Inflation is seen as a direct and mechanical result of an increase in the quantity of money.

However, the experience of Weimar Germany exposed the serious limitations of this static framework. In early 1920s Germany, there was no stable proportional relationship between prices and money supply. On the contrary, the velocity of currency circulation has sharply increased, trading volume has fluctuated dramatically, and prices have risen much faster than the growth of the money

supply. This indicates that the driving force of inflation is not only from the quantity of currency, but also from more complex economic and psychological factors.

2.2. Early Criticism of German Economists

Raidler and Stadler's research shows that many German economists at the time, such as Bortkiewicz, Hahn, Mises, and others, rejected the mechanical explanation of "excess money". Bortkiewicz pointed out that the so-called "currency shortage" often observed in the early stages of inflation is actually the result of people's expectations for future paper currency issuance: households and businesses expect the currency to depreciate further, so they raise prices in advance, exchange marks for foreign currency, and even do so before new paper currency is printed [2].

Hahn uses the metaphor of the 'Black Peter Game' to describe this dynamic of behavior: each economic participant attempts to 'transfer' their currency to others before it further depreciates. The desire of people to avoid holding currency accelerated the rise in prices, which was not directly related to the currency stock at that time [2].

2.3. Lautenbach's Credit Mechanism

German economist Wilhelm Lautenbach posed a deeper challenge to quantity theory from the perspective of credit mechanisms. The increase in money supply reflects how the credit system adapts to the growing nominal pressure, rather than the result of policy makers intentionally injecting excess liquidity [3].

Under the conditions of fiscal collapse, the state and private enterprises are forced to borrow only to maintain nominal operations. The rise in prices has increased the nominal working capital required for enterprises to purchase raw materials and pay wages. Similarly, the government must cover the continuously growing expenditures and compensate for the collapsing decline in actual tax revenue. With the surge in credit demand, banks are expanding their balance sheets and creating new deposits, which mechanically increases the money supply. Therefore, what appears to be 'excess money' afterwards is actually a byproduct of the system's efforts to maintain payment flows in an environment where prices rise faster than institutional adjustments.

These insights collectively redefine hyperinflation as a dynamic process of imbalance, rather than a proportional response to monetary expansion. The widening gap between government spending and tax revenue has resulted in sustained fiscal deficits. Meanwhile, the growing demand from the private sector for larger nominal balances has driven sustained credit expansion, while the erosion of public confidence has led to a sharp increase in the velocity of money circulation. These components interact with each other, forming a feedback loop that Imperial Bank could neither foresee nor control. In this framework, inflation serves as an endogenous adjustment mechanism - an automatic response to fiscal unsustainability, institutional pressures, and expected collapse. The rapid growth of monetary stock is therefore not the initial cause of the crisis, but its ultimate manifestation: as deficits deepen and confidence diminishes, both the state and the private sector demand more and more credit, solely to maintain the operation of nominal transactions [4].

3. The Triple Mechanism of Malignant Inflation

3.1. Fiscal leadership and inflation tax

The fundamental problem is fiscal imbalance. Government budget constraints can be written as:

$$G + iB = T + \Delta B + \Delta M \quad (1)$$

Among them, G is government expenditure, iB is bond interest, T is tax revenue, ΔB is newly issued bonds, and ΔM is monetary creation [5].

In Weimar Germany, the tax system was extremely weak, the tax base was narrow, and there was strong political resistance to tax increases, making it difficult for the government to effectively raise revenue. The weak tax system is due to both structural and political factors. Before the war, Germany

heavily relied on indirect taxes and local revenue, and the central government's direct tax power was very limited. During wartime, inflation further eroded the actual value of tax revenue. The newly established democratic parliament has serious internal divisions, and political parties are unwilling to bear the political cost of tax increases. In addition, the economic recession and widespread corporate losses have further narrowed the tax base. When domestic and foreign investors lose confidence in German bonds, it is difficult for the government to issue new bonds. As a result, the government increasingly relies on ΔM , the currency created by the central bank, to fill the fiscal gap.

When the price level P rises, the actual money balance M/P held by people decreases. This is like taxing people who hold currency, where the actual tax revenue is approximately equal to $\pi \cdot (M/P)$, where π is the inflation rate. At first, this helped the government temporarily ease the pressure. But as inflation accelerates, it also reduces the real value of tax revenue (inflation erosion), worsening the deficit and forcing more money creation [6].

3.2. External Constraints and Exchange Rate Collapse

The second dimension is external constraints, which make the situation more difficult. According to the Treaty of Versailles, Germany must pay reparations in gold or foreign currency, not in paper marks. In order to obtain foreign currency, Imperial Bank had to sell marks in the international market, causing the exchange rate to fall. Every depreciation makes imported goods more expensive, increases the domestic burden of compensation, and worsens the fiscal outlook.

The crisis escalated sharply in 1923. France and Belgium occupied the Ruhr region. The German government called for "passive resistance" and about two million workers went on strike. Industrial production collapses, but the government still has to pay wages [7]. In the budget identity, G remains high while T sharply decreases. Due to the inability to borrow from abroad, the market also refused to buy German bonds, and the only remaining financing method was ΔM . The government printed a large amount of money while the output of the real economy collapsed, directly pushing up prices [1].

The role of external constraints is not only to directly increase fiscal burden, but also to link domestic inflation with the international market through exchange rate channels. When the Mark depreciates, the prices of imported goods rise, which further pushes up the domestic price level, increases the nominal cost of enterprises, forces them to seek more credit, and thus further expands the money supply. There is a mutually reinforcing cycle between exchange rate depreciation and domestic inflation.

3.3. Collapse of Confidence and Explosion of Currency Circulation Speed

The ultimate and decisive factor is the collapse of public confidence. As inflation accelerates, people increasingly believe that the Mark will continue to depreciate. When this happens, households and businesses are no longer willing to hold cash. They try to spend money as soon as possible: buying goods, foreign currency, or any assets that may retain their value. Wages are almost spent as soon as they are received, shops change prices multiple times a day, and transactions are increasingly shifting towards foreign currency or even barter.

In this environment, the function of currency as a store of value disappears, and even as a medium of exchange becomes unreliable. But as the payment system still operates in marks, the government has to issue more and more paper currency just to maintain transactions. What appears to be an "excessive printing of money" phenomenon is actually not the initial cause of hyperinflation, but rather the result of the collapse of the monetary order, where no one is willing to hold the currency anymore.

This endogenous surge in circulation speed has forced the Imperial Bank and the Ministry of Finance to passively respond. Because the entire payment system still operates in marks, the government must inject more and more currency just to maintain the nominal transaction function. This is manifested on paper as a significant increase in M . But in reality, this currency creation is a response to the collapse of confidence, rather than the original cause of hyperinflation.

It is worth noting that there is an interaction between the collapse of confidence, fiscal deficits, and external shocks. Fiscal deficits and external pressures have driven up inflation, which erodes real income and exacerbates inequality, further weakening public trust in the government and currency. When trust drops below a certain critical point, people no longer consider holding currency as a reasonable choice but instead compete to convert it into physical assets or foreign currency. This behavior leads to a sharp increase in the velocity of currency circulation, and even if the money supply no longer increases, prices will continue to soar. This is precisely the fundamental reason why Weimar's malignant inflation entered the stage of "overspeeding".

4. Theoretical comparison and evolution

4.1. Fisher's view on exogenous currency

From the perspective of intellectual history, the academic explanation of Weimar's malignant inflation has evolved from an "exogenous monetary view" to an "endogenous credit view", and then to a broader "institutional credit mechanism". The earliest explanation comes from Irving Fisher's quantity theory of money, which regards the price level as a direct function of the money supply. Under the assumption of constant circulation speed and transaction volume, any exogenous increase in the quantity of money will proportionally increase prices. Following this logic, early scholars often attributed Weimar hyperinflation to simple money printing behavior. But this view relies on two assumptions that clearly do not hold in Weimar Germany: stable velocity of circulation and banks only passively transmitting changes in the money supply.

4.2. Wicksell's endogenous credit mechanism

Knut Wicksell fundamentally challenged Fisher's view of proportion. He believes that price movements do not depend on the money supply itself, but on the gap between market interest rates and natural interest rates. When the loan interest rate is lower than the natural interest rate, credit expands, investment rises, and prices continue to rise. When the loan interest rate is higher than the natural interest rate, credit shrinks and prices fall [8].

Wicksell's theory actually includes two mechanisms: one is the short-term mechanism driven by changes in money demand, and the other is the long-term mechanism driven by changes in money supply. In the short term, when people hold less cash and spend money faster, the circulation speed increases, bank credit expands, loan interest rates decrease, and investment and prices both rise. This means that even if the money supply does not increase, prices may still rise due to faster credit expansion and higher circulation speed, solely due to a decrease in money demand (reduced hoarding). This directly refutes Fisher's proportionality view - that prices only rise when M rises. Wicksell's long-term model assumes that circulation velocity and money demand are stable, and credit expansion mainly comes from a slow increase in money supply, resulting in gradual and sustained price increases. This is the source of the "quantity theory tendency" in the Wicksell system, but it only exists as a special case [8].

4.3. Lautenbach's Institutional Credit Framework

On the basis of Wicksell's ideas, German economist Wilhelm Lautenbach expanded the credit mechanism into a more institutional and macro structural framework. He believes that Weimar's rapid monetary expansion was not an intentional policy choice, but a passive result of fiscal deficits, rising nominal financing demand from businesses, and the financial system's attempt to maintain the functioning of payment structures. As prices, wages, and costs rise, companies are forced to borrow more funds to continue operating. Banks have to continue expanding their credit in order to prevent the collapse of the payment system. Meanwhile, the collapsing tax revenue has forced the government to heavily rely on short-term financing. All these forces have passively expanded the money supply. When public confidence collapses and people rush to sell off Mark, the circulation speed sharply increases, accelerating the inflation spiral [9].

Lautenbach's ideas were transformed into concrete policy recommendations in 1931. He proposed at a secret meeting of the Imperial Bank that the real bottleneck for Germany during the Great Depression was not resource scarcity, but insufficient demand. Therefore, the country should create new, investment-oriented demands through public works. The core issue is not 'where does the money come from', but whether the bank has sufficient liquidity. If the central bank guarantees the rediscounting of long-term bonds, banks can safely lend to large infrastructure projects, thereby creating productive credit expansion. Because these investments increase actual production capacity rather than consumption, they do not cause inflation. On the contrary, they will stimulate the entire economy and break the deflationary spiral. However, this policy was rejected by political and financial leaders who insisted on tightening, cutting spending, and adhering to the orthodox concept of the gold standard. This decision has had far-reaching consequences. If the government had adopted the Lautenbach Plan, provided credit guarantees, funded large-scale infrastructure, and reduced unemployment, the German economy could have recovered earlier and the social and political collapse of the early 1930s could have been avoided. From this perspective, if Lautenbach's proposal had been implemented in 1931, Germany's political trajectory - including the rise of the Nazi Party - could have been very different. This observation highlights Lautenberg's core insight: macroeconomic stability is not only an economic issue, but also a prerequisite for social and political stability [9][10].

5. The end of hyperinflation

The key turning point of Weimar hyperinflation occurred in the second half of 1923, when the government made fundamental changes to its policies. For many years, the country has relied on the credit of the central bank to meet war reparations, maintain wages and industrial subsidy expenditures, which has fueled a cycle of public fiscal deficits and monetary expansion. The solution to the currency problem lies not in the initial contraction of the money supply, but in regaining credibility. The government has ended deficit monetization and issued a new Rentenmark. This new currency is backed by agricultural and industrial collateral and strictly controls the printing of paper currency. These policies are accompanied by strong fiscal measures and the cessation of strike allowances in the Ruhr area. The reason why the new currency is trustworthy is not because it can be exchanged for gold, but because it symbolizes stronger control over past policies. This decisive shift in monetary and fiscal policies quickly restored confidence. Inflation subsided within a few months, not due to gold support or foreign aid, but mainly due to the reconstruction of fiscal responsibility and credit control. The end of hyperinflation indicates that the stability of currency is not closely related to the quantity of currency in circulation, but rather to the credibility of the system and the trust behind the country and currency.

6. Conclusion

The malignant inflation of the Weimar Republic was not a simple result of "printing too much money", but a product of the deeper collapse of the country's fiscal capacity, external payment obligations, and ultimately public trust in currency and institutions. Once the government starts running deficits far beyond sustainable levels and reparations further deplete Germany's financial resources, currency creation is no longer an optional policy choice but a necessity. Printing money did not trigger a crisis; It is the only remaining tool to maintain the operation of the payment system during a fiscal collapse. Monetary stability cannot be created by the printing press, nor can it be maintained solely by monetary tightening. It requires a credible fiscal framework, controllable external commitments, and a society that believes in both government and currency. When these foundations remain intact, even large-scale monetary expansion may not necessarily result in inflation. But when they collapse, no amount of monetary tightening can restore value until confidence is rebuilt.

Ultimately, the difference between stable currency and wastepaper lies not in the quantity of currency in circulation, but in the trust behind it - economic, institutional, and social trust. This insight, first clearly articulated in the Weimar disaster, remains at the core of understanding how modern economies maintain or lose monetary stability.

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