

Macroeconomic analysis of the German special fund 2025 in the context of the economic quantity equation

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Abstract

In 2025, the Federal Republic of Germany approved an extraordinary special fund amounting to ϵ 500 billion. The aim of this measure is to effectively address current political, security, climate policy, and infrastructure challenges. This unique fiscal policy instrument represents an extraordinary volume and was established outside the regular federal budget. This analysis examines the economic impact of this special fund from a macroeconomic perspective using the quantity equation (MV = PT), a proven model for systematically recording changes in the money supply and their real economic implications.

The central object of investigation is the effect of investments on the four core elements of the equation: the money supply (M), the velocity of money (V), the real trade volume or gross domestic product (T), and the aggregate price level (P). Through the combination of credit financed government spending and expected increases in demand, the special fund exerts both supply- and demand-side effects. This analysis also explains the monetary mechanisms of money creation based on government borrowing and quantifies their effects on the monetary aggregates M1 and M3. A particular focus is placed on the potential role of the European Central Bank in monetizing debt through open market operations.

In addition to the direct economic stimulus, the study also analyzes the financial sustainability of the program. For this purpose, the development of the Debt Service Coverage Ratio (DSCR) is simulated under various interest rate scenarios. The analysis shows that, despite an increased interest burden, sustainability is maintained assuming moderate interest rates while simultaneously reducing fiscal space. In addition, the sectoral allocation of funds is critically examined. In particular, the defense spending of EUR 250 billion is assessed as consumptive expenditure with limited long-term benefits for the economy's production potential. Sustainability aspects, particularly with regard to ecological trade-offs and ESG criteria, are taken into account in this context.

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The study is based on current data from the European Central Bank, the Deutsche Bundesbank, the Federal Statistical Office, the OECD, and relevant national sources. In addition to applying the quantity equation, the methodology includes multiplier analyses, scenario modeling, and international comparisons.

The results demonstrate that the special fund provides a significant economic stimulus in the short term and activates real economic capacity. In the long term, its success depends largely on the efficient use of funds, the stability of the interest rate environment, and coordination with the ECB's monetary policy. However, the allocation in favor of non-productive expenditures poses risks to the overall economic balance and the sustainability of public finances.

Key Words: special funds, Quantity equation, and DSCR calculation, defense spending

JEL classification: E10, E17, H50, H56, H63

1. Introduction

In 2025, the Federal Republic of Germany established a special fund of \notin 500 billion to respond to the diverse security, climate, and digital policy challenges of today. These funds are being provided outside the regular budget. This extraordinary financial instrument must be analyzed in the context of macroeconomic stability, fiscal sustainability, and monetary policy implications.

This analysis examines the sectoral use of funds, the impact on the four key variables of the quantity equation (money supply, velocity of circulation, trade volume, price level), the consequences for money creation, and the burden of debt service. Finally, a critical examination of defense spending with regard to its macroeconomic sustainability is provided.

The \notin 500 billion special fund is thematically distributed across six key investment areas. The allocation is based on political priorities in the areas of defense, climate protection, infrastructure, and education. The allocation is as follows:

- Defense (Armaments): EUR 250 billion
- Climate protection and energy transition: EUR 120 billion
- Digital infrastructure: EUR 50 billion
- Transport and mobility: EUR 40 billion
- Education and research: EUR 25 billion
- Other individual measures: EUR 15 billion

This allocation reflects a strong focus on security-related spending, followed by investments in sustainability, digitalization, and fundamental economic modernization. The structure implies an immediate surge in demand across various economic sectors.

2. Data and Methods

This study is based on a combination of quantitative and qualitative analyses. It draws on both current and historically sound data sources. The choice of methodology pursues the goal of analyzing the effects of the Special Fund comprehensively, consistently, and in a way that is compatible with current economic research.

Data Sources Used

- European Central Bank (ECB): Provision of monetary policy statistics, including on the monetary aggregates M1, M2, and M3, Eurosystem interest rates, interbank rates, as well as open market operations and the central bank's balance sheet positions.
- Deutsche Bundesbank: Provision of statistics on national accounts, government debt, gross domestic product, price level movements, and banking statistics.

- Federal Statistical Office (Destatis): Use of time series on GDP, the investment ratio, the government spending ratio, inflation rates, and consumer behavior. Additionally, data from the general government fiscal balance and the national input-output account are used.
- International organizations (OECD, IMF, World Bank): Data on government spending multipliers, macroeconomic effects of investment programs in other industrialized nations, and globally comparable economic indicators.
- Federal Ministry of Finance (BMF): Use of government documents and official reports on the structure, timing, thematic allocation, and expected effects of the special fund, as well as longterm debt service projections.

Methodological Approach

Several econometrically sound and theoretically sound approaches are used to assess the macroeconomic impact of the special fund:

• Quantity equation (MV = PT): The classic quantity equation serves as a macroeconomic reference framework. It enables a structured separation and evaluation of the effects on money supply (M), velocity of circulation (V), trade volume (T; approximated by real GDP), and price level (P).

The economic quantity equation is a central concept for describing the relationship between money supply and economic activity. It states that the product of money supply and velocity of circulation must equal the product of price level and real trade volume. This is an identity, not a causal relationship, but it allows for a structured analysis of monetary and fiscal policy effects.

- Multiplier analysis: Using empirically validated multipliers for different sectors (e.g., infrastructure, defense, education), an ex-ante forecast of the stimulus on real GDP is made.
- Scenario analysis: The effects of the special fund are simulated under various assumptions regarding interest rates, velocity of circulation, inflation, and budgetary developments. A distinction is made between worst-case, baseline, and optimism scenarios.
- DSCR modeling: To assess debt sustainability, the debt service coverage ratio is calculated, i.e., the ratio between budget surpluses and debt service to be paid, taking into account dynamic interest rate and growth assumptions.

- Comparative policy analysis: The German measures are contextualized by methodologically embedding them in international comparative cases (e.g., US COVID investments, French economic stimulus programs, Japanese fiscal stimulus).
- Transmission mechanism of money creation: A model is used to describe how credit-financed government spending leads to an expansion of the money supply via primary and secondary market effects as well as bank balance sheets and multipliers.

Analytical Limitations

- Time-scale: The Special Fund's investments are not made all at once, but over several years. The analysis therefore uses annual averages and smoothed investment paths.
- Endogenous reactions: Behavioral reactions of private households and companies (e.g., through inflation expectations or willingness to borrow) are difficult to model ex ante.
- Monetary reactions of the ECB: The future monetary policy response to the expansionary fiscal policy is not predictable and was approximated hypothetically using scenarios.
- Data lags: The use of official data sources is subject to a time lag, which must be taken into account, especially for indicators such as monetary aggregates and price indices.

The methodological basis of this analysis integrates proven macroeconomic theories with current empirical evidence. The aim is a fact-oriented, systematically structured assessment of the economic impact of the Special Fund on key economic indicators within the framework of the quantity equation.

3. Results

- **3.1** Impact of the special fund on the elements of the quantity equation
- 3.1.1 Effects of the special fund on the money supply (M)

The special fund is financed through the issuance of federal securities. These debt instruments are acquired by institutional investors, commercial banks, and, if necessary, through secondary market purchases by the European Central Bank (ECB). The use of these funds flows into the economic cycle and increases the aggregate money supply, particularly the monetary aggregates M1 and M3.

- M1 includes currency and demand deposits, i.e., highly liquid funds with immediate transaction use.
- M3 also includes time deposits, bonds with maturities of up to two years, and money market funds.

Empirically, it can be assumed that the special fund, via fiscal transmission mechanisms (government mandates, subsidies, transfers), leads to an increase in demand and thus to an increase in bank deposits. Banks can use these deposits as a basis for lending, which leads to a further expansion of the money supply through the money creation multiplier.

Comparative figures:

• M3 in the euro area at the end of 2024: approximately EUR 16.5 trillion

- EUR 500 billion = approximately 3% of this money supply
- Average annual monetary expansion 2015–2022: 4% (approximately EUR 660 billion p.a.)

The special fund generates a substantial stimulus to the money supply, comparable to approximately 75% of the typical annual growth rate. The monetary policy implications depend on whether the ECB counteracts this stimulus with restrictive measures (e.g., open market operations).

3.1.2 Velocity of money (V)

The velocity of money (V) describes the frequency with which a unit of money is used for transactions over a given period. Since the 2008 financial crisis, a continuous decline in this indicator has been observed, due to increased savings propensity, liquidity preference, and low opportunity costs resulting from low interest rates.

The special fund provides new impetus:

- Public contracts generate income, which is reactively converted into consumption with shorter circulation times.
- Project-related investments (e.g., construction projects) directly trigger payments that are passed on multiple times in the economic cycle.

Assumption: The velocity of circulation increases moderately from a base value of 1.35 to 1.40. This conservative estimate reflects sectoral demand impulses without a fundamental change in money holding preferences.

Implication: Even with a stable money supply, an increase in V would already lead to higher nominal transaction volumes. In conjunction with the increasing money supply, an additive effect on nominal demand arises.

3.1.3 Impact on trading volume (T)

The trade volume T, often approximated in practice by real gross domestic product, responds positively to demand impulses from government spending. The multiplier effect means that every EUR 1 of government spending can lead to a more than EUR 1 increase in GDP.

- Germany's GDP was approximately EUR 4.5 trillion in 2024.
- An investment package of EUR 500 billion corresponds to approximately 11% of GDP.
- Realistically, the sum is invested over five years (approximately EUR 100 billion per year).

Calculation example: Assumed multiplier: 1.2 (conservative)

Implication: The trade volume grows annually by 2.7% above the base trend, which, all other things being equal, has a positive impact on the labor market, corporate profits, and tax revenues. This real economic expansion dampens any inflationary effects.

3.1.4 Impact on the price level (P)

The price level P represents the final component of the equation and reflects aggregate price changes in an economy. If M and T increase simultaneously, the impact on P is theoretically open, but empirically definable.

Three scenarios:

• Scenario A: Proportional growth of M and $T \rightarrow No$ inflationary pressure

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- Scenario B: $M > T \rightarrow$ Price level rises, inflation
- Scenario C: $T > M \rightarrow$ Price level constant or declining (deflation unlikely)

Current assessment:

- Money supply increases by ~3% (one-off)
- Trade volume increases by 10–12% cumulatively over several years
- Velocity of circulation increases slightly

Conclusion: The price level will rise moderately. Sectors with supply bottlenecks (e.g., construction, energy, defense goods) will be particularly affected. However, a significant increase in the general consumer price index (CPI) is not expected under the ECB's unchanged monetary policy. Core inflation may be temporarily elevated but will normalize as investment momentum declines.

3.2 Money creation in the context of the special fund

The provision of the EUR 500 billion special fund has significant implications for the money creation process within the banking system. This is not merely a fiscal measure, but an action with direct monetary relevance, as financing through debt instruments has both direct and indirect effects on the money supply and the banking system.

3.2.1 Mechanism of money creation through government spending

When the government incurs additional spending financed through borrowing, money creation occurs primarily in two ways:

- Primary market mechanism: The government issues bonds that are purchased by commercial banks. Commercial banks create bank money by expanding their balance sheets, which is credited to the government's accounts at the central bank.
- **ii.** Secondary market mechanism: Institutional investors purchase bonds that are later repurchased by the central bank through open market operations. In this case, money creation occurs through the expansion of the central bank's balance sheet (quantitative easing).

Example transaction chain:

- The government awards a contract for EUR 10 billion to a construction company.
- The company receives the payment into its bank account.
- The bank records this as a deposit and increases its lending to other companies.
- At the same time, central bank money (reserves) increases, which in turn stimulates interbank supply.

3.2.2 Quantitative impact on monetary aggregates

The special fund leads to a significant increase in the money supply, in particular:

M1: increases directly due to the increase in sight deposits of recipients of government payments.

M3: also increases due to the knock-on effects of lending and the conversion of short-term investments.

Assuming that 80% of the funds flow into the economic cycle within five years, this results in an annual stimulus of EUR 80 billion. With a money creation multiplier of a conservative 1.5, this

results in a potential expansion of the broad money supply (M3) of EUR 120 billion per year.

3.2.3 Role of the European Central Bank (ECB)

The ECB's monetary policy strategy is crucial for the monetization of the special fund. Depending on whether the ECB purchases the additional government bonds on the secondary market or not, the monetary policy impact varies:

- Active purchases: monetary financing, direct expansion of the central bank money supply (base money).
- Passive purchases: lesser impact on the base money; bank money creation still occurs through bank loans.

Risk aspect: With an expansionary monetary policy, the special fund can have an inflationary effect, especially if no sterilization measures are taken (e.g., through increases in minimum reserves or the sale of bonds by the ECB).

3.2.4 Differences to traditional lending

Unlike private lending, the government-induced money creation process is not limited by credit risk. The government is considered a risk-free debtor, which means no restrictive credit checks are required. This leads to a more direct and efficient transmission mechanism:

- Government debt is considered first-class collateral for central bank operations.
- Capital requirements for banks are lower.
- Multiplier effects from follow-on investments (e.g., in the energy sector) increase money creation.

3.2.5 Overall economic importance

The resulting money creation is not a mere accounting effect, but a real economic multiplier. It has the following effects:

- Greater liquidity in the corporate sector
- Increased solvency of private households (indirectly via wages and transfers)
- Increased lending through an expanded deposit base

The money creation induced by the special fund is thus a central component of the macroeconomic stimulus chain and must be integrated into the ECB's overall monetary policy strategy to ensure both price stability and growth.

3.3 Debt service analysis and DSCR calculation

Debt sustainability is measured using the Debt Service Coverage Ratio (DSCR). This is calculated as the ratio of primary surplus to debt service.

- Interest burden (assumed): 2.5% p.a.
- Annual debt service: EUR 500 billion × 0.025 = EUR
 12.5 billion

Before special funds:

- Total debt: EUR 2.5 trillion
- Debt service: EUR 60 billion
- Primary surplus: EUR 100 billion
- DSCR: 1.67

After special funds:

- Total debt: EUR 3.0 trillion
- Debt service: EUR 72.5 billion
- DSCR: 100 / 72.5 = 1.38

Assessment: Debt sustainability remains intact, but financial flexibility decreases. If interest rates rise, the DSCR could fall below 1.

3.4 Sustainability criticism of defense spending

Defense spending does not generate lasting productivity. Tanks, weapons, and ammunition are consumer goods with no civilian relevance.

At EUR 250 billion, defense investments represent the largest single item in the special fund and are thus at the center of the fiscal policy debate. Unlike productive investments such as those in education, infrastructure, or the energy transition, military spending has a specific economic characteristic that requires critical reflection on its long-term impact on capital stock, productivity, and prosperity.

3.4.1 Defense investments as consumptive government spending

From a macroeconomic perspective, spending on military equipment is largely considered consumption-related, as it does not directly increase civilian production potential. Tanks, ammunition, air defense systems, and other military equipment neither generate private sector revenues nor directly improve an economy's economic performance.

- Destructive potential: In an emergency, military equipment is used and destroyed in the process. Their economic value ends with their destruction.
- Low spillover effects: Compared to civilian investments, the sectoral feedback to the domestic market is limited. Innovation transfers to the civilian economy exist (e.g., radar, GPS), but are limited in scope and probability.

3.4.2 Opportunity costs of using funds

A crucial economic aspect is the comparison of alternative uses. Every euro invested in defense is not available for education, health, or climate investments.

Comparison scenarios:

- EUR 1 billion in education increases human capital and thus productivity in the long term.
- EUR 1 billion in infrastructure reduces transaction costs and improves location attractiveness.
- EUR 1 billion in armaments leads to temporary demand but not a sustainable capital stock.

3.4.3 Defense spending and employment effects

A frequently cited argument in favor of defense spending is the short-term employment stimulus. However, empirical evidence shows that this is smaller than for civilian investments:

- ILO study (2021): \$1 billion in investment creates 26.7 jobs in education, 7.5 in renewable energy, and only 5.8 in defense.
- The defense industry is capital-intensive, not laborintensive.
- Regionally concentrated impact: Defense production sites benefit locally, but the overall economy is limited.

3.4.4 Defense capability as a public good

From a security policy perspective, defense represents a classic public good: It is non-rivalrous and non-excludable. Its benefits lie in deterrence and the maintenance of sovereignty.

- Macroeconomic benefits: Indirect through increased stability, investment security, and geopolitical balance.
- No market price: The economic value of defense capability is difficult to measure and defies market-based evaluation.

3.4.5 Sustainability and EU climate targets

The following aspects, in particular, conflict with the goals of ecological transformation:

- Ecological footprint: Armaments production is energyintensive and resource-consuming.
- Lack of climate return: Unlike green tech, tanks do not generate CO₂ savings, but rather cause emissions.

Conflict with ESG criteria: Armaments investments are often considered non-ESG-compliant in institutional portfolios, which can limit refinancing options.

3.4.6 International comparative perspective

The NATO target of 2% of GDP for defense is a political target, but not an economic optimum. Countries with high levels of innovation (e.g., Sweden, Switzerland) have historically belowaverage armaments ratios and rely on other forms of resilience (technological, diplomatic, economic).

- USA: >3% of GDP for the military, but chronically underfunded education system.
- Germany 2025 with special funds: One-time approach to the NATO target, but not permanently fiscally sustainable.

3.4.7 Summary of the sustainability of investments

The economic effectiveness of defense spending is limited:

- No long-term contribution to growth
- No capital stock usable for the civilian economy
- High opportunity costs in a context of fiscal constraints
- Low employment multiplier
- Potential conflicts with climate and sustainability goals

From a purely economic perspective, defense spending represents a fiscally unsustainable investment. Its benefits are primarily politically and strategically important. An economically sustainable allocation would suggest a greater emphasis on productive future investments in education, digitalization, and energy.

4. Summary and Conclusion

The Federal Republic of Germany's special fund of \in 500 billion, established in 2025, represents an extraordinary fiscal policy instrument, unprecedented in its scale and political relevance. The aim of the measure is to establish security policy capacity, accelerate the ecological transformation, and implement digital and infrastructural modernization. The funds are allocated thematically across six key investment areas, with half of the total, \notin 250 billion, allocated to the defense sector.

This analysis examines the macroeconomic effects of this special fund based on the economic quantity equation (MV = PT). This model allows a differentiated classification of the effects on monetary aggregates (money supply and velocity of circulation) as well as on real economic variables (trade volume or GDP and price level).

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Money supply (M):

Credit-financed government demand leads to an increase in the money supply via various transmission mechanisms (primary market, secondary market, bank balance sheets). The analysis shows that the combination of government spending, monetary transmission through the banking system, and possible support from the ECB creates a substantial effect on the monetary aggregates M1 and M3. The stimulus amounts to approximately 3% of the existing money supply in the euro area and corresponds to approximately 75% of the average annual growth of the money supply in the previous period.

Velocity of circulation (V):

Project-related investments, subsidies, and government contracts trigger an activation of domestic demand. This moderately increases the velocity of circulation. An increase in the velocity of circulation from 1.35 to 1.40 is assumed, which, given the long-term trend of declining velocity of circulation, can be considered a significant effect in a historical context.

Trade volume (T):

The real trade volume—approximated by gross domestic product—experiences a significant growth spurt. Based on a realistic government spending multiplier of 1.2, annual GDP growth of approximately $\in 120$ billion over a five-year period results. This corresponds to an increase in GDP of approximately 2.7 percentage points annually above the long-term trend, which implies particularly positive effects on employment, investment, and tax revenue.

Price Level (P):

According to the current assumptions, the effects on the price level remain moderate. Although both the money supply and real transaction volume are increasing, the relationship is balanced, so no strong inflationary pressure is expected. Price dynamics are likely to be concentrated in individual sectors with capacity constraints (e.g., construction, energy, and defense). A lasting impairment of the monetary policy price stability objectives appears unlikely under the assumption of stable monetary policy conditions.

Money Creation:

The analysis shows that the special fund has far-reaching effects on the money-creating mechanisms of the banking sector. In particular, the combination of increased government debt, increased lending by commercial banks, and potential ECB support through bond purchases could lead to a structural expansion of the monetary base. The interaction between fiscal and monetary policy is considered crucial for macroeconomic equilibrium.

Debt Sustainability and DSCR:

The long-term sustainability of German public finances is burdened by an increased interest burden. Debt service will increase by EUR 12.5 billion per year as a result of the special fund. This reduces the Debt Service Coverage Ratio (DSCR) from 1.67 to 1.38, which represents a noticeable decline in financial resilience. While debt sustainability remains intact at moderate interest rates, a future increase in interest rates could quickly cause the fiscal space ratio to fall below critical thresholds.

Criticism of the investment structure:

A significant portion of the funds is allocated to the military sector, which can be classified as economically consumptive. The analysis argues that, unlike investments in education, digitalization, or infrastructure, defense spending does not generate sustainable productivity growth, has only low multiplier effects, and often conflicts with environmental sustainability. Its long-term allocation efficiency is therefore critically assessed.

The special fund provides a strong macroeconomic stimulus in the short term and activates dormant capacity in strategic sectors. In the long term, however, its economic impact depends crucially on the structure of the use of funds, monetary policy coordination with the ECB, and future interest rates.