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The Risk of Deindustrialization of Germany

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Germany has demonstrated throughout history that it can be reborn from its ashes, like the mythical phoenix bird. After two devastating world wars, the country had the ability, strength, and discipline to recover and become the undisputed leader of Europe. The advantages obtained by Germany in the last 20 years, such as ample trade, cheap energy and strong industry, made the country the strongest power in Europe and gave its political leaders a false sense of security and relaxation. In this article, I have identified several problems facing the German economy and I have emphasized the importance of taking urgent and radical measures to avoid a series of devastating long-term effects, including the risk of deindustrialization.

Keywords: *Germany, deindustrialization, economic growth, energy crisis*

***JEL Classification**: F43, L60, O52*

1. Introduction

Germany is a highly developed economy, the third-largest export nation in the world, and the fourth-largest by nominal GDP in 2022 (The World Bank, 2023a). It is also recognized as the powerhouse of Europe, a performance obtained over many years and with a lot of effort. The way it recovered after two world wars in which it was defeated, is impressive. After the Second World War, the country was divided, the economy destroyed, and the currency highly depreciated. Ludwig Erhard the economy minister of the Federal Republic of Germany (FRG also known as West Germany) decided to combine freedom and free market competition with a strong state involved in ensuring social justice, laying the foundations of Germany`s social market economy. He and his team enacted a series of courageous reforms starting in 1949, the most well-known being the currency reform, under which the Deutsche Mark was introduced (Deutsche Bundesbank, 2012). The reforms adopted by Erhard, combined with the discipline and rigor of the labor force led to 'Germany's economic miracle'. A country in ruin found the strength to recover and become one of the largest economic powers in just a few years.

After 40 years in which the FRG`s social market economy was a model of discipline and efficiency, the country faced new challenges starting in 1990, after the fall of the Berlin Wall. West Germany, a successful capitalist economy, merged with the Est Germany, an inefficient socialist planned economy, that was merely 10

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percent the size of West Germany's GDP (Bibow, 2001). For about 10 years after unification, Germany faced a new period of vulnerability, as the federal government transferred significant resources to the eastern region to economically and socially cushion the transition. In 1993, unified Germany registered a decrease in GDP by 1% (The World Bank, 2023b), a decrease in exported goods and services by 5.9% (The World Bank, 2023c) and an unemployment rate of 7.7% which increased to about two digits in 1997 (The World Bank, 2023d). The fiscal and labor market reforms adopted by the political leaders proved to be effective, benefiting from a favorable global context, characterized by a boom in the emerging markets. Since the 2000s, global demand for manufactured goods has increased significantly as China joined the global economy becoming a member of the WTO in 2001, the European Union expanded by 10 more states in 2004 and 3 more in 2007, and many developing economies managed to catch up with the developed world. In this context, in 2003 the German Chancellor, Gerhard Schröder, announced a series of reforms called Agenda 2010, which aimed to stimulate economic growth and consolidate the budget, create jobs and boost the economy, and ensure social security in old age and sickness (German History in Documents and Images, 2003). As labor became cheaper, companies were able to produce goods at a better price and thus become more competitive. German companies faced a high export demand and `made in Germany` has become similar with precision and quality. From the weak link in the European chain, Germany has become the leader of the European Union.

Germany's economic success over the past 20 years has made the political class ignore the global economic changes. The COVID-19 pandemic, the global energy crisis, and geopolitical risks have significantly affected the German economy (Belov, 2022). Scholars have analyzed the impact these crises had on Germany`s economy (Lentner & Zsarnóczai, 2022), seeking to offer solutions to the economic difficulties that the country has faced in recent years (Sanders et al., 2020), (Jürgen, 2021). Currently, Germany's economic problems are not as urgent as in 1990, but if the country fails to take serious action, the effects can be extremely serious with reverberations across the entire Europe. The German economy has had a great influence and guidance on Europe as a whole, in most cases playing a dominant, leading role on the continent (Yu, 2023). As the German economy is a major driver of economic development throughout the European Union, its economic struggle risks to have a significant impact on its European neighbours.

Starting with 2021, Germany has had one of the lowest real GDP growths in the EU, prospects that are not gratifying for the most developed country in the old continent. After an increase of 3.2% in 2021, in 2022 real GDP increased by only 1.8% (Eurostat Data, 2023a). Analyzing each semester of the last two years (Table 1), we notice that Germany narrowly avoided a technical recession, which is defined by two consecutive quarters of negative GDP growth rates (Corporate Finance Institute, 2023).

Table 1. Gross domestic product, price adjusted (Seasonally and calendar adjusted)

2022				**2023**		
1st qtr	**2nd qtr**	**3rd qtr**	**4th qtr**	**1st qtr**	**2nd qtr**	**3rd qtr**
1.0	-0.1	0.4	-0.4	0.0	0.1	-0.1

Source: Statistisches Bundesamt, 2023a

In this context, in this article I have identified the most pressing problems facing the German economy, drawing attention to the importance of taking urgent and radical measures to avoid a series of devastating long-term effects. In carrying out this paper I have elaborated quantitative research, collecting information and data from specialized literature and national and international statistics. The research hypothesises that one of the main risks that Germany faces is the risk of deindustrialization which can result in a general economic decline.

2. The Challenges of the German Economy

Germany's social model, based on close relations between unions and employers, has proven to be a success for many years. The country managed to produce technologically advanced products with a high global demand, so the country became the world`s export powerhouse. Germany's exports were favoured by the decline in commodity prices and a weaker euro to the US dollar. In the last 20 years, Germany ranked 2nd and 3rd in the top exporters worldwide, being surpassed only by the USA and China. This performance was proof of the high-quality products and highly competitive German companies. As exports are Germany`s main economic engine, the country`s economy remained highly vulnerable to factors outside its borders.

According to the Federal Office of Statistics, the People's Republic of China was Germany's most important trading partner in 2022 for the seventh consecutive year, the value of foreign trade between the two states being 297.9 billion euros (Statistisches Bundesamt, 2023b). The decrease in China's economic growth from 8.4% in 2021 to only 3% in 2022 (The World Bank, 2023e) contributed to the decrease in German exports to the Chinese market (CEIC, 2023a). The main products exported by Germany to China are cars and motor vehicles, parts and accessories. The high energy price, made the carmakers, especially the electric car makers, to be less competitive in relation to the Chinese companies. In China, German car manufacturers are losing the battle for market share against local competitors but the problems also extend to the European market. The European Commission launched in October 2023 an anti-subsidy investigation into the imports of battery electric vehicles (BEV) from China. (European Commission, 2023a). Trade protectionist measures imposed by the EU will likely generate a series of countermeasures from the Chinese government that will seriously affect Germany's exports.

After several years in which it was the leader in terms of trade balance, with the outbreak of the pandemic, Germany lost its supremacy to the detriment of China. The situation deteriorated even more in 2022, when for the first time in the last 20 years, Germany leaves the podium and ranks 11th worldwide. In 2022, Germany registered a trade balance of 80 billion US$, a 65% decline from 2021 (The World Bank, 2023f), mainly because of the increase in import prices. The increase in year-on-year import prices is mainly due to the rise in energy import prices, respectively: natural gas (+45.5%), mineral oil products (+28.4%) and crude oil (+18.4%) which were more expensive than in 2021 (Statistisches Bundesamt, 2023c).

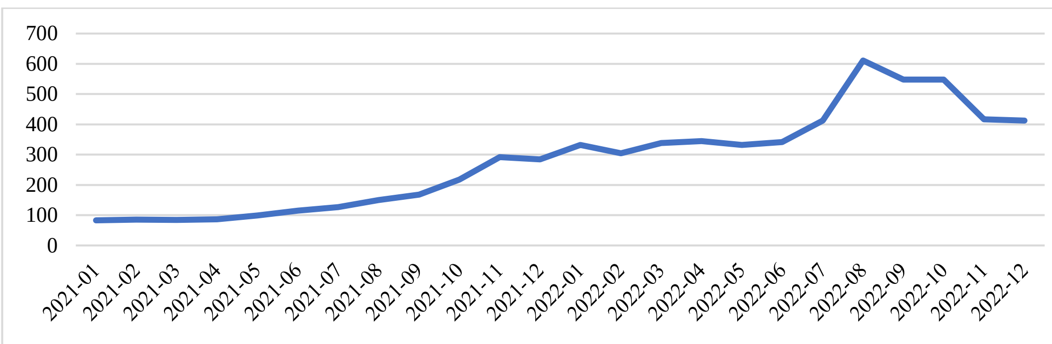

Figure *1. Index of import prices, Natural gas; 2015=100*
Source: Statistisches Bundesamt, 2023c

As can be seen in Figure 1, with the war in Ukraine and the cessation of imports of cheap natural gas from Russia, the alternatives found by Germany turned out to be much more expensive. The nuclear energy option, which is also a clean, zero-carbon source of electricity, cannot be taken into account. In April 2023 Germany's last 3 nuclear power reactors were shut down under the government's nuclear phase-out policy, prompted by the 1986 Chernobyl and 2011 Fukushima nuclear disasters. Although these last 3 reactors were supposed to be shut down until the end of 2022, in October 2022, the German Chancellor decided for these reactors to keep operating until mid-April 2023 to offset the reduced gas supply from Russia (World Nuclear Association, 2023). The decision to close all the nuclear reactors is extremely controversial as Germany struggles with an energy crisis. In search of alternative sources of gas, Germany turned to the import of liquefied natural gas (LNG), mainly from the USA, and from 2026 from Qatar, following a 15-year contract. To make these imports possible, Germany makes an enormous financial effort in building LNG terminals, despite the price volatility and environmental impact.

Due to the gas shortage, in September 2022, the authorities approved four coal-fired power plants, which were previously placed on security standby, to reopen on 1 October 2022. The plants can remain on the market and generate energy until 31 March 2024, to reduce the generation of electricity from gas and thus save gas (BMWK, 2022). The production and use of coal severely affects the environment, contributing to air pollution, acid rain, and greenhouse gas emissions. This was a painful compromise that Germany decided to do in the short term with potential repercussions on the country`s climate targets.

Renewable energy seems to be the salvation for the German economy, but it requires significant investment in energy infrastructure. Due to its large industrial base, Germany consumes the most energy in Europe, in 2022 it consumed 12.3 exajoules, ranking 9th worldwide (Statista, 2023a). Even if Germany is one of the most energy-efficient countries in the world, it contributes twice as much to CO_2 emissions as the next-biggest in Europe (666MtCo2) (Global Carbon Atlas, 2023). In December 2022, Germany passed the Renewable Energy Act (EEG) 2023, the biggest amendment to energy legislation in decades, which proposes that at least 80% of Germany's electricity consumption be covered by renewable energies by 2030 (Die Bundesregierung, 2022). The final goal is for Germany to become climate neutral by 2045, meaning to eliminate greenhouse gas emissions. Climate neutrality is to be achieved by reducing emissions by 65% by 2030 and by 88% by 2040, relative to the emission levels of 1990 (Die Bundesregierung, 2021). However, the energy transition from fossil fuels to renewables ("Energiewende"), seems to have stagnated in recent years. As of 2022, the greenhouse gas emissions in Germany declined by only 40.4% compared to 1990, Germany`s Federal Environment Agency (UBA) warned that without massive and rapid additional efforts, the country will not be able to reach its 2030 climate target (Clean Energy Wire, 2023).

Added to these problems is Germany's aging population. In Germany, the median age is one of the highest in the world, 47.8 years, the country, ranking 6th worldwide and 4th in Europe (Central Intelligence Agency, 2023a). The unemployment rate in Germany is low, 3.1% in 2022, registering a downward trend in the last 2 years (Eurostat Data, 2023b). However, the labour force situation must be analysed in a longer time horizon, more precisely when the baby boom generation will retire. Baby-boom is considered the generation of children who were born after the Second World War, respectively 1946-1964. In Germany, due to the destruction, displacement, and famine the baby boomers were born in the late 1950s and the 1960s.

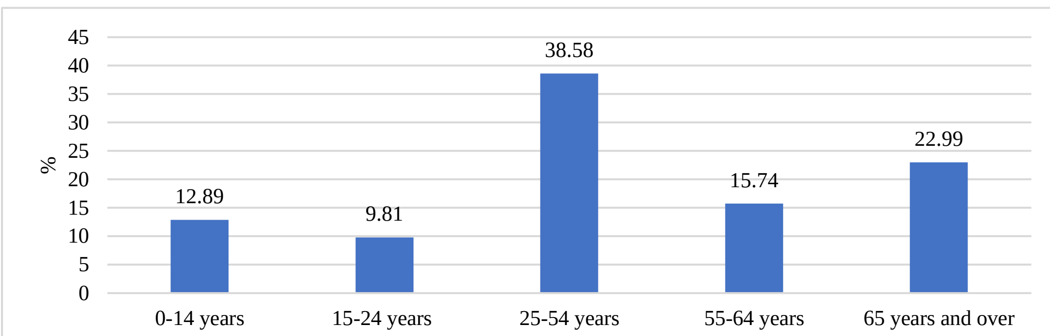

Figure 2. *Age distribution in Germany in 2020 (% of the total population)*
Source*:* Central Intelligence Agency, 2023b

Analysing the age distribution from 2020 (Figure 2), the problem of the aging population is confirmed. Out of a total of 83 million people in 2020, 23% are elderly over 65, one of the biggest percentages in the world. Moreover, the 55-64 category includes baby boomers, who according to current legislation will retire at 66. As soon as this happens, there may be a significant decrease in the labor supply. Studies show that in the absence of migration and participation effects, the labour force potential would decline by 7.5 million people or 16 percent until 2035 (IAB, 2020). The negative consequences will spread over the social security system, the health insurance system, and implicitly over the entire economy. This scenario is dramatic, but Germany has solutions to fix this problem if measures are taken in time.

A solution could be the integration of skilled migrants into the labour market and into society. In this regard, Germany needs to increase its level of attractiveness for these workers and at the same time, liberalise its immigration rules and visa process. However, after the 2015 migration crisis when most of the refugees from Syria, Afghanistan, Iraq, North Africa and the Balkans arrived in Germany, a strong anti-immigration wave broke out. In the period 2015-2016, Europe received approximately 2.5 million first-time asylum applications, of which Germany received almost half, respectively 45% (Pew Research Center, 2017). Due to the war in Ukraine, in November 2023 over 4.2 million Ukrainians left their homes, of which 1.19 million came to Germany (European

Council, 2023). According to UNHCR, currently Germany has become the third largest refugee-hosting country in the world, after the Islamic Republic of Iran and Turkey, with 2.5 million refugees, and an important resettlement country (UNHCR, 2023). Many of these refugees, who came to Germany and fled the war, forced conscription and persecution, do not know German, maybe not even English, which is a big impediment to employment. Moreover, if the refugees do not have certain job qualifications, they are employed below the level they had before they arrived. To succeed in attracting skilled workers with vocational and academic qualifications to immigrate to Germany, the Bundestag passed a new immigration law in 2023. The law that entered into force in November 2023 aims to create new pathways for the immigration of skilled workers from third countries, expanding possibilities of entering Germany for recognition of foreign professional qualifications (Federal Ministry of Education and Research, 2023).

Another solution, corroborated with the one stated previously, could be the qualification of the current workforce in the high-tech field. Digitization can help mitigate the decline in labor supply through higher productivity. In this field, Germany must make substantial investments. Despite being the strongest economy in Europe, Germany ranks 13th of 27 EU Member States in the 2022 Digital Economy and Society Index (DESI). The most sensitive areas are those related to human capital and digital public services, where Germany is below the EU average. As the level of basic digital skills and basic digital content creation skills is pretty low, small and medium-sized enterprises (SMEs), the engine of Germany`s economy, are struggling to find skilled workers. In addition to the lack of trained personnel, SMEs also face a sclerotic bureaucracy. German bureaucracy has become a serious barrier to companies that have to adapt to a fast-changing global economy. In 2021 the proportion of internet users using e-government services was 55%, with Germany ranking 24th in the EU, weaker performances registering the Bulgarians, Italians, and Romanians (European Commission, 2023b). Investments in digitization, combined with the reduction of bureaucracy, would contribute to the establishment of many more companies, which may revive the German economy.

For the first time in decades, the inflation rate in Germany recorded a 2-digit level in 2022 (Figure 3). The Germans' fear of price increases is due to the 1922-1923 hyperinflation that devastate the country and impoverished millions of German citizens. That hyperinflation inflicted severe damage on Germany's economy, and many argue that it laid the groundwork for the ascent of Adolf Hitler.

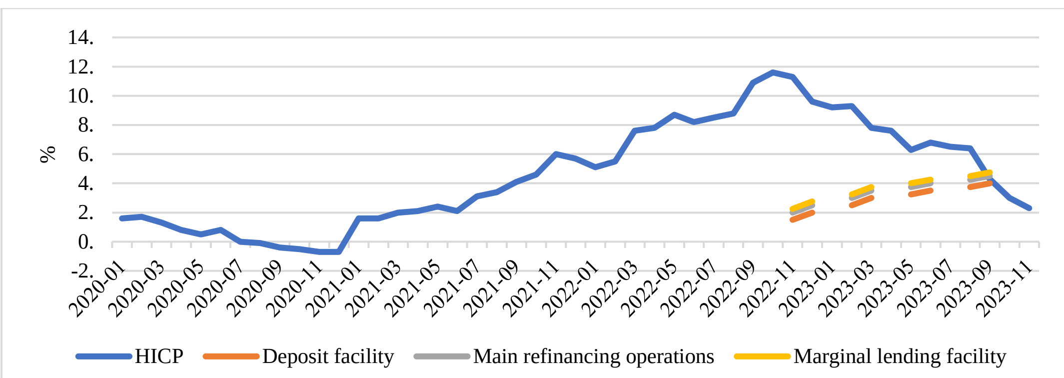

Figure 3. *Inflation rate in Germany and ECB interest rates*
Source*:* Eurostat Data, 2023c, European Central Bank, 2023

To keep inflation under control, starting from July 2022, the European Central Bank has raised interest rates 10 times in a row. In September 2023 the ECB’s deposit rate reached 4%, the highest level since the launch of the euro, its main refinancing operations 4.5%, and the marginal lending level 4.75%. These decisions contributed to an inflation decrease but at the same time hampered Germany`s economic growth. High interest rates made the cost of borrowing for businesses and consumers more expensive. German construction and business investment were seriously affected while consumer spending decreased. Germany`s Private Consumption accounted for 51.3 % of its Nominal GDP in September 2023, having a downward trend (CEIC, 2023b).

The industry has always had an important contribution to the German economy. In 2022, industry, including construction, represented 26.7% of GDP, one of the highest percentages among developed European countries (Figure 4).

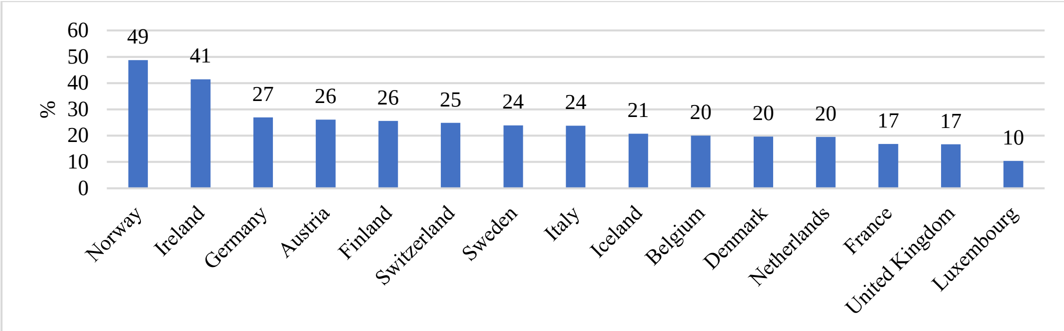

Figure 4. Industry (including construction), value added (% of GDP)
Source: The World Bank, 2023g

The problems encountered by Germany in recent years have increased the risk of deindustrialization, as companies reduce their production rate, others close and others decide to relocate some elements of production abroad in order to reduce costs. The United States and China are the countries where German manufacturers are considering moving to because of lower energy prices and taxes (Dusch, 2023). In the context of high raw materials and energy costs, combined with a rising interest rate, the German chemical company BASF announced in February 2023 that it will take cost-saving measures that will affect around 2,600 positions (BASF, 2023). The BASF case is not an isolated one, concerns about energy costs, and the lack of qualification of the labour force determined 12% of manufacturers in Germany to plan to relocate production (Baba et al., 2023). Taxes and wages have always been the most important factors in a company`s decision to relocate, but in the current global context, energy has become an equally important factor. Even though energy prices are down from their peak in August 2022, they are still much higher than the pre-pandemic period. The energy-intensive German companies are vulnerable to foreign competition, as their profitability is eroding. The uncertainty regarding the future of energy supply and price makes local businesses look for countries that offer more energy security. The effect of these measures may have significant consequences on Germany`s economic output and jobs. According to IMF forecasts, in the next 6 years, i.e. 2023-2028, Germany will register the lowest economic growth rate in the EU, after Italy, of 6.5% (IMF, 2023).

3. Conclusion

Germany has faced many challenges over time, which it has managed to overcome brilliantly. The visionary reforms adopted by the country were assisted by favorable conditions in the global economy. The economic advantages obtained in the last 20 years, such as ample trade, cheap energy, and strong industry, made Germany the strongest power in Europe and gave the political leaders a false sense of security and relaxation.

Germany`s economy is now shrinking, its industry is vulnerable to foreign competition and FDI inflows are decreasing (Statista, 2023b). Moreover, Germany`s workforce is unusually elderly and the country`s target of net-zero emissions seems unlikely to be met. If in 1990 the global context was favourable to Germany's economic recovery, the current geopolitical context makes Germany's mission very difficult. Business leaders have lost their optimism for the future, as 52% of them feel that the attractiveness of Germany as an industry location may be declining and 45% believe Germany runs a high risk of deindustrialization (Deloitte, 2023a). The poor performance of the German economy is also highlighted by the purchasing managers' manufacturing index, which is at its lowest since the early months of COVID-19 (Trading Economics, 2023).

The risk of Germany's deindustrialization is increasing as the country is becoming less attractive as a production location. According to the Supply Chain Pulse Check survey conducted in 2023 by Deloitte and BDI, two thirds of component manufacturing companies have already relocated parts of their value creation. If the country does not adopt drastic reforms in the next two to three years, up to two-thirds of component production and nearly half of pre-assembly, storage/warehousing and manufacturing risk taking place abroad (Deloitte, 2023b). To prevent this from happening, Germany has to adopt more business-friendly energy and tax policies, reduce bureaucracy, and attract skilled workers.

Germany must get out of the comfortable pattern in which it has placed itself and seek to identify a new economic engine. Germany has produced good quality tangible manufactured goods, but now the world has changed towards IT and ITC. In 2022 the country's investment in ICTs as a share of GDP, was one of the lowest in OECD, less than half compared to France, the Netherlands, and Denmark (OECD, 2023). Digitalization should be a key priority for political leaders, being an important way to support economic recovery.

It is time for the government to invest in education, infrastructure, and digitalization, take its foot off the fiscal brake, and take the necessary steps for the country to progress. Germany abandoned its fiscal prudence and spent heavily to offset the economic impact of the COVID-19 pandemic, supporting businesses and workers. It did this forced by circumstances, in a crisis, but a similar move should be made now. Germany`s risk of deindustrialization has become too big to ignore and can generate devastating effects on the country's economy.

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