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Analysis of Germany's Relative Economic Advantages From The Perspective of Global Value Chain

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ABSTRACT
Germany’s economic success was established in the Euro zone in Europe around 2000 and around 2010, it entered a new stage with a new circulation of production and with the influence of the European crisis, Germany’s economic performance was relatively stable. Considering the relatively stable performance of The German economy in the European debt crisis, the study on the reasons of the German economic success is helpful to provide reference for the use of global value chain to enhance economic stability in response to the economic crisis and provide direction for countries to adjust their industrial structure according to the global value chain. With “GVC” and “German economic success” as the keywords, this paper searched articles from 2000 to present on Google Scholar platform, and a total of 20 articles were selected into the classification summary of this study. The conclusion can be drawn from the above two facts: the cooperative mode of globalization has played an important role in the process of Germany's economic success.

Keywords: *German economy, GVC, German economic success, Spill over Effect*

1. INTRODUCTION

With the in-depth development of economic globalization, the global division of production continues to deepen. As industries with similar demand for production factors are continuously gathering around the world according to their location advantages, enterprises with large differences in demand for production factors are showing a trend of geographical dispersion. This process ultimately forms a global industrial chain. Each country has its own relative position in this value creating production chain. In this context, Germany catches up with the trend of European integration and economic globalization, occupies advantageous position in the Global Value Chain (GVC) with its great industry foundation strength, makes full use of convenient conditions of the production means and the funds flow within the EU to control the factors of production, and finally form a "production and sales" trading closed loop with the global market, leading to its export-led economic model. Chinese companies face a similar situation. Chinese companies have done a good job of serving their fast-growing domestic market, but this has meant that quality is sometimes lacking. At this time, taking foreign investment as the priority of development is undoubtedly a favorable choice for the development of the entire industry.

Some papers put Germany economic success down to the following factors: government involvement in industrial research and development, to support small and medium-sized enterprises, to cultivate local industrial clusters and industrial networks, to cultivate skilled workers, to drive internationalization and international leadership. Most existing studies start from a single industry to analyze Germany's position and role in the industry chain, as well as the relationship between Germany and the global industry chain. This paper will start from the macro perspective of global value chain, review the existing research, and summarize the welfare effect of global value chain on German economic development.

Table 1. Analysis framework and references

No. of pages	Context of "Germany economic success under the GVC" usage	References
1	Advantages from the GVC Operation Mode	[1], [2], [3]
2	Advantage of GVC participation	[4]
2	Germany domestic value chain is relatively complete	[5], [6]
3	Germany technology is promoted with the effect of GVC	[7], [8], [9]
3	Germany relative position in the GVC	[10], [11], [12], [13], [14]

2. THE WAY GERMANY BENEFITS FROM GVC

2.1. Advantages From The GVC Operation Mode

To begin with, Global Value Chain's operation mode is beneficial in multiple ways to Germany. It provides institutional welfares through regional development and is a powerful driver of productivity growth.

From the perspective of international power distribution, GVC is one of the sources of international power, from which Germany obtains power. In the context of globalization, value chain activities are carried out by inter-firm networks on a global scale. In the era of economic globalization, countries' participation in the global value chain is not only determined by their internal level of industrialization, but also related to their external economic openness. The relevant attributes of a country in the global value chain become one of the sources of its power in the international community [1]. The differences in the attributes of global value chain among countries lead to the inequality of power status. Some countries with advantages in global value chain will hold more international power. At the same time, these countries can further expand their advantages and improve their international power by using the operation framework of GVC [2]. In today's world, since it is impossible for any nation or country to establish a self-sufficient production system completely separated from the outside world, the international power derived from the global value chain and the power distribution in accordance with it have become a common phenomenon, and they evolve from "controlment in the industrial era" into the "dominant power in the global value chain." [3] In this process Germany get power from GVC.

Germany enjoys the institutional benefits of the global value chain, from which it has gained international power and economic development advantages. From the past, can see that German holds a lot of dominant right whether facing the Europe debt crisis or the refugee crisis [1]. It has been thought that Germany is indispensable to the European Union countries, it helps unite and strengthen Europe. Since 2010, after numerous crisis and climacterics, against the backdrop of a weak global economic, Germany unquestionably is one of the best performers in Europe, especially as its economic performance had made it a dominant country in the European regional development. Germany's economic strength is not only reflected in its GDP or national wealth ranking first in the European Union, but more importantly its ability to control regional industries. Germany's relatively notable and impressive achievement economically is manufacturing. The rise and prosperity of the German economy is based on the advanced and development of the manufacturing industry. The Global value chain provides institutional welfares, where the European Union system promotes the development of regional value chain. Manufacturing as a regional value chain especially stands out as an evidence of German's dominant, leading role in economics. Germany's share of import and export to non-EU countries accounts for a large proportion of the eu's overall foreign import and export trade. Its exports covered 22.7% while its import covered 20.8%. Exceeding other countries such as France, Spain, and United Kingdom in 2017. From relevant data, and the import and export trading's of the European Union, it is clear how strong German's manufacturing is. German is generally at the center of the production trade within them, the main force of the intra-regional trade in the European Union. To look further, from the perspective of "intermediate goods" and "final goods" trade in the world, by looking at the proportion within Europe, Germany occupies an absolute dominant position by producing and consuming most, almost half and at least a third of the whole proportion in the European Union. This once again proves that Germany is not only the largest supplier of the European Union regional industrial chain, but also the largest consumer within. During the period of year 1995 to 2011, between 16 years German remained constant in the amount produced and consumed, while other big countries in the European Union declined massively. Moreover, during 1997-2017, Europe in general's manufacturing's proportion in the GDP declines from 14% to 9%. Meanwhile Germany 's proportion stayed around 20% and developed a method that was precise and clear enough to solve the problems of manufacturing and industrial. It can be concluded that Germany is in the core of the regional industrial chain, holding a crucial leading position.

To go a step further, the global value chain operation mode also benefited the European Union through economic of scale, reducing its cost per unit. [3] By boosting the productivity levels, more are produced within the same amount of time and material, this therefore leads to a decline in expenses. With global value chain driven development, countries within the system generate growth through the connection with other countries. They are moved into higher value-added tasks and in regional developments. This provides countries a chance to surpass and exceed more in the production and development process.

2.2. Advantage Of GVC Participation

Koopman put forward the measurement index of global value chain, to reflect the degree and status of a country's participation in global value chain, by calculating the relationship between domestic and foreign value added and total value added. Germany has a high degree of participation in global value chain. According to the Report of the World Bank, Germany has made the largest contribution to the strengthening of global value chain in 2020, followed by the United States and Japan [4]. The enhanced global value chain mainly focuses on the improvement and enhancement of the domestic value chain. From the perspective of industrial security and technological upgrading, the economic development advantages brought by the global value chain to Germany are described below.

2.2.1 Germany Domestic Value Chain Is Relatively Complete.

A complete domestic value chain ensures the stability and safety of production. Although the number of German companies involved in international trade has been increasing since the beginning of the 21st century, the 2005 data shows that the majority of German companies not involved in any form of international trade, about 61%. And in the food and beverage industry, the proportion is as high as 82%. For companies engaged in international direct investment, research shows that most of Germany's foreign subsidiaries are established in the EU [5]. Although the number of subsidiaries in China and Brazil is gradually increasing, this phenomenon still shows that Germany's industrial chain and value chain remain in the EU. This shows that before the arrival of the financial crisis, Germany already had the manufacturing conditions that could be recycled internally, could achieve a certain degree of self-sufficiency, and could maintain the stable operation of the domestic production chain and value chain on the premise of being separated from the international market.

To ensure the safety and stability of the domestic industrial chain, it is not necessary to completely separate from the global division of production. Olivier Godart and Holger Gorg once pointed out in their analysis of the importance of global value chain to German manufacturing industry that thanks to technological progress and the liberalization of world trade system, the offshore outsourcing behavior of German enterprises increased in the past decade [6]. This is a rational choice made by enterprises to improve production efficiency and make full use of resources. The outsourcing of these enterprises are non-core industries. As the technology and production facilities of these non-core industries are still held domestically, the outsourcing behavior of enterprises will not shorten the domestic industrial chain in Germany.

In recent years, there has been a worldwide trend to improve the domestic value chain. After the 2008 financial crisis, trade protectionism and anti-globalization emerged. In 2020, the global epidemic caused the rupture of the global industrial chain and value chain, leading to a large-scale economic recession. In this context, governments and multinational corporations rearrange the value chain from production efficiency driven to production safety driven. They move the globally dispersed industries back to the mainland, extend the domestic value chain, and ensure that a certain capacity can be maintained even when external supply is blocked, so as to ensure the safety of their own industries in the international crisis and reduce the negative impact of economic recession. These measures are based on the experience of Germany and other countries with complete domestic value chain to maintain production safety and stability.

2.2.2 German Technology Is Promoted with The Effect Of GVC.

Spillover effects follows with the international investment FDI and FPI. Their essence is to extend a country's industry chain to another country and connect the industrial value chains of the two countries together to form a relatively stable value chain, a stable process of production. The connection between the two countries promotes the production technology and management experience to pass along the value chain, to realize technological progress between the two countries. [7] In addition to passively accepting foreign technology, for the host country, foreign investment can form agglomeration effect on the one hand. After transportation and other costs are reduced, enterprises will have more funds to invest in R&D and industrial structure adjustment. This will promote proactive technological upgrading. On the other hand, according to regional scale effect, foreign industries can influence other similar industries in the market to improve production efficiency through competition. It can also influence upstream, and downstream industries related, by improving industrial production standards so that they can realize technological upgrading and product diversification [8]. The highly improved domestic value chain in Germany provides more ports for its connection with the global value chain. In addition, Germany's technological level is high enough to fully absorb and utilize foreign technologies, which enable Germany to form industrial technological advantages by using the global value chain.

Germany can also gain technological progress by working with countries with inferior production technology. Yuan Gao uses German firm- level data from the Academus database, along with the new investment review system as a quasi- natural experimental event construction instrument variable [9]. He hoped to find the spillover effects of China’s foreign capital enterprise in Germany. Given the Sino-German technological gap, the Chinese industrial production technology which Germany can learn is relatively limited. But because of similarity of the two countries’ manufacture standard, China’s international direct investment into Germany will bring German companies competition, so as to promote the initiative to upgrade the technology in order to maintain market competitiveness. At the same time, Germany has also adopted policy measures to prevent companies in the field of power grid, machinery manufacturing from being acquired by foreign countries, so as to maintain technological advantages in key links of the industrial chain and value chain.

2.3. Advantage Of Relative Position In GVC

The advantages brought by the value chain to all countries are derived from the structure and feature of the value chain itself. However, due to the different positions in the global value chain, countries have different comparative advantages among each other. For Germany, features like deeply influenced by globalization and highly industrialized, focusing on the export of manufactured goods, are not unique. The relative advantages of Germany compared with other countries with similar basic economic production conditions, such as the flexible market production and operation mode in response to the crisis, are due to the particularity of Germany's position in the global value chain.

Germany has an advantage in corporate production and crisis response. Békés [10] studies European firms affected by the 2008 financial crisis and find that intermediate firms suffer more losses, while downstream firms are less affected. This is because on the one hand, compared with intermediate firms, the downstream have the dominant on the heterogeneity characteristic, such as openness and internationalization, product innovation ability, human resources; on the other hand, the downstream firms are more specialized, making it more stable to increase the added value of products, harder to be alternated, and less affected by external fluctuation. These will, in return, consolidate the location of the downstream firms on the value chain. Considering the relationship between national economic structure and industrial distribution of national macroeconomic policies, this conclusion can be extended to the national level, that is, countries in the middle position of the value chain are relatively weak in resisting crises.

Take Germany and Italy as an example. Germany and Italy share many similarities, including the prominent position of manufacturing industry [11], proportion of exports in GDP and similar production structure [12], but the two countries have different degrees of impact from the 2008 financial crisis. This shows that the traditional economic attributes of the two countries are not the main factors affecting the crisis resistance. Therefore, it can be considered in terms of the relative position of the global value chain. The study of Antonio Accetturo [13] shows that the proportion of Intermediate companies in Germany is much lower than that in Italy, and German enterprises are more organized and in a lower position of the value chain. On the basis of these realities, it can be concluded that Germany's relative position on the value chain makes it stronger in crisis resistance and more stable in economic development.

Germany also has a comparative advantage in market regulation. Global value chain is formed in the context of the global market. Due to the location of countries on the value chain, market information transmission time and other factors, the market environment of countries in the same production field is different, which makes some countries have advantages in price setting, supply and demand balance. For Germany, the relatively low position of its primary industry in the value chain is conducive to the stability of its primary raw material market for agricultural products. Taking dairy products as an example. Thomas Bittmann's research points out that dairy products prices in the world market affect German retail prices, and then affect the production and sales behavior of German farmers and retailers. Bittmann established an abstract international dairy market relationship model based on the production cost and sales price of dairy products in the European Union and Germany. In this model, Germany ranked at the end of the influence chain [14]. Therefore, in the field of dairy products, the price determination of Germany needs to be fully combined with the international dairy market information to make it more perfect and reasonable.

Of course, the position of each country in the global value chain has certain particularities, which shape the different characteristics of each country in the context of economic globalization. It is in the special historical background of the financial crisis and the European debt crisis that the characteristics of Germany can be expressed as the advantage of promoting economic success with the reconstruction of global value chain and the in-depth development of the world economy, whether Germany can continue to maintain its comparative advantage in global value chain remains to be observed and studied.

3. CONCLUSION

This paper explores Germany's relative economic success, advantages, and competitiveness in contrast to the other European countries from the perspective of global value chain. Through contrasting Germany with other countries, it can be concluded that its position in the value chain is much stable and strong during economic development.

In conclusion, global value chain provide opportunities, displays Germany's economic success through the whole cycle of production. The participation and shaping of the GVC is the foundation of a country's global power.

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