

MASTER
ECONOMIA INTERNATIONAL E ESTUDOS EUROPEUS

MASTER'S FINAL WORK
DISSERTATION

“THE GERMAN ECONOMY: THE GAINS IN COMPETITIVE
ADVANTAGE OVER THE LAST THREE DECADES.

MARCO NICOLA MACRÌ

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ASCENSÃO MENDONÇA

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Abstract

This research has as its main goal to unveil some of the elements that triggered the economic transformation of Germany, from the period immediately following its unification to a great deal of power it represents today.

Since the late 1990s until the early 2000s, Germany was frequently referred to as "the sick man of Europe." Today, after the Great Recession of 2009, it has established itself as the engine of the continent and regional superpower.

The first part of the study concerns the process that allowed the fall of real salaries, which has consequently caused a reduction in the unit cost of labor.

Moreover, the German-Central European supply Chain (GCESC) which is a value chain between Germany and four countries of the former Soviet bloc, has had some degree of importance in the changes that have affected Germany in the last decade.

Then the analysis also describes the impact that the Euro currency might have had on the economy, namely if it has had some influence on the development of trade.

The findings suggest that all the elements analysed in this investigation, specifically the compressed growth of the salaries, the integration in the value chain identified as the German-Central European Supply Chain and the euro currency have had some impacts on the competitive advantage of Germany.

Key words: Real wages; German-Central European supply Chain; Competitiveness; Euro currency.

Resumo

Esta pesquisa tem como objetivo principal analisar alguns dos elementos que desencadearam a transformação económica da Alemanha, desde o período imediatamente posterior à sua unificação até à hegemonia económica europeia que detém atualmente .

Desde o final da década de 1990 até o início dos anos 2000, a Alemanha era frequentemente referida como "the sick man of Europe". Hoje, após a Recessão de 2009, ela se estabeleceu como o motor do continente e superpotência regional.

A primeira parte do estudo diz respeito ao processo que permitiu a queda dos salários reais, o que conseqüentemente causou uma redução no custo unitário do trabalho.

Além disso, a German Central-European Supply Chain (GCESC), que representa uma cadeia global de valor entre a Alemanha e quatro países do antigo bloco soviético, teve de certa forma importância nas mudanças que afetaram a Alemanha na última década.

Em seguida, a análise também descreve o impacto que a moeda do euro pode ter tido sobre a economia, ou seja, se ela teve alguma influência sobre o desenvolvimento do comércio.

Os resultados sugerem que todos os elementos analisados nesta investigação, especificamente o crescimento comprimido dos salários, a integração na cadeia de valor identificada como a Cadeia de fornecimento da Alemanha Central e a moeda do euro tiveram alguns impactos na vantagem competitiva.

Palavras-chave: Salários reais; Cadeia de fornecimento da Alemanha-Europa Central; Competitividade, moeda Euro.

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Introduction

The present research has as its primary objective to display some factors that might have triggered the economic transformation of Germany, from the period immediately following its unification to a great deal of power it represents today.

Since the late 1990s until the early 2000s, Germany was often referred to as "the sick man of Europe." Today, after the Great Recession of 2009, it has established itself as the regional superpower and locomotive of the continent.

The reunification went into force on October the 3rd of 1990, after forty-five years of separation, and immediately after, the first democratic elections of the new federal Germany were held (also on the territory of the former GDR), and the signing of a Treaty of Economic union with which the D-Mark became a single currency on the whole German territory. The most intricate problem was the actual integration of the two Germany, which had to be fulfilled not only on the political level but also on the economic and social ones.

The cornerstone of growth has been the development of the manufacturing sector, the main item of the German exports, which reached in 2016 the highest peak since the unification.

The foreign trade balance showed a surplus of 252.9 billion euros in 2016, which was the highest value ever recorded. It exceeded the previous peak of 244.3 billion euros achieved in 2015 (Destatis, 2017).

The commercial strategy promoted, is to aim at the internationalization of companies, with particular regard to emerging markets outside Europe.

The country has focused on high specialization and high quality of production, for example in the automotive and electronics sectors and as well strongly oriented towards a high quality of customer services; it has also strengthened its position in value chains, closer to final consumers. Indeed, it can count on integrated production networks, thanks also to the growing interconnection with neighbouring countries.

Germany has ranked 5th in the world in the Global competitiveness report 2017-2018 edition having in front only the Netherlands among the countries of the European Union.

The hypotheses that will be tested in this paper are as follows:

H1: A reduction of the Unit Labour Cost allowed Germany to become more competitive and it helped to emerge from its economical stagnation.

The aim of the present work will be to evaluate the different elements that allowed Germany to emerge from the economic stagnation, which was affecting the country for more than a decade since the fall of the Berlin Wall. Only About a decade ago Germany was classified as the sick man of Europe and many wondered if it could ever be saved.

The increase in the competitiveness of a country originates in the combination of three elements:

- 1) A decrease in employee salary;
- 2) An increase in productivity (per worker or per time zone);
- 3) A devaluation of its currency against one or more foreign currencies.

The evolution of Germany's competitive position on the European countries cannot be a consequence of depreciation of the exchange rate, since these countries share the same currency. Therefore, one of the main focus of this work is to exhibit how the reduction of labour costs per unit of product, so-called internal devaluation, which occurred through the reduction of real wages, supported the German economy to get on the growth path again.

H2: The creation of a supply chain between Germany and four central European countries has helped to improve competitiveness.

The fall of the Berlin Wall in 1989 led to an opening to those countries that were isolated behind the Iron Curtain; those countries were and still are characterized by lower labour costs, and a stable institutional and political structure; giving German entrepreneurs the opportunity to relocate part of their production, thus forming an integrated regional production model.

H3: The value of the Euro currency has been more favourable in recent years and served to a certain extent as a boost for German competitiveness.

Hence, if the hypothesis is true, the exchange rate of the Euro is having an impact on the economic performance of the country.

The methodology used translates into an evolutionary analysis of economic indicators addressed in an individual and a comparative way. In the study, it was defined as the temporal horizon of 1990-2017, corresponding to the period between German reunification and the post-sovereign debt crisis in Europe.

In the optics of economic growth, the developments in the GDP are analysed by comparing German real GDP growth rate with the European Union one; Variations in more extended periods and annual changes are both considered.

The analysis of other indicators such as unemployment, current account, and the trade balance is also crucial for the understanding.

In the last chapter, the analysis will be focusing on the impact that the Real effective exchange rate might have had in boosting competitiveness, thus exports.

The Real Effective Exchange Rate (REER) is the nominal effective exchange rate divided by a price deflator or index of costs. It is a measure of the value of a currency against a weighted average of the basket of the currencies of the main trading partners of the country.

The weights are defined by comparing the relative trade balance of a nation's currency against the other countries in the index, and this means that the REER is trade-weighted.

The REER is an important criterion when assessing a country's actual import/export situation, and it is useful to look at the overall performance of a currency.

When providing the definition of both Nominal effective exchange rate and Real effective exchange rate Krugman and Obstfeld (2003) asserted that: "These indexes measure, respectively, the price of a dollar in terms of a basket of foreign currencies and the price of U.S. output in terms of a basket of foreign outputs. Thus, a rise in either index is a (nominal or real) dollar appreciation, while a fall is depreciation".

Also the IMF asserted about the real effective exchange rate "an increase in

REER implies that exports become more expensive and imports become cheaper; therefore, an increase indicates a loss in trade competitiveness.” IMF (2018)

The expected outcomes of this work are that the competitiveness of the country has furthered through the reduction of real salaries, the creation of the German-Central European supplies Chain (GCESC) and finally that the Euro currency has had a role in boosting competitiveness.

In the first chapter of this work, we will discuss theoretically what is competitiveness and what the literature has produced on the topic.

In the second chapter, the analysis will investigate the process that has made it possible to push down real wages, especially in the lower part of the wage distribution, leading to a reduction in the unit labour cost.

The industrial relations system in Germany is not based on legislation, but on the negotiations of three main actors: National trade unions, industrial associations and workers' representatives in medium and large companies (Lehndorff 2014). This particular structure has allowed the decline in real wages thanks to the decentralization process of labour contracting by the Länder to individual companies started in the early nineties. There has also been a significant reduction in the percentage of workers covered by trade union agreements and the increase of conventional clauses derogating from national collective bargaining, which has given more authority to the representatives of workers in companies than to the general unions.

In the third chapter, the analysis will also focus on the role that the "German-Central European Supply Chain" (GCESC) has had in the changes that have affected Germany in the last decade. Despite the enormous costs incurred for unification, the country has been the central economic hub of the process of European integration, particularly as regards relations with the countries of the former Soviet bloc.

The fall of the Berlin Wall in 1989 led to an opening to those countries, which were isolated behind the Iron Curtain, characterized by lower labour costs, and a stable institutional and political structure; this has enabled the German entrepreneurs to relocate part of their production, thus forming an integrated

regional production model. These elements have changed the balance of powers between entrepreneurs and trade unions, obliging the latter to respond in a more flexible way than many had foreseen (Lehndorff, 2014).

The fourth and final chapter is dedicated to the impact that the Euro currency has had on the German competitiveness thus on the current account.

1. The concept of competitiveness

1.1 Introduction.

Competitiveness at the macroeconomic level has become a relevant topic to understand for governments and even industry sectors, and there is still no single theory able to clarify the subject fully, nor we have a unique definition of competitiveness.

For hundreds of years, various economists have been attempting to explain the factors triggering prosperity in a country and what policies should be undertaken in order to achieve it.

1.2 Theories and definitions.

Adam Smith in his work "The Wealth of Nations" writes about the concept of absolute advantage as basis for international trade, advocating that each country should specialise in those commodities that can be produced more efficiently than elsewhere because it has more expertise and materials. By trading, the countries create a mutually beneficial exchange.

Ricardo formulated the theory of competitive advantage, which contemplates only two countries and only one productive factor the labour, and the existence of remarkable differences in technologies in each country. So trading countries can benefit from specializing in the production of goods they have a comparative advantage in, instead of inefficiently allocating their resources to the production of a commodity that can be produced more efficiently elsewhere.

According to the neoclassical economists what as a matter of fact play a role in productivity gains, thus growth in GDP is the investment in physical and human capital as well as advances in technology.

The Heckscher-Ohlin's (HO) model introduces one more productive factor, the capital, to the comparative advantage theory, and it asserts that one country

has comparative advantage in the production that necessitates of the factor that is more abundant in that country.

Michael Porter theorized the diamond of national advantage that is a set of four extended attributes of a nation, able to enhance national competitiveness. Indeed these variables create an environment for the creation of new enterprises that can learn how to compete internationally (Porter, 1990).

These attributes are (ibid):

1) Factors Conditions. The number of factors of production possessed by a nation, which are of vital importance in order to compete, such as a skilled workforce or infrastructure.

2) Demand Conditions. The composition of internal demand for the industry's commodity or service.

3) Related and Supporting Industries. The existence in the country of supplier industries and related industries that are internationally competitive.

4) Firm Strategy, Structure, and Rivalry. How the companies are organized, managed and created in the specific country and if domestic rivalry exists.

Krugman asserts in his article "Competitiveness: A Dangerous Obsession" that many businessmen tend to equate the competitiveness of a nation to the one of a corporation. When a company cannot provide salaries for its employees and money for suppliers and stakeholders, then it is not financially viable and, it will likely disappear.

Instead, countries might be satisfied or unsatisfied by their economic performance, but they do not cease to exist. In fact they can alter their salaries and exchange rates, so their prices, while the firms do not have the same flexibility (Krugman, 1994).

The competition among firms is rightly a kind zero-sum rivalry, whereas locations have prosperity benefits if other locations, especially when contiguous, flourish themselves. A location is competitive if its macroeconomic aggregates are in equilibrium, thus if its current degree of growth is sustainable.

The improvement in national living standards is equivalent to the increase in the rate of domestic productivity, rather than growth in productivity relative to

competitors, namely it is determined by domestic factors (ibid). Krugman continues stating that if i.e., productivity rises in a country, and then consequently salaries grow as well, this does not affect in any way the status of another country by for instance diminishing its quality of life.

For all these reasons Krugman asserted, back then, that applying the firm level concept of competitiveness to a national level and being obsessed by it, is wrong and can produce potentially dangerous policies.

Christian Ketels member of Harvard Business School, where he leads Prof. Michael E. Porter's research team, supports the view that productivity is a crucial driver of long-term growth and that is essential to look after the cost levels. First, because the relation between productivity and costs is decisive for the attractiveness of a location to the firms and then because it is an essential indicator of macroeconomic stability; indeed if the salaries are set above productivity levels this could produce macroeconomic asymmetries (Ketels, 2016).

According to the World Economic Forum, Schwab (2017), competitiveness can be defined as the following: "Competitiveness can be seen as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the economy can achieve." ¹

More recently economic theorists are, in order to explain engines of growth and prosperity, showing more interest in other factors such as macroeconomic stability, market efficiency, education and training, sound policymaking, healthcare, access to services and inequalities.

In 2017 the World Economic Forum has created The Inclusive Development Index (IDI) attempting to explain the socioeconomic development of countries in such a way to include economic progress providing a more multidimensional measure than the GDP growth alone (Schwab, 2017).

¹ In "Global Competitiveness Report 2017-2018" (2018). Available at: <https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018>

“The IDI has three pillars: Growth and Development, including GDP per capita growth, labour force participation and productivity, and healthy life expectancy; Inclusion, including median household income, poverty, and two inequality measures; and Intergenerational Equity and Sustainability, including adjusted net savings (which adjusts for factors such as natural capital depletion and human capital investment), demographic dependency ratio, public debt, and carbon intensity Schwab (2017).”²

The unit labour cost and the Real Effective Exchange Rate can be labelled as simple indexes of national competitiveness.

Unit labour cost is the relation between the remuneration per worker and productivity per worker, which depict an improvement in competitiveness when for a given salary level an increase on the GDP per person occurs.

The Real Effective Exchange Rate analyses national competitiveness without being exclusively subordinated to the Inflation level or the Nominal Exchange Rate; so then if a real depreciation takes place the country experiences competitiveness gains or the opposite is exact if an appreciation occurs.

Then composite indexes measuring competitiveness exist, and they consider multiple factors as influencers of either productivity gain or loss in a given economy. Some global institutions produce reports, such as the World Economic Forum that produces annually a Report called the “Global Competitiveness Index,” and then other indexes produced by the International Institute for Management and Development or by the UNCTAD.

The global competitiveness index, produced by the World Economic Forum, is described by 12 pillars of competitiveness, giving an extensive representation of the degree of competitiveness in most of the countries around the world. The pillars are institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency,

² In “*Global Competitiveness Report 2017-2018*” (2018). Available at: <https://www.weforum.org/reports/the-global-competitiveness-report-2017-2018>

labour market efficiency, financial market development, technological readiness, market size, business sophistication and innovation” (Schwab, 2017).

These pillars are also organized into three sub-indexes: basic requirements, efficiency enhancers, and innovation and sophistication factors (ibid).

1.3 Concluding Remarks

This chapter has tried to list the different theories on competitiveness, and the outcome is that there is no univocal definition of what competitiveness is.

Naturally it would be delightful to research all those factors that might stimulate gains in competitiveness but for the limited possibilities of this dissertation the focus will be stressing on unit labour cost, the real effective exchange rate and market integration.

2. The trend of the salaries since the Reunification.

2.1 Introduction.

Little more than a decade ago Germany was classified as the sick man of Europe, and many wondered if it could ever be saved.

“What ever happened? Courage and fortune have become rare in Germany. The economy is stagnating, the bad news is mounting. Month by month there are new bankruptcy records, many companies are in deep crisis, unemployment is mounting, and yet, the poor of the world struggle to enter the country. One European neighbour after the other has overtaken us in per capita income. Germany is the sick man of Europe, ranks lowest in growth, unable to keep up with its neighbours. Wasn't there once a Wirtschaftswunder? That must have been a long time ago. Today, miracles happen elsewhere” Sinn (2003).

The fall of the Berlin Wall in 1989, the consequent very high costs of reunification and the sudden introduction of the Deutsche Mark in East Germany were a significant burden for the German economy and led to a slowdown in growth for around 20 years.

Unemployment had become by then a structural phenomenon that officially concerned 4.9 million of individuals in 2005, meaning 13% of the total population, with a rate of 11% in the former territory of the Federal Republic and 20.6 % in the new Länder including Berlin (Destatis, 2018). These figures increase if we include in the computation early retirement and economically inactive individuals.

Throughout the decade from 1995 to 2005 Germany grew by only 14.1% in real terms, making the worst of all European countries and was lagging way behind the European average. In the same period, growth in the European Union has grown on average at about the double of German rates at 28,1 % (IMF, 2018).

At this time, after the Great Recession of 2008/2009 and the European debt crisis, it is described as an economic superstar. The unemployment rate has not

increased in the period between 2008 and 2009, despite the sudden collapse of GDP. Since the second half of 2009, Germany has recorded high levels of growth in the gross domestic product, unlike the peripheral countries, driven by an immense surplus of the trade balance.

The success of German exports is based mainly on the high specialisation and quality of the products, especially the capital goods, the high quality of customer service, the flexibility and qualifications of the employees.

Since 1995, Germany has improved its competitiveness, ranking 5th in the world in the Global competitiveness report 2017-2018 edition and having in front only the Netherlands among the countries of the European Union.

The evolution of Germany's competitive position on the Euro-Zone member states cannot be a direct consequence of a devaluation of its currency, as in the case of the USA, as the states involved share the same currency. It will be explored later in this research if the decision to adopt a single European currency has played a role in boosting German competitiveness.

In this chapter, the analysis will focus in the reduction in the cost of work per unit of product, so-called internal devaluation, which occurred through the decrease in real wages.

2.2 Wages trends since reunification.

The Bundesbank has repeatedly asserted that the success of German exports has gained momentum from increased price competitiveness.

“Between 2001 and 2008 GDP growth, the level of prices and the available income of private individuals were lower than the EU average; about three-quarters of the economic growth in Germany can be attributed to the export surplus, while domestic demand accounts only for a quarter” Dustmann et al., (2014).

The weak increase in wages has hindered the transformation of the export boom in stimulus to the growth of the internal market, and therefore to a possible increase in the demand for foreign goods, which would have produced positive

results even in other European states in which a situation of deficit in the trade balance subsist.

The share of GDP for public investment, which is significantly lower than the average in the European Union, fell to its lowest level in 2007, to 1.4% (Lehndorff, 2014). Net public investment between 2003 and 2010 has been negative, since the majority of the gross investment is of replacement investment while in countries like France and the United States registered value of at least 1% in the same period (Priewe and Rietzler 2010).

It is necessary to point out that demand for German products is not necessarily elastic to price variation. In particular, in some sectors such as the automotive sector, the construction of highly technological industrial plants and machinery, which amounts to 1/3 of German exports, the price elasticity of demand is quite low (Lehndorff, 2014).

Indexed Wage Growth of the 15th, 50th, 85th Percentiles, West Germany, 1990–2008

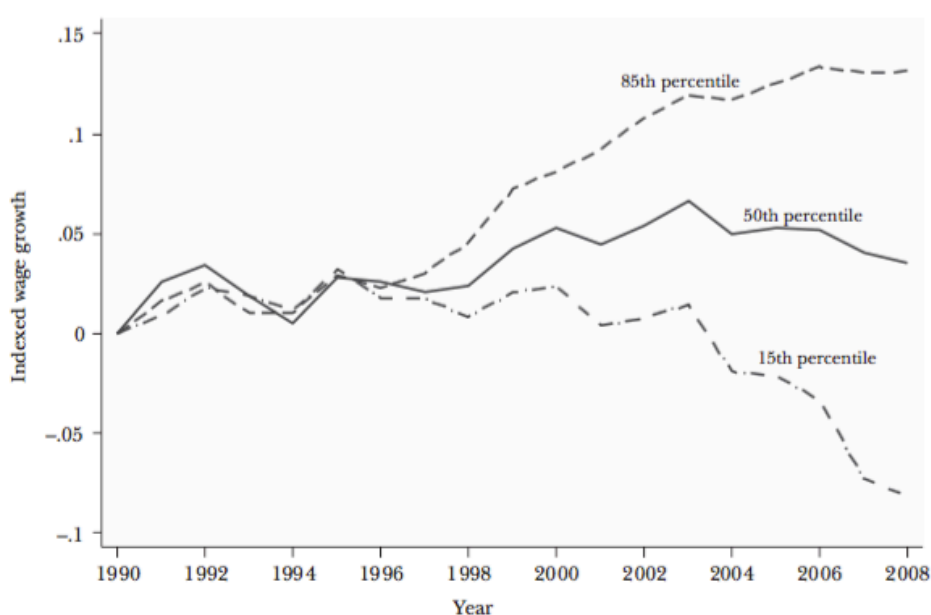


Figure 1

Source: “ From Sick Man of Europe to Economic Superstar: Germany’s resurgent economy”. C. Dustmann et al. *Journal of Economic Perspectives* – Volume 28, Number 1- Winter 2014.

Wages inequalities have increased over the last twenty years in Germany. Real Salaries, which are those wages adjusted to the inflation rate, began to shrink drastically at the 15th percentile of the wage distribution between 1996 and 2008. Those individuals with median real wages experienced a deterioration of their income since the beginning of the 2000s, and only those at the top of the distribution, above the 75 percentile, saw their wages growing steadily.

As can be seen from the following graph, these dynamics are not directly found in that portion of manufacturing industry that more engage in relations with foreign countries, namely those companies making most of their profits through the export; 80% of German exports can be ascribable to the industrial sector. (Dustmann et al., 2014).

Indexed Wage Growth of the 15th, 50th, 85th Percentiles, West Germany, by Sectors, 1990–2008

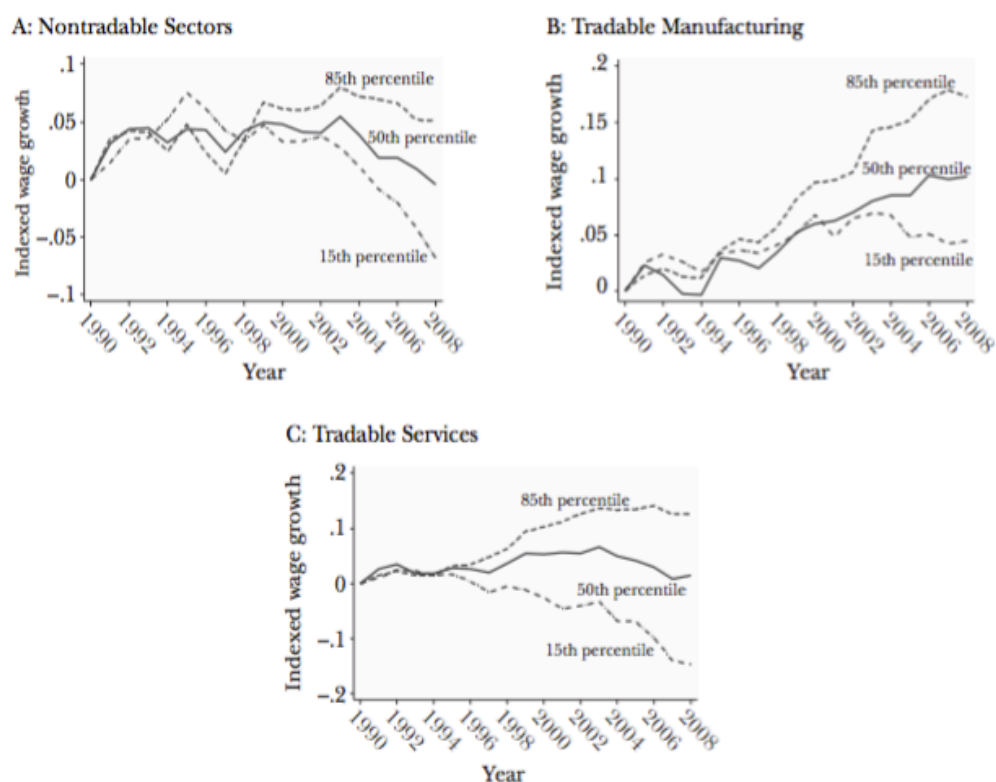


Figure 2³

³Notes: Calculations based on SIAB Sample for West German Full-Time Workers between 20 and 60 years of age. The figures show the indexed (log) real wage growth of the 15th, 50th, and 85th percentiles of the wage distribution, with 1990 as the base year. Nominal wages are deflated using the consumer price index (1995 = 100) provided by the German Federal Statistical Office. Panel A shows the evolution of

Source: " From Sick Man of Europe to Economic Superstar: Germany's resurgent economy". C. Dustmann et al. *Journal of Economic Perspectives* – Volume 28, Number 1- Winter 2014.

Enterprises operating only on the domestic market or having a volume of exports of less than the 25th percentile of the distribution of the size of exports in 1995 classifies as belonging to the "non-tradable sector" or the protected sector. The open manufacturing sector "tradable manufacturing" and the open service sector "tradable services" include all those companies that export for a quantity exceeding the 25th percentile.

In the open manufacturing sector, the increase in real wages occurred in all percentiles of the distribution until the first half of the 2000s, after which their growth began to shrink only to the lowest percentile of the distribution. Whereas, the more considerable increase in inequalities is in the open sector (tradable) of services; Between 1990 and 2008 median wages remained stable, increased by 12% to the 85th percentile and decreased by around 15% to the 15th percentile.

Wages in the private services sector in Germany are on average 20 per cent lower than those of industry, that implies industry services are remarkably affordable (Lehndorff, 2014).

The final product of the German manufacturing industry includes a large portion of input produced in other sectors; In fact, the value added of the manufacturing sector has an impact in only one-third of the end product, while the remaining part of its value derives from other domestic or foreign industries. Thus, the manufacturing sector benefited from lower salaries in different sectors and cheaper imports (Dustmann et al., 2014).

The output value of the German manufactory grew consistently from 35% of the total output in 1995 to 39.3% in 2007, implying that the manufacturing sector is increasingly dependent on semi-finished products from other domestic sectors or imported intermediate products (ibid).

these figures for the non-tradable sectors, panel B for tradable manufacturing, and panel C for tradable services. We classify sectors with export volumes below the 25th percentile of the distribution of export volumes in 1995 as "non-tradable sectors", and those with export volumes above this threshold and that belong to the manufacturing sector as "tradable manufacturing." The sectors above this threshold that do not belong to the manufacturing sector are classified as "tradable services."

The debate on the conjecture that German industry has only become an assembly line of goods produced elsewhere (Sinn, 2006) doesn't find confirmation in the data.

The value of inputs over the amount of output rose by 7% between 1995 and 2007 from 66.1% to 72.9%; nevertheless, in the same period, the ratio between the portion of the domestic input and the value of the output has been persistently high and has remained relatively stable (Dustmann et al 2014). Therefore, Germany is increasingly using imported input from abroad, but it is important to emphasize that despite that even today about 70% of total inputs in the manufacturing sector are made up of domestic products (ibid).

2.3 The causes of the reduction of wages.

The industrial relations system in Germany is not based on legislation but on the negotiation of three main actors: national trade unions, industrial associations and worker representatives in medium and large companies (Dustmann et al 2014). All this allowed a decentralization of the process for determining wages, working hours, and other aspects of working conditions, from the regional level to the level of a single company.

The autonomy of negotiations for the definition of wages is a principle mentioned in the German Constitution and implies that the negotiations take place without the intervention of the national government (Dustmann et al 2014).

A more competitive global market and the economic burden of German reunification have made it increasingly onerous to maintain high wage levels.

Following the process of integration and accession of the countries of the former Soviet bloc to the European Union, the possibilities of relocating German production abroad, while remaining close-at-hand, has shifted the balance between powers, forcing unions and representatives of workers to accept variations from national or sectorial collective agreements. This has frequently led to a reduction of the salaries.

Germany had no minimum hourly wage, which was only introduced on the 1st of January 2015 under the new Minimum Wage Act (Mindestlohngesetz) and stood at € 8.50 for all workers.

Before the minimum wage introduction, the recognition of the unions was the responsibility of the individual company, and collective agreements covered only the workers of the companies that recognized those deals; besides, the companies that participate can waive their discretion. Even after having renounced a collective agreement, companies had to pay wages at the pre-established level until the reaching of a new agreement, but no application ties apply for new hires.

Since 1990 there was a sharp decline in union coverage in German companies; from 75% in 1995 to 56% in 2008 (Dustman et al., 2014).

Between 2009 and 2013, the share of private-sector workers covered by a collective agreement decreased from 52% to 49% in West Germany, and from 34% to 30% in East Germany. (Kraemer, 2015).

Observed versus Counterfactual Wage Growth between 1995 and 2008 along the Wage Distribution: The Role of De-unionization

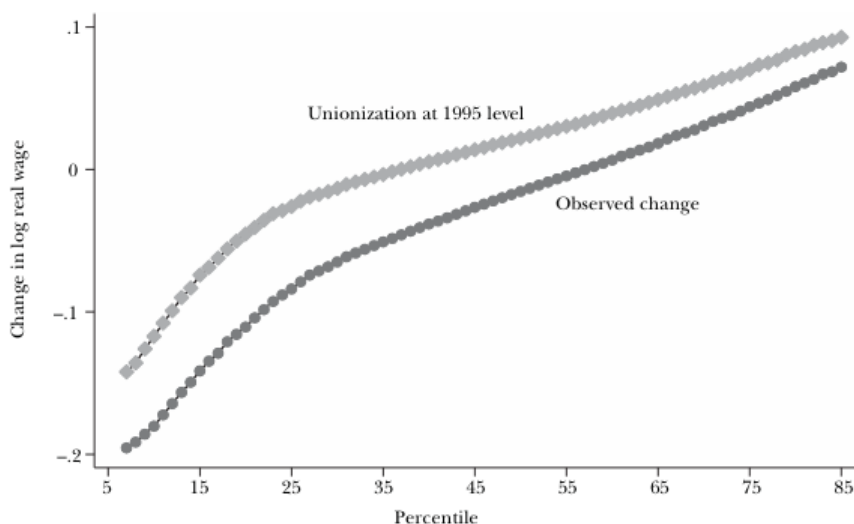


Figure 3

Source: “ From Sick Man of Europe to Economic Superstar: Germany’s resurgent economy”. C. Dustmann et al. *Journal of Economic Perspectives* – Volume 28, Number 1- Winter 2014

The figure 3 shows the change in the real wage between 1995 and 2008 and the change that would have occurred if the coverage of workers with collective agreements remained unchanged at the 1995 percentages.

It shows that salaries in 2008 would have been higher if coverage had remained the same as in 1995 at all levels of the wage distribution, but the difference is more significant in lower percentiles.

Inequalities had also increased among workers covered by collective agreements, this always due to the system of industrial relations that had allowed changes even in companies with trade union contacts. In the case of the sector with union coverage, the growth of inequalities was due to the decentralization of wage negotiations. The union representatives in the company have allowed this decentralization to secure jobs from possible production offshoring.

The trade unions and employers had also created the so-called "open clauses" in collective agreements at the industry sector level. These clauses concerned, primarily, working hours and only subsequently affected the level of wages. Originally, those measures were only temporary to avoid the bankruptcy of companies in crisis, but later they were also used in favour of greater competitiveness. Only 5% of contracts had opening clauses for wages in 1995, but this percentage rose dramatically to reach 60% in 2004 (Dustmann et al, 2014).

2.4 Concluding Remarks

In Germany the system of relations at the industry level had led to decentralisation in labour contracts even greater of what it was, causing a decrease in real wages, especially for low wages and in the service sector.

To sum up two main elements had driven to a drop in the level of real salaries:

- A decrease in the portion of workers covered by union agreements;

- The rise in open clauses in derogation from collective agreements that gave more power to individual companies in wage negotiations.

3. The link between German success and integration with the East.

3.1 Introduction

The pivot of growth in Germany was the development of the manufacturing sector, the main item of exports.

The commercial strategy promoted is to aim at the internationalization of companies, with particular regard to emerging markets outside Europe. In fact, the German model can count on integrated production networks, thanks also to the growing interconnection with neighbouring countries.

As we have seen before, the particular structure of industrial relations, and in particular the decentralization of labour contracts, had allowed in such a delicate moment for Germany to push down real wages, especially in the lower part of the wage distribution, leading to a reduction of the unit cost of labour.

German success has found its foundation not only in internal wage depreciation but also in the creation of a " German-Central European Supply Chain, GCESC". The fall of the Berlin Wall in 1989 and of the Soviet Union led to an opening to those countries that were isolated behind the Iron Curtain; those countries were and still are characterized by lower labour costs, and a stable institutional and political structure; giving German entrepreneurs the opportunity to relocate part of their production, thus forming an integrated regional production model.

In recent decades, integrated productions between multiple states in a particular region have grown considerably in many parts of the world. The distribution of production in more than one country, with several countries specialized in a different stage of production, is due to a series of technological developments and favourable political measures. Global and regional trade agreements have been aimed at the reduction of duties and the removal of non-tariff barriers; a higher "vertical specialization" has led to a fragmentation of production, the greater liberalization of financial markets has stimulated direct

foreign investment (FDI) and therefore encouraged the relocation of part of the production.

The vertical specialization at this juncture is driven by a series of elements, some related to the reduction of trading costs, including customs duties and transport costs, and to innovations in communication technologies that have allowed to reduce the costs for the exchange of information, facilitating companies to monitor and coordinate production in remote offices.

The development of vertical specialization in Europe is very evident among German companies. The latter has decided to outsource or transfer part of their production aiming to improved efficiency, thanks to differences in wages, productivity, legislation, and taxation.

3.2 Structure of the GCESC and development of trade relations.

The “GCESC” acronym stands for the supply chain that Germany has built by transferring economic activities in Hungary, the Czech Republic, the Slovak Republic and Poland (CE4). Those countries in Central and Eastern Europe presented a series of cultural affinities to Germany, geographical proximity, similarities in the productive sectorial structure and a relevant differential in labour costs between Germany and those countries.

A study by Dalia Marin (2005), highlights differences in relative salaries, relative productivity, relative unit labour cost in the cases of outsourcing and offshoring of production from Germany to the following countries:

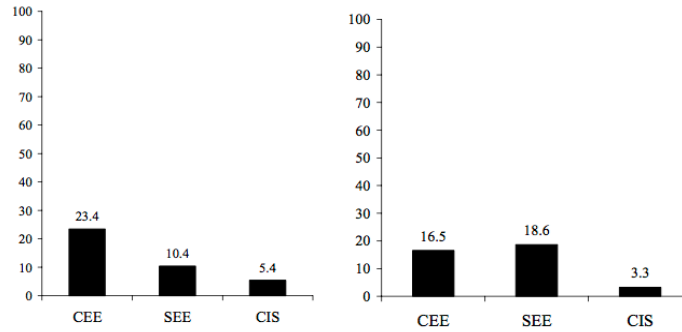
- A first group composed of the CE4, plus the Baltic countries and, Slovenia defined CEE in the study;
- A second group composed of Romania, Bulgaria, and Croatia defined SEE in the study;
- The nations of the former Soviet Union, i.e., Russia and Ukraine defined as CIS.

Germany

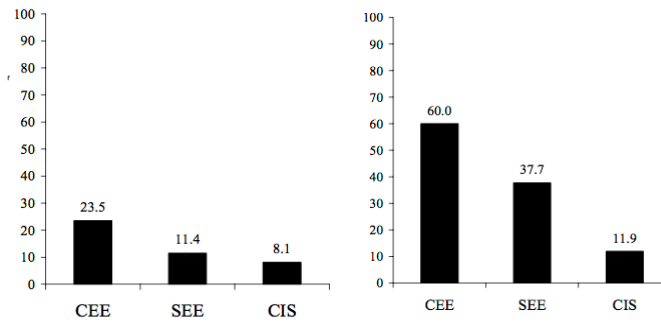
Outsourcing

Offshoring

relative wage¹⁾



relative productivity²⁾



relative unit labor costs³⁾

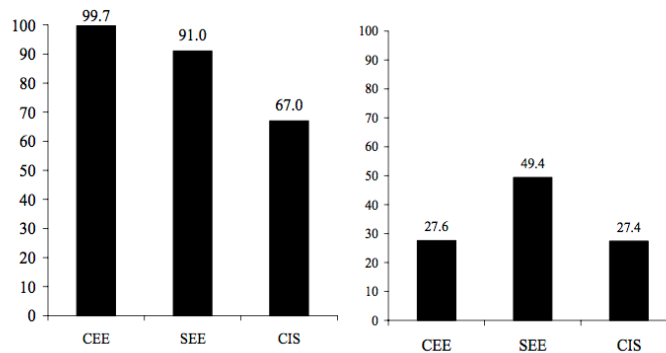


Figure 4

Source: Marin D., A New International Division of Labor in Europe: Outsourcing and Offshoring to Eastern Europe, September 2005, Discussion paper 2005-17, Department of Economics, University of Munich.

As shown in the Figure 4, the relative wages in the CEE are about 23% of the German ones in the case of outsourcing, while productivity is 23% of the

German one; therefore in the case of outsourcing the unit cost of labour in the group of the CEE countries is almost the same as that recorded in Germany. However, these costs are significantly decreasing when German companies relocate and produce in German affiliated plants instead of outsourcing to local companies.

In fact, the German affiliated plants pay a salary that is 17% of the one of the parent company and have a productivity that is 60% of that of the factories in Germany. Therefore, in the case of offshoring, they can diminish the unit labour cost by 72% compared to the cost of the parent company back at home (Marin D. 2005).

As far as the SEE countries are concerned, both salaries and productivity are really low, and the unit cost of labour, therefore stands at 91% of that of Germany. In the case of offshoring, German companies can decrease unit labour costs to 49.4% of the German (Marin D. 2005).

Finally, even in the case of the CIS (Russia and Ukraine), offshoring is more profitable than outsourcing due to the low salaries of the affiliates in the two countries. In the case of offshoring with a relative unit labour cost equal to that of the CEE, it is advisable to invest here; the only negative note is the much lower productivity in the CIS than in the CEE.

Hence, apparently among the regions considered, the CE4 is the most attractive region for investments in offshoring.

Between 1995 and 2011, in the CE4 imports from Germany have grown by 8.5% on average, in particular the Czech Republic has reached 10.5% as a percentage of GDP, while exports to Germany have increased by an average of 10%, making Germany the largest trading partner of all these countries (Aiyar et al, 2013).

CE4's imports from Germany averaged 16% of GDP in 2012, values much higher than those recorded in other European countries. Likewise, the average exports of CE4s to Germany was 18% in 2012, second only to the Netherlands, which exported 22% to Germany (Aiyar et al, 2013). Although the trend is similar among CE4 countries, it is not a homogeneous group; the trade ties between Poland and Germany are considerably lower than those with other

countries in the area, primarily due to the size of the Polish economy, GDP amounts to 54% of the total GDP of the area, and moreover a higher percentage of internal demand, which dampens the intensity of relations with Germany; it is basically a more closed economy (Aiyar et al, 2013).

The following table (Muir and Elekdag, 2013) compares the status of commercial interactions in 1996 and 2011, highlighting interesting developments:

- Exports, as previously mentioned, have grown both in Germany and in the CE4 as a percentage of GDP, both regions have become much more open and integrated into the global economic system;
- Secondly, trade linkage increased significantly over the years in question;
- Finally, as a result of greater trade integration in the region, exports of intermediate goods within the GCESC have increased. This growth in the exchange of intermediate goods indicates that final demand in Germany is not the only determining factor in exports from the CE4 to Germany.

Table 1. Summary of the Trade Matrix: 1996 versus 2011
(Exports in percent of nominal GDP unless otherwise stated)

	1996		2011	
	CE4	Germany	CE4	Germany
Total exports	30.1	24.3	52.8	47.7
to CE4		1.4		4.5
to Germany	8.4		16.6	
Final goods	21.4	17.8	38.9	35.0
to CE4		0.9		2.8
to Germany	6.0		11.2	
Intermediate goods	8.7	6.5	13.9	12.3
to CE4		0.5		1.6
to Germany	2.4		5.4	
Size (In percent of world GDP)	0.9	8.0	1.4	5.1

Sources: IMF Direction of Trade Statistics; United Nations ComTrade; and authors' calculations.

Figure 5

Source: Muir D., Elekdag S., Trade Linkages, Balance Sheets, and Spillovers: The Germany-Central European Supply Chain, October 2013.

Hence, exports and imports have increased within the Supply Chain, but exports to the rest of the world and in particular to emerging countries have also increased.

3.3 The evolution of domestic and foreign added value in Germany and the CE4 countries.

Between 1995 and 2009, the percentage of foreign value added (FVA) in total exports of CE4 and Germany has risen considerably.

Hungary recorded the most net increase in FVA, by as much as 14 percentage points leading the FVA on total exports to 43% and Poland recorded the weakest increase in FVA among the CE4 states, continues to keep a high percentage of domestic value added (DVA) in exports. (Aiyar S. et al, 2013).⁴

The percentage of German value in the export of the CE4 has risen by 2%, except for Hungary in which this raise is of about 4% (ibid).

The integration into the German-Central European Supply Chain also produced (ibid):

- Higher imports of intermediate goods from foreign countries to support the activities in the supply chain;
- More and more intermediate goods exported from CE4 countries to Germany to be included in additional production processes.

The breakdown of domestic value-added export (DVA), and foreign value added (FVA) suggests that the FVA has increased significantly in recent years.

The percentage of DVA in total exports has generally decreased, but it has grown as a percentage of GDP and in nominal value, exhibiting a definite link with the increase in foreign VA.

About this circumstance, (Rahman and Zhao, 2013) found econometric evidence about a relevant and positive link between the growth of the FVA and the DVA in 40 countries between 1995 and 2008, and that boosted employment and growth.

⁴ All these values are displayed in the column chart shown in the Annex 1.

In fact, the existence of a Supply-Chain creates demand for auxiliary goods and services in the affected economies; this contributes to an expansion of the production possibilities frontier and promotes employment and growth (ibid).

A sectorial breakdown shows that knowledge-intensive sectors (electrical and transport equipment, the mechanical industry and the chemical industry) have made the most critical participation to export growth; about 50/60% of the total export growth in Hungary, the Czech Republic, Slovakia and about 40% in Poland (Aiyar S. et al, 2013).

The following chart describes the change in DVA and FVA in CE4 countries and Germany in the sectors described above, and this increase is higher than in other European countries, thus indicating a stronger integration process between Germany and the four states, as well as exhibiting strong growth in both domestic and foreign VA.

Hungary experienced the most marked growth in both domestic and foreign VA, the latter reflecting the growth of German VA. While Poland and Germany recorded more moderate growth, although higher than the European average, partly due to the size of their economies.

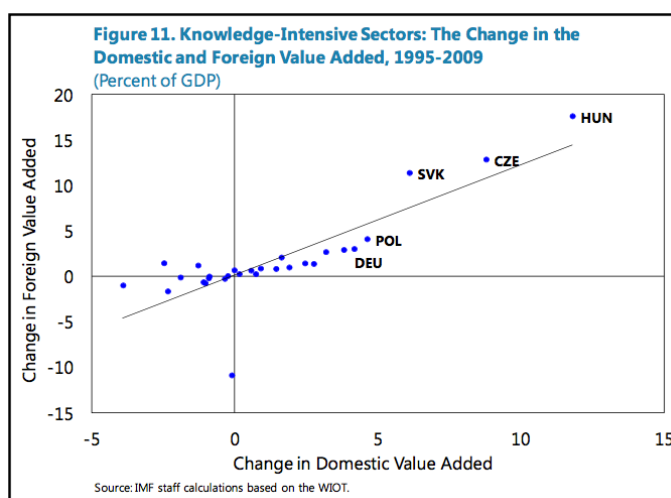


Figure 6

Source: Aiyar S, Augustyniak B., Ebeke C, Ebrahimi E., Elekdag S., Klein N., Lall S., Zhao H., Muir D., GERMAN-CENTRAL EUROPEAN SUPPLY CHAIN—CLUSTER REPORT, August 2013, International Monetary Fund, IMF Country Report No. 13/263.

3.4 GCESC in the automotive sector

This picture is evident in the automotive sector, where greater internal and external competition has triggered a rapid relocation of manufacturing activities. Germany is a leading manufacturer and exporter of automobiles with a 20% share of the global market (Aiyar S. et al, 2013). The offshoring of its production, mainly in the CE4 countries, has become increasingly significant over the last decade, and precisely in 2009 foreign production surpassed domestic production; in fact, while domestic production in Germany remained constant in the period 1995-2011 at 5.5 million units produced, foreign production of the German affiliates tripled in the same years reaching 7.1 million, of which 3 million in the CE 4 countries alone (Aiyar S et al, 2013). The partial shift of this sector into CE4 countries began in mid-1990 as a natural result of the forces of supply and demand. On the demand side, German automakers had to react to an increasingly competitive globalized environment, and on the supply side, the CE4 granted an attractive mix of ingredients that was then reinforced by the EU membership in 2004. In addition to the geographical proximity and the low cost of labour, corporate income taxes amounted to an average of 19% compared to 29% of Germany, and lastly they have a highly skilled workforce in the sector; in particular in the case of Slovakia, one of the largest car producers of the former Soviet bloc (ibid).

If we break down the car industry according to the origin of the value added, the increasingly strong integration between the CE4 countries and Germany is evident. In fact, the fraction of the German VA on the total exports increased in all the CE 4 countries while the domestic VA fraction of the latter decreased by 12% on average between 1995 and 2009 (Aiyar S. et al, 2013).

Similarly to what generally occurred in the knowledge-intensive sector, notwithstanding the deterioration of the portion of Domestic value-added DVA on total exports, the industry recorded a notable improvement in DVA as a percentage of GDP, highlighting the substantial correlation with the rise in foreign VA in the automotive industry.

3.5 Concluding Remarks.

Summing up, it appears that the opening to those countries was a great opportunity for Germany to relocate production and allowed the creation of an integrated regional production system. This scenario is particularly evident in the automotive sector.

The process has had positive repercussions enabling the import of cheaper intermediate goods and boosted employment and growth.

The offshoring especially contributed to lower the unit labour costs for the companies that are involved.

4. Did the Euro have a role in the German Current Account Surplus?

4.1 Introduction

In this Chapter the focus will be on the German current account surplus and if the adoption of the Euro currency might have contributed to its staggering growth, through a more competitive Real Effective exchange rate value.

Germany's current account surplus will likely remain the world's largest for the third year on a row in 2018. The surplus, after setting a new record in 2015 when it accounted 301 Billion Dollars at 8.9 per cent of GDP, held at 8% of GDP at 296 Billion in 2017 (IMF, 2018).

Germany's current account surplus is mostly the result of its trade balance; in fact trade surplus seemed to expand rapidly since the beginning of the 2000s. In 2017 exports outpaced imports by 281.389 Billion euros (World Bank, 2018).

Figures this year are showing that the surplus so far this year is in line with 2017, but it seems that imports are growing faster than exports recording in July 2018 a +12% on July 2017 and exports have grown by +7.6% in the same period (Destatis, Sept. 2018).

The situation is the result of an economic policy approach based, among other things, on the containment of wages and on the balance of public accounts. From a German point of view, the trade surplus is seen as a symptom of economic strength. For the rest of the world, the European Union in the first place, is instead the sign of a fundamental macroeconomic imbalance, in a model characterized by high savings (public and private) and low domestic investments.

The aggregate German exports contain more and more added value produced abroad, and in particular in the rest of the European Union.

From a commercial point of view, the links between Germany and other European countries reflect the downstream German positioning of an integrated production system that has developed in Europe over the years.

Investigating on macroeconomic imbalances, however, the critical point is that Germany has a trade surplus not only bilateral with the United States, but in aggregate with the rest of the world.

The surplus with the United States has been huge in the recent years; exports reached the 124.9 Billion Dollars in 2015 while imports from the USA recorded 49.9 Billion which means an impressive surplus of almost 75 Billion Dollars with only one country (The U.S. Census Bureau, 2018).

These dynamics have enraged the U.S. president Donald Trump, that has several times accused Germany of unfair trade practices and threatened the country with import levies on cars.

The imbalance is fuelled by the ability of German companies to integrate production processes in the common market and, according to multiple economists, the fact that the same companies benefit from a weaker euro compared to a hypothetical German mark.

Demand for 'Made in Germany' goods was especially strong in other Eurozone countries as well as European Union members outside the single currency bloc. Indeed the European Union is Germany's most important trading market. As reported by the Federal Statistical Office (Destatis, May 2018) goods worth 749.7 billion euros were exported to the other 27 EU Member States in 2017. That was 58.6% of total exports. Goods imported from the European Union were about 590.5 billion euros or 57.1% of all imports (ibid). Among the ten most important trading partners in Germany in 2017 were seven EU Member States in terms of both exports and imports.

Since the crisis year of 2009, the surplus has doubled in absolute terms (IMF, 2018). It clearly exceeded the targets set by the macroeconomic surveillance procedure in the European Union, which set a maximum of 6% of GDP for current account surpluses. The current trend in German foreign trade and the record surplus will further fuel the on going debate about external imbalances in the euro area and in the European Union.

The IMF has urged the government to use its fiscal measures to boost productivity, lift labour supply and stimulate investment, saying that would serve to rebalance the economy.

Also the European Commission (2018) made some recommendations dated May 2018: "The Commission's analysis leads it to conclude that Germany is experiencing macroeconomic imbalances. In particular, the persistently high current account surplus has cross border relevance and reflects a subdued level of investment relative to saving in both the private and the public sector. The surplus, which is largely with non-EU countries, has slightly narrowed since 2016 and is expected to gradually decline due to a pick-up in domestic demand in the coming years whilst remaining at historically high levels over the forecast horizon. While there is currently a shift towards more domestic demand-driven growth, both consumption and investment remain muted as a share of GDP despite the favourable cyclical and financing conditions and the infrastructure investment needs for which there is fiscal space."

4.2 Analysis of the REER and possible interactions with the Current Account.

The research, at this point, will converge in the joint analysis of the Real Effective Exchange Rate of The D-Mark and the German Current account in relation to gross domestic product, so to realize if an interaction between the adoption of the Single European currency and the increase in the surplus occurred. In other words, if we can find some signals that the Euro has created some sort of advantage to the country.

The Real Effective Exchange Rate (REER) is the nominal effective exchange rate divided by a price deflator or index of costs. It is a measure of the value of a currency against a weighted average of the basket of the currencies of the main trading partners of the country.

The weights are defined by comparing the relative trade balance of a nation's currency against the other countries in the index, and this means that the REER is trade-weighted.

The REER is an important criterion when assessing a country's actual import/export situation, and it is useful to look at the overall performance of a currency.

It provides a measure of a country's international price and cost competitiveness.

If the change in the REER is negative, then the state is gaining competitiveness compared to its trading partners. Vice versa a growth in REER value means that exports become more costly and imports become more affordable, and a rise in its value indicates a decline in trade competitiveness.

For example, the Euro may appreciate against the Dollar, but this may be because of a temporary depreciating trend of the Dollar. Nevertheless, if the overall real effective exchange rate increases, it implies that the Euro is becoming stronger.

The next Figure 7, showing an historical series, was drawn to depict the relation between real effective exchange rate and the current account.⁵

The data refers to only West Germany until the year 1990, year of the Reunification. Then from the Reunification to 1998, the data relates to the last decade in which the D-Mark was used. Subsequently, since 1999 it refers to the Euro since this was the year of the adoption of the single currency, even though still only in the non-physical form until 2002. In this set of data for the REER index, the 2010 value is 100, which indicates 2010 is the base year.

We can distinguish several cycles in this historical series. One first cycle with the REER decreasing from a overvalued 110.79 in 1980 to a minimum 96.57 in 1985, so the currency depreciated of about 12,83% against the currencies of the major trading partner. The weakness in the Deutsch Mark, during these five years, seems to have some degree of impact on the Current account, which passed from recording a deficit of 1.78% of the GDP in 1980 to

⁵ See Annex II for all the values of REER and Current Account by year.

a surplus of 4.04 % of the GDP in 1986. The average amount of the REER was during those years of about 102,47, and an incredible improvement in the Current Account situation is visible that in absolute terms passed from a deficit of -15.215 billion Dollars in 1980 to a surplus of 37.989 billion Dollars in 1986.

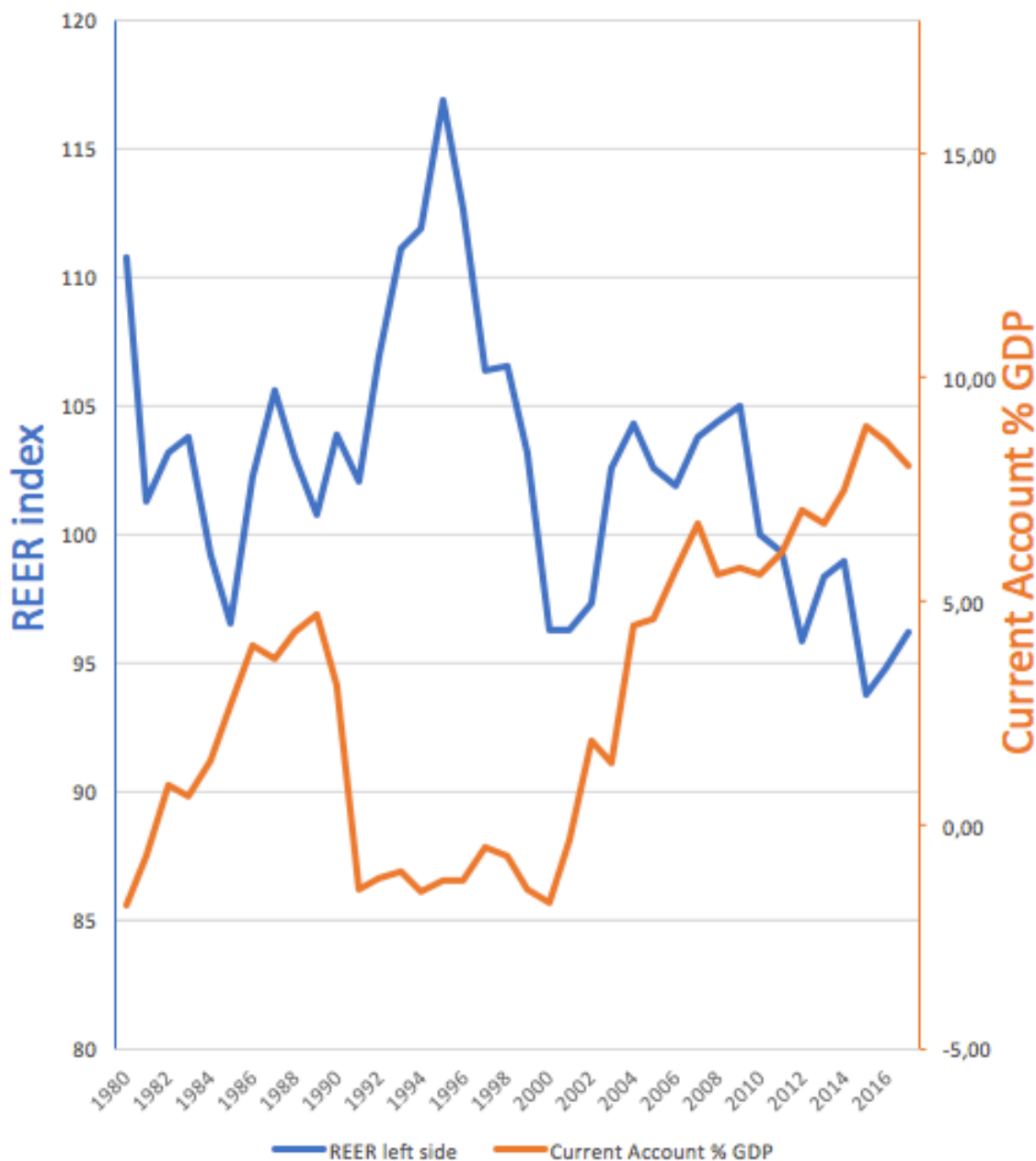


Figure 7

Source: Own elaboration. Statistical sources: IMF; International financial Statistics, (2018).

Then the Real Effective Exchange Rate started increasing again in 1986 but remaining stable on average for some years.

After the Reunification is visible that the D-Mark began, then, appreciating again till a very high 116.88 REER in 1995. In this case between 1991 and 1998, the average value of the REER was of 109.3 well above the average of the first 1980s when the REER was descending instead.

This loss of competitiveness, through the very high REER, and probably the high costs of Reunification and the burden of a very poor eastern Germany pushed the country in a considerable deficit throughout all the 1990s, when the average level of deficit accounted for 1.2 in percentage of the gross domestic product.

This circumstance has slowly changed since the introduction of the Euro in 1999. Indeed, the REER after being very high in 1995 began to descend with some fluctuation first, but the effects on the Current Account are evident; the latter has registered exponential growth since 2002. The REER has plummeted to a lowest 93.73 in 2015 and has since 2010 always been below 100, and the Current Account Surplus still in 2015 was of about 9% the GDP.

Since 2005 the surplus has more than doubled in Absolut terms passing from 131 Billion Dollars to the about 300 billion of our days, and since the great recession in 2009, it has grown by around 65% (IMF, 2018).

Sometimes like in the years 1985 to 1987 a real appreciation of D-Mark occurs, but it is accompanied by an increase in the current account surplus by almost 26 Billion (IMF, 2018). This seems to be an unusual reaction of the trade balance and current account, but it is in reality quite common in the case of Germany.

Similar patterns are also to be found from 1991 to 1994 and in the years from 1997 to 2000 when a current account improvement follows an appreciation in the first case, and a worsening of the deficit follows depreciation in the second circumstance (Ibid)⁶.

⁶ For more info on the data check the table in the Annex II.

The REER and the Current Account appear to be following, in those cases the J-curve balance of trade model.

The J-curve is the phenomenon where a country's balance of trade initially worsens following a devaluation of its currency before it recovers and bounces back even to a higher level than where it began.

A devalued currency means that imports are more expensive and exports are cheaper, and on the assumption that the volumes of imports and exports initially change little, leading to at first to a trade deficit or a modest surplus. Nonetheless, because the concerned country's exports are now more competitive in currency terms, in the medium term they begin to grow as foreign demand for the lower-priced goods increases.

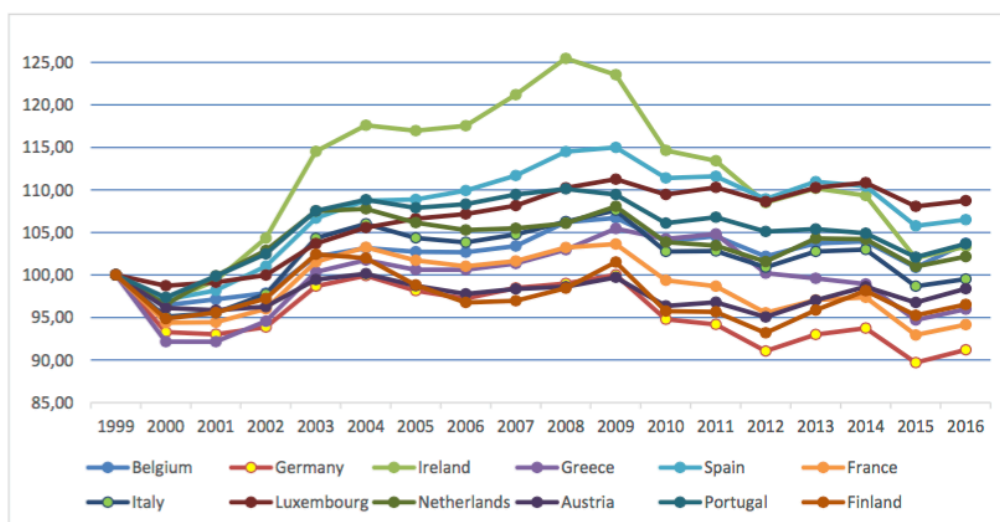


Figure 8

Source: European Parliament, (2017) Available at:

[http://www.europarl.europa.eu/RegData/etudes/ATAG/2017/602099/IPOL_ATA\(2017\)602099_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/ATAG/2017/602099/IPOL_ATA(2017)602099_EN.pdf)

Figure 8⁷ displays the levels of the REER for Euro Area member states that had adopted the Euro by 2001, considering 1999 as the base year.

Although the REERs have been broadly following a similar trend, the extent and the current situation are contrasting.

Until the biennium 2008/2009, a decline in competitiveness is observed, with

⁷ It represents the evolution of REER in Euro Area Member States that adopted the Euro before 2001; the historical series is between 1999-2016 (1999=100).

the exception for Germany, Finland, and Austria whose values of REER in 2008/2009 were similar to those seen in 1999.

The competitiveness of Portugal, Ireland and Spain worsened until 2008, replaced by competitiveness gains in the following years.

Germany has gained more competitiveness, throughout the time span 1999-2016, if related to its trading partners, these states in the Euro Area zone included.

4.3 Concluding Remarks

We have summarised all the developments within about 35 years range between 1980 and 2016.

The performance of the REER and its impact on the current account shows that Germany's balance of trade reacts to a large extent "classically" to exchange rate movements and that a changes of Real effective exchange has had some impact on German competitiveness and thus on export performance.

Synthesizing, it seems that in the medium term, the changes in REER tends to have an impact on the Current account situation. However, it also seems to occur an initial J-Curve reaction to REER change, like in the periods 1985 to 1987, 1991 to 1994 and 1997 to 2000.

Conclusion

This paper aimed to evaluate the different elements that allowed Germany to emerge from the economic stagnation that characterized it since the fall of the Berlin Wall. Because of the onerous reunification process that involved it, the situation was very compromised; unemployment seemed to be a structural phenomenon and growth was very low for a long time.

First of all, internal devaluation through the reduction of real wages has had assuredly, beneficial effects on the unit labour cost, thus the competitiveness of German industry; so we can affirm that the H1 is confirmed.

As a matter of fact, the specific system of industrial relations has led to greater decentralization in the bargaining, leading to a decrease in real wages, particularly among low wages and more sharply in the "tradable" or open services sector. In fact, in this sector, salaries are on average 20% lower than those of industry, which meant that the costs of services for the industry are particularly advantageous.

Two main elements drove this downward trend in labour income:

- A sharp decline in the percentage of workers covered by union agreements;
- The increase in open clauses in derogation from collective agreements that gave more power to individual companies in wage negotiations.

It has been highlighted, then in the third chapter, that the opening to those countries previously isolated behind the Iron Curtain, was a great opportunity for Germany to relocate production and allowed the creation of an integrated regional production system. This process has had positive repercussions both for Germany and for the four nations involved in the Supply Chain (the CE4).

As discussed earlier in the third chapter, it enabled the import of cheaper intermediate goods and boosted employment and growth.

Moreover, the offshoring in the CE4 contributed to lower the unit labour costs for the companies that are involved. Consequently, also the second

hypothesis (H2) is confirmed because it appears that the creation of this value chain has de facto boosted competitiveness.

As a result of greater trade integration in the region, exports of intermediate goods within the GCESC have increased. This growth in the exchange of intermediate goods indicates that final demand in Germany is not the only determining factor in exports from the CE4 to Germany.

This picture of the integration of the countries in the Supply Chain is evident in the automotive sector, where German companies have gained competitiveness thanks to the offshoring in the CE4.

The final chapter has shown that the current account has reacted to a large extent “classically” to REER changes, even though the J-curve has often deferred the effects. So the recent undervaluation of the Euro, occurred especially after 2010 through a decrease in the REER, has had some degree of importance on the surplus of the trade balance.

It seems that in the medium term, the changes in REER tends to have an impact on the Current account situation

Furthermore, the research cannot really establish to which extent the REER has an influence on the current account.

Hence reasonably yes, it seems that the Euro has had positive effects on the competitiveness of the German economy and the H3 is as well confirmed.

It is clear that the investigation covers only some aspects that have triggered the competitive advantage, yet reasonably other factors have undoubtedly contributed. It could be the integration of the two former Germany and a cheaper workforce coming from the former GDR territories, or eventually, the role played by a downsizing of the government expenditure, that has had potentially an impact on the surplus of the current account, or productivity gain that might have had a role in this astonishing growth.

Naturally, it would have been delightful to observe all those factors, yet due to the limitations of the dissertation, the work emphasized on the unit labour costs and the real effective exchange rate.

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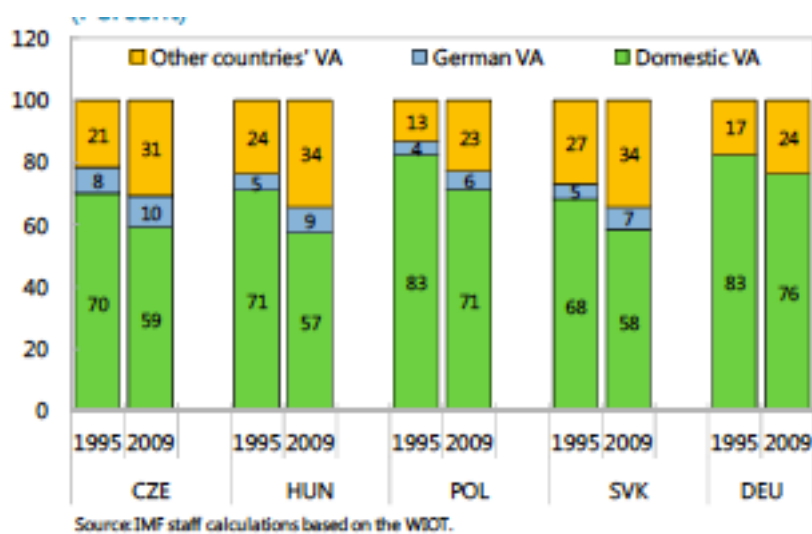
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Annex

Annex I

Composition of total exports (in %).



Source: Aiyar S, Augustyniak B., Ebeke C, Ebrahimi E., Elekdag S., Klein N., Lall S., Zhao H., Muir D., GERMAN-CENTRAL EUROPEAN SUPPLY CHAIN—CLUSTER REPORT, August 2013, International Monetary Fund, IMF Country Report No. 13/263.

Annex II

REER RIGHT SIDE	YEAR	CURRENT ACCOUNT % GDP LEFT SIDE
110.79	1980	- 1.789
101.31	1981	- 0.686
103.16	1982	0.869
103.80	1983	0.669
99.22	1984	1.429
96.57	1985	2.672
102.25	1986	4.039
105.60	1987	3.723
102.98	1988	4.333
100.75	1989	4.707
103.87	1990	3.143
102.07	1991	-1.427
106.88	1992	-1.188
111.06	1993	-1.038
111.84	1994	-1.499
116.88	1995	-1.243
112.68	1996	-0,674
106.33	1997	-0,508
106.52	1998	-0,709
103.20	1999	-1.415

96.27	2000	-1.750
96.28	2001	-0.363
97.28	2002	1.885
102.54	2003	1.412
104.30	2004	4.457
102.57	2005	4.595
101.87	2006	5.681
103.81	2007	6.750
104.42	2008	5.595
104.96	2009	5.741
100.00	2010	5.616
99.26	2011	6.107
95.82	2012	7.019
98.36	2013	6.726
98.92	2014	7.467
93.73	2015	8.917
94.86	2016	8.550
96.17	2017	8.049

SOURCE: Prepared by the Author based on data from IMF, International Financial Statistics data.