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East facing West in Germany. What convergence?

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Abstract

The economic development is not a simple process. The case of the slow economic convergence of two large regions of one of the most advanced countries in the world, whose citizens communicate in the same language and share their history, shows us how complex this phenomenon is. No one could know, for lack of precedents, how to carry out the process of reunification and rapid renewal at the lowest possible cost. But the expectation was that of an economic takeoff in East Germany. And in general, the economic transition of East Germany was well implemented, even when other regulatory elements could also have been proved useful. From our study, it can be concluded when applying growth theories in these regions as well as the analysis of the data that, although the expectations were very high during reunification, after almost thirty years they have waned. As such convergence does.

Resumen

El desarrollo económico no es un proceso sencillo. El caso de la lenta convergencia económica de dos grandes regiones de uno de los países más avanzados del planeta, cuyos ciudadanos se comunican en el mismo idioma y comparten su historia, nos muestra cuán complejo es este fenómeno. Nadie podía saber, por falta de precedentes, cómo llevar a cabo el proceso de reunificación y renovación rápida al menor coste posible. Pero la expectativa era la de un despegue económico en Alemania oriental. Y en general, la transición económica de la Alemania del Este se implementó bien, incluso cuando otros elementos regulatorios podrían haberse probado también como útiles. De nuestro estudio, puede concluirse al aplicar las teorías sobre el crecimiento en estas regiones como el análisis de los datos que, aunque las expectativas fueron muy altas durante la reunificación, a casi treinta años de la misma estas han menguado. Pues dicha convergencia apenas avanza ya.

1. Introduction

The fall of the Berlin Wall began a fundamental era with unpredictable consequences for the history of Germany. Both parts of the country, separated for more than four decades, began a life together again. Twenty-seven years after German reunification, the economic and social differences seem to persist between the former German Democratic Republic (GDR) and the Federal Republic of Germany (FRG). Circumstances have led to this country being nowadays one of the world's leaders where these differences go unnoticed abroad, consolidating the data of the territories and the heterogeneous societies that composes it. These reasons, and for the historical fact from which we can hear, read and learn for those of us who born later, along with an Erasmus year spent in the Bavarian city of Augsburg, have motivated me to carry out the study of its subsequent consequences.

The present paper deals with the hypothesis that despite the efforts made, there are still pronounced differences between the regions or *Länder* of East and West Germany due to a long period of discontinuity between the two societies. Even when there is a certain level of convergence, it is not sure that the reunification process has ended. What is more, the country's good economic performance and its positive inertia could be presented as a cause of the economic development of the East, not being able to identify whether the political decisions were the ideal ones or not.

For that reason, the performance of the regions that belonged to the old GDR will be analysed and compared with the regions of the FRG. The purpose is to see how the regional differences were when the Berlin Wall fell and how they are now. In addition, the causes of the economic development of the various regions will be investigated to determine how this catch up process evolved to our days.

The explanation of why the work begins giving a close approach to the political, economic and social history of Germany is to understand the initial situation to the period I intend to study. The political events which triggered the German reunification, without detailing the many facts that marked the history of this country in the first half of the 20th century.

Next, theories will be presented explaining the economic development of a territory, putting special emphasis on the neoclassical and the cumulative models. It will be compared the approach of economic growth and convergence for each of them. After that, we will analyse the concept of development in its broader sense, including social

aspects such as people's standard of living, the natural environment or the quality of the public institutions, among others.

Subsequently, a more detailed analysis of economic indicators will attempt to represent the regional convergence and inequalities in Germany in the recent years. This analysis will be followed by a presentation of the underlying causes for the economic development.

In the last sections, the attention will be set in the human capital. We will focus on the demographic movements in Germany and on the situation of its labour market.

Finally, the paper ends with the conclusions I have drawn once the study was done, as well as certain questions that would imply a more exhaustive analysis of the topic.

2. Historical context and history of the reunification

The German reunification makes reference to the political, economic and social changes which happened in Germany between 1989 and 1990, and ended with the adhesion of the German Democratic Republic under the jurisdiction of the Federal Republic of Germany. This fact is known as reunification, and not simply unification because it led to the cohesion of two national states which became part of just one between 1871 and 1949: the German Reich, whose official name was *Großdeutsches Reich* (Great German Empire). Image 2.1 shows both national states. However, the territorial boundaries and the jurisdiction were not as they are nowadays. The reunification process resulted

Image 2.1. Map of Germany before reunification



in a country limited by the North Sea, Denmark and the Baltic Sea to the North; and bordering with Poland and the Czech Republic to the East, with Austria and Switzerland to the South; and with France, Belgium and the Netherlands to the West. So that

Mecklenburg-Vorpommern, Brandenburg, Saxony, Saxony-Anhalt and Thuringia, which belonged of the former German Democratic Republic, were added to the Federal Republic of Germany. Before that, Berlin was divided and controlled by both parts.¹its

The Reunification Treaty was made effective on 3rd October 1990 allowed by the article 23 of the West German Basic Law, legalizing the accession of the GDR to the FRG and removing the regime of political and military control of the winning forces of World War II, which occupied Germany since then (France, the United States, the United Kingdom and the Soviet Union). And Berlin was set as the capital of the state. Thus, Germany recovered its full sovereignty, and since 1991 that day is celebrated as the Day of German Unity.

Previously, on the evening of 9th November 1989, the spokesperson of GDR's Central Committee, Günter Schabowski, gave a live broadcast international press conference to announce the repeal of the restrictions on travel permits, as well as to allow crossing the inner German border. Wrongly, he announced that the measures were applicable on the date of that same day, when the initial plan was applying them on the morning of the following day. Afterwards, thousands of people congregated at the Brandenburg Gate to climb up the wall and take it down. The border guards were overwhelmed due to the pressure and did not offer opposition.

Another important element was the talks held in Warsaw, Poland, from 6th February to 4th April 1989 in an attempt to defuse the growing social unrest. These talks were known as the Round Table Agreements. Its consequences were the first free general elections in Poland since World War II, on 4th June 1989, and the takeover on 24th August of the trade unionist Tadeusz Mazowiecki as Prime Minister, the first non-communist since 1948.

The Two-Plus-Four Agreement also paved the way for the German reunification because it included the two Germanies and the Four Powers. It was signed in Moscow on 12th September 1990, and it came into force on 15th March 1991. The main resolution of this treaty was the international recognition of the sovereignty of the German State over Germany as a whole, encompassing the territory previously owned by the GDR and the FRG, as well as the four occupied areas of Berlin. But no other regions to the East of the line limited by the rivers Oder and Neisse, nor those territories

¹ For clarification purposes, there is a table in Appendix I listing the states in different languages: German, English and Spanish.

lost at the end of WWII. Other final consequences of this treaty were the peaceful demilitarization of foreign armies on German territory or the renounce to the possession of weapons of mass destruction among others (as reflected in the aforementioned Reunification Treaty).

The internal prerequisites of the territorial reunification also pursued the democratization and the economic stability in East Germany, as reflected in the Ten-Point Program.²

On 1st July 1990, the economies of both Germanies became one. It was the first time in the history when a capitalist and a communist economy joined and, hence, there were no precedents that would set the guidelines and the steps to follow in such a process. Further, there were several problems, one the most important was the remarkable low productivity of the Eastern economy and its close relationship with the collapsed Soviet Union and other Eastern European countries.

In this way, the economic reunification took a first step when the German Chancellor, Helmut Kohl, proposed on 8th November 1989 an economic aid to improve the situation of its inhabitants and to reduce the immigration from the GDR. On 17th November, Hans Modrow, president of the GDR's Council of Ministers, posed a common treaty with the Federal Republic to guarantee the economic stability of the GDR and to prevent an eventual unification. In response, Kohl reported a countermeasure to the Bundestag (the parliament of the Federal Republic of Germany) on 28th November known as the Ten-Point Program, in order to facilitate the both the democratic transition in the GDR and the unification (he did not explicitly mention the word "reunification" in the program). And that's because on 21st November (a week before), the international affairs consultant of the Soviet Communist Party, Nikolai Portugalov, and Horst Teltschik, Kohl's chief advisor, would have met in Bonn, from which a proposal of reunification would arise, which would later conclude in that program. What was intended was to replace the planned economy in the GDR by a market economy.

On 10th February 1990, Karl Otto Pöhl (President of the Bundesbank, the central bank of FRG) expressed his support, with some caution, for the initiative of Chancellor Kohl in favour of a rapid monetary union with the GDR. Until then, President and

² Available at: https://www.chronikderwende.de/english/term_jsp/key=e_10-point-plan.html

Chancellor had been at odds, but Pöhl's change of attitude, who favoured greater prudence and laxity in the introduction of the German Mark as legal currency in the GDR, was conditioned his meeting with the authorities of the GDR (Horst Kaminski, president of the central bank, and Christa Luft, Minister of Economy) and with a wave of rumours stating that Eastern Germany might call for a suspension of payments on its international commitments.

Pöhl said that the monetary union project required "a radical change in the economic structure of the GDR". This was due in part to the official media of the two Germanies agreeing to express their concern about the economic situation of the GDR, harmed to the point that "it could enter into a bankruptcy situation before the elections of March" according to the words of a senior official of Bonn (capital of the FRG until 1990 and seat of the government until 1999).

However, those rumours were denied. An official spokesman announced that "the federal government does not believe the GDR will enter into a phase of insolvency in the forthcoming days". And the Executive of the GDR added "this information has no meaning" and "the GDR will be able to take care of its payments while the government of Hans Modrow remains".

The aforementioned prudence of Pöhl carried out an open confrontation with Kohl, because he insisted on the necessity that the East "put in order the economy of its house"³. And then, with all its advantages and disadvantages, and after a political reunification, an economic process which was never seen before was started. Many agents influenced the decision-making, and the consequences were uncertain, the whole German people were willing to take up the challenge because the fall of the Berlin Wall was a critical point in the history of their country.

3. Theoretical basis

After the end of World War II in 1945, Europe experienced an economic growth never reached before, known as "the Golden years of capitalism". This period was also marked by the confrontation between the two great powers, the United States and the Soviet Union, within the framework of the Cold War, leading to the division of

³ Statements according to the article in the newspaper EL PAÍS "El banco central de la RFA cede a la presión de Helmut Kohl para agilizar la unión monetaria alemana", from 10th February 1990.

Germany, and which ended with the oil crisis of 1973. Despite its importance and broadness, such economic expansion showed that not all the regions of a country benefited in the same way. In fact, there were important differences that gave rise to regional disparities within the same country.

There are several theories about regional development. Its more systematic elaboration, in specific geographical models begins in the decade of the fifties,⁴ being two of the most relevant ones the theory of the stages of growth and the theory of the export base. The first focused essentially on supply, and proposed that all economic growth is based on the internal evolution of the division of labour, which spreads over time and is divided into different stages. So that underdevelopment was understood as a stagnation in some of its phases due to external limitations or to the presence of internal deficiencies. The second highlighted demand as the driving force of growth of the most underdeveloped regions, being the exports of special importance due to its multiplier effect on the economy. So an economy lacking of specialised and competitive exports was not in an optimum state of development. Germany is the third exporting country in the world, only surpassed by China and the United States. So this theory is complemented by the theory of the international trade and custom unions. Nevertheless, in inter-regional trade there are no adjustment mechanisms like those at the international level such as the balance of payments or the adjustment of exchange rates. So the effects of the creation of a custom union are the deviation of trade towards the most efficient supplier, due to specialization effects, economies of scale, psychological effects on expectations, or by an increase of competition and greater efficiency.

Afterwards, in the 1960s, the decline of some industries from which some regions were heavily dependent led to the emergence of two dominant and conflict theories: the neo-classical or liberal theory and the cumulative causation theory. The former emphasized, from the supply side, that every economy tends to a certain degree of equilibrium when its forces are let to act independently. Let's say, allowing the free mobility of basic factors such as capital and labour, migrations and investments bring equilibrium in wages and capital yields leading to convergence. But the latter theory had a more pessimistic view of free regional movement. It considered that the dynamics triggered by the economic growth were of an accumulative type, where more demand interacted in more populated places due to greater job opportunities with a more

⁴ Cuadrado, J.R. (1999).

efficient supply, benefiting from agglomeration economies. Therefore, it considered necessary corrective actions by the authorities trying to eliminate these imbalances by encouraging the peripheral areas and establishing some kind of tax rebate with less public investment in the most advanced ones.

3.1. Convergence models

Classic model

The neoclassical model of regional growth focuses on the capital per capita as determinant of the level of labour productivity, wages and per capita income. The model states that, in absence of restrictions to mobility, work will flow from backward to more advanced regions while capital will move in the opposite direction: from the most advanced to the backward ones. This is because the marginal return on capital is higher in regions where both wages and capital per capita are lower. Thus, capital will tend to accumulate in a balanced way in both regions, and so will do the per capita income.

According to this model, we can say that in Germany, after the reunification, there was a convergence process just taking into account the disposable household income⁵ since the coefficient of variation of this variable among all German regions in 1995 is 0.14 while in 2014 is 0.10, suggesting a higher degree of homogeneity in this statistic. Those regions lagging behind in 2000 in per capita GDP are the same ones that in 1995 did not exceed 14,000€ in disposable household income (table 3.1.1), all of them belonging to the former GDR: Brandenburg, Mecklenburg-Vorpommern, Saxony, Saxony-Anhalt and Thuringia. Those, along with Berlin, kept being the furthest from the German household income in 2014, no one of them closer than a 10% (column “%G 2014”). However, they were the ones that came closest to the German average of 2014 in percentage points (column “Difference”), registering some degree of convergence with respect to the others. The exception was Berlin, whose negative difference was of 16 percentage points.

⁵ The net disposable income is defined as the sum of the household final consumption expenditure and savings, minus the change in the net equity of households in pension funds. Source: data.oecd.org

Table 3.1.1. Level of per capita GDP and disposable household income in the German regions between 1995 and 2014 (and comparison and differential of percentage points of the latter with the German mean)

GEO/TIME	Per capita GDP		Disposable household income				Difference
	2000	2015	1995	2014	%G 1995	%G 2014	
Germany	26,000	37,100	17,307	20,021	100	100	-
Baden-Württemberg	29,900	42,800	18,441	21,682	107	108	1
Bavaria	29,600	43,100	18,969	21,882	110	109	-1
Berlin	25,900	35,600	18,056	17,629	104	88	-16
Brandenburg (GDR)	17,300	26,500	13,918	17,634	80	88	8
Bremen	34,000	47,500	16,831	19,014	97	95	-2
Hamburg	46,700	61,700	19,599	22,371	113	112	-1
Hesse	32,300	43,000	18,167	20,485	105	102	-3
Mecklenburg-Vorpommern (GDR)	16,500	24,900	13,023	16,578	75	83	8
Lower Saxony	23,400	32,900	16,868	19,122	97	96	-1
North Rhine-Westphalia	26,300	36,500	18,141	20,107	105	100	-5
Rhineland-Palatinate	23,400	32,800	17,201	20,651	99	103	4
Saarland	23,900	35,400	15,600	18,945	90	95	5
Saxony (GDR)	17,200	27,700	13,815	17,216	80	86	6
Saxony-Anhalt (GDR)	16,200	25,100	13,252	16,815	77	84	7
Schleswig-Holstein	23,200	30,200	18,064	20,430	104	102	-2
Thuringia (GDR)	16,400	26,300	13,082	17,007	76	85	9

NOTE: The per capita GDP is shown in real values. Columns “%G 1995” and “%G 2014” show the percentage points respect to the German national. Column “Difference” is the difference between 2014 and 1995, in percentage points.

SOURCE: OECD database.

But this model leaves out the importance of the cumulative processes occurring in any development course, since the generated synergies around the made investments contribute to raise its returns, avoiding the flow of capital to the periphery. Hence, this model has been criticized for not explaining regional differences taking into account the effects of the scale economies, the effects of the agglomeration or the local learning processes, among others.

In addition, as a result of the flow of capital to the periphery, new related costs arise for the transfer of production to a more external location. For instance, transport and communication costs, resistance of the workforce to such migration and related uncertainties to the quality of the local factors of production. Being these premises against the theoretical basis of the model.

Due to the specificity of some production models, its adjustment in the backward regions is simpler when the productions are of “traditional” type. Because they don’t need specific factors which are sometimes immovable. “Central” locations are usually needed for the accumulation of technical information or a certain level of labour force as well (Cuadrado, J.R., 1992).

But the advantage of this model rests in highlighting the importance of some productive factors which are specifically located. For example, the level of wages or the unitary labour costs are elements that can determine the potential for capital attraction of a region. As well as other intangible factors related to human and social capital, which will be analysed afterwards by means of the Better Life Index, an index developed by the Organisation for the Economic Cooperation and Development (OECD)⁶ to complement the progress analysis of different communities.

In this way, the model assumes that development comes from market deficiencies produced by the segmentation of the labour market, or by the action of the institutions to homogenize the wage level, or because there is not enough attraction strength from the periphery for the investment of capital. In a country like Germany, where labour unions have weight in setting the wage level, the neoclassicals would criticize their role in its establishment, because they would not fairly reflect what the market indicates. Especially, in the weak territories like the Eastern German *Länder*, this would prevent the productive conditions being enough flexible to make them competitive. An effect that will be seen in the disposable household income when the German labour market be analysed in the last part of the paper.

Cumulative model

In face of the idea of equilibrium achievable through the market and its free competition, that forms part of the “core” of the discipline since the beginning, a parallel but opposite approach arose arguing that growth was polarity and accumulation. Its main difference is that it pays attention to the cumulative processes that occur as a result of the interaction between supply and demand. Investment is more influenced by the growth of the demand rather than the marginal benefits it might produce. This has two consequences: the first one has to do with immigration, generating a local market

⁶ Available at: <https://www.oecdregionalwellbeing.org/>

that increases demand, and the second one is that the increased productivity and competitiveness, because of the scale economies, agglomeration and innovation, attract external demand. By contrast, the more backward regions enter into a negative spiral accompanied by a migration process towards the more advanced regions.

The idea of cumulative growth is based on the close relationship between the increase in per capita income and productivity, which leads to better competitiveness and an expansion in the demand of exports in the more dynamic territories.

But the tendency of accumulation has also some limits. A continuous growing process will lead to physical congestion and an increase in the cost of the production factors, as well as an increase in prices. Thus, a diffusion effect is produced either by the geographical proximity or by the main axes of inter-regional transport. At the social stage, territorial benefits show the following features: the diffusion effects appear with some delay, reaching firstly the intermediate regions (both geographically and at the income level), and when it appears is because the advanced regions evidence decreasing yields due to congestion, while in the backward regions an under-utilization of the factors is experienced (Cuadrado, J.R., 1992).

The outcome of this theoretical approach is the clear need for a State intervention. The aim would not be other than offering to the firms some incentives to invest in less advanced regions and avoid those cumulative processes. To this end, the development of the infrastructure is crucial, and the increase in employment in the public sector to maintain the income levels too.

The bilateral agreement of 18th May 1990 between the FRG and the GDR set a social market economy for both parts. This constitutional contract marked the guidelines of the common economic order for the monetary, economic and social policy, and was born in face of the existing need for a state intervention to reach social and economic balance after the fall of the wall. This economy is determined by the private property, the competitiveness and the free allocation of production factors and assignment of prices. At the same time, a State entity must ensure competition, avoiding the concentration of private power in monopolies or oligopolies. However, these interventions must be always compatible with the market, i.e. they must be compatible with the economic order without disturbing the equilibrium between supply and demand, strictly limited to the correction of the so-called market failures.

For this reason, the social market economy can be understood as a mixture of both theories, since it provides free factor mobility, and its interaction only affects the development of the competition, but not the supply and demand relationship.

3.2. Review and extension to the concept of development

Development is a concept that underlies all levels, because it encompasses all social disciplines, all citizens, and all types of agents and organizations. It is broader and deeper than all the theoretical frameworks. And yet, the economy seems to have taken possession of its exclusive analysis and determination, as in many cases the politically correct speech is the one which is inspired by the most recent economic reports and assessments. But even among the economists there is a debate about what development is and how it is achieved, being that mere economic data are not enough to answer those questions. Despite its importance, the market is not the only driver of development, because such debate also covers fields like philosophy or politics.

Identifying development with economic growth leads to establish a weak equivalence. Therefore, development and per capita income are not always synonyms (against what is pointed out in the neoclassical model) since, apart from the market, a government is needed to provide stimulating and cohesive values (social market economy).

This is because there are many situations in which high business profits and more consumer choices do not mean higher living standards. There are many adverse circumstances which are not solved in the mercantile transactions (market failures), so a public intervention is needed.

But even solving these problems caused by the imperfect markets, and assuming an effective and democratic performance of public administrations, there exist situations of disparity between economic growth and development. For example, in countries with a strong welfare state there are evidences at a geographical and social level. And in territories that share a market, regulations and budgets, there are regions which offer to its inhabitants more dynamic environments with wider options. The Marshall's "economic atmosphere", constrained by the trust and the commitment of the agents, the social climate and the quality of the institutions, clearly influences the

efficiency of a territory and the well-being of its population. Being elements that also take part of the economic panorama, such as the markets or the public sector.

Thus, we can say that values, together with the market and the governments, are the cornerstone when determining the development of a territory.

But this definition of development leads us to largely-discussed issues with difficult resolution: Is growth only the tangible and measurable in monetary units? How should quality of life be assessed? What is growth?

Relevant researchers such as Kuznets and Sen, both Nobel Prize winners in economics, help to shed light on these issues. In their definitions of development, a broader, humanist and complex vision is included than the strictly economic or monetary one.

On the one hand, Kuznets' development consists on a sustained increase in per capita income accompanied by a structural process in which population grows. So for him, the social change towards a more open approach to the exchange of materials and ideas and the demographic evolution ratified by a growth in per capita income can be confirmed as development.

On the other hand, and more recently, Amartya Sen defined development as a growing process of people's abilities, so that they have enough autonomy in the definition of their own vital project. This personal freedom has economic, political and moral dimensions, and it is the one that defines the effective level of development of a society (empowerment).

Thus, Sen determines poverty not only as the absence of well-being, but also as the lack of being able to act autonomously. Furthermore, it is necessary to be aware that situations of marginality and social exclusion negatively influence on the development of the personal freedom.

In order to analyse in a closer way the personal growth and its capacity for autonomy and choice, we have used data from the OECD that do not only refer to economic statistics. Living standards depend on the balance of multiple factors, these are specific to each community and help us to understand the requirements people need to make the place where they live a better place. The study of the Better Life Index (BLI) at the regional level helps us to understand how the German welfare state is thanks to 11 factors.

The first indicator is the satisfaction level with the living standard, the most general one. As seen in table 3.2.1, Hamburg is the region that shows the highest level: 7. This indicator is important because it gives an idea of how people evaluate their life in general, including particular aspects such as satisfaction during leisure time, feelings or expectations. The width of this indicator is quite large, with almost 3 points of difference among Hamburg and the two regions with the worst score: Thuringia and Brandenburg, both with 4.1.

The next indicator is the access to services, which represents the ability of people to obtain what is necessary to satisfy their wants and needs. This dimension enables understanding inequalities between regions, since large differences would mean distinct levels of access to basic and advanced services (e.g. transport, water, education, health or information technologies). These differences are useful to policy makers because they reflect the available opportunities for people and how interventions should be prioritized. Hamburg shows again the highest value (9.6) whereas the lowest is found in Brandenburg and Mecklenburg-Vorpommern (7.7), in Eastern Germany.

Civic engagement includes the public confidence shown in government, as well as political participation. It should be taken into account that many of the decisions that most affect people live are those policies carried out by the local government. Baden-Württemberg and Saxony-Anhalt show 6.5 and 3.6, respectively. The differences are large within medium-low levels.

Regarding education, the score obtained by each region basically depends on the percentage of the labour force that has attained at least upper secondary education, defined as the 3 ISCED level according to the international standards for education.⁷ In this way, it should be noticed that the regions of the ex-GDR such as Thuringia and Saxony (with 10) or Brandenburg and Saxony-Anhalt (with 9.9) show the highest values. This is a common feature in all territories that were of planned economies. Despite the rigidity of its institutions and the inefficiency of its productive organizations, the human capital of its citizenship was high. This has facilitated the migratory exit during the recent years, and the loss of its most important resource.

⁷ The ISCED level 3 corresponds to the upper secondary education, which starts at the age of 15 or 16 years old and goes immediately after the compulsory education. Source: ec.europa.eu

Table 3.2.1. The Better Life Index (table 1 of 2)

GEO/INDICATOR	Life satisfaction	Access to services	Civic engagement	Education	Jobs
Germany	7.9	-	4.9	8.0	8.2
Baden-Württemberg	6.7	8.7	6.5	8.5	9.5
Bavaria	6.7	8.8	5.5	8.9	9.5
Berlin	4.8	9.1	6.1	8.7	6.8
Brandenburg (GDR)	4.1	7.7	5.1	9.9	8.2
Bremen	6.7	9.0	5.2	8.0	7.4
Hamburg	7.0	9.6	5.4	8.6	8.8
Hesse	6.3	9.3	6.3	8.6	8.5
Mecklenburg-Vorpommern (GDR)	5.2	7.7	4.4	9.7	6.8
Lower Saxony	6.7	9.3	6.3	8.6	8.5
North Rhine-Westphalia	6.3	9.1	6.1	8.3	7.8
Rhineland-Palatinate	6.3	9.0	6.2	8.4	8.7
Saarland	5.9	9.1	6.1	8.4	7.6
Saxony (GDR)	4.1	8.4	5.4	10.0	8.1
Saxony-Anhalt (GDR)	3.7	8.6	3.6	9.9	7.3
Schleswig-Holstein	6.7	9.1	6.2	8.8	8.5
Thuringia (GDR)	4.1	8.6	5.1	10.0	8.4

NOTE: Each variable is measured from 0 to 10, being the latter on the highest possible score. The scores correspond to the information obtained by June 2016. The Better Life Index uses several variables to set the value on each of the 11 dimensions which compose the study. More information: www.oecdbetterlifeindex.org.

SOURCE: www.oecdregionalwellbeing.org.

Employment represents another welfare dimension, as maintaining it implies the development of personal skills, and is linked to other factors such as health, social relations or personal accomplishment. An uneven access to job positions is the major cause of regional inequalities, either in terms of activity rate or in employment rate. Baden-Württemberg and Bavaria are the regions with the highest levels of employment (being Bavaria in the upper 10% of all OECD regions), while Berlin and Mecklenburg-Vorpommern (both with 6.8) are in the lower half of the OECD.

The importance of the community around people clearly influences their trust in the others, as well as in institutions, shaping at the end of the day their social cohesion and removing many of the transaction costs that make production more expensive. This indicator of table 3.2.2 is determined by the ability to find fellow citizens and civil entities to provide support in case anyone has a problem. In this sense, a greater feeling

of confidence is shown in Schleswig-Holstein, while in Brandenburg and Hesse is appreciated at a lower level.

Besides, the quality of the local environment has important effects on the health of the people, as well as on future generations. This study just takes into account air quality and pollution, but the quality of water and waste related services have also an influence. The value of Mecklenburg-Vorpommern (5.5) contrasts with that of Baden-Württemberg and Berlin (3.1).

Income is one of the fundamental pillars of people's welfare, enabling them to obtain both basic needs and satisfy their desires; and in some cases to achieve goals that are important to their lives. It is also understood as a level of satisfaction and implies social status. This indicator of the Better Life Index depends on the per capita disposable income of private households. This puts Bavaria (6.4) and Baden-Württemberg and Hamburg (6.1) with the highest score in Germany, while the lowest value is shown in Mecklenburg-Vorpommern (4.5) along with the rest of the Eastern regions.

Table 3.2.2. The Better Life Index (table 2 of 2)

GEO/INDICATOR	Community	Environment	Income	Health	Safety	Housing
Germany	7.3	7.6	5.0	7.3	8.4	6.2
Baden-Württemberg	8.8	3.1	6.1	8.1	9.7	6.7
Bavaria	8.9	3.8	6.4	7.2	9.8	7.2
Berlin	9.1	3.1	4.7	6.7	8.8	6.1
Brandenburg (GDR)	8.0	3.2	4.9	5.8	8.1	7.2
Bremen	8.8	3.9	5.5	5.3	8.3	7.2
Hamburg	9.3	3.7	6.1	6.7	9.1	6.1
Hesse	8.0	3.9	5.8	6.9	9.1	6.7
Mecklenburg-Vorpommern (GDR)	8.8	5.5	4.5	5.4	9.8	7.8
Lower Saxony	8.6	3.9	5.4	5.9	9.1	7.8
North Rhine-Westphalia	8.9	3.2	5.6	5.9	9.7	6.7
Rhineland-Palatinate	8.9	3.8	6.0	6.4	9.7	7.8
Saarland	8.2	5.1	5.3	5.4	8.1	8.9
Saxony (GDR)	9.1	3.9	4.8	6.3	9.5	7.8
Saxony-Anhalt (GDR)	9.3	4.3	4.6	4.9	9.0	8.3
Schleswig-Holstein	9.7	4.0	5.8	6.0	8.8	7.2
Thuringia (GDR)	9.4	5.0	4.7	5.9	8.8	7.8

NOTE: Each variable is measured from 0 to 10, being the latter on the highest possible score. The scores correspond to the information obtained by June 2016. The Better Life Index uses several variables to set

the value on each of the 11 dimensions which compose the study. More information: www.oecdbetterlifeindex.org.
SOURCE: www.oecdregionalwellbeing.org.

Differences in health may depend on the ease of access to health services. The indicators taken into consideration are life expectancy and mortality rate. So the region with the highest level in this aspect is Baden-Württemberg with 8.1, while Saxony-Anhalt only reaches 4.9.

Personal security refers to the security sense to a personal attack or to become involved in a crime of some kind, such a robbery. Although a crime can have direct effects on the victim in the long term, the used indicator has been an objective way of crime measure: the murder rate, represented by the number of homicides per 100,000 people. Therefore, the safest regions considered by the BLI would be Mecklenburg-Vorpommern and Bavaria, with 9.8. And on the other side Brandenburg and Saarland, with 8.1.

Finally, housing is an important factor too. Alongside water and food, an appropriate place to live is a basic need for every human being. In addition, mortgages use to cover the majority of the costs of the private income. In order to set up a rank between regions, the indicator taken into account is the average number of rooms per dwelling. Being Saarland the best located in this sense (8.9) and Berlin and Hamburg the worst (6.1).

Thanks to this study, we can have a clearer idea about how is the quality of life in each German region, according to the abovementioned parameters. However, to decide if some region is better than another depends on the elements we use as comparison. We can use individual elements to establish a ranking in each category, or a general average using the score of each region in each variable would bring us a closer situation of the federal states. Nevertheless, another interesting analysis would focus on the evolution of the *Länder* from 2000 to 2014 in the different aspects. To this end, tables 3.2.3 and 3.2.4 give an approach about the living standards in Germany.

Table 3.2.3. Development of the well-being factors in Germany, 2000-2014 (table 1 of 2)

GEO/INDICATOR	Life satisfaction	Access to services	Civic engagement	Education	Jobs
Baden-Württemberg	..	+	-	~	+
Bavaria	..	+	-	~	+
Berlin	..	+	-	~	+
Brandenburg (GDR)	..	+	-	~	+
Bremen	-	~	+
Hamburg	..	+	-	~	+
Hesse	..	+	-	~	+
Mecklenburg-Vorpommern (GDR)	..	+	-	~	+
Lower Saxony	..	+	-	~	+
North Rhine-Westphalia	..	+	-	~	+
Rhineland-Palatinate	..	+	-	~	+
Saarland	..	+	-	~	+
Saxony (GDR)	..	+	-	~	+
Saxony-Anhalt (GDR)	..	+	-	~	+
Schleswig-Holstein	..	+	-	~	+
Thuringia (GDR)	..	+	-	~	+

NOTE: Symbol “+” means an improvement in the value shown in 2014 respect to the year 2000. Symbol “-“ means a worsening, “~” means the value has remained stable and “..” means that any comparison could be made.

SOURCE: www.oecdregionalwellbeing.org.

Table 3.2.4. Development of the well-being factors in Germany, 2000-2014 (table 2 of 2)

GEO/INDICATOR	Community	Environment	Income	Health	Safety	Housing
Baden-Württemberg	..	~	-	~	..	-
Bavaria	..	+	~	~	..	~
Berlin	..	+	-	~	..	-
Brandenburg (GDR)	..	+	~	~	..	+
Bremen	..	+	-	-	..	-
Hamburg	..	+	-	-	..	-
Hesse	..	+	-	-	..	-
Mecklenburg-Vorpommern (GDR)	..	+	~	+	..	+
Lower Saxony	..	+	-	-	..	~
North Rhine-Westphalia	..	+	-	-	..	~
Rhineland-Palatinate	..	+	~	-	..	~
Saarland	..	+	-	~	..	~
Saxony (GDR)	..	+	-	~	..	~
Saxony-Anhalt (GDR)	..	+	~	~	..	+

Schleswig-Holstein	..	+	~	-	..	-
Thuringia (GDR)	..	+	~	~	..	+

NOTE: Symbol “+” means an improvement in the value shown in 2014 respect to the year 2000. Symbol “-“ means a worsening, “~” means the value has remained stable and “..” means that any comparison could be made.

SOURCE: www.oecdregionalwellbeing.org.

Paying attention to the tables, only civic engagement has worsened in all regions during the recent years. Income and education have experienced the similar stable evolution. And the positive aspect is given by an improvement in access to services, labour market and environmental quality.

As we have just seen, development does not only depend on economic data, so government institutions are enforced to achieve the best social ratios as well. And what people demand today is that the strategic planning of the territory must establish synergies between human capital (workers), social capital (companies, universities and civil society) and technological capital (infrastructure and communication systems). For this reason, the management of today’s knowledge society is key to face future challenges and opportunities.

The release by Professor Richard Florida⁸ in 2002 of his work *The rise of the creative class* generated a broad international debate about the new ways of territory management. There, Florida asserts economic growth does not occur as a result of the simple location of large companies in a given area, but in places where there is tolerance, diversity is admitted and people are open to creativity (he talks about the 3 Ts: technology, tolerance and talent). And he adds that these creative people are those who attract economic growth.

Then, Florida elaborates a measurement index to rank the American cities according to its capacity to attract creativity. To that end, he takes into consideration variables such as the degree of innovation of a city, the number of registered patents or, in the case of the diversity and tolerance, he synthesizes a somewhat particular variable: the percentage of homosexual population. He uses this last index because he demonstrates it has a positive correlation with tolerance and diversity, and he adds that a

⁸ Professor and expert in the fields of geography and economic growth. As well we current director of the Martin Prosperity Institute at the Rotman School of Management (University of Toronto).

city where a homosexual person does not want to live will hardly be receptive to other differences coming from the creative capacity.

The result of his study are not the big American cities, but San Francisco (California) and Austin (Texas) represent the most attractive places for talent not only for its large number of high-tech companies, but also because they gather creativity and ingenuity in its universities. And they are open, tolerant and diverse cities.

According to this pattern, we can analyse which German cities would best fit Florida's model. And therefore, to conclude which regions are in a better position in face of an optimum future development.

The city of Munich is the one with the best universities in Germany (table 3.2.5). Stuttgart, as main city of Baden-Württemberg, stands out for not having any university in this ranking, when we can find 3 cities of this state in the list: Heidelberg, Karlsruhe and Freiburg. Also, there are two universities from North Rhine-Westphalia (Bonn and Aachen), and the ones of Hamburg, Berlin and Dresden, the only one from an Eastern region.

Table 3.2.5. Top 10 universities in Germany, July 2017

National ranking	University	City	State
1	Ludwig Maximilians Universität München	Munich	Bavaria
2	Ruprecht Karls Universität Heidelberg	Heidelberg	Baden-Württemberg
3	Technische Universität München	Munich	Bavaria
4	Karlsruhe Institute of Technology (Universität Karlsruhe)	Karlsruhe	Baden-Württemberg
5	Rheinische Friedrich Wilhelms Universität Bonn	Bonn	North Rhine-Westphalia
6	Universität Hamburg	Hamburg	Hamburg
7	Rheinisch Westfälische Technische Hochschule Aachen	Aachen	North Rhine-Westphalia
8	Freie Universität Berlin	Berlin	Berlin
9	Universität Freiburg	Freiburg	Baden-Württemberg
10	Technische Universität Dresden	Dresden	Saxony (GDR)

SOURCE: webometrics webpage.

For the level of tolerance, regional data on the percentage of homosexual population could not be found. However, it is worthy to highlight that after its

persecution during the Nazi period, Germany is nowadays the country with the highest percentage of homosexual, bisexual or transgender population in Europe (7.4%),⁹ while the egalitarian marriage was approved by the Bundestag on 30th June 2017.¹⁰ Then, it was considered convenient to analyse the foreign population at a regional level to have a perception of the degree of tolerance, since foreign population implies cultural, artistic, linguistic and religious diversity.

By 2011, Hamburg, Bremen and Hesse were the regions with the largest foreign population, as shown in table 3.2.6. And were closely followed by Baden-Württemberg and Berlin. Nevertheless, the five states belonging to East Germany are the only ones which do not reach the 10%. And it indicates that, regardless the population size, almost exclusively German people live there. But here it is remarkable the great diversity found in Berlin. As capital, and despite being located in the middle of the old communist *Länder*, it is one of the most attractive regions to foreign population.

Table 3.2.6. Percentage of foreign population in Germany, 2011

REGION	Percentage of foreign population
Germany	13.6%
Baden-Württemberg	16.7%
Bavaria	14.2%
Berlin	16.5%
Brandenburg (GDR)	7.4%
Bremen	17.5%
Hamburg	17.7%
Hesse	17.0%
Mecklenburg-Vorpommern (GDR)	8.7%
Lower Saxony	12.8%
North Rhine-Westphalia	15.4%
Rhineland-Palatinate	11.9%
Saarland	10.3%
Saxony (GDR)	6.2%
Saxony-Anhalt (GDR)	6.3%
Schleswig-Holstein	11.0%
Thuringia (GDR)	5.6%

⁹ Source: <http://www.20minutos.es/noticia/2875500/0/espana-pais-europeo-poblacion-lgtb/>, 29th October 2016.

¹⁰ More information about the homophobic perception in Germany during the first years of reunification in *Einstellung und Werthaltungen zu homosexuellen Männern in Ost- und Westdeutschland* (Bochow, M., 1993).

NOTE: 2011 is the only year when data about regional foreign population is available.
SOURCE: Eurostat database.

Finally, to measure the degree of innovation, table 3.2.7 indicates the percentage of employees participating in the high-tech industry. Baden-Württemberg leads this classification with 2.6%, followed by Bavaria, Hesse and Thuringia, from the ex-GDR.

Table 3.2.7. Share of employment in hi-tech manufacturing in Germany, 2014 (percentage over total employment)

REGION	Share of employment in high-technology manufacturing
Baden-Württemberg	2.6%
Bavaria	2.2%
Berlin	1.5%
Brandenburg (GDR)	1.1%
Bremen	-
Hamburg	1.3%
Hesse	2.2%
Mecklenburg-Vorpommern (GDR)	1.0%
Lower Saxony	0.9%
North Rhine-Westphalia	1.2%
Rhineland-Palatinate	1.3%
Saarland	-
Saxony (GDR)	1.6%
Saxony-Anhalt (GDR)	1.0%
Schleswig-Holstein	1.2%
Thuringia (GDR)	2.2%

NOTE: Symbol “-“ means data was not available for this region.
SOURCE: OECD regional statistical database.

So that, we can conclude from this analysis that the regions that best meet the 3-T criteria established by Richard Florida could be Baden-Württemberg, Bavaria and Berlin. And lagging behind them, to a lesser extent, Hamburg and Hesse.

4. Convergence and inequality in the German regions

Even though the initial analysis of Professor Florida refers to cities, it has been adapted at the regional level to be complemented by the following convergence study in terms of GDP and per capita GDP.

With diminishing returns in the accumulation of physical capital, it must be expected a convergence in per capita income and in labour productivity, since the poorest have a greater capacity for growth. As long as they stay in the same steady state of development, that is, that they achieve the same rates of investment in physical and human capital (over GDP) and population growth.

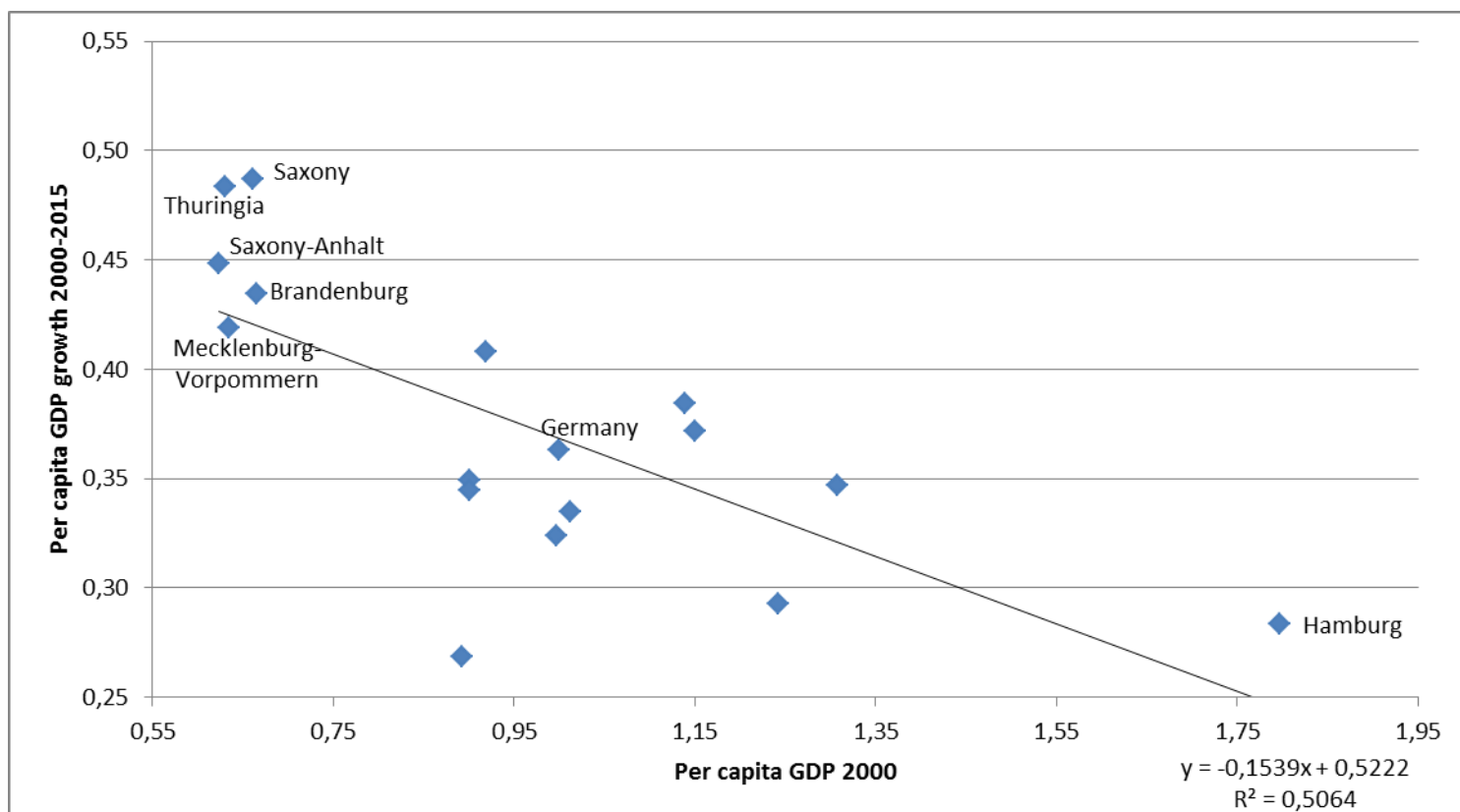
Economic integration accelerates convergence, as it encourages the efficiency of the most backward economies by subjecting its firms to greater external competition. And it also favours its introduction in a more advanced steady state, while making economic policies more similar (Baldwin and Wyplosz, 2015).

In Germany, the backward economies have approached to the most advanced ones resulting in a catch up process in per capita GDP in the period between 2000 and 2015, as shows chart 4.1: higher regional per capita GDP in 2000 (expressed in relation to the German average) seems to be significantly associated with lower relative growth rates over the period, and vice versa, those regions with a lower level of wealth in 2000 (less per capita GDP) recorded a relatively higher growth over the 15 years.¹¹ We can see that the five regions with the lowest per capita GDP in 2000 are those that belonged to the territory ruled by the GDR until 1989.

Looking to the other regions, its behaviour was more heterogeneous, although they also followed the aforementioned trend. And Hamburg is clearly placed in the opposite side to the former GDR: despite starting in 2000 with almost twice the German average per capita GDP (80% more), later on it was the second territory that experienced less growth.

¹¹ The regression line showing the relation is enough significant if we take into account the value of the coefficient of determination R^2 , higher than 0.5.

Chart 4.1. Convergence of per capita GDP between the German regions, 2000-2015



NOTE: The horizontal axis shows values respect the German average. The vertical axis shows the growth rate between 200 and 2015, which is of cumulative annual type. This chart, as well as charts 4.2 and 4.3 are the only exceptions where decimals are separated by a comma and thousands by a point, as in Spanish.

SOURCE: Eurostat database and own elaboration.

In addition, it is interesting to add that the convergence process of the per capita GDP has evolved steadily during the whole period. Unlike the GDP. Indeed, as chart 4.2 shows, in which the temporary line of the dispersion of the per capita GDP in the German regions is represented by the coefficient of variation, the regional convergence process remains stable from 2001 onwards.¹²

Given the lack of data prior to 2000 (both for GDP and per capita GDP, at regional level), the analysis cannot exhibit how was that process in the 1990s. Because lower values in the coefficient of variation of the per capita GDP would show a lower degree of dispersion and, therefore, less difference between regions. But on the other side, that would mean there was a process of divergence, during some years, until 2001.

¹² The coefficient of variation has been calculated as the standards deviation of the per capita GDP divided by its average. Using data from the Eurostat regional database.

In such case, it would be equally interesting being able to analyse why the degree of dispersion was lower before the beginning of the 21st century, as why a divergent trend was followed since 2001 by a constant convergent behaviour (a possible influence could be the emergence of the Euro as official currency in Europe in 2002, clearly affecting trade relations between the member states). Or in the other hypothetical situation where the trend between 2000 and 2015 was just the continuation of the one experienced along the 90s, and then the question would be why there was a recession until 2001 (maybe motivated by the dot-com crash between 1997 and 2001).

However, in spite of the financial crisis of 2008 that led Europe to the greatest recession since World War II, the convergence situation in Germany was not affected. In other words, despite the depression, the regions with the lowest per capita GDP kept the catch up process. But there is certain stagnation since 2011, even a slight decline in 2013.

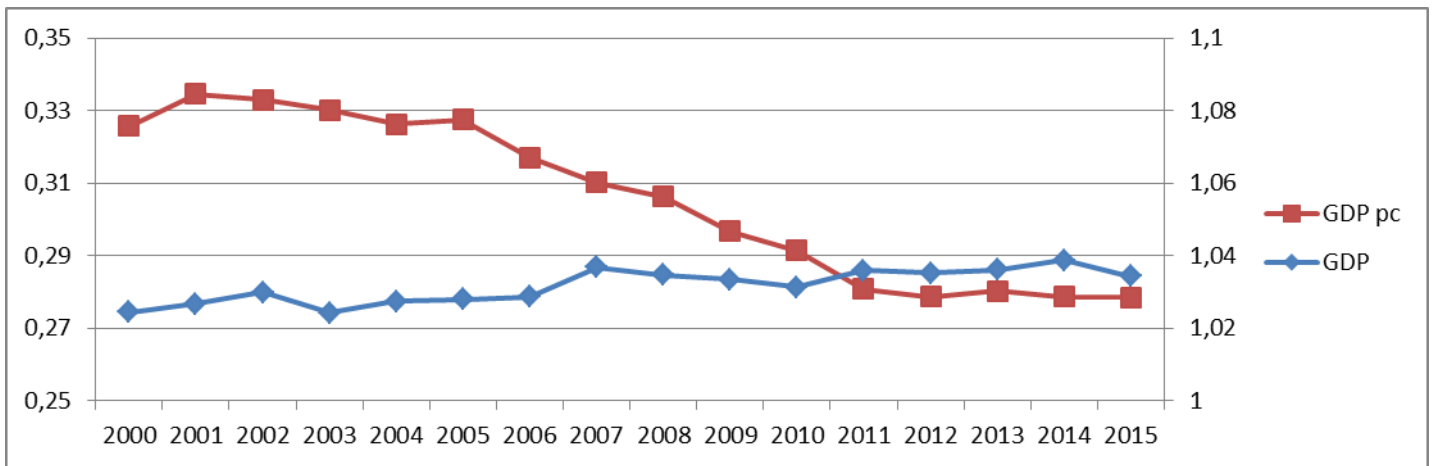
Another issue is that the temporary profile of the GDP does not look like the per capita GDP, which means that the changes in the regional distribution of per capita GDP have not been influenced by the modifications suffered by the GDP of the territories, but maybe due to other factors such as migration movements. As we will see in next section, when talking about the determinants of economic growth, for any Eastern region, the migration movements have been much more intense than the change in GDP between 2000 and 2015. Even though when the GDP has risen above the German average or not.

In terms of GDP, it's clear that there is a higher scattering degree between regions, being the dispersion even bigger in 2015 than in 2000 (1.03 against 1.025, respectively). This is due to, although all regional GDPs have grown, there are large differences between the size of the regions, economically speaking. In fact, the GDP of North Rhine-Westphalia, Bavaria and Baden-Württemberg have historically been far superior to the rest.

This dispersed behaviour does not discard the one seen in the per capita GDP. The reason is the productivity increase of the economy. This does not mean that the productivity is lower in those regions where GDP is higher, but that productivity growth has been bigger in those regions which started with lower GDP, supporting the per capita GDP convergence while the GDP remains somewhat stable (Costa-Campi et al., 2016).

In any case, Germany was one of the European countries hardly affected by the recent crisis, so in those years there was no worsening in any of those values. It is remarkable the decline in the degree of GDP dispersion (and therefore its brief convergence) in 2003. The flood of Elbe and Mulde rivers in August 2002 ravaged many villages of East Germany, being Saxony especially damaged. Nevertheless, the flood of the Danube as it passed through the South of Germany devastated crops so that by the end of 2002 and for 2003, the economies of Baden-Württemberg and Bavaria were stagnated or even declining, respectively. Meaning that GDP levels were somehow offset on that year.

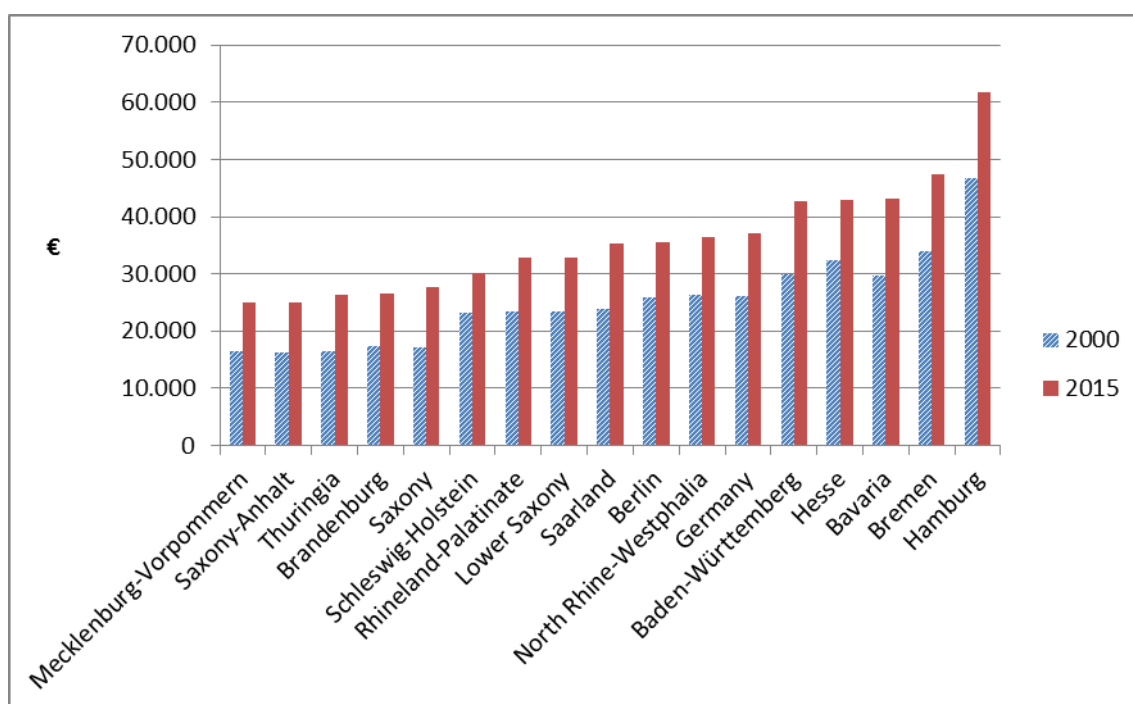
Chart 4.2. Dispersion of GDP and per capita GDP in the German regions



NOTE: Left axis for per capita GDP and right axis for GDP.
SOURCE: Eurostat database and own elaboration.

It should also be noticed that despite this continuous catching up process of per capita GDP over the last 15 years, in absolute terms, some differences persist between regions. Both in 2000 and 2015, Eastern Germany territories (the five regions to the left in chart 4.3) show the lowest values (chart 4.1 only shows values for 2000, and linked with the German average). But chart 4.3 also shows there has been an increase in absolute terms in all regions since the beginning of 21st century to 2015.

Chart 4.3. Regional per capita GDP



SOURCE: Eurostat database.

5. Determinants of economic growth

After analysing the time profile of the GDP and the per capita GDP in recent years and its degree of convergence or not, it is interesting to pay attention on some of the factors that may have influenced its development. Apart from population, factors like labour productivity, the employment rate or the investment in innovation of public funds.

Hamburg, Bremen, Hesse, Lower Saxony, Rhineland-Palatinate and Schleswig-Holstein have suffered a decline in the per capita GDP respect to the whole Germany due to the GDP increase in these regions has been lower than the national average (negative differential) and that the population has grown more than in Germany in general (positive differential), as can be seen in table 5.1.¹³ Among them, only in Hamburg and Bremen the (positive) differential of population growth was greater than the (negative) differential of GDP growth, so it can be inferred that population dynamics have been more significant in their loss of per capita GDP respect to the

¹³ That differential is calculated as the difference of each region respect to the German mean, using the cumulative annual growth rate of GDP, population and per capita GDP.

average than the economic dynamics. In the other four, the GDP dynamics was more determinant.

Bavaria and Baden-Württemberg have grown more than the per capita GDP average thanks to the positive differential increase of GDP with respect to the average was bigger than the positive differential of population increase. And at the same time than those regions, only Berlin has been able to maintain its differential above the average both in GDP and in population (capital of State effect). However, the evolution of the latter was enough bigger than the GDP so that the result of the per capita GDP shows a recession.

And we find in the opposite case North Rhine-Westphalia and Saarland. Regions with negative differentials in both statistics but with disparate results. In the former, population behaviour was not as intense as GDP, resulting in a differential decline in per capita GDP. In the latter it was the reverse situation: population had more weight, leading to a differential increase in per capita GDP.

As seen before, regions from East Germany had the lowest GDP in 2000 (chart 4.1). And in turn, they have experienced the higher increase in this value in the next 15 years. This has been due to in regions like Saxony, Brandenburg and Thuringia the GDP increase has been higher than the national average, while the population has grown less than the whole Germany (negative differential). Apart from that, Saxony-Anhalt and Mecklenburg-Vorpommern have observed (as Saarland) a greater increase in the per capita GDP differential due to a population dynamics less intense than the average, and also a much lower GDP growth, being the first the most significant component.

Table 5.1. Growth differential of GDP, population and per capita GDP in the German regions between 2000 and 2015

	GDP	Population	Per capita GDP
Hamburg	-2.30	4.60	-0.08
Bremen	-0.70	1.00	-0.02
Bavaria	7.10	5.50	0.02
Hesse	-5.50	1.90	-0.07
Baden-Württemberg	4.60	3.50	0.01
Germany	0.00	0.00	0.00
North Rhine-Westphalia	-3.90	-0.90	-0.03
Berlin	1.80	3.70	-0.04
Saarland	-3.00	-6.80	0.05

Lower Saxony	-1.60	0.30	-0.01
Rhineland-Palatinate	-2.10	0.70	-0.02
Schleswig-Holstein	-7.10	3.10	-0.09
Saxony	4.30	-8.30	0.12
Brandenburg	2.10	-4.50	0.07
Thuringia	0.20	-11.50	0.12
Saxony-Anhalt	-7.70	-15.70	0.09
Mecklenburg-Vorpommern	-4.60	-10.00	0.06

NOTE: Regions with greater per capita GDP than the German average of 2000 are located in the table above "Germany".

SOURCE: Eurostat database.

There is another convergence measure used very often with which, according to the per capita GDP, regions are classified depending on their level compared with the national average. In this way different stretches or tranches of regions are defined during several years in order to determine the percentage of total population living in each stretch.

On the basis of this analysis, table 5.2 shows, however, that the catch up process between 2000 and 2015 is very slight. The population share living in regions with a per capita GDP lower or equal than 75% of the German mean decreased in this time-span from 17% to 15.4%, that is, 1.4 million less people. As the same time, the population share living where this value is greater than the 125% has remained stable. So these changes suggest there has been an accumulation process from people living in the backward regions to the intermediate ones (per capita GDP from between 75% and 125%). Nevertheless, a significant movement is distinguished between 2005 and 2010. This is due to North Rhine-Westphalia, because it showed a slightly superior per capita GDP to the national average in 2000 and 2005 (101%), but it went down to the lower stretch in 2010 and 2015, because its values were 100% and 98%, respectively. And this disturbs the analysis significantly because it is the most populated region in Germany, with nearly 18 million people. In any case, these changes at the top and bottom of the distribution mean that the share of population living in the middle tranches increased from 80.1% to 81.6%.

Therefore, if we leave aside the North Rhine-Westphalia's effect, we can conclude there is a convergence tendency on the basis of this analysis. But we also must highlight that the last stretch ($\leq 75\%$) is always composed by the regions of the ex-

GDR. And this leads us to three conclusions: the first is that the slight process of convergence becomes even more doubtful in the regions of the former GDR, which are the most important in the present study because they come from a more backward situation, the second is that these regions suffered a migration process that deviates somehow any analysis based on per capita GDP and the third is that such convergent process is so small in a time period of 15 years that we could say it might be no more than the normal progress caused by taking part of the strongest economy of Europe. That's why a complementary analysis based on other variables is necessary to shed light on this study about German regional convergence.

Table 5.2. Percentage of population living in regions assigned by stretches of per capita GDP, in 2000, 2005, 2010 and 2015. Germany = 100

GEO/TIME	2000	2005	2010	2015
> 125	2.9	2.9	3.0	3.0
> 100	56.8	57.4	35.8	36.3
> 75	23.3	23.4	45.4	45.3
≤ 75	17.0	16.3	15.8	15.4

NOTE: German regions are separated into four stretches depending on its comparison to the German average.

SOURCE: Eurostat database and own elaboration.

Thus, population movements may be relevant along that period. Because at the beginning of it the Berlin Wall had already fallen 10 years before and, unlike for international migrations, in this case cultural, family, language, administrative, legislative or fiscal barriers are reduced. Easing the human capital movement as well as the productive factors. Those movements will be analysed in the next section.

Moreover, a deeper approximation can be made to the underlying causes of the per capital GDP growth from its explanatory factors: labour productivity and the activity rate.

The rise of the per capita GDP can be achieved either by increasing the share of the population engaged in productive activities (ratio of employees over total population, or per capita employment) or by increasing labour productivity or productivity per worker (relation between income and level of employment). In fact, the per capita income is nothing else but the product of these two relations, and its variation

rate can be roughly estimated by the sum of the rates of variation of both (Costa-Campi et al., 2016):

$$\text{GDP/Population} = \text{GDP/Employment} \times \text{Employment/Population}$$

This does not mean, however, that growth can be indistinctly achieved by either some of these two ways, since there are limits to the increase in the activity rate, derived from demographic, cultural and social restrictions. Moreover, this increase depends on the expansion of the production capacity, and the greater the efficiency goods and services are produced, the bigger it is, being the basis of the country's competitiveness in the international market. Then, the labour productivity appears as the key element of growth. Only growth based on it allows the evolution of real wages and family income.

The growth of labour productivity is based on the physical, human and technological capital available per worker on average, as well as the efficiency on their use, avoiding wasted and assigning them to the most productive activities, which depends on the institutional framework. The less developed economies boost its labour productivity mainly by increases in physical, public and private capital, but also through improvements in the efficiency with which these factors are used, eliminating non-productive activities and removing barriers to competition in product and factors markets. Those in intermediate stages must rely on advances in this efficiency and seek for a greater competition of human capital, that is, by means of the training and specialization of its workers. Finally, the advanced economies require a greater research effort that drives technological capital, principally because they have exhausted the possibilities for high capital per worker and the improvements in economic efficiency.

In short, labour productivity, y , is a function of physical capital per worker, k , the average human capital, h , and the efficiency with which these factors are assigned, A .

$$y = f\{A, k, h\}$$

The advance in efficiency, A , also called Total Factor Productivity (TFP), is based on the removal of obstacles to competition in the markets and the elimination of the non-profitable activities, as well as the technical progress reached through innovation, developed in the advanced economies, and which is reached by means of imitation, purchase or attraction of foreign companies, and the one obtained from the own research effort.

The example given by Germany is a considerable State support for the basic research and a close follow-up of the path leading from it to its conversion into new products or production processes, which has not been widespread in other European countries. (Aghion et al., 2001). The key to an innovative system is a strong State effort aimed at providing new findings and knowledge to society, and which entrepreneurs would convert into new productive processes (Mazzucato, 2014).

6. Demography

Modern societies focus on the availability and utilization of human capital, as it is a crucial element in the development of the economies. And for the future of the regions, demographic and economic development are equally important, and interdependent. Therefore, there are several researches about the connection between migration and economic growth, with special emphasis on the mobility of highly skilled workforce. Because if the most qualified workers leave a territory, this will be clearly harmed.

At the same time, any economy needs consumers and a continuous supply of qualified workers. So the labour market will only be efficient if education and health are suitable. And conversely, work serves for the individual development and the personal self-realization. Then, in the absence of positive expectations of work, welfare is harmed and migration is one of the alternatives.

At this point, an analysis about migration movements is important because after the German reunification of 1990, it began a very important phenomenon: both demographically and economically. Even though the demographic decline in the GDR was already visible before 1990, it became more accurate afterwards. Regions with low household per capita income and high level of unemployment were more sensitive to a progressive demographic decline,¹⁴ as the Eastern regions. All this despite the foreign population has continuously increased in Germany, being in 2015 almost twice than in 1990 (14.61% and 7.44%, respectively).¹⁵ This means that, albeit unbalanced, the trend of immigrants has gone upwards in all regions, including the East, because of its

¹⁴ Walter, J. (2015) "Alemania, una historia de migraciones". Made for minds. Available at: <http://www.dw.com/es/alemania-una-historia-de-migraciones/a-18723301>.

¹⁵ Source: datosmacro.com

proximity to Poland, country which has historically represented the highest percentage of foreigners in Germany.

All this explains the important changes in many regions, as shown in table 6.1. But especially in the Eastern ones, such as Saxony, Saxony-Anhalt and Thuringia. By contrast, some others of the Federal territory expanded its population; especially North Rhine-Westphalia, Bavaria and Baden-Württemberg were the most attracting population (maybe due to its large size).

Table 6.1. Population compared in 1990 and 1994

REGION	Difference	Variation
Baden-Württemberg	615,327	6.4%
Bavaria	642,615	5.7%
Berlin	74,960	2.2%
Brandenburg (GDR)	-103,547	-3.9%
Bremen	9,417	1.4%
Hamburg	76,667	4.7%
Hesse	306,709	5.4%
Mecklenburg-Vorpommern (GDR)	-120,435	-6.1%
Lower Saxony	364,194	5.0%
North Rhine-Westphalia	655,729	3.8%
Rhineland-Palatinate	224,201	6.1%
Saarland	19,610	1.8%
Saxony (GDR)	-293,032	-6.0%
Saxony-Anhalt (GDR)	-187,022	-6.3%
Schleswig-Holstein	100,280	3.9%
Thuringia (GDR)	-151,114	-5.6%

NOTE: The difference makes reference to the population change in absolute terms. The variation reflects the percentage of population in 1994 with respect to that in 1990.

SOURCE: Eurostat database.

If we compare the population variation in both Germanies (table 6.2), we can see they experienced opposite movements in their population. While the Communist part suffered a reduction of 5.64% of its population, West Germany increased it by almost 5%. In absolute terms, the difference is bigger.

Table 6.2. Comparative population in the FRG, the GDR and Berlin between 1994 and 1990

REGION	Difference	Variation
FRG	3,014,749	4.98%
GDR	-855,150	-5.64%
Berlin	74,960	2.20%

NOTE: The difference makes reference to the population change in absolute terms. The variation reflects the percentage of population in 1994 with respect to that in 1990.
SOURCE: Eurostat database.

Although this is only population data (so that apart from inter-regional migration, elements like international movements or the population structure reflected by the nativity and mortality rates also influence), they are able to show at a certain level exodus as immediate effect after the fall of the Berlin Wall. Because if we compare the 4 immediate years after the reunification with the next 22, until 2016, we can see that later population changes have not been so intense. Comparing tables 6.2 and 6.3, the population expansion in West Germany was lower in the later years (1994 to 2016) than in the previous 4 (1990 to 1994). On the other side, in the GDR, the (negative) variation of the first period reached half the variation that occurred later.

Table 6.3. Comparative population in the FRG, the GDR and Berlin between 2016 and 1994

Region	Difference	Variation
FRG	2,494,159	3.92%
GDR	-1,701,211	-11.90%
Berlin	44,645	1.28%

NOTE: The difference makes reference to the population change in absolute terms. The variation reflects the percentage of population in 2016 with respect to that in 1994.
SOURCE: Eurostat database.

Apart from them is Berlin, divided by the Wall it was part of both sides and, as exception of the East, it experienced a population enlargement. Being even bigger in the early stage.

This is because some metropolitan areas of East Germany had a certain level of attraction. Thus, apart from Berlin, cities like Dresden or Leipzig helped to balance the

population decline in Saxony. Nevertheless, some areas of these cities have experienced a very serious and urban decline that has been matter of study, as paradigm of the phenomenon shrinking cities.¹⁶

And the reason of this is that during the 2 decades following the reunification, the flow of internal migration has been discussed through East-West movements or sub- and re-urbanization. And in relation with this, Nikola Sander (2014) states that movements within Eastern regions after the reunification were bigger than the East to West exodus.¹⁷

In 1993, when the seat of the government changed from Bonn to Berlin, some restrictions on the fundamental right of asylum were introduced, which stopped the population movement. But it is estimated that from the reunification to the mid-2000s, about 1.5 million people left the East. In regions like Thuringia, Saxony, Saxony-Anhalt and Mecklenburg-Vorpommern, population reduced more than 12%, as table 6.4 shows. While Brandenburg, with 2.78%, was the next one.

Table 6.4. Population variation and difference in the regions of the former GDR

REGION	Variation	Difference
Brandenburg	-2.78%	-73,448
Mecklenburg-Vorpommern	-12.44%	-244,256
Saxony	-12.33%	-604,391
Saxony-Anhalt	-15.87%	-470,534
Thuringia	-12.24%	-328,597

NOTE: The variation reflects the percentage of population in 2005 with respect to that in 1990. The difference means the change in absolute terms.

SOURCE: Eurostat database.

In this way, economically strong areas of the West such as Baden-Württemberg or Bavaria were benefitted by a population boost. Including young and qualified people. In fact, the strong economic and population growth in the area of Munich and the high cost of life explain the popularity of this place as migratory destination.¹⁸

¹⁶ Schetke, S., and Hasse, D. (2008). Multi-criteria assessment of socio-environmental aspects in shrinking cities. Experiences from Eastern Germany. *Environmental Impact Assessment Review*, 28(7), 483-503.

¹⁷ Sander, N. (2014) Internal Migration in Germany, 1995-2010: New Insights into East-West Migration and Re-urbanisation. *Comparative Population Studies*. Vol. 39, 2: 217-246.

¹⁸ Kroehnert, S. et al. (2006). *The Demographic State of the Nation*. Berlin-Institute.

Finally, it is interesting to analyse the trend among the oldest people in Germany. The percentage of people over 80 years old rose slightly until reaching 4.09% in 1995. However, from then until 1999 there was a sharp decline, reaching 3.55% in 4 years. From there on, we can say that the percentage of people aged over 80 increased steadily until 2016, when it reached 5.75%. The lost generations during World War II caused many losses in the current German population, because young people of those days who would now be octogenarians give rise to that valley in the evolution of the trend.

The national average reflects very faithfully this behaviour in all regions. Despite Hamburg and Bremen had the highest share of elderly population at the beginning of the period, the Eastern regions have seen how its population has aging faster than in the rest of the country. So that these regions have positioned during the last five years with the highest share of people aged over 80.

This would indicate that for the moment the Eastern regions follow a remarkable aging tendency. However, it is appropriate to look into the ratio of children aged between 0 and 4 years divided by women from 15 to 49 because during the last five years these regions showed a share of 20% to 25%, while the rest was around 20%. Although it does not reach the level of 1990: between 25% and 30%. The Western tendency has remained stable around the 20%, whereas the East suffered a sharp fall in 1997 (under 12%) before experiencing a sharply rise, unlike in the West.

And all this means that despite the current data follows an ageing process, future expectations can be positive, because nativity is escalating.

7. Labour market

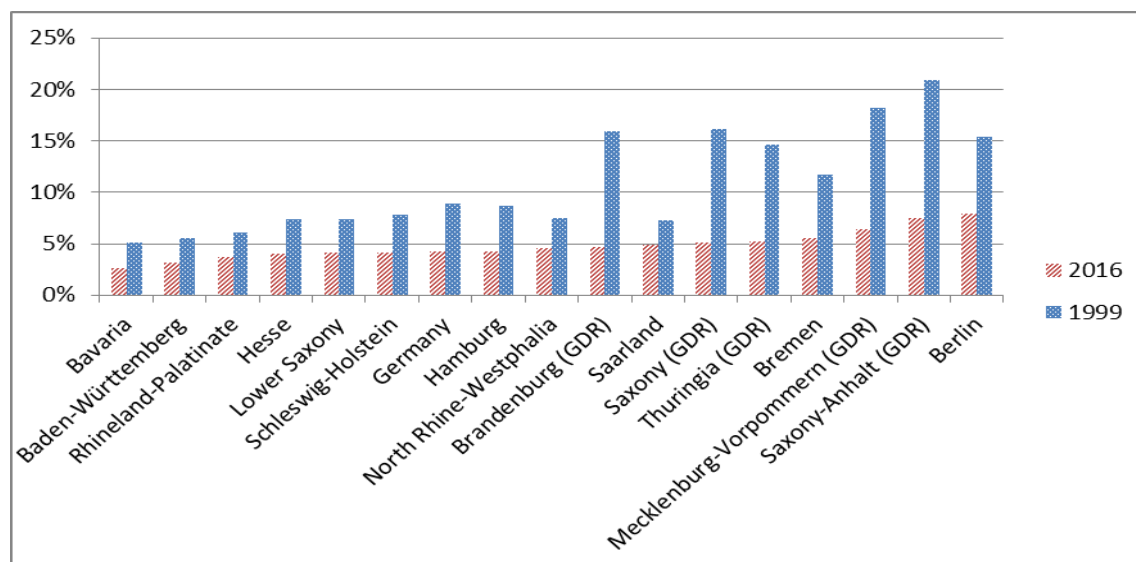
Finally, the German labour market is analysed, whose interest is justified for many reasons. If its functioning fails, that can have negative effects on employment and on the economic growth. In addition, unemployment entails huge economic costs due to it implies the loss of its production potential, social costs because of its effect on income distribution, more uneven, and therefore social cohesion, as well as psychological and personal problems, preventing self-realization. So growth, resource optimization and social cohesion highly depend on the efficiency of the labour market.

Germany did not behave uniformly since the fall of the wall, despite its good performance. In 2016, just the Czech Republic and Iceland had a lower unemployment rate than the one of Germany (4.1%).¹⁹ Further, Germany is the only European country that has experienced a continuous decline in this rate since 2005, with only exception of the rise in 2009, of 3 tenths.²⁰ During the 1990s and until mid-2000s, there was an upward trend, starting in 1991 with 5.5% and finishing in 2005 with 11.2%, but it was notably corrected.

On the other side, the employment rate²¹ also shows a positive trend in the recent years. It could be said that from the reunification until 2003 it remained constant, it grew until 2008 and later on it set a clear positive difference with the other European countries until today.

However, as said before, there are some differences between the regions. For example, Berlin is not as prosperous as other regions. The available income is lower than the national average due to, in part, to the high level of unemployment, which has increased since the reunification. It is since 2005 when its unemployment rate starts to reduce until 7.9% in 2016. Although it remains as the highest in the country (see chart 7.1).

Chart 7.1. Unemployment rate in 1999 and 2016



NOTE: From left to right, regions are ranked from lowest to highest unemployment rate in 2016.

¹⁹ Eurostat and OECD. The unemployment rate is calculated as the ratio between unemployment and labour force.

²⁰ Eurostat database.

²¹ Eurostat and OECD. The employment rate is calculated as the ratio between employment and working-age population.

SOURCE: OECD database.

This chart shows that, in 1999, all Eastern regions had the highest levels of unemployment: only Thuringia was below the 15% barrier (14.6%). And this is because after the reunification, unemployment boosted, especially among low-skilled workers in the East. But another reason was the role of the women in the labour market. Which is due to in the early 1990s women from the East found problems to join the Western labour market as their training and work experience didn't meet the demands of the Western companies (by that time, West German companies had acquired 70% of the Eastern companies, more about privatizations in Appendix II). As a result, the demand for female staff was restricted to retailers and hostelry. Which contributed to reduce the unemployment between the female workforce from the East.

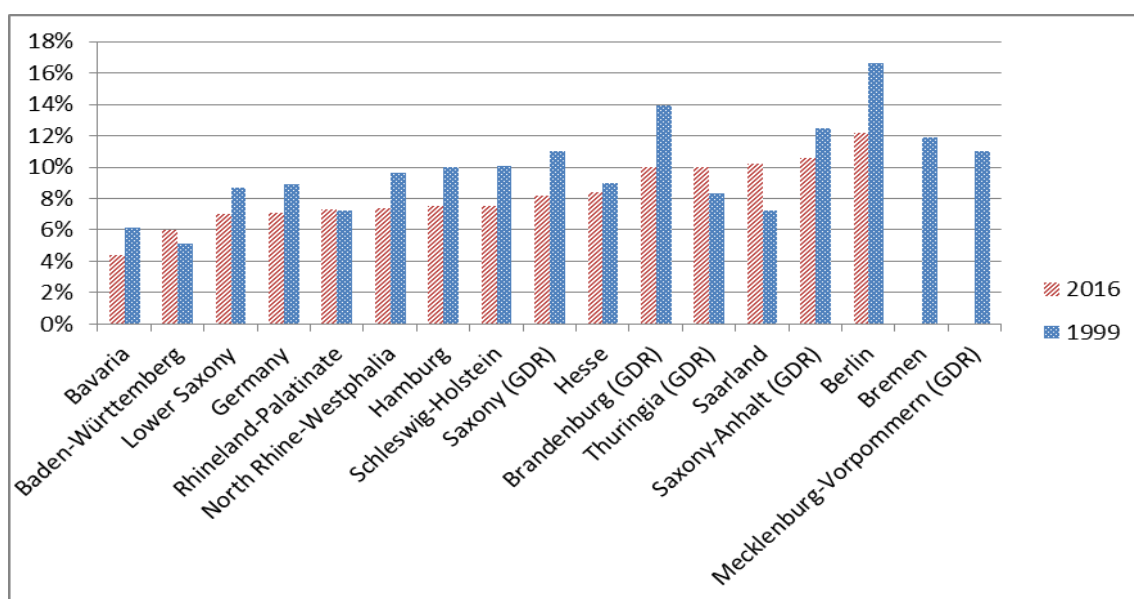
However, over the years, all regions have reduced its unemployment rate until 2016. And regions such as Thuringia, Saxony and especially Brandenburg have improved last year's figures of other regions as Bremen and Saarland.

In the opposite extreme are Bavaria, Baden-Württemberg and Rhineland-Palatinate, with the lowest unemployment rates during the whole period. Showing all of them an unemployment rate below 4% in 2016, which means they are in a full employment situation. With them, Hesse, Lower Saxony and Schleswig-Holstein always were under the German average.

In spite of the negative unemployment figures for the Eastern regions compared with many of the others, it should be noted that by 1999 these regions were the only ones whose youth unemployment rate (people aged from 15 to 24) was lower than that of the entire region. This is due to, on the one hand, its unemployment rates were the highest in Germany, but on the other hand, that youth unemployment was equal or even better than in some Western regions.

Has chart 7.2 shows, Hesse, Saarland and Berlin had current unemployment problems among its younger population. While in 1999, Saxony and Thuringia had the youth unemployment similar than in the West.

Chart 7.2. Youth unemployment rate in 1999 and 2016



NOTE: From left to right, regions are ranked from lowest to highest youth unemployment rate in 2016. No available data for that year in Bremen and Mecklenburg-Vorpommern. SOURCE: OECD database.

In relation to the unemployment level is the level of disposable household income. Table 7.1 is useful to show the regional situation in 1995 and in 2014. There we can see that the Eastern regions have always had the lowest level, with Berlin joining this group. And this is due to Berlin has been the sole region whose income level has fallen in this time-span.

Table 7.1. Disposable household income in 1995 and 2014

GEO/TIME	1995	2014
Baden-Württemberg	18,441	21,682
Bavaria	18,969	21,882
Berlin	18,056	17,629
Brandenburg (GDR)	13,918	17,634
Bremen	16,831	19,014
Hamburg	19,599	22,371
Hesse	18,167	20,485
Mecklenburg-Vorpommern (GDR)	13,023	16,578
Lower Saxony	16,868	19,122
North Rhine-Westphalia	18,141	20,107
Rhineland-Palatinate	17,201	20,651
Saarland	15,600	18,945
Saxony (GDR)	13,815	17,216

Year 1995

Mean (\bar{X}) = 16,439
 Variance (σ) = 4,968,198
 Standard deviation (σ^2) = 2,229
 $\bar{X} + \sigma^2 = 18,668$
 $\bar{X} - \sigma^2 = 14,210$

Year 2014

Mean (\bar{X}) = 19,223
 Variance (σ) = 3,489,195
 Standard deviation (σ^2) = 1,868
 $\bar{X} + \sigma^2 = 21,091$
 $\bar{X} - \sigma^2 = 17,355$

Saxony-Anhalt (GDR)	13,252	16,815
Schleswig-Holstein	18,064	20,430
Thuringia (GDR)	13,082	17,007

NOTE: Disposable household income in euros.
SOURCE: OECD and own elaboration.

Despite this, all the others have experienced a positive development that led to a slight convergence between all the regions. As we can see, the national average has grown almost 3,000€.

Moreover, if we examine the behaviour of the regions according to its difference to the average, table 7.1 reflects that in 1995 all Eastern regions had a difference greater than the standard deviation (that is, a disposable household income lower than 14,210€). Nevertheless, Brandenburg does no longer show as many difference to the average in 2014 (not below 17,355€). The other Eastern regions keep “stagnated”. Again, Bavaria and Hamburg stand out positively between 1995 and 2014. And in the last year, Baden-Württemberg also had a high income level.

Generally speaking, in Germany, the sectors where the human capital is more present are: trade, maintenance and repair of vehicles, manufacture of household appliances, social assistance and residential care. As well as the real estate and scientific-technological sectors.²²

However, the most remarkable of the German labour market are the small and medium enterprises, known as *Mittlestands*. Apart from its size, they have a second implicit but more relevant meaning that refers to companies taken, or at least started, in a familiar way.

Two-thirds of the labour market is of this type of companies, which account for more than half of the German GDP.²³ They stand out because they are designed for the long term, socially useful (profit is not the ultimate goal: job creation, customer satisfaction and product quality are fundamental), and promote a great spirit of collaboration between employers and employees. In addition, in Germany, the owner of a family business who transfers it to his next generation is exempt from inheritance taxes, after proving he hired some worker.

²² Eurostat.

²³ Studzinski, J. “Germany is right: there is no right to profit, but the right to work is essential”, theguardian.com, 6th February 2013.

Lastly, it should also be mentioned the program of austerity reforms carried out at the beginning of 2000s, when Germany experienced its worst growing figures, population was ageing and unemployment was high. This reform was the Agenda 2010, which contained the Hartz I-IV reforms.

The Hartz IV reform was introduced since the unemployment benefit of the previous system was too generous for the long-term unemployed, and it didn't encourage the return to the work. To avoid that, the minijobs were created in 2003, which are part-time jobs paid at a maximum of 468€ per month, equal to 8.84€ per hour.²⁴

The main feature of minijobs is that they are exempt from taxes and social security contributions. What the worker can decide is whether he wants to quote pension or not in the time he has the minijob.

Although social assistance is greater without a job than with it, the Hartz reforms acted in such a way that in the second case the worker receives more than the unemployed. So the perspective and disposition to return to the labour market are greater.²⁵

8. Discussion and conclusions

The fall of the Berlin Wall marked the beginning of a new stage in Germany, where the barrier to free mobility disappeared, and with it, all restrictions to citizens, relatives and friends from both Germanies could meet again.

In this work there are arguments supporting the thesis that although the transfer of political institutions from West Germany to the East was rapid, the years of communism in the latter region seem to have lasting effects, especially in the intangible aspects, but decisive nowadays to determine the development such as the social capital, the tolerance or the entrepreneurial initiative. It will take time to completely eliminate the economic backwardness caused by a strong centrally-planned state, as there still are persistent differences in GDP, employment and income.

From this it is inevitable to make some final considerations. Firstly, it is the underestimated time that would take to rebuild the Eastern part and to equate it with the

²⁴ <http://www.elmundo.es/economia/2017/01/31/588f745bca4741953a8b4666.html>

²⁵ https://elpais.com/elpais/2015/10/02/opinion/1443804516_787263.html

rest of the country. Perhaps, the lack of democratic culture in the former GDR was not taken into account, explained by the preceding historical periods: a national socialism, a war and then an authoritarian communism. On the other hand, the transition depended not only on the transfer of physical capital, but also on human capital and a competitive market culture. Despite this, the East benefitted from being able to inherit a full set of effective institutions and experienced agents capable of driving a backward economy. As well as a system of private property, social security and a strong currency. All this due to having at its side a territory with strong economic capacity that other Eastern European countries miss.

In other way, and after a takeoff of the Eastern economy during the first years after reunification, the process has not finished, and it does not look like it is going to finish in the near future. Although regions such as Baden-Württemberg, Bavaria or Hamburg are amongst the most powerful regions in the European Union and it is difficult to get to its level, it also seems that the initial effort was enough for the former GDR not to be definitely fallen behind. Moreover, as in every process, each step for a small improvement will marginally cost more. The best reflection of this is the time profile of the per capita GDP, which seems to be stagnated since 2011. In the 1990s, the Easter regions suffered a large decline in population (one reason why per capita GDP rose, by simple arithmetic effect), and now the ageing of the population has to be added. Its universities do not stand out, their unemployment rates remain among the highest in the country and its income does not manage to be comparable to the others.

Apart from that, several open discussion would serve as a continuation of this work. The first of these would be the regional innovation capacity. To this end, the theory of the innovative environment would help as basis for an analysis of the urban centres with great industrial attraction that can be found in the West but not in East Germany (Munich, Dortmund or the port of Hamburg). Other alternatives would be the financial study of the reunification (public aid, depreciation of the German Mark, banking sector...), the effect of foreign migration, an analysis of the hypothetical case in which reunification had not happened, or the influence of recent political movements in Europe: both the rise of a far right sector and the separatist actions in some countries. All of them would be interesting additional and complementary analysis but without place in this study.

Despite the lack of more accurate regional and uniform data for the entire time period, the research allows a sufficient approximation to the targets established at the beginning.

Finally, I want to thank the support received by Professor Luis Antonio Sáez Pérez. Without his advices and clarifications, it would have been impossible for me to find the right way to do this work.

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Statistical databases

CESifo database: <https://www.cesifo-group.de/ifoHome.html>

Eurostat Regional Statistics Database:

<http://ec.europa.eu/eurostat/web/regions/data/database>

Eurostat Regional Yearbook 2016: http://ec.europa.eu/eurostat/statistics-explained/index.php/Eurostat_regional_yearbook

German Federal Office of Statistics: <https://www.destatis.de/EN/Homepage.html>

OECD Regional Statistics Database:

http://stats.oecd.org/Index.aspx?DataSetCode=REGION_DEMOGR

OECD Regional Well-Being Index: <https://www.oecdregionalwellbeing.org/>

Other resources

Theoretical notes from Professor Luis Antonio Sáez Pérez, University of Zaragoza and CUADRADO, J.R. (1992). “Cuatro décadas de economía del crecimiento regional en Europa: principales corrientes doctrinales”.

Appendices

Appendix I

Deutsch	English	Castellano
Länder	Regions/State	Región
Baden-Württemberg	Baden-Württemberg	Baden-Wurtemberg
Bayern	Bavaria	Baviera
Berlin	Berlin	Berlín
Brandenburg	Brandenburg	Brandeburgo
Bremen	Bremen	Bremen
Hamburg	Hamburg	Hamburgo
Hessen	Hesse	Hesse
Mecklenburg-Vorpommern	Mecklenburg-Vorpommern	Mecklemburgo-Pomerania Occidental
Niedersachsen	Lower Saxony	Baja Sajonia
Nordrhein-Westfalen	North Rhine-Westphalia	Renania del Norte-Westfalia
Rheinland-Pfalz	Rhineland-Palatinate	Renania-Palatinado
Saarland	Saarland	Sarre
Sachsen	Saxony	Sajonia
Sachsen-Anhalt	Saxony-Anhalt	Sajonia-Anhalt
Schleswig-Holstein	Schleswig-Holstein	Schleswig-Holstein
Thüringen	Thuringia	Turingia

Appendix II

Privatizations (THA)

Even before the economic reunification, FRG government that one of its first tasks would be to privatize the companies from the GDR. Leaving the old and heavy bureaucratic structures inherited from the communist regime was an essential requirement to facilitate the transition from a planned economy to a market economy, so that the Eastern *Länder* could join the international markets. As well as to modernize its productive structure.

Further, as the economic reunification process was running, new problems emerged. And one of them was the generated confusion around property rights. Due to the expropriation period by the Nazi government, the Soviet government, and the government of the GDR between 1933 and 1989, in many cases doubts arose about the real ownership of the properties.

The People's Chamber of the Federal Republic of Germany (*die Volkskammer*) created a public privatization entity on 17th June 1990: *die Treuhandanstalt* (abbreviated as *Treuhand* or THA, in English: Trust Agency). Without any theoretical framework and no historical example as reference, the outcome of this work would be crucial for the recruiting process of the Eastern inhabitants during the whole reunification process.

This was the beginning of an intense privatization process of companies, which had been publicly owned in the prior regime, in which the THA provisionally held the ownership of these public companies to be passed on to interested buyers. The negotiated sale would be the standard procedure. The agency would decide who should or should not buy those firms. And in case of not having final buyer, the company would be liquidated.

Due to the reunification process was carried out by West Germany and the THA was mostly composed by West Germans (95%), many of the new companies in the East were subsidiaries of others from the West, which spread their management models and ownership. The participation of the banks became common, especially since the large banks of Frankfurt assumed many of the assets of the ex-GDR, so many Eastern companies owed money to the banks in Frankfurt. In this way, West Germany began to rule in the regions of the former GDR.

The aim of the THA was double. On the one hand, it was intended the sale of these companies being as fast as possible. And on the other hand, the greater the number of stakeholders, the better certain conditions could be imposed, for instance, on employment (granting aid, subsidies or other measures considered necessary to ensure the future of the company). And the privatizations undertaken by the THA would try to minimize the loss of job positions.

It was also wanted to avoid that, as in other communist countries, the companies ended up in hands of their former directors without any cost or being given them away to some foreign investor for a ridiculous price.

To do so, and especially during the first year, foreign companies were analysed more detailed and sceptically than the German companies. Even if they were invited to invest in the Eastern territories. Less than 5% of all investments in East Germany were foreign, and many of them came from companies that already had presence in the West thanks to some subsidiary, and wanted to expand into East Germany.

Since the beginning, there was a strong will in the *Treuhand* to keep the 3.7 million job positions it was responsible for, and this concern made look at buyers more than the price they offered for the companies: maintenance of workers and creation of new jobs. The Government was aware of the high political and economic cost of alternative measures to promote employment and subsidies, so companies were sometimes sold below its market price, as long as they adopted certain employment commitments.

This fact provoke in many investor to reconsider whether to buy a company whose possibilities of reorganization were not very high and with some starting hiring constraints or, alternatively, to enter into these *Länder* otherwise, for example in the form of *greenfields*.

Although the reunification process kept going, due to these circumstances, both private investment and economic growth came to the East at a slow pace. Little capital flowed. Investment during the first years was only 1% of Germany's entire GDP, when it was needed much more to relaunch the economy. And the investment for the acquisition of Eastern companies was not yet for its rehabilitation. Many of these acquisitions were made in a static way, ensuring that when the production time came, they could meet the payment conditions to workers imposed by the THA. Many others, including Daimler-Benz, did not even comply the agreements they made with the THA to buy companies in the East. As a result, private investment from the FRG was not enough to stimulate the Eastern economy.

Apart from that, it was expected that the expropriation of the GDR's public sector by the THA was efficient to liquidate contracts with societies of the FRG of the same economic sector. But that did not prevent the loss of jobs generated by the dismissals or the bankruptcy of public companies in the GDR. Unfortunately, the *Treuhand* negotiations in favour of employment were only able to ensure employment for a time, and many workers were progressively expelled from the labour market. Their demands, in the practice, could not or did not want to be maintained in 20% of the cases. SO by 1992, unemployment reached 15% and the GDR's active population, the worst figure since the Great Depression of the 1930s.

In addition to underestimate the human capital fired during the negotiations, another questionable issue of the THA operations was that its financing depended on the public capital of the FRG. When the THA ceased its operations at the end of 1994, the

contracts settled by this agency accounted for a debt between 260 and 270 billion Deutsche Marks.

But by the time it finished its activities, the 8,500 state-owned companies had been transferred, which became in around 13,500 business units through separations and divisions. And it also acquired 2.4 million hectares of agricultural and forestry land.

At the end, 15,102 companies were privatized, 3,718 were liquidated and 4,358 companies or part of companies were reprivatized by GDR entrepreneurs or their former owners.²⁶

At that time, the THA was the largest industrial company in the world, controlling everything: from steel to film studios (e.g. the Babelsberg studios).

En aquel momento, había sido la empresa industrial más grande del mundo, controlándolo todo: desde acero hasta estudios cinematográficos (e.g. los estudios cinematográficos Babelsberg).

Subsequently, there were still many properties and other legal responsibilities, which were transferred to three successors: the Federal Agency for Unification-derived Special Tasks (*Bundesanstalt für vereinigungsbedingte Sonderaufgaben*), the state-owned urban and industrial real estate (*Treuhandliegenschaftsgesellschaft*) and a subsidiary of the *Treuhand (Bodenverwertungs-und-verwaltungs GmbH)*.

²⁶ According to „Die Treuhandanstalt im Kontext der deutschen Einigung“, available at: <https://www.uni-hildesheim.de/fb1/institute/geschichte/jean-monnet-europagespraechen/europa-gespraechen/sommersemester-2007/die-treuhandanstalt-im-kontext-der-deutschen-einigung/>