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GERMANY'S ECONOMY: 20 YEARS AFTER BERLIN WALL FALL

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ABSTRACT. *This paper seeks to offer a comprehensive review of key economic developments of two decades of the reunited Germany. It particularly examines the current economic landscape; investigates convergence processes taking place since the Reunification and tries to identify some of the most likely, though less recognized impediments hampering full catching up. It draws on existing literature - both academic papers as well as professional business magazines and journals and refers to authors' own calculations based on available German Statistical Office data. Analysis has been conducted with a certain "East-West" perspective, referring to former DDR and BRD division guiding and organizing the research work.*

KEYWORDS: economic growth, reunification, convergence, growth diagnostics, macroeconomic condition, Germany.

JEL classification: E01, O11, O40, O47, R11.

Introduction

The term *Deutsche Wiedervereinigung* is a synonym of Reunification of *DDR* (German Democratic Republic - GDR) and *BRD* (Federal Republic of Germany- FRG) into one state proclaimed on 3 October 1990. Since then, this day is officially recognized as the Reunification day and a public holiday. Solidarity, historical justice and moral victory are only one side of the coin. The other is huge cost of the Reunification. Pecuniary dimension often seems overshadowing the joy of regained unity. Depending on estimates between 1.5-2 trillion Euro might have been transferred from West to East, such miserable were the *DDR* economic conditions with obsolete industry and infrastructure (Paque, 2009b, p.184). Despite efforts Germans from both parts of the country happen to complain expressing their disappointment. Reality seems not to have lived up to their expectations (Allensbacher Archiv, 2008). In spite of passage of two decades full German unity has not been achieved (Von Ditfurth, 2009). Culturally these two parts are drifting in opposite directions and the emerging gap becomes more profound resembling “*offene Wunde*”. Such disappointment on the eve of 20th anniversary calls for a deeper reflection.

This paper aims at synthesizing main developments with the prime underlying question being – whether Germany – to rephrase the title of Ch. Dickens novel – 20 years after Berlin Wall Fall is still a *tale of two countries*. Models of New Economic Geography (NEG)¹ serves as a conceptual framework underpinning the research process enabling addressing above mentioned question (Fujita *et al.*, 1999). Such reference is warranted against the background of mass migration flowing from former *DDR* towards former *BRD* taking place since the Reunification. Quoted models assuming employees mobility predict as a consequence of such process country's economy polarization leading to emergence of two opposite regions – one with concentrated economic activity, generating growth and the other one – peripheral. This problem is mainly addressed in the first section. The second one discusses convergence processes drawing on most recent studies and presenting results of author's own sigma convergence calculations as well as estimates concerning average GDP p.c. growth rate and initial economic performance relations. The third part sheds some light on very likely, though, less known and so far rather neglected reasons of eastern regions continuous relative lagging behind. Tentative conclusions close the paper.

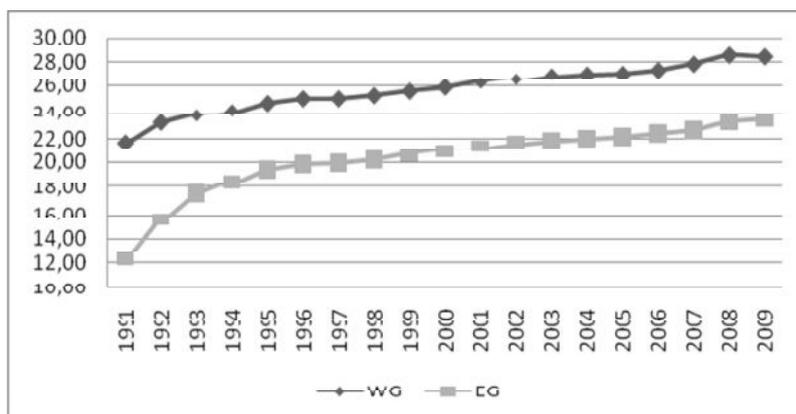
1. Germany's Economic Landscape: The Spatial East-West Dimension

To get the full picture of country's economy one must not limit the description only to basic facts and assessment of fundamental macro-indices. Taking into account spatial distribution of economic activity seems to be an important and valuable enrichment of various studies devoted to Germany's economy. This may be done against the background of basic model of (NEG) New Economic Geography (Brakman *et al.*, 2001, pp.59-99). The simple analysis of evolution of incomes, wages and living costs² in the “old” (former *BRD*) and “new” (former *DDR*) federal states after Reunification confirms that spatial polarization does persist (Götz, 2010)³.

¹ NEG models with mobility i.e. assuming labor force flows

² Figures on salaries in manufacturing industry and average wage per employee at NUTS 1 are used in the analysis. For income as proxies have been used: global region's production, GDP p.c., households' income and income pc. Price index reflecting costs of living in region is represented by salaries in following sectors: energy, gas and water; transport, warehouse and communication and intermediary financial and business services.

³ Simple comparative analysis of incomes, living costs and salaries as suggested by basic NEG model and represented as mentioned earlier by available VGRL statistics confirm certain duality of Germany's economy.



Note: WG – West Germany; EG – East Germany.

Source: based on Volkswirtschaftliche Gesamtrechnungen der Länder (VGRL) data, accessed 23.01.2009.

Figure 1. Gross Salary per Employee, Thousands Euro (1991-2009), West Germany vs. East Germany⁴

According to the estimates of the *Institut der deutschen Wirtschaft* (Figure 1) in Köln the average salary in manufacturing industry totalling in Germany 33,58 Euros per hour makes the country the seventh most expensive out of 34 analyzed (*Arbeit in Deutschland bleibt teuer*, Wirtschaftswoche, 2009). However, when assessed separately, West Germany level of 35.22 Euros per hour means the top third position, whereas East Germany's 20.75 Euro per hour constitutes 18th place. This clearly indicates existing differences. In this respect interesting to see results of Smolny and Kirbach studies (Smolny & Kirbach, 2004). Investigation of salary levels earned by well educated East Germany's emigrants suggests that discrepancies cannot be boiled down to human factor - i.e. less qualified or less productive workers, but to ... unfavourable economic conditions.⁵

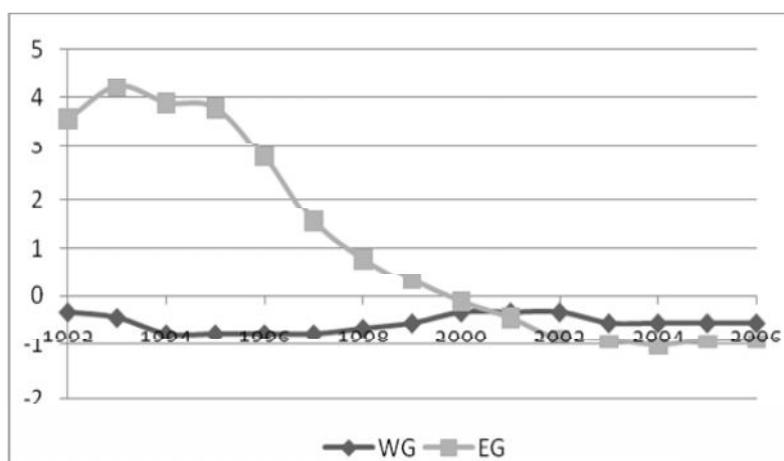
Simultaneously, costs of living persistently higher in West Germany and thus offsetting higher income there make possibly East more attractive. These forces however do not seem to be strong enough to deter investors and employees from choosing West. Polarization does continue. Old federal states are preferred among entrepreneurs and workers. This phenomenon is well mirrored in migration statistics. Approximately 1.8 million citizens left East Germany since 1989 and went to settle in West (*20 Jahre Deutsche Einheit – Rückblick und Ausblick*, 2009, p.70). Although, the outflow-inflow ratio has dropped significantly recently, it still amounts to -50 000 annually. According to forecasts, by 2025 around 10% of East Germans population will have migrated to West. Demographers from *Bertelsmann Stiftung* warn of serious aging of country's population and deserting of many cities (*Exodus der Neuzeit*, Focus, 2008). Particularly affected may be municipal centres in former DDR which are not only shrinking but also aging fast. Already in 2008 Chemnitz and Halle were two cities with double digit share of 80 years old population. Lower economic density responsible as many experts argue for weaker performance of new federal states constitutes in fact the fundamental reason of pertaining discrepancies (Brenke & Zimmermann, 2009, pp.32-62).

⁴ In this paper label East Germany states for 6 new federal states, whereas West Germany denotes 10 old states.

⁵ The aim of the study was to compare the salaries East Germany's workers with certain educational degree could receive in West Germany. If the level had been close to that obtained in East - differences might have been tracked down to employees -i.e. human factor. However, if worker from East Germany had got salary such as his West counterpart (citizen of old federal states) it would mean differences should have been explained by "local" factors. Compare results by R. Orłowski, R.T. Riphahn, *Im Osten nichts Neues – Lohnstrukturen knapp 20 Jahre nach dem Mauerfall*, ifo Dresden berichtet 3/2009.

The application of basic NEG model offers the possibility to explain the phenomena in terms of centripetal and centrifugal forces (Krugman, 1991a, 1991b). Such a dichotomous approach, although to some extent resembling the idea of zero sum game, indicates the fundamental reason for observed pattern of spatial distribution of economic activity. Seen from such perspective seems that the western part of the country continues to be *more* attractive for both entrepreneurs and employees. Efforts shall be thus concentrated on generating necessary centripetal forces powerful enough to attract economic activity to the new federal states *rather* than the old ones.

Just after Berlin Wall Fall, Chancellor H. Kohl promised East Germans blossoming landscapes (Kuczynski, 2009). Thanks to the funds earmarked on new federal states over last 20 years infrastructure and industrial facilities improved significantly. Simple comparison of modernization rates between East and West Germany (*Figure 2*) proves that indeed upgrading process of former DDR productive assets has been conducted on a mass scale.⁶ In years 1992-2000, eastern productive assets and buildings could have been regarded as new ones – i.e. not fully depreciated.



Note: WG – West Germany; EG – East Germany.

Source: Own calculations based on *Volkswirtschaftliche Gesamtrechnungen der Länder* data, accessed 23.01.2009.

Figure 2. Modernization Rate of Production and Construction Property (1992-2006), West Germany vs. East Germany

Progress made with respect to the East Germany's infrastructure is indirectly confirmed by latest governments' plans concerning future communal public investments (*Die Stunde der Kommune*, Wirtschaftswoche, 2008). According to the German Institute of Urban Studies, up until 2020 outlays on new municipal ventures (such as facilities of water supply, waste disposal, hospitals, roads, schools, public transport, etc) in old federal states are supposed to outnumber those in new *Bundesländer*.

Meanwhile, more visible become interregional differences within both East and West Germany (Brenke, Zimmermann, 2009, pp.32-62). This may require abandoning simple traditional East-West dichotomy; former DDR and BRD. Certain development gap between southern and northern part of country can be dated back to 60s (Lammers, 2003). Differences continue to be well pronounced despite mass citizens movements southwards. Report published in 2003, also 12 years after Reunification signals that East Germany seems to copy

⁶ Modernization rate compare net investments outlays i.e. including depreciation (drop of capital value) with gross values - ignoring diminishing capital assets. Such indicator reflects which part of the assets has not depreciated yet.

development patterns experienced by so far by West Germany. Division contours separating richer Sachsen and Thüringen in South from poorer Sachsen Anhalt, Mecklenburg Vorpommern, Berlin and Brandenburg are easily recognizable. Results of latest *Bundesländerranking 2009* also highlights the tendency of gradual replacing and enriching classic East West division by the South-North one (*Siebttes Bundesländerranking, 2009*). More pessimistic are conclusions of the initiative “*Das Projekt Armutsatlas*” which measuring poverty problems advocates strongly the need of precise examining of spatial dimension of this phenomenon (*Das Armutsatlas, 2009*). Twenty years after Reunification social and economic discrepancies continue. According to Regional Poverty Map every fifth citizen of former DDR lives at poverty risk.⁷ Accepted criteria and applied methods allow for distinguishing three parts of Germany:

- Eastern encompassing all new federal states including Berlin. In the poorest Mecklenburg Vorpommern 25% of population lives in poverty.

- Southern with the gravity pole of wealth. In Bayern and Baden-Württemberg poverty risk affects only 10% of population.

- Mediocre North-West with Schleswig Holstein, Hamburg, Niedersachsen, Bremen, Nordrhein-Westfalen, Rheinland Pflanz and Saarland.

Share of poor population ranges from 7.4% in Schwarzwald to 27% in Mecklenburg Vorpommern. For East Germany it equals 19.5%, for West – 12.9%, for the whole Bundesrepublik - 14%.

In the margin of these economic considerations worth mentioning are results of various studies which point to persistent mental and cultural differences between East and West (Arnhold, 2009). Identification and satisfaction with present political and economic system is significantly lower in Bundesländer. These differences can be attributed to distinctive conditions (education system and values code in force in former DDR) in which citizens grew up and in which their attitudes were shaped. Thus, irrespective of actual “hard” discrepancies mirrored by various macroindices, subjective “soft” differences continue to matter (*Vertrauen erodiert, Wirtschaftswoche, 2008*). Approach towards market economy or the government role differs between citizens of old and new federal states. In general, East Germans seem to be proponents of state interventionism and advocate more government participation expecting social assistance and guarantee of stability.⁸

Crucial for thorough assessment of post-Reunification economy is also life satisfaction. Among others this has been measured in annual reports evaluating each year the progress made since 1990 (*Jahresbericht der Bundesregierung zum Stand der Deutschen Einheit 2007*). One of such reports published on the occasion of 17th anniversary appreciates achievements done in terms of increasing GDP p.c.; stressing simultaneously stressing that this makes up only 67% of West Germany’s level. Such inequalities are breeding ground for extremist groups. Concerns are voiced with respect to sentiments among East Germans. Disillusion with Reunification results, apathy, ignorance lack of activities typical for civil society, certain democracy deficit, abstention, all potentially contribute to radical right movements.

⁷ Central for the project category of poverty has been defined by reference to threshold of 60% of median income. European definition of poverty has been applied. This described a person sustaining living for less than 60 % of median income as being threaten of becoming poor. In Germany this threshold equals 764 Euro.

⁸ According to Institut für Demoskopie z Allensbach, approximately 40% West Germans and only 20% East Germans asses economic system in country favorably. 62% West and only 29% in East asses German democracy as best way of state governance. Studies confirm that two thirds of new Bundeslander inhabitants. Have rather positive associations with GRD, whereas only 17% - negative. *Nowa fala wielkiej tęsknoty za czasami NRD, Rzeczpospolita, 05.08.2008*

In C. Jeffery's view, German federalism despite broad public consent and backing as well as institutional provisions promoting unitary state is in fact bipolar with strong pole of pro-autonomous rich south-west Bundesländer and a pole of federation supporters made up of poor eastern regions expecting significant federal state involvement. Germany seems to function according to logic of territoriality - i.e. growing phenomena of territorially (spatially) defined federal states whose interests derive from spatial economic differences (Jeffery, 2008, p.590).

2. Post-Reunification Catching up Processes

Comprehensive analysis conducted by *Neue Soziale Marktwirtschaft (INSM)* allow to assess German economy and its equipment with production factors determining future growth both in dynamic and static terms (*Bundesländerranking*, Wirtschaftswoche, 2008). With the help of macro-indices such as labour market, public finance, infrastructure, investment attractiveness they list and rank federal states according to the progress made so far and with respect to their current economic power measured by unemployment rate, indebtedness ratio or crime figures. In 2007 the engines of Germany's economy were western Bundesländer - Bayern, Baden-Württemberg and Hamburg. Sadly, all bottom places are occupied by new states with Thüringen and Sachsen relatively well performing. More optimistic are dynamic rankings evaluating latest developments as confirmed also by the recent 2009 edition (*Siebttes Bundesländerranking*, 2009). Sachsen Anhalt, Brandenburg, Mecklenburg Vorpommern, Sachsen, Thüringen and Berlin top „the positive changes” league.

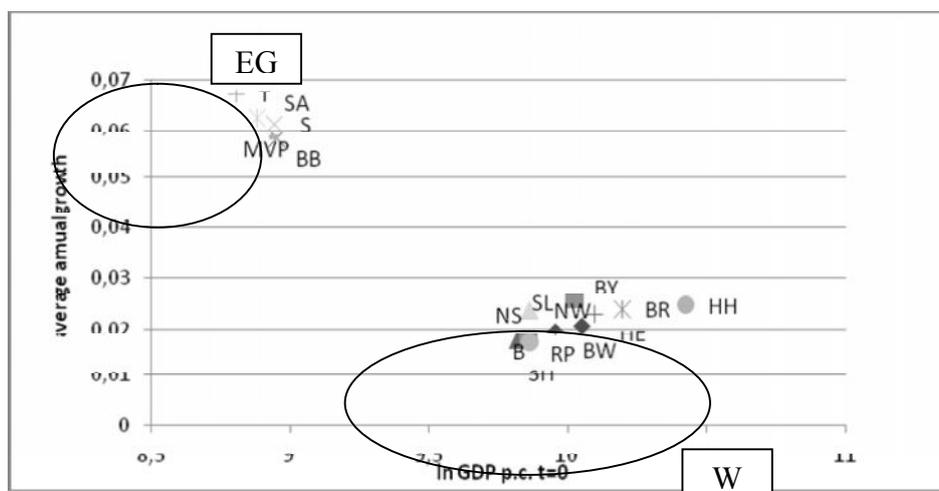
In a nutshell, economic convergence denotes process of gradual catching up. Economic literature offers a multitude of convergence types - distinguishing for instance the real one, nominal one or convergence of business cycles.⁹ Besides classifying convergence based on the subject (convergence of GDP p.c., GDP per worker, etc.) it can be also categorized by the techniques used (Matkowski & Próchniak, 2004, pp.5-38; Magrini, 2004, pp.2742-2791). The phenomenon of economic growth convergence of various countries, also called real convergence, is one of the most important conclusions emerging from neoclassical models of economic growth (Matkowski & Próchniak, 2006, pp.293-320). It is the confirmation of the tendency to equalization of per capita income levels among weakly-developed and highly-developed countries, since as predicted by these models the former ones grow in general faster than the latter ones (Malaga, 2004; Matkowski & Próchniak, 2004, pp.5-38).

Analysis of observed relations between average annual GDP, GDP p.c. and GDP per employee growth rates and initial levels of respectively GDP, GDP p.c. and GDP per employee does not yield unambiguous conclusions.¹⁰ It cannot be stated that Germany without any doubts developed according to catching up principle i.e. eastern less prosperous part made up the distance to western part, so that East Germany has been catching up smoothly. At most aggregated level of territorial division (referring to two regions - former DDR and BRD) pattern of convergence is visible. East Germany characterized by lower GDP levels in first year of analysis grew faster (at higher rate) than West Germany (*Figure 3*).¹¹

⁹Approach adopted to convergence in this paper draws on growth regression and can be seen as an alternative to concentration indices such as Gini coefficient - compare A. Melchior, *Regional Inequality and Convergence in Europe, 1995-2005*, CASE Network Studies & Analysis, No 374, 2008, p.22.

¹⁰ Figures were retrieved from German Destatis (Online Datenbank Genesis – Gemeinsame Neue Statistische Informations-System) and regional base VGRL (Volkswirtschaftliche Gesamtrechnungen der Länder) accessible online, October 2009

¹¹Convergence literature recently advocate replacing traditional approach i.e. regression analysis with the distribution dynamic which allow more precise examination showing the mobility and shape of income distribution. It is moreover



Notes: BW = Baden Württemberg, BY = Bayern, B = Berlin, BB = Brandenburg, BR = Bremen, HH = Hamburg, HE = Hessen, MVP = Mecklenburg Vorpommern, NS = Niedersachsen, NW = Nordrhein Westfalen, RP = Rheinland Pfalz, SL = Saarland, S = Sachsen, SA = Sachsen Anhalt, SH = Schleswig Holstein, T = Thüringen.

Source: Own elaboration based on VGRL - Volkswirtschaftliche Gesamtrechnungen der Länder data.

Figure 3. Relations - Average GDP p.c. Growth Rate - Initial GDP p.c. Levels, East-West Germany and Bundesländer

To similar conclusions lead the examination of GDP p.c. and GDP per employee.¹² Regions recording lower GDP p.c. and GDP per employee values in starting point revealed higher growth rate subsequently. Such unambiguous interpretation is however not possible if analysis is conducted at more disaggregated level i.e. at federal states (BL), or counties level – Regierungsbezirke (RB) and Landkreise (LK).¹³

There is also a second method of convergence analysis, based on comparing the dispersion of income levels. It is called σ -convergence or sigma type convergence. It appears if income differences between the economies concerned decrease over time. Income differentiation can be measured in many ways: by the variance, standard deviation of real

recommended to apply instead of administrative units - regions defined functionally and to recognize the role of phenomena such international trade, factors movement or spatial effects (spillovers). S. Magrini, *Regional (Di)convergence, Handbook of Regional and Urban Economics*, Volume 4, Edited by J.V. Henderson, J. F. Thisse, Elsevier 2004, pp.2742-2791.

¹²The idea was to adjust the trend line to the developments observed over years and then diagnose the character of regularities by referring to function's properties and its course. Following four functions have been selected as reference framework: linear function which stands for regular equation with one unknown and yields one unique solution, i.e. one value satisfies solution; parabola - parabolic function - which is a graphic presentation of second degree equation (power of unknown and value of exponent equal 2). Quadratic function is a non monotonic function, i.e. it does not preserve the given order; power function of the form $f(x) = x^a$ and the exponential function e^x , where e is the number (approx. 2.71). The graph is upward-sloping, and increases faster as x increases. To check the significance of parameters of explanatory variables t Student test (whether the slope of a regression line differs significantly from 0) and F test for non linear dependencies has been applied. For this purpose level of statistical certainty has been established at 95% - a typical confidence. To assess the goodness of fit studies often referred to R-squared - The least-squares fitting process produces a value - r-squared (R^2) - which is the square of the residuals of the data after the fit. It says what fraction of the variance of the data is explained by the fitted trend line. Level of R^2 has been decisive criteria for selecting particular trend. R^2 stands for how much of developments of dependant variable (standard deviation of GDP p.c.) can be presumably explained by changes of selected independent variables (time in this case).

¹³ Simple calculations confirm that relation GDP growth rate - initial GDP values can be best depicted by parabola function. Its non linear course suggests no straightforward relations.

GDP per capita, or normalized index – coefficient of variation (Próchniak, 2006, pp.74-96)¹⁴. In order to examine σ -convergence in Germany (*Figure 4*) the trend line of standard deviation of GDP per capita has been tested. σ -convergence exists if the trend line slopes down, meaning that income dispersion tends to decline. Examining changes of GDP p.c. discrepancies over time among Germany's two regions, 16 Bundesländer, 39 Regierungsbezirke and 427 Landkreise yields interesting results.¹⁵ Application of linear trend (regression described by one degree equation) confirms σ -convergence at all investigated levels. Reference to this linear function and comparison of the pace of changes i.e. how fast σ -convergence proceeds indicates that inequalities seem to disappear the faster the more aggregated level of analysis – i.e. earlier between two regions, Bundesländer than among Regierungsbezirke and Landkreise. Lower values of discrepancies observed at two regions' level (between former DDR and BRD) than those at Bundesländer's level seem to confirm the regularity present in the whole EU. Cohesion Reports by the European Commission conducted on a regular base point namely to continuously fading differences among Member States but steady or even growing discrepancies among regions. The more aggregate level of territorial division the faster the equalization process (Busch, 2006, pp.97-21; Melchior, 2008).¹⁶ However, as measured by R^2 – better goodness of fit has the power function – i.e. its course better reflects the actual changes happening at all four levels. Application of such non linear trend assumes continuous decline of GDP p.c. differences. Though, this process as suggested by function property is fading away – drops of differences get smaller with the passage of time. However, while analyzing sigma convergence caution is recommended with respect to the general category of GDP (Constanza Lo Re, 2003)¹⁷. The so far observed pattern of changes of standard deviation of this category as time passes by can be best depicted by parabola function. This would mean future inequalities increases (as measured by rise of GDP standard deviation) cannot be excluded.

Despite two decades since Berlin Wall Fall and contrary to overly optimistic forecasts issued in those days - level of real convergence between former DDR and BRD continues to be unsatisfactory (Kirbach &, Schmiedeberg, 2008, p.435). Concise review of scenarios put

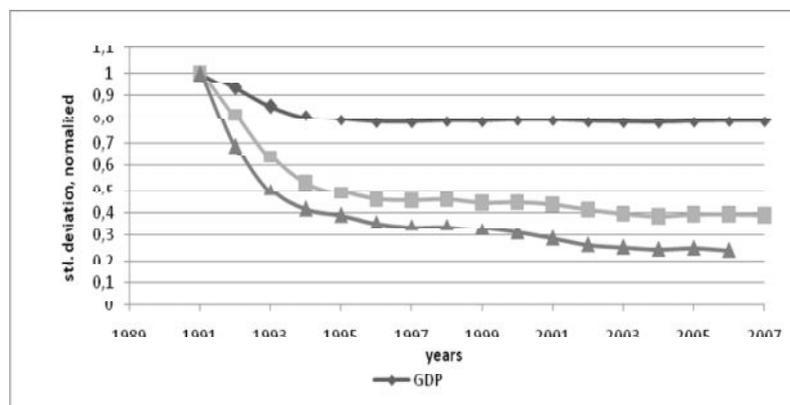
¹⁴ Standard deviation has been applied also by: Ben-David (1993), Slaughter (1997), Engelbrecht, Kelsen (1999), Dobson, Ramlogan (2002), Miller, Upadhyay (2002), Malaga (2004), Matkowski, Próchniak (2006) – whereas Dowrick, Quiggin (1997), Taylor (1999) used variation and Giannetti (2002), Milanovic (2003), Zhang (2003), Giudici, Mollick (2006) - coefficient of variation. More on applied measures see: M. Próchniak, *Realna konwergencja typu beta i sigma w świetle badań empirycznych*, KGŚ, SGH Warszawa 2006, pp. 74-92.

¹⁵ Likewise, the idea was to adjust the trend line to the developments observed over years and then diagnose the character of regularities by referring to function's properties and its course. Following four functions have been selected as reference framework: linear function; parabola; power function and the exponential function. To check the significance of parameters of explanatory variables t Student test (whether the slope of a regression line differs significantly from 0) and F test for non linear dependencies has been applied. For this purpose level of statistical certainty has been established at 95% - a typical confidence. R^2 determined the choice of function.

¹⁶ First Commission Report evaluating progress of cohesion policy stated that starting in 1983 income differences among Member States declined – though discrepancies among regions stayed high. Next reports concluded with similar results. Recently, Commission admitted, in some countries differences among their regions (within states) even rise. B. Busch, *Rozszerzenie UE na Wschód. Powiększająca się przepaść między regionami*, in: *Polska - Niemcy a rozszerzenie Unii Europejskiej*, W. Malachowski (eds.) , SGH, Warszawa 2006, pp.197-214. Various statistical analysis confirm growing interregional income discrepancies. A. Melchior studies revealed that out of 36 investigated countries 23 registered increase of domestic regional inequalities, 10 witnessed modest, though, ambiguous changes (both slight decreases and offsetting increases) and only 3 states– decline of differences. Moreover, in 2005 64% of international (i.e. among countries) differences could be attributed to and explained by discrepancies at NUTS 3 level. Melchior A., *Regional Inequality and Convergence in Europe, 1995-2005*, CASE Network Studies & Analysis, No 374, 2008.

¹⁷ In this respect intriguing are results of studies by M. Constanza Lo Re. Whereas, as she claimed income convergence cannot be ruled out (though it tough to confirm it unambiguously) no convergence of other common indicators have been observed. Figures on employment in manufacturing, population size or death rate don't seem to converge for these two formerly separated states. M. Constanza Lo Re, *Economic convergence – the German 1990 economic and monetary union*, dissertation for PhD, the City University of New York, 2003.

forward after Reunification reveals that even those regarded a couple of years ago as very pessimistic i.e. assuming slow convergence have materialized below expectations (Berlemann & Thum, 2006, pp.34-39).



Source: own calculations based on VGRL - *Volkswirtschaftliche Gesamtrechnungen der Länder* data, accessed 11.2009.

Figure 4. σ -Convergence at Two Regions; East-West Germany (1992 = 100%)

Catching up process may disappoint. GDP p.c. in East Germany equals only 67% of West Germany's level. J. Hall and U. Ludwig introduce the concept of "Godot convergence" (Hall & Ludwig, 2006, pp.941-953). The term coined stipulates that if convergence were to happen at all then only in distant future. On the other hand, according to newest report by IW Köln, pace of real convergence reached in Germany after 1990 exceeded that predicted in theory (Barro principle of 2% annually).¹⁸ If the latter was true, the convergence level already achieved would take place no sooner than in 2028. Could, however, the higher observed catching up rate be sustained, East Germany as a whole, might in 12 years achieve GDP p.c. levels of the poorest western federal states. However, full convergence is in Köln experts' view not possible. Three basic obstacles are namely:

- unfavourable demographic developments,
- deficit of high-tech industries and knowledge-intensive services since existing centres do not have necessary centripetal forces capable of "pulling" the whole economy,
- Berlin - federal state and city whose economic performance persistently adversely affects the whole East region.

Updated 2009 studies by IWH also do not yield any straightforward conclusions (Aumann & Scheufele, 2009). Unit root analysis (i.e. testing trend, whether a time series variable is non-stationary, implies using an autoregressive model) has been applied and breaking points i.e. moments when the course of catching up process changes, included. Results show that unemployment rate has converged, to lower extent has GDP p.c.. Even slower was catching up with respect to manufacturing industry. Convergence of wages has not been proved. Conclusions of other selected papers are contradictory. Whereas R. Barrell and D. te Velde did prove the convergence in Germany, R. Kosfeld and J. Lauridsen or Ch. Dreger and R. Kosfeld have not confirmed it (Kosfeld & Lauridsen, 2004, pp.405-422; Barrell & te Velde, 2000, pp.271- 297; Dreger & Kosfeld 2009, pp.49-57).

¹⁸ According to Barro principle - discrepancies reduction and achieving the level of two third of West Germany figures would have been possible in 2025 at earliest in fact it happened in 2006. *Der Soli hat bald ausgedient, 20 Jahre Mauerfall*, IW Köln Presse Mitteilungen no 45, November 2009.

In the light of above mentioned dilemmas and inconclusiveness of various studies and against the background of progressing globalization the question arises if the task of catching up and reducing development distance is well presented and consequently tackled? (Jabłoński, 2006, pp.235-251). In Germany's case the peculiarities of current situation i.e. huge progress done and yet persistent discrepancies are summarized in *Table 1*.

Table 1. GDP in current prices

GDP	East Germany			West Germany		
	1991	2007	Change (%)	1991	2007	Change (%)
• Absolute value (billion Euro)	107.3	281	162%	1 364	2057	51%
• Per capita (Euro)	7 330	21 294	191%	22 030	31 330	42%
• Per employee (Euro)	15785	48 924	210%	45235	63 451	40%

Source: based on J. Ragnitz, S. Scharfe, B. Schwirtz, Bestandsaufnahme der Wirtschaftlichen Fortschritte im Osten Deutschlands 1989-2008 Gutachten im Auftrag der INSM GmbH Köln, Dresden, July, 2009.

Certainly, “much has been done, but much still remains to be done” (Ragnitz, Scharfe, Schwirtz, 2009). 20 years after Berlin Wall Fall opinions on economic consequences and Reunification evaluation are much more balanced, than they used to be. For instance it is now advocated to compare new federal states with other Central East European countries and not necessarily with well developed affluent old Bundesländer - particularly Bayern or Baden Württemberg (Paque, 2009a, p.24). Voice are raised to create certain domestic league „*Bundesligareife*” enabling meaningful comparisons within given category e.g. confronting best eastern federal states with weakest western ones (Sharr, 2009, p.45). Against this background some experts recall also the case of Saarland which accessed BRD 50 years ago (Hüther, 2009, p.26). They point to long and arduous integration process that followed stressing uniqueness of German development problems. Term *Vereinigung Ökonomie* or Reunification Economics has been even coined in order to better reflect the peculiarities of German experiences and to distinguish them from problems affecting other developing or transformation countries.

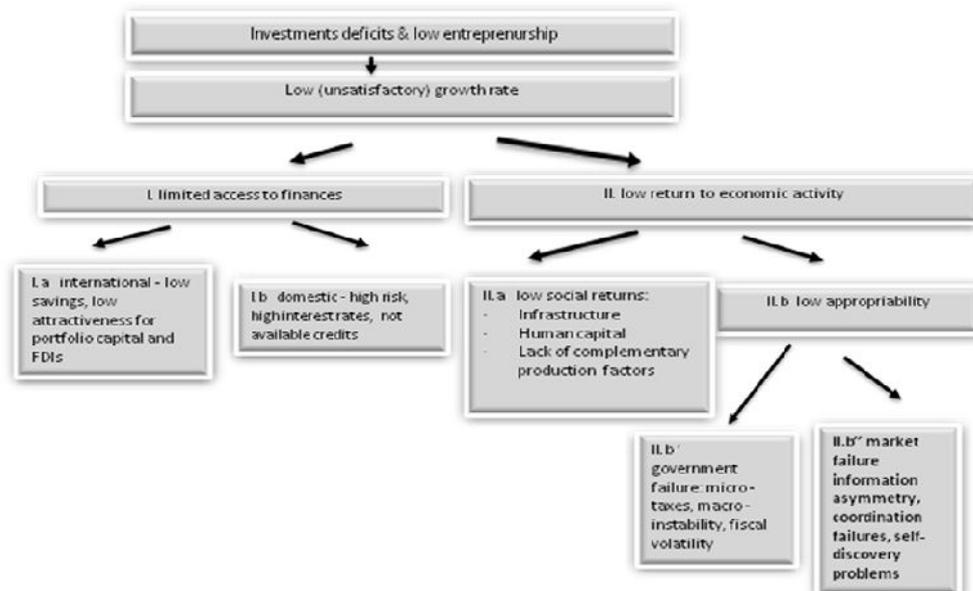
3. Market Failure - Case of East Germany?

Impressive in first years after Berlin Wall Fall pace of catching up came to a halt in 1997. It is however tricky to pinpoint the exact reason for this change.¹⁹ As one of possible

¹⁹ According to F.S. Kilin, it's likely that first favorable catching up processes became fading away exactly around 1997 due to “*pre-unification educational infrastructure dynamics*” i.e. certain negative deficiencies in East Germany's educational system which emerge with some lags. Citizens instructed under old obsolete conditions, don't possess necessary competences what adversely affect their productivity. Flawed educational system of East Germany back in 80s - 90s came to light around late 90s, early 2000, being impediment to convergence processes. F.S. Kilin, *Analysis of convergence process of East German economy on the base of a two-region growth model*, Chemnitz University, March 2003. This is one of explanations reoccurring in current literature. One may find a plethora of possible obstacles. Many of them highlight *structural break points* arguing convergence is not linear process but certain breaks occur leading to new development patterns. Compare: A M. Kutan, T M. Yigit *European integration, productivity growth and real convergence*, European Economic Review, Volume 51, Issue 6, August 2007, p. 1370-1395; F. Zilibotti, *Economic Growth through the Development Process* CESifo Economic Studies vol. 54, 3/2008, p. 325-357; Fritsch M., *Entrepreneurship, entry and performance of new business compared in two growth regimes: East and West Germany*, Journal of Evolutionary Economics, Heidelberg, Dec 2004, Vol. 14, (5); M Funke, H Strulik *On endogenous growth with physical capital, human capital and product variety*, European Economic Review, Volume 44, Issue 3, March 2000, p. 491-515.; F Castellacci *Technology clubs, technology gaps and growth trajectories*, Structural Change and Economic Dynamics, Volume 19, Issue 4, December 2008, p. 301-314. M. Kolasa, *Bariery innowacji i absorpcji technologii w świetle nowej ekonomii rozwoju*, Ekonomista 2009, p. 98; MA. Landesmann, R Stehrer *Convergence patterns and switchovers in comparative advantage*, Structural Change and Economic Dynamics, Volume 12, Issue 4, December 2001, p.399-423.

causes of East Germany's stagnation experts claim excessive public help dubbed sometimes as "caring hand that cripples" (Snower & Merkl 2006, p.375). This term epitomize generous subsidies, government funds, ready and modelled on BRD experiences privatization strategy, western governance and management models, well organized social welfare system offering various benefits or infrastructural investments conducted on a large scale. All this paradoxically may have led to East Germany's stagnation. Other studies one may come across in literature name faulty functioning of Treuhandanstalt²⁰, monetary union with politically correct but economically unfeasible principle of 1DM = 1DDR mark, or "blind" adopting West Germany's job contract systems agreed by trade unions so called "Tarrifverträge". The list includes also less political and more real, bottom-up, phenomena such as mass migration or construction bubble.²¹ Continuous worse economic performance of new Bundesländer seems to be an aftermath of Berlin Wall.²² C. Buch and F. Toubal examining openness of new federal states (as measured by trade share in GDP) coin the term of "long shadow of Berlin Wall". It denotes the hampering effect this edifice still has, literally and figuratively, on new Bundesländer (Buch, Toubal, 2007).²³

Growth diagnostics by D. Rodrik offers a conceptual framework for investigating distortion possibly responsible for low (unsatisfactory) growth rates (Rodrik, 2007; Hausman, Rodrik, Velasco, 2005). This approach may be considered as an alternative for examining disappointing development process of East Germany i.e. diagnosing obstacles hampering full convergence. Subsequent steps of Rodrik procedure can be depicted as a tree.



Source: own elaboration based on Rodrik, 2007; Hausman, Rodrik, Velasco, 2005.

Figure 5. Growth Diagnostics

²⁰ The agency that privatized the East German enterprises

²¹ Opinions and comments of experts - politicians, economists and decision makers gathered during the international conference „20 Jahre Deutsche Einheit – Von der Transformation zur Europäischen Integration“, organised by Institut für Wirtschaftsforschung Halle (IWH), Martin-Luther-Universität Halle-Wittenberg, in Halle, on 11-13.03. 2010

²² It is worth mentioning that Germany's case is in international literature regarded sometimes along with North and South Korea as unique real life laboratory - a natural experiment. Country's division into centrally planned communist DDR and democratic market economy BRD have led to considerable differences in the developments with 1,3% growth in East and 4,4% in West. K. Grier, *Empirics of Economic Growth, The concise encyclopedia of economics*, Library of economics and liberty, www.econlib.org accessed 20.02.2009

²³ Such approach seems to draw indirectly on the *path dependency* concept known in NEG models assuming, among others, self reinforcing processes and circular causation.

Starting point of this algorithm is a cause defined as original, general possible source of stagnation (low growth) which is illustrated as a crown (top) of the tree. It stands for investments deficits and lack of or low entrepreneurship. This may be in turn traced back either to hampered access to finances effectively impeding any activity or to low return to economic activity (Rodrik 2007; Hausman, Rodrik, Velasco, 2005; Hausmann, Klinger, Wagner, 2008). Existing literature on Germany's economy rather rules out lack of finances (I)²⁴ as possible reason for slow growth, or growth which doesn't live up to expectations (Blum, 2009, pp.61-81). Likewise, low social returns (IIa)²⁵ do not seem to be responsible for relative stagnation (Sinn, 2000; Fritsch, 2004; Franz, 2008; Burda, 2006; Sofka, 2006; Sofka, Zimmermann, 2007). Well developed institutional system (copied from West Germany) also shall not be blamed for poor performance. Due to specific measures introduced aiming at attracting capital to East Germany, if there were any government failure, then in fact a "reboarse" one, hampering development of western Bundesländer and favouring East (IIb'). Applying D. Rodrik method - negative selection - i.e. excluding unlikely explanations - one may come to conclusion that market failure is one of the most probable reasons of East Germany's stagnation.

Specifically, this stagnation can be attributed to self discovery problem of new Bundesländer²⁶ and certain external effects (Carlin, 2010). Special attention shall be drawn to these effects associated with knowledge processes which being hard to internalize by entrepreneurs lead to suboptimal allocation of resources and consequently wrong evolution of economic activities. New regional development models assume namely that highest profits (return on capital or economic growth) are yielded by investments in metropolis. Agglomeration and large cities as well as other spatial concentrations of economic activities such as clusters attract well educated people, invite scientists to settle in and conduct research. They are equipped with necessary infrastructure and are considerable markets providing demand (Duranton & Puga, 2003). These are the places where innovations are created. Studies of IWH confirmed incidence of such places (centers of entrepreneurship) in East Germany in quantitative terms (Rosenfeld, Franz, Heimpold, 2007). However, they revealed lack or low level of qualitative features associated with fully fledged clusters. H. Uhlig points to network effects or specifically lack of which in new Bundesländer what can be seen as the main reason making entrepreneurial activity there less, if at all, profitable (Uhlig, 2007, pp.147-167).²⁷ J. Ragnitz in turn claims that existing East West discrepancies can be attributed

²⁴ Billions of Euro pumped literally into East Germany seem to contradict such statement. Some experts argue, east could have in fact suffered *quasi Dutch Disease* - in this respect.

²⁵ Investments upgrading infrastructure conducted over last twenty years don't warrant claims that production factors deficits is a possible reason of low growth. However, against the background of this particular deficiency (IIa) i.e. lack of complementary production factors, studies by J. Ragnitz shall be mentioned. He argues that low productivity derives from lack of human capital. This results not only from imperfect educational system inherited from former DDR but also recent mass migration - mainly outflow of well qualified young workforce. This human capital deficit is currently additionally exacerbated by permanent long term unemployment destroying some "social fabric". J. Ragnitz, Explaining the East German Productivity Gap – the role of Human Capital, 129-145, w: *What Went Wrong in East Germany and What Can Be Done?*, A Collection of Kiel Working Papers, No.1, Kiel Institute, January 2007

²⁶ This term denotes inability to find a niche in global economy and thus to benefit from international trade. This can be confirmed in the case of East Germany by significantly lower than in West export volumes. Goods produced in new federal states are technologically less advanced and less competitive to be sold successfully abroad.

²⁷ In order to explain the observed economic phenomena namely weakening convergence processes and continuously high migration to old federal states H. Uhlig applies standard model incorporating external network effects. This leads to distinguishing two equilibriums - one well networked with high labor productivity, low unemployment and no emigration - and the other one characterized by opposite features - barely networked, with low productivity, high unemployment and emigration. West Germany fits apparently into the first equilibrium - East, unfortunately, into the second one. Moreover, as H. Uhlig concludes such results cannot be easily translated into concrete guidelines for policy makers so to enable the transition from low networked to high networked equilibrium.

to structural deficits (Ragnitz, 2009). These epitomize missing or few upstream entrepreneurs responsible of high value added in supply chain, weak performance in R&D sector or dominance of low productivity firms. All this reflects certain market failures - suboptimal allocation of resources. As Ragnitz (2009) argues, reviving East Germany can be in fact boiled down to levelling out living conditions between regions - to increasing attractiveness of eastern federal states. New Bundesländer as compared to old ones have different spatial structure. There is a deficit of agglomerations, of metropolitan centres - engines of growth generating positive effects which shall spill over to neighbouring territories and thus ignite development of the rest of region. Lack of certain positive external effects or scale economies (clusters) seem responsible for lower attractiveness of new federal states for entrepreneurs and employees. This turns a negative impact on the whole region.

Looking at persistent duality of Germany's economy through growth diagnostics lenses means in fact addressing the question of low (not living up to expectations) growth - insufficient to make up for accumulated backlogs. Analysis conducted for East Germany, though preliminary and general (limited to review of selected literature), allows to presume that one of the main reasons of unsatisfactory economic growth preventing better convergence with western part of the country may be market failures such as coordination deficits, lack of positive external effects or information asymmetries making economic activity less profitable or not profitable at all.

Conclusions

Using West East perspective this paper discusses three problems of Germany's economy: current spatial distribution of economic activity, convergence processes dating back to early 90s and possible reasons of persisting disparities. Particularly, the aim was to address following three questions:

- Does East Germany differ significantly in economic terms from western part?
- How have new Bundesländer been developing over past twenty years? How fast has East been catching up with West?
- What could have hampered the convergence?

Handling them required drawing upon latest literature on this subject. Review of selected bibliography sheds some light on the issues offering certain stylized facts on above mentioned problems. This survey was enriched by authors own studies, particularly:

- Assessment of simple centripetal and centrifugal forces (as predicted by NEG models) acting in both regions,
- Calculations of sigma convergence and estimates of relations between initial values of three categories of GDP and their respective growth rates,
- Diagnosing possible reasons for unsatisfactory economic performance.

Spatial heterogeneity (non homogeneity) of contemporary economies seems to be their intrinsic feature (Garretsen, 2003). However, growing polarization happening through self reinforcing processes or circular causation hard to stop or reverse require special attention. Compared to initial DDR conditions East Germany's economy significantly improved after Berlin Wall Fall. Despite the impressive progress made since 1990 deficiencies in relation to western part are clearly visible and reflected by various macroindices such as unemployment rates, productivity or export volume. Better salaries and income make old federal states more attractive for capital and labour flows (entrepreneurs and employees). Yet, higher living costs there, contrary to predictions, do not deter employees or entrepreneurs from preferring old

Bundesländer. What matters is namely the relative perception - the result of interplay between centripetal and centrifugal forces.

Fast catching up seems to have come to halt around 1997. Interdependency the poorer the region the higher subsequent GDP growth as stipulated by beta absolute convergence has been confirmed for two out of three examined categories – GDP p.c. and GDP per employee, but not for global GDP. Yet, dwindling over time the values of standard deviation of GDP p.c. confirmed incidence of sigma convergence. Studies review of others authors also do not yield any unambiguous and clear cut conclusions. Outcomes of these analyses are often contradictory subject to applied method of calculation, underpinning models or length of time series. Inconclusiveness of convergence is also reflected in voices recently more often questioning the conceptualization of this phenomena and subsequent tackling of this problem.

Currently literature on Germany Reunification provides numerous examples of probable causes for slower convergence or even divergence. In the light of growth diagnostics - growth rate of new Bundesländer results not from inaccessibility of finance or low level of social returns but can be rather attributed to self discovery problems or specific market failure. The former denotes inability to specialize internationally as to benefit from global labour division and international trade, and the latter – absence of external effects like those associated with knowledge processes which not subject to perfect internalization lead to suboptimal resources allocation. It is, however, equally hard to state insomuch these impediments are German specific feature – intrinsic element of Post Reunification economy and insomuch universal problems of many catching up regions and countries.

Full process of Reunification certainly has not been yet accomplished. Recently, more economist and decision makers dare to raise questions if such full convergence as measured by bridging the gap is at all feasible or desired. Bearing in mind earlier experiences in this respect as well as modern regional development paradigm stipulating unequal growth of centers of excellences and existence of clusters where innovation and progress are generated and from where all positive processes shall spill over to the rest of economy, mechanical closing the gap or even striving to do this seems pointless. Such cognitive reorientation may reflect certain disappointment arising from earlier experiences and mirrored in many often contradictory studies preventing any clear cut conclusive assessment as to the convergence process and progress made by new Bundesländer. Moreover, distinction between actions aiming at bridging the gap or reducing disparities and steps undertaken in order to guide economy on the path of sustainable and potential growth needs to be highlighted. In the latter respect certainly still much remains to be done.

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VOKIETIJOS EKONOMIKA: 20 METŲ PO BERLYNO SIENOS GRIŪTIES**Marta Götz****SANTRAUKA**

Atsižvelgiant į pradinį tašką, prasta Rytų Vokietijos ekonomikos situacija nuo 1990-ųjų padarė pažangą, o pasiekti rezultatai yra įspūdingi. Tačiau, lyginant su situacija vakarinėje šalies dalyje, kai kurie reikšmingi neatitikimai ir toliau egzistuoja. Vis dėlto daugėja problemų dėl atsirandančio bei besikristalizuojančio Šiaurės ir Pietų pasidalijimo. Sparčiai besivejantis procesas buvo sustabdytas 1997 m., kai pasireiškė sigma konvergencija, kuria matuojamas nykstantis BVP procentų neatitikimas. Mažiau žinoma rytinės dalies nepakunkamumo plėtros priežastis – nūdienos perspektyvoje atkreipianti vis daugiau dėmesio – naujos federalinių valstybių ekonomikos problemos ir per mažas teigiamas išorinis poveikis, pavyzdžiui, masto ekonomija, žinių sklaida arba pramonės (verslo) klasteriai. Žinoma, per du dešimtmečius po Berlyno sienos griuvimo daug buvo pasiekta, tačiau dar daug reikia nuveikti, - teigia autorė.

REIKŠMINIAI ŽODŽIAI: ekonomikos augimas, susijungimas, konvergencija, augimo diagnostika, makroekonominės sąlygos, Vokietija.