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Article

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The Impact Of The Global Financial And Economic Crisis On The Convergence Process In OECD Countries

Abstract

This paper analyzes the issue of convergence in OECD countries and tries to assess the effect of financial crisis on the process of convergence. In other words it will consider whether the global financial crisis pulled the economies of the organization together or pushed them apart. It tries to show whether the present crisis has had a similar effect on the convergence process as the Great Depression had 80 years ago. It will analyze the most important macroeconomic data from the period 2007–2012 and use a simple econometric model to establish the relationships and, in conclusion, compare the similarities and differences between these two economic events.

Keywords: *economic crisis, economic growth, OECD, convergence*

1. Introduction

The issue of real convergence of countries and regions has become a popular subject of analyses and an integral part of the theory of economic development. We still observe a growing gap worldwide between the highly developed countries

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and the poor agricultural economies in terms of production, income, and level of technology. Does this mean that a similar phenomenon can also be observed in countries with a similar level of development?

This article seeks to clarify this issue by determining how the economic crisis has affected the course of this phenomenon in the OECD countries. The first section explains the various definitions and types of convergence, and the following one analyses this phenomenon in a historical perspective. The third section is an attempt to determine the factors which positively influence the process of convergence. The consequent section is a description of the impact of financial and economic crisis on the economies of the OECD countries. The fifth section shows the effects of the crisis in the European Union, which in terms of numbers represents the largest group of OECD countries. The sixth and final section presents the results of empirical studies conducted using an econometric model depicting the process of convergence among OECD countries in the Years 2003–2012.

2. Definition and types of convergence

The concept of convergence inherently relates to economic growth. The traditional theories on convergence are derived from the neoclassical economic growth model proposed by Robert Solow (Solow 1956, pp. 65-94) that proposed the fundamental nature of savings and population increases as the factors promoting the growth of capital stocks in a particular economy and determining the steady – state level of growth in pro-capita wealth in the short run. Nevertheless, the model in question is not able to explain the phenomenon of persistent growth that one finds in the majority of modern economies. Thus, it was necessary to introduce the role of technological change into the model as an exogenous variable capable of justifying long-term economic growth. In addition, the traditional analysis of the concept of convergence assumes a decline in the returns to scale, thereby proposing that the more backward areas will grow at higher rates than those of more advanced economies.

The new definitions and methodological approaches to convergence derive from newer models of endogenous technological progress, pioneered by Romer (1990), Barro (1991) and Barro and Sala-i-Martin (1991, 1992).

Robert Barro and Javier Sala-i-Martin are the authors of the well known concepts of sigma and beta convergence (Barro , Sala-i-Martin 1991). According to them, sigma convergence occurs when there is a reduction in the dispersion of per-capita incomes over time. Applying standard deviation as a measure of dispersion, there is sigma convergence when $\sigma_{t+T} < \sigma_t$, where σ_t is the standard deviation of the logarithm of GDP of the i -th economy at time t ($\log(y_{i,t})$) and T is the period of time considered.

The analysis of sigma convergence does not allow for identifying the causes of the convergence, in that one is not able to establish if the result is due to the higher economic growth produced by less developed regions, decrease in the unemployment and/or increase in the activity rates in the less developed areas or by lower levels of growth, increases in unemployment rates or decrease in activity rates in the more developed areas (Leonardi 2007, p.95).

Beta convergence refers to an analysis of cross-sectional data, relative to an aggregate of regional economies that highlights the negative correlation between the rate of growth in per-capita income and the relative initial value. In other words, we have beta convergence when the less developed economies are growing faster than the developed ones. The economic literature also introduced the concept of “conditional” beta convergence, which is derived from the presence of differences in structural characteristics between the units analyzed, with the result that the level of per capita income does not tend to be equal in all economies considered.

Angel de la Fuente proposed a model for empirical analysis of convergence that essentially reflects the one proposed by Barro and Sala-i-Martin and is defined by the equation (de la Fuente 1997, p.36):

$$\Delta y_{i,t} = \alpha_i - \beta y_{i,t} + \varepsilon_{i,t}$$

where y is the relative income level, $\Delta y_{i,t}$ is the approximation of the rate of growth, α_i is a vector of fundamentals, and ε the term of stochastic disturbance. The “conditional” beta convergence is present when β appears between 0 and 1, while “absolute” beta convergence implies an identical α_i for the entire sample.

Looking at convergence from a historical perspective, one can observe the phenomenon only to a limited extent. The economic growth in the twentieth century shows a striking divergence instead of convergence. World trade, migration, and flows of capital should all work to take resources and consumption goods from where they are cheap to where they are expensive. As they travel with increasing speed and increasing volume as transportation and communication costs fall, these commodity and factor-of-production flows should erode the differences in productivity and living standards between continents and between national economies (Dowrick, De Long 2003, p.5).

Economists found that convergence was restricted only to the narrow range of North Atlantic countries (Pollard 1981). Outside the charmed circle there was structural change and economic integration, but not convergence. William Baumol and Edward Wolff proposed the term “convergence club”, which they defined as that set of economies where the forces of technology transfer, increased international

trade and investment, and the spread of education were powerful enough to drive productivity levels and industrial structures to (or at least toward) those of the industrial core (Baumol, Wolff 1988, p.1155–59).

3. Convergence in the historical perspective

Long before the OECD organization was created, the most industrialized countries of the world showed signs of convergence. Before the First World War the convergence club included the West and North European countries: Germany, France, Belgium, the Netherlands, Switzerland, Spain, Italy (without the southern part), Austria, Denmark, Norway, Sweden, Finland, Great Britain and Ireland, as well as the European settlement countries – the United States, Canada, Australia, New Zealand plus Argentina, Chile and Uruguay (see Pollard 1981, Lewis 1978).

This spread of convergence was connected with the globalization. International trade, migration, and international investments profoundly affected economic, social and political structures throughout the world. The invention of the steamship and the telegraph made the transoceanic shipment of staple commodities economically feasible for the first time in human history. Although investments were also made into other parts of the world (China, India, Malaysia), they failed to trigger there any acceleration in productivity growth or convergence to the world's economic core. The convergence was of limited size, not touching continental Asia and barely touching Africa and Latin America (Lewis 1978).

In the interwar period it is difficult to discern the trends due to war damage and the Great Depression in the greater part of most industrialized countries. It may be said that convergence stopped between 1914 and 1950 also due deglobalisation and the implosion into autarchy (Williamson 1995, p.1). However, rapid growth was noted in Japan, in some Latin American countries (Venezuela, Brazil and Peru), and surprisingly in the Soviet Union. The Stalin era was a disaster for human life, social welfare and economic efficiency, but was a powerful motor of industrialization.

The second half of the 20th century brought about essential changes in the convergence process. In Latin America, countries like Venezuela, Peru, Argentina, Chile and Uruguay showed signs of divergence. Since the mid 1970s the same occurred in the Soviet Union and other socialist countries. Then came the collapse of economic activity in the 1990s that followed the end of communism. Most economists argue that in these two cases the economic failure was of a political nature (Landes 2008, pp. 371, 554, DeLong, Eichengreen 1993, pp.189-230).

Since the 1950s the West European countries have undergone a progressive process of economic integration, involving both real and financial markets. This process has not been linear and monotonous, with the main stages marked by the creation of the customs union, the ratification of the Maastricht Treaty, and the start of the Economic and Monetary Union (EMU) in January 1999. The economic and monetary integration, coupled with the cohesion policy, contributed to convergence among member states. The pace of β -convergence was 2.1 – 2.3% among these countries over the period 1960 – 2003 (Halmai, Vásáry 2010, p.233) and increased to 3.4% between 2004 and 2008 (European Commission 2009).

At the same time the East Asian economies: Japan, South Korea, Taiwan, Singapore, Thailand and Malaysia entered the path of quick economic growth. Since the 1980s the two most populated countries in the world - China and India – have been considerably improving their economic performance and today belong to the fastest growing economies in the world. Following the collapse of socialism in the Central and East European countries and the reforms that these countries accomplished, a great part of them (Poland, Hungary, Slovakia, Slovenia, Czech Republic and Baltic states) joined the OECD and European Union and successfully reduced their income gap with respect to their richer neighbours from Western Europe.

4. Factors stimulating the convergence

According to the Heckscher – Ohlin paradigm, countries export commodities which intensively use the factors with which they are well endowed, while they import commodities which intensively use the factors in which they are poorly endowed. The falling transport costs tend to equalize prices of the traded commodities, encouraging more trade. Countries export more goods which exploit their favourable factor endowment. The demand for the abundant and cheap factor booms while that for the scarce and expensive factor falls. Thus, commodity price convergence tends to produce factor price convergence: wages should rise in poor countries relative to the rich.

Commodity price convergence played a significant role in fostering real wage convergence up to 1895. It explains more than a third of the decline in the Anglo-American real wage gap in the period 1870 – 1895 (O'Rourke, Williamson, Hatton 1994).

Another significant factor explaining the convergence between countries is a mass migration. It can change the situation on labour markets and may have a significant impact on wages. Foreign immigration will only lower wages in

a local labour market if it increases total labour supply. If instead there is completely offsetting native emigration, then a rise in the immigrant share is consistent with no change in the size of the local labour force, and no immigrant-induced wage effect compared with other local labour markets in which natives relocate.

European emigration had a significant impact on labour markets at home: the departure of the migrants improved the economic conditions of the remaining residents faster than would have been true without emigration – raising real wages, lowering unemployment and eroding poverty. By entering the labour market abroad, the mass migration also reduced the pace of real wage growth in receiving countries. Thus, mass migration tended to create economic convergence among the participating countries – the living standards in the poor emigrating countries tended to catch up with living standards in the rich countries which received immigrants.

The biggest impact was on those countries which experienced the largest migrations: by 1910, Irish wages would have been lower by 36%, Italian by 33% and Swedish by 12%. At the same time American wages would have been higher by 15%, Australian by 28% and Canadian by 31%. Without Irish emigration (mostly to the U.S.) and US immigration (many of whom were Irish), the American – Irish wage gap would have risen by 101 percentage points, while in fact it fell by 48; without Italian emigration (a large share of whom went to the USA) and US immigration (many of whom were Italian), the American – Italian wage gap would have risen by 149 percentage points, while in fact it fell by 102 (Williamson 1995, p.16).

Another very important factor is education. Carlo Cipolla argued that the “more literate countries were the first to import the Industrial Revolution” and presented plenty of evidence to back up his view (Cipolla 1969, p.87). His view was supported by Sandberg, who showed that the 1850 educational ranking was highly correlated with the 1970 data ranking per capita incomes, and that up to 1913 “the poor, high literacy countries ... grew the fastest ... while the low literacy countries ... (grew) slower”. (Sandberg 1982, p.689).

The contribution of education to real wage growth is even more important today. Poor countries well endowed with an educated population caught up faster than those poorly endowed, presumably because their social capabilities were better established. That is, they were better able to exploit the open economy and globalization effects. Furthermore, when conditioned by education, the rate of real wage convergence rises significantly (Williamson 1995, p.20).

5. The financial and economic crisis and its consequences

The international economy has been affected during the last six years by the most severe financial and economic crisis since the Great Depression. It began with the bursting of the U.S. housing market bubble and a rise in foreclosures, then

ballooned into a global crisis. In October 2008 credit flows froze, lender confidence dropped, and one after another the economies of countries around the world dipped into recession. The crisis exposed fundamental weaknesses in financial systems worldwide, and despite the coordinated easing of monetary policy by governments, trillions of dollars in intervention by central banks and governments, and large fiscal stimulus packages, the crisis seems far from over (Nanto 2009, p.6).

The financial crisis which began in the industrialized countries quickly spread to emerging markets and developing economies. Investors pulled capital from countries, even those with small levels of perceived risks, which caused the values of stocks and domestic currencies to plunge. The global crisis now seems to be playing out on two levels. The first is among the industrialized nations, where most of the losses from subprime mortgage debt, inadequate backing and credit default swaps have occurred. The second level of the crisis is among emerging markets, which were resistant to the crisis but were affected by the actions in global markets. Most industrialized countries were able to formulate their own rescue package by borrowing domestically and in international capital markets, but many emerging markets have insufficient sources of capital and have turned to the international institutions for help – the World Bank, International Monetary Fund and the European Union.

In analyzing the consequences of the global financial and economic crisis on the most developed countries we come to our basic question – what impact has the present crisis had on the convergence process among the OECD countries? The experiences from the Great Depression 1929 – 1932 had a negative impact on convergence. This was due to the retreat from globalization as well as the policies of those countries favouring autarchy.

The present world economy differs essentially from that of the interwar period. The integration processes, capital flows and mass migration fuelled the growth of globalization and made the economies far more interdependent. In fact, in 2008 all OECD countries suffered a drop in their GDP growth rate and this trend was continued in 2009 (with exception of Australia and New Zealand). The next year brought about a slow recovery, but in some countries (Greece, Iceland, Ireland) the negative trend continued. It is noteworthy that the biggest problems are faced by countries with the excessive budget deficits (Greece, Spain, Italy). Also some new member states (e.g. Estonia, Hungary, Slovenia) are highly sensitive to the shock impacts due to their relatively small size, high levels of openness, and greater need for external financing.

Another difference that can be observed in the course of these two great crises is that in the case of the interwar crisis the economies of the developed countries relatively quickly entered a path of rapid growth, and now this phenomenon cannot be observed. After a decline in production in the years 2008 – 2009, the OECD countries reported a positive growth the following year, but

in most countries the years 2011 and 2012 brought about a decline in the rate of growth, and even a new wave of recession. This occurred as a result of the transformation of the financial and economic crisis into the debt crisis.

Table 1. GDP annual growth rates in OECD countries (output approach)

| Country | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|-----------------|------|-------|-------|------|------|------|
| Australia | 3.7 | 1.7 | 2.0 | 2.2 | 3.6 | 2.6 |
| Austria | 3.7 | 1.4 | -3.8 | 1.8 | 2.8 | 0.9 |
| Belgium | 2.9 | 1.0 | -2.8 | 2.3 | 1.8 | -0.1 |
| Canada | 2.2 | 0.7 | -2.8 | 3.2 | 2.5* | 1.7* |
| Chile | 5.2 | 3.3 | -1.0 | 5.8 | 5.9 | 5.6 |
| Czech Republic | 5.7 | 3.1 | -4.5 | 2.5 | 1.8 | -1.0 |
| Denmark | 1.6 | -0.8 | -5.7 | 1.4 | 1.1 | -0.4 |
| Estonia | 7.5 | -4.2 | -14.1 | 2.6 | 9.6 | 3.9 |
| Finland | 5.3 | 0.3 | -8.5 | 3.4 | 2.7 | -0.8 |
| France | 2.3 | -0.1 | -3.1 | 1.7 | 2.0 | 0 |
| Germany | 3.3 | 1.1 | -5.1 | 4.0 | 3.3 | 0.7 |
| Greece | 3.5 | -0.2 | -3.1 | -4.9 | -7.1 | -6.4 |
| Hungary | 0.1 | 0.9 | -6.8 | 1.1 | 1.6 | -1.7 |
| Iceland | 6.0 | 1.4 | -6.9 | -3.5 | 2.7* | 1.4* |
| Ireland | 5.6 | -3.5 | -7.6 | -1.0 | 2.2* | 0.2* |
| Israel | 5.5 | 4.0 | 1.2 | 4.6 | 4.2 | 3.2* |
| Italy | 1.7 | -1.2 | -5.5 | 1.7 | 0.5 | -2.5 |
| Japan | 2.2 | -1.0 | -5.5 | 4.7 | -0.6 | 2.0* |
| Korea | 5.1 | 2.3 | 0.3 | 6.3 | 3.7 | 2.0 |
| Luxembourg | 6.6 | -0.7 | -5.6 | 3.1 | 1.9 | -0.2 |
| Mexico | 3.4 | 1.2 | -6.0 | 5.3 | 3.9 | 3.8* |
| Netherlands | 3.9 | 1.8 | -3.7 | 1.5 | 0.9 | -1.2 |
| New Zealand | 2.9 | -1.1 | 0.8 | 2.5 | 2.2* | 3.2* |
| Norway | 2.7 | 0.1 | -1.6 | 0.5 | 1.3 | 2.9 |
| Poland | 6.8 | 5.1 | 1.6 | 3.9 | 4.5 | 1.9 |
| Portugal | 2.4 | 0.0 | -2.9 | 1.9 | -1.3 | -3.2 |
| Slovak Republic | 10.5 | 5.8 | -4.9 | 4.4 | 3.0 | 1.8 |
| Slovenia | 7.0 | 3.4 | -7.9 | 1.3 | 0.7 | -2.5 |
| Spain | 3.5 | 0.9 | -3.8 | -0.2 | 0.1 | -1.6 |
| Sweden | 3.3 | -0.6 | -5.0 | 6.6 | 2.9 | 0.9 |
| Switzerland | 3.8 | 2.2 | -1.9 | 3.0 | 1.8 | 1.0 |
| Turkey | 4.7 | 0.7 | -4.8 | 9.2 | 8.8 | 2.2 |
| United Kingdom | 3.4 | -0.8 | -5.2 | 1.7 | 1.1 | 0.3 |
| United States | 1.8* | -0.3* | -2.8* | 2.5* | 1.8 | 2.8 |
| OECD Total | 2.7 | 0.3 | -3.5 | 3.0 | 2.0* | 1.5* |

*expenditure approach

Source: Author's own calculations based on data from: <http://stats.oecd.org/index.aspx?queryid=26646#>

Another important outcome of the financial crisis is the substantial rise in government debt. For most of the OECD countries an ageing society, an expanding social welfare state, and stagnant population growth – compounded by huge increases in government debt – make the situation with respect to public finances very severe.

Table 2. Central Government Debt of the OECD countries (in relation to GDP)

| Country | 2004 | 2006 | 2008 | 2010 | 2012 |
|-----------------|-------|-------|-------|-------|-------|
| Australia | 22.6 | 21.6 | 18.3 | 29.3 | 40.5 |
| Austria | 65.1 | 62.0 | 64.1 | 72.2 | 78.5 |
| Belgium | 88.4 | 83.2 | 82.7 | 86.2 | 89.4 |
| Canada | 46.8 | 43.1 | 43.0 | 51.4 | 53.5 |
| Chile | 10.7 | 5.3 | 5.2 | 9.2 | |
| Czech Republic | 19.3 | 22.7 | 24.4 | 33.6 | 40.8 |
| Denmark | 43.6 | 32.0 | 30.8 | 41.2 | 47.2 |
| Estonia | 5.5 | 5.5 | 5.6 | 8.9 | 10.4 |
| Finland | 46.3 | 39.7 | 32.0 | 47.0 | 51.0 |
| France | 69.1 | 66.5 | 71.0 | 86.5 | 100.9 |
| Germany | 41.7 | 42.1 | 41.7 | 53.7 | 55.2 |
| Greece | 121.8 | 123.0 | 116.8 | 126.9 | 163.6 |
| Hungary | 65.6 | 69.4 | 72.8 | 81.7 | 84.7 |
| Iceland | 48.6 | 43.2 | 79.3 | 105.7 | 112.6 |
| Ireland | 31.6 | 28.2 | 46.8 | 83.7 | 120.5 |
| Israel | 96.6 | 82.7 | 75.3 | 74.7 | |
| Italy | 106.7 | 105.1 | 103.4 | 115.8 | 126.2 |
| Japan | 156.8 | 145.2 | 153.1 | 174.8 | 196.0 |
| Korea | 23.7 | 30.1 | 29.0 | 31.9 | |
| Luxembourg | 4.0 | 4.4 | 12.3 | 17.5 | 20.0 |
| Mexico | 20.7 | 20.6 | 24.4 | 27.5 | |
| Netherlands | 49.2 | 43.2 | 52.1 | 57.7 | 67.9 |
| New Zealand | 44.3 | 43.5 | 36.8 | 50.3 | 69.0 |
| Norway | 39.0 | 49.0 | 44.3 | 35.8 | 20.9 |
| Poland | 43.6 | 45.1 | 44.7 | 49.7 | |
| Portugal | 66.0 | 67.1 | 75.9 | 91.4 | 122.8 |
| Slovak Republic | 43.9 | 32.2 | 29.7 | 45.5 | 53.5 |
| Slovenia | 27.1 | 25.8 | 21.2 | 36.0 | |
| Spain | 40.7 | 33.4 | 33.5 | 47.1 | 65.9 |
| Sweden | 50.0 | 44.3 | 39.7 | 36.7 | 35.3 |
| Switzerland | 36.3 | 33.7 | 26.2 | 23.8 | |
| Turkey | 56.6 | 45.5 | 40.0 | 42.9 | 45.1 |
| United Kingdom | 42.0 | 43.8 | 54.3 | 81.2 | 97.2 |
| United States | 56.4 | 55.3 | 64.0 | 85.6 | 94.3 |

Source: Authors own calculations based on the World Bank data: <http://data.worldbank.org/indicator/GC.DOD.TOTL.GD.ZS> and OECD data: http://stats.oecd.org/Index.aspx?DataSetCode=GOV_DEBT.

The relatively poorer East European countries also experienced an essential rise in government debt, although the pace was differentiated. The Czech Republic, Slovak Republic and Slovenia and Hungary all noted a more than 20 percentage points rise in their debt/GDP ratio, while Poland experienced less than a 5 percentage point increase in the period 2006–2010.

The table does not show the total external debt, including both public and private debt. Reinhart and Rogoff argue that total external debt is an important indicator because the boundaries between public and private debt can become blurred in a crisis. External private debt (particularly but not exclusively that of banks) is one of the forms of “hidden debt” that emerge out of the woodwork in a crisis. Just as bank balance sheets before the 2007–09 financial crisis did not reflect the true economic risk that these institutions faced, so too official measures of public debt are typically a significant understatement of a state’s vulnerability (Reinhart, Rogoff 2013).

The International Monetary Fund confirms that private debt is even worse for growth than government debt (Liu, Rosenberg 2013, p.4). It is comprised of corporate and household debts. In the years following the 2008 global financial crisis, the private non-financial debt-to-GDP levels have increased in all the OECD countries. This trend can be seen as both a cause and an effect of the great recession: loose credit conditions and the associated rapid accumulation of private sector debt increased a country’s vulnerability to sudden stops of capital inflows and contributed to the severity of the crisis (Bakker, Gulde 2010).

The increase in the private sector’s indebtedness was highest in those countries that experienced the strongest boom-bust credit cycle, such as Iceland (reaching 956% of the GDP in 2010), Ireland (350%) and Estonia. For the EU as a whole, debt ratios - particularly those of households - have started to catch up to the high levels in the US and Japan (respectively 280% and 205% of GDP in 2010 (Liu, Rosenberg 2013, p. 4).

6. Crisis in the European Union OECD countries and convergence

The economic, financial and fiscal crisis that started in Europe around 2008 has taken its toll on the convergence of GDP per capita levels in the European Union. As many as 21 of the 34 OECD countries belong to the European Union, so their results will largely affect the economic performance of the entire group. From the point of view of economic policy, similar levels of economic development and harmonization of economic cycles are necessary for the smooth functioning of the European economy. This is of particular importance

for the Euro Area. A similarity of these economies helps in making political decisions, reduces the need to transfer funds, and makes the common monetary policy more suitable to the needs of the Euro Area Member States. Convergence can be supported through market-oriented reforms both at the EU level and at national level. This would of course improve the functioning of commodity, financial, services, and labour markets across the region.

In Europe the financial crisis transformed into a sovereign debt crisis in several countries. This kind of crisis exposed structural weaknesses in some European economies, such as unsustainable levels of public or private debt or declining competitiveness. These concerns intensified in early 2010 and thereafter led European nations to implement a series of financial support measures, such as the European Financial Stability Facility (EFSF) and European Stability Mechanism (ESM).

On 5 January 2011, the European Union created the European Financial Stabilisation Mechanism (EFSM), an emergency funding programme reliant upon funds raised on the financial markets and guaranteed by the European Commission using the budget of the European Union as collateral. The members of the Euro area and eight non-euro area countries also concluded the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union, which entered into force on January 2013. This treaty aims to further strengthen fiscal discipline by enshrining strict fiscal rules and balanced budget provisions into national legislation.

After the enlargement to the East, the European Union has become more heterogeneous and polarized in terms of knowledge-generation, innovation performance, and the development of technological capabilities. Former Eastern Bloc countries are still no match for the 'old' EU countries in terms of innovation, but on the other hand filling this gap can become a basis for them to catch up with the more developed countries (Archibugi, Filipetti 2011, p.1-30).

The new member states are also more vulnerable to external shocks: these are the countries which have significantly reduced their investments in direct response to the crisis, later this trend weakened, but strengthened again in 2012. The average level of GDP per capita of these countries in relation to the EU-15 increased from 41% in 2000 to 60% in 2012 (Ville 2013).

The differences in the impact of the crisis between the individual Central and East European countries were substantial. These countries were in different cyclical positions when the financial crisis began. Some of them - e.g. Hungary and Estonia - grew rapidly, which led to a positive output gap and fostered the emergence of internal and external imbalances. The CEE countries were also severely affected by heightened risk aversion on the part of international investors, which led to sharp a drop in cross-border capital flows (ECB 2010, p.88)

During the crisis a number of actions were taken in order to make full use of EU funds by simplifying procedures and facilitating access to the funds. In some member states the role of the structural funds was extremely important. The funds were often an important source of public investment at a time when the central budget spending had been reduced and the volume of investment loans had declined (Healy, Bristow 2013). It is through the use of structural funds (and a favourable exchange rate) that Poland did not experience a decline in GDP, and the effects of the crisis in other cohesive countries were much smaller. For the poorer EU countries the structural funds turned out to be a kind of a shock-absorber which reduced the effects of the crisis.

Research conducted by Helmai and Vásáry demonstrated that financial and economic crisis had affected individual EU countries to varying degrees. According to simulations, the potential growth rate of the so-called 'convergence countries' is due to return to a path of growth slower than in the developed countries, and in some cases may show a divergence. This can occur especially in certain Mediterranean countries, as well as in 'vulnerable' new member states. These trends may have a significant impact on the cohesion policy implemented at the level of the community (Halmai, Vásáry 2012, p.297–322).

Among the countries that were most affected by the economic and financial crisis were both the poorer countries of the old Union and the group of new member states. This may have a negative impact on the process of convergence in the European Union. The possibility that some countries (Greece, Portugal and Spain) will take a protracted time to return to the path of development is bad news for the entire EU.

7. The results of the empirical study

An econometric model was constructed based on the unconditional beta convergence in order to investigate the convergence processes occurring in OECD countries in the years 2003–2012. A panel estimation with fixed-effects was applied in the model, using 306 observations. The first study used data for 34 OECD countries from a period of nine years. The data included the level of Gross Domestic Product per head in constant process.

In the second estimation, observations were divided into two sub-samples, the first involved the years 2003–2007, i.e., the period before the onset of the financial crisis; and the second the period 2007–2012, covering a sharp decline in economic conditions and the period thereafter.

The following parameter values were obtained for the entire period:

$$\Delta \ln \text{GDP}_{i,t} = 0.281 - 0.0263 \ln \text{GDP}_{i,t-1}$$

(5.79) (-5.53),

with a coefficient of determination of $R^2 = 0.1$.

The results for the entire sample and sub-samples are presented in the following table:

Table 3. The parameter values obtained for the full sample and sub-samples

| | Full sample (2003-2012) | (2003-2007) | (2008-2012) |
|--------------------------|-------------------------|-------------------|--------------------|
| Constant | 0.281 (5.79) | 0.293 (7.56) | 0.226 (3.40) |
| $\ln \text{GDP}_{i,t-1}$ | -0.0263 (-5.53) | 0.0256 (-6.72) | -0.0217 (-3.35) |
| R^2 | 0.1 | 0.3 | 0.1 |

Source: Authors own calculations based on data from: www.oecd-ilibrary.org

The results show that in the period under study the OECD countries recorded a statistically significant unconditional convergence amounting to 2.63%. The analysis of sub-samples found a decrease in the rate of convergence from about 2.6% in the period before the crisis to 2.25 after the emergence of the crisis.

The study suggests that the global financial crisis has not led to inhibition of the process of real convergence among OECD countries, but noticeably decreased the rate of this process.

8. Conclusions

The analysis shows that despite the fact that the world economy as a whole is still characterized by a divergence, an opposite phenomenon can be seen among the most developed countries in the world. The economic and financial crisis which emerged in 2007 weakened the process of convergence, but not enough to repeat the history of the Great Depression in the years 1929-1932.

Therefore, one may ask what factors helped maintain the convergence process and what distinguishes the present crisis from that of 80 years ago? In this respect it may be said it was the role of globalization and international integration, thanks to which the OECD countries have not resumed the policy of autarchy, as was the case in the past. In addition the role of the state and international institutions is today much larger. Protective measures prevented a greater decline in global demand. However, this was done at the expense of a very large increase in public debt.

Since the Common Market was created in Europe, the isolation of its economies is virtually impossible. Also, the EU cohesion policy played a major role and allowed relatively poorer countries to make a smoother transition through the crisis (Poland, Slovakia), and possibly slowed down the decline in GDP in some countries. Noteworthy in this respect are the good economic results recorded in this period by the relatively poorer non-European countries (Chile, Turkey).

The Central and East European countries were hit by the financial and economic crisis to a different degree. All of them suffered from the considerable decline in GDP growth and collapse in exports. These countries, with the exception of the Czech Republic and Poland, noted sharp drops in domestic demand, which was driven by a steep decline in private consumption.

The weakening of the convergence process should be in part attributed to the economic performance of those relatively poor European countries which fell into the debt crisis (Greece, Spain and Portugal), owing to which their economies have been developing relatively worse than the other OECD countries since 2008.

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Streszczenie

WPLYW KRYZYSU GOSPODARCZEGO I FINANSOWEGO NA PROCES KONWERCENCJI W KRAJACH OECD

Niniejszy artykuł poświęcony jest zjawisku konwergencji i próbuje oszacować wpływ kryzysu finansowego i gospodarczego na proces konwergencji realnej wśród krajów OECD. Głównym celem artykułu jest wykazanie, czy w wyniku globalnego kryzysu finansowego i gospodarczego gospodarki ugrupowania zbliżyły się do siebie pod względem osiąganego PKB per capita, czy też wystąpiło zjawisko zupełnie przeciwne. Autorzy próbują ponadto ustalić, czy obecny kryzys miał podobny wpływ na procesy konwergencji jak Wielki Kryzys z lat 1929–1932. Artykuł obejmuje dwie części. W pierwszej, o charakterze teoretycznym, przedstawiono międzynarodowy dorobek w dziedzinie konwergencji oraz czynników, które na nią oddziałują, a także przedstawiono procesy konwergencji w perspektywie historycznej. W części drugiej, o charakterze empirycznym przedstawiono wyniki badań uzyskanych przy wykorzystaniu modelu ekonometrycznego. Model ten przedstawia analizę beta-konwergencji wśród 36 państw OECD przed i po okresie wystąpienia kryzysu i obejmuje swoim zasięgiem lata 2003–2012. W zakończeniu przeprowadzono porównanie oddziaływania na konwergencję obecnego kryzysu gospodarczego, z tym, który miał miejsce osiemdziesiąt lat temu.

Słowa kluczowe: kryzys gospodarczy, wzrost gospodarczy, OECD, konwergencja