Volume 18 No. 4/2015

Comparative Economic Research

Central and Eastern Europe

WYDAWNICTWO
UNIWERSYTETU
ŁÓDZKIEGO

INSTITUTE OF ECONOMICS • UNIVERSITY OF ŁÓDŹ

Volume 18 **No. 4/2015**

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Łódź 2015

The online version available at: *www.degruyter.com*

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Printed directly from camera-ready materials provided to the Łódź University Press

Published by Łódź University Press
First Edition. W.07256.15.0.C

Printing sheets 12.25

ISSN 1508-2008

Łódź University Press
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10.1515/cer-2015-0026

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The Financial Crisis, Austerity Policy And Greece

Abstract

This article contains a brief review of the main causes of the current crisis and concerns strategies of market dogmatism and their impacts, which followed the end of post-war boom and the end of the so-called Bretton Woods System. Rising inequality and deregulation led to increasing investment of speculative capital (casino capitalism), creating a real estate bubble in USA. Owing to public bailouts, this finance capital did not lose so much after the bubble bursts. However, the bailouts created serious problems for state budgets, which were already poor as a consequence of the tax race to the bottom following the specific neoliberal recommendations to surmount the economic crisis. Together with weak economic performance and high interest rates for state bonds - due low rankings by rating agencies - some states in the euro zone were threatened with insolvency. Additionally, home-made negative structures and mismanagement worsened the situation. The financial assistance then provided by the troika were tied to harsh "reforms" in the spirit of the austerity policy. This has led to a social crisis with colossal humanitarian impacts; it is economically a fiasco and has increased the public debt to unbearable proportions, mainly in Greece, a country which might be seen as a laboratory for this strategy.

Central and Eastern European countries could learn by the Greek example of austerity policy: First, they should stay longer to their own currency, allowing them to remain competitive by compensating stronger trade partners' productivity by the chance of devaluating. Second, it is clear that cutting off expenditures will not solve problems in case of aiming at balancing the public budget. Just the opposite, it will increase social and economic problems by down-sizing public and private demand and it will endanger necessary

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investments in future development (infrastructure, education). That's why increasing state receipts and a fair tax policy are on the agenda, as long as the rich escape from contributing adequately to state's action capability.

***Keywords**: Finance crisis, Bail-out for banks, budget and debt crisis, austerity policy, Greece*

1. Introduction

If we wish to understand the current situation in Greece, we have to go back to the root causes of the financial crisis. The ensuing years showed that finance capital, mainly in the hands of the big banks, were not the losers, even when granting risky loans to states at the brink of insolvency. In accordance with the slogan "too big to fail", they were rescued by bail-outs. The highly indebted countries like Greece then had to implement the harsh conditions set by the so-called troika when receiving loans, but this austerity policy worsened the situation. Therefore Greece needs another policy, as the Tsipras government wishes to execute, in order to give it time.

2. A brief review on the causes of the current crisis

Firstly, world-wide deregulation of the financial markets, accompanied at the same time by a massive increase in financial assets in fewer hands, rapidly increased the amount of speculative investment. More and more capital was invested in the financial markets and correspondingly, less in industrial capital, that is, in production and service and in jobs. This development was supported by a policy shift to market dogmatism. Ultimately, new financial instruments in the context of the US housing market triggered the current crisis.

This paradigm shift goes back to the beginning of the 1970s, when economic development - characterized by the post-war boom with high GDP growth rates, rising employment, sound state budgets and extending welfare - ended 30 years after the end of WW II and was hit by severe processes. In consequence general demand declined and increased the fixed costs of companies. This downward trend was worsened by spiking oil prices because of the Arab oil blockades, as a consequence of the Western pro-Israel attitude during the Yom Kippur war. Last but not least, the USA and its Dollar supremacy was hurt by inflation as a consequence of Viet Nam war and the stronger German and

Japanese competition (mainly in the car industry). The USA saw aimed to resolve these pressures by ending the Bretton Woods system of fixed currency exchange rates and in ending the guarantee to exchange the dollars as international currency of world trade, tied to a fixed gold standard.

What followed was the first step in the deregulation of the world financial markets. This deregulation allowed massive capital flows across borders to wherever the transnational financial elite detected ways to maximize their profits. These profits were geographically unequally distributed, but no longer constrained by government intervention. Capital, liberated from rules and regulations, could now penetrate into too many parts of the world. The use of tax havens and cartel-ups related with them were a further step in this process (Murray 2014, p.17).

This worldwide search for opportunities to invest finance capital was fuelled by a rising inequality within societies. Even in Europe, where we have a tradition of welfare states, inequality has intensified. According to the OECD "Database on Household Income Distribution and Poverty", from 1985 to 2008 income inequality increased in most OECD countries. "Inequality has worsened dramatically in most rich countries in recent years and decades." (OECD 2011, EU Commission 2011, p.85) Income inequality increased because of a continuing long-term trend of disproportionate increases in very high income brackets, whilst the mass income did not adequately participate in the rising GDP.

With regard to the developments in the USA, the data on income distribution clearly shows an extreme inequality. The richest 20 percent of Americans achieved 50.3 percent of the total income in 2009; in the 1970s, this share was only 43 percent. The top 1% of Americans currently have nearly a quarter of the total income and control around 40% of the wealth, while 25 years earlier the figures were 12% and 33% (Stiglitz 2012).

The beginning of the rising gap between richer and poorer households can be traced back to the early 1980s, when the Reagan administration came to power and executed policies in the spirit of neoliberalism.[1]

The problem then became where to invest the rising wealth, not only in the USA but also in Europe, in view of the decreasing growth rates of the real economy. It made less sense to invest the money in industry while demand relatively declined after the post-war boom and the impact of the oil price crisis (Eissel 2014, pp.35-50).

While the masses lost their income position and public and private poverty increased, the rich intensified their search for alternative investments, creating what Susan Strange (1986) called "casino capitalism". Her book is

[1] For the changes in real income in the USA 1948 – 2010, see http://b-i.forbesimg.com/louiswoodhill/files/2013/03/Income-Inequality-Chart-032713.jpg

a critical commentary on the weaknesses in the development of the international financial system in the 1970s and early 1980s, postulating that more engagement in the financial markets weakened the real economy: "To the extent that rising inequality may reflect a lack of economic opportunity, it may itself limit the growth potential of economies by not allowing all economic agents to fully exploit the new opportunities created by globalization and limiting the productive capacity of an economy by not matching capital and labour as efficiently as possible. Moreover, to the extent that economies are periodically subject to shocks of various kinds that limit growth in the short term, greater inequality makes a greater proportion of the population vulnerable to poverty. Finally, rising inequality if not addressed, can also lead to a backlash against economic liberalization and protectionist pressures, limiting the ability of economies to benefit from globalization." (Jaumotte et al. 2008, pp.3-4). This is why it became such a huge problem when finance capital investments overtook investments of real capital in production and services.

The financial markets have continuously moved away from the real economy. In particular, exchange-traded derivatives rose sharply. From 1990 to 2006 they went up 43 times more rapidly than the world production of goods and services. A major problem in this context is the largely uncontrolled hedge funds, with billions of dollars. According to reports by McKinsey the world's gross national product increased from 10.1 to 55 trillion US dollars in the period from 1980 to the year 2007, while the assets in the financial markets increased during the same time to 12,196 trillion dollars (Mc Kinsey 2011).

It was not only the rich rentiers of world society and the countries with high foreign exchange earnings that increasingly participated in this "casino capitalism", but also production companies which, facing the relatively stagnant demand, did not invest their growing profits in machines

The growing concentration of financial wealth in the hands of a few, promoted by a policy of tax cuts, searched for speculative investments which would guarantee a higher return than investments in production. This was one of the reasons driving investment in the US real estate markets, with profit rates of above 15%, which in the end produced the crash.

Aside from creating new models in the finance markets, capital was under stress to search for new markets, in face of the relative downward demand in their own countries. Thus, with the help of the IMF and the World Bank, countries which were highly indebted and needed further credit were forced to open their domestic markets and privatise public supply in the fields of traffic, communication, water supply, energy etc. The deregulation of worldwide trade was accomplished in the so-called Uruguay Rounds, leading in the end to the World Trade Organisation (WTO). However other international institutions, like

the European Union (EU) and the Organisation for Economic Cooperation and Development (OECD), were also weighty promoters of this deregulation process. Their measures have raised the globalisation of the economy to new levels, which no nation state can ignore. Increased competition among companies and locations took place, exposing regions and even cities increasingly to the international economy, subjugating governments through the superficially neutral interplay of market forces, and increasingly limiting the possibility for countries to develop their national economies independently. On the whole, the new politico-economic strategies since the mid-seventies have spurred world economic integration and the international division of labour. Market opportunities have increased, but competition is also growing. Hence this form of economic globalisation highlights a shift of decision-making power from the state to the market, and from the welfare state to the 'competition' state (Eissel 2013, pp.193-207). Making use of this public support, the former big national companies became global players. The new transnational corporations (TNCs) became the key economic actors after the mid-1980s, as they could obtain substantial cost savings through world-wide outsourcing. This process has produced a new dimension of globalisation, because TNCs were increasingly able to escape any form of political control and were, in many cases, successful in urging politicians to follow and protect their interests.

3. Reactions of the States

The political class in Europe pursued its new neo-liberal preferences, reflecting the demands of employers, and reduced taxes on income from capital while helping to build an extensive low wage sector, at the same time neglecting the problem of a weak domestic market, stemming from stagnating wages over more than a decade. So far, alongside with deregulation the new economic dogma concerned the reduction of the tax load on the rich, which would then lead them to invest in working places. As the other famous market dogmatist (alongside Milton Friedman) von Hayek put it: "Inequality is not regrettable but highly welcomed. (...) Those who attack the rich people forget that most of them created workplaces when becoming rich, and thus helped more people comparatively than they would have had they spent their money directly on the poor."[2] Since the 1980s this cynical dogma was put into practice by nearly all Western states, which engaged in a tax race to the bottom. In the 27 EU-States

[2] Ungleichheit ist nicht bedauerlich [inequality is not regrettable], in: Wirtschaftswoche (Nachdruck!) Nr.3, 11.1.1996: 16 f.

the statutory tax rate on corporate income was reduced from 35.3% in 1995 to 23.1% in 2011.[3] The benefits of these tax reforms in the spirit of market dogmatism clearly demonstrate that millionaires and big business were the great winners, whereas the mass income groups gained only marginally. This immense reduction of taxes on profits was publicly announced as necessary to protect the competitive position of Europe as a location for global capital flows and to guarantee further investments in employment.

Furthermore, this tax policy of following the shift to neo-liberalism is reflected in and can be explained by the rising influence of employers' organisations, the right-wing mass media, a majority of economic advisers, and political parties making use of the new uncertainties of global competition by urging governments to deregulate the existing labour market arrangements and to minimize the tax burden on profits. Additionally, trade unions were put under pressure to reduce wage costs.

The growing dominance of this new economic philosophy was, as mentioned before, fuelled by the profound economic crisis of so-called Fordism[4] which followed the end of the post-war boom. This coincided with the rebirth of market dogmatism and the ideology of supply-side economics, propagated by its idols like Milton Friedman (1971) and his Chicago school. Their message was received with considerable enthusiasm by governments. Starting with the Reagan administration, as well as Thatcher in Britain, in the end, the majority of European governments started in the 1980s to orient their economic policy according to this supply-side 'advice', with the result that state redistribution, mainly the effect of tax policy, favoured capital and produced a stagnation of wage and income positions. Cutting back the welfare state, privatising public enterprises, deregulation and minimising production costs through wage and tax reductions were henceforth considered as appropriate strategies for surmounting the economic crisis caused by low GDP-rates and high unemployment. Deregulation and/or withdrawal of the state from the market was a key message of this new neoliberal credo (Leaman 2013, pp. 79-196). As the influential economist Milton Friedman put it: "The space for government's move must be restricted. It must be its task to protect our liberty (...) provide law and order, supervise the compliance with private contracts, provide competition on the markets." (Friedman 1971, p.20) "In the wider field of income distribution the state caused more damage than could be compensated by countermeasures." (Friedman 1971, p. 227) This dogmatic belief nevertheless does not accord with

[3] Eurostat: Taxation Trends in the EU 2011, p. 62.

[4] Fordism encompasses mass production by assembly-line technology, high growth rates, rising wages, acceptance of trade unions, and development of the welfare state and state interventionism, in the spirit of Keynes.

the empirical data in the real world. States like China, Brazil and South Africa have by far a higher regulation density than the USA, but in recent decades have enjoyed higher growth rates. Even the Nordic states in Europe, having a state quota of market income of about 50%, don't suffer from less economic performance than states like Germany for instance, which has a lower state quota; in fact just the opposite. It's incredibly difficult to believe that in modern societies markets could be effectively run without state intervention. Without public investments in education and qualifications, without guaranteeing the necessary infrastructure for future economic development, and without supporting F&E necessary preconditions for a sane future economic development, a sub-optimal or damaged approach is implemented. So far this simple dogma is not reflected in the reality. As regards the implementation of this market dogmatism, one of the disastrous failures of the US government in the years before the outbreak of the crisis was its minimisation of bank controls, thus allowing investment bankers to act without restriction, the result being that in case of losses they could compensate their mismanagement by having access to the saving accounts of their bank. Of course, there were additional problems, like increasing subprime credit, pushed by George W. Bush's initiative to give every American citizen the opportunity to buy a house or a flat (the "American dream program"). This article lacks the space to go into all the details of the US real estate bubble and its subsequent bursting.

Examining the results of the neoliberal policy, one must conclude that the effects remained poor. Despite the publicly stated logic behind the official policy, there was no positive function for growth and jobs. The redistributive policy was not only, economically speaking, simply a flop, but also endangered the public sector's capacity to ensure future public investments in the physical and social infrastructure, including education, and in sustainable energy, because of the increasing poverty of the state. To quote Stiglitz:"The conventional wisdom on the neoliberal campaign trail is that tax cuts can cure economic ill – the lower the tax, the higher the growth rate."(Stiglitz 2010, p. 197) However if a society wants to have good health, education, roads, and social protection, these public services have to be paid for, and that requires high taxes. The case of Sweden clearly indicates that, even having one of the highest per capita in-comes, their welfare state supported an 'innovative society.' Better social protection, combined with good education and job retraining meant, that their economy could be more flexible and adjust to shocks more quickly, obtaining higher levels of employment.(Stiglitz 2010, p.197)

From an economic perspective, the poor results are not surprising. Faced with the stagnation of domestic private and public demand, entrepreneurs behaved as could have been expected: there was no obvious reason to increase

capacity through investments to meet static demand. Only strong competitive states could find another solution by increasing exports, as was true in the case of Germany. However, a growing positive trade balance causes a negative development with the trade-partners. Furthermore, despite rising rates of return overall, investments in real capital yielded increasingly lower returns than financial investments. The alternative then was to use additional accumulated profits for speculative purposes.

In this course of affairs, state debt became an object of speculation. Bets were made against economically weak countries and on their possible insolvency, or their leaving the euro zone. Due to rising risk premiums, interest rates on government bonds rose to astronomical heights. Rising public debt and interest rates drove some countries to the brink of solvency (see Table 2). In the spring of 2010 this concerned only Greece; but Ireland and Portugal followed shortly thereafter, creating major problems for the banks which had speculated on their bonds. In the last phase, the national debts of the crisis states reached their limits. Financial investors were no longer willing to grant loans at affordable terms to heavily indebted European countries in crisis. However, it was clear from the very beginning that countries like Greece would be unable to pay their debt back to the creditors, which would have created severe losses for the engaged banks and financial institutions and their shareholders. Yet, like in the case of the losses for Lehman Brothers, the engagement of finance capital was obviously based on trust in their influence to obtain bailouts at the taxpayers' cost instead facing a hair-cut and negative consequences for their returns. "The financial sector had to be rescued by the policy before the collapse. Private debt has been converted into government debt" (Bofinger 2012).

4. The increasing supremacy of finance capital

As mentioned above, international capital flows have gained considerable weight since the beginning of the 1980s. This development is accompanied by the growing influence of finance capital on politics. Looking at the case of the USA we can see a strong connection between financial industry lobbying and favourable financial legislation. First, there was a clear association between the money that affected financial firms spent on lobbying and the way legislators voted on the key bills considered before the crisis. Second, network connections between politicians and lobbyists who worked on a specific bill also influenced voting patterns. If a lobbyist had worked for a legislator in the past, the legislator was very likely to vote in favour of lax regulation. The six biggest financial companies have 240 lobbyists in Washington, many of them having been former

members of the Congress with personal contacts with the politicians (Igan, Mishra (2011) "The American financial industry gained political power by amassing a kind of cultural capital - a belief system. Once, perhaps, what was good for General Motors was good for the country. Over the past decade, the attitude took hold that what was good for Wall Street was good for the country. The banking-and-securities industry has become one of the top contributors to political campaigns (…), it benefited from the fact that Washington insiders already believed that large financial institutions and free-flowing capital markets were crucial to America's position in the world. (…) One channel of influence was, of course, the flow of individuals between Wall Street and Washington. It has become something of a tradition for Goldman Sachs employees to go into public service after they leave the firm." (Johnson 2009, p.5)

All in all, the finance sector was very successful in blocking any attempt to place stricter controls on banks, urging the politics to vote for more deregulation. The massive influence of the finance capital on politics is not only true in the case of the USA but also can be observed in Europe. First hand we can observe this influence by the successes of the banks in avoiding a proportionate hair-cut of their debt, while urging the states and tax-payers to cover the costs of the risky speculations and losses caused by their engagement in the US real estate market (Lehman Brothers).The big banks and finance institutions successfully avoided being the losers in this crisis. The question then became: If they had to be rescued because they were too big to fail, then why were governments not dismantling them? This measure would seem to have been even more necessary in light of the fact that the same banks which had speculated in the housing market in the USA were now again demanding help after having betted on the state bonds of crisis countries.

It is astonishing in this context that the IMF, which by tradition supports a hair-cut in cases when a highly indebted country will be obviously unable to pay back its loans, changed its strategy in the face of the Greek catastrophe. Instead of forcing the banks - especially French banks with about 17 bn. euro loans to Greece – to suffer losses, the IMF, headed by its now-former president Strauss-Kahn, perceived that Greece was only in a temporary crisis and would be able to pay back its debt in the future. On the basis of this false conclusion the necessary hair-cut was neglected. We have to ask whether this influence of Strauss-Kahn on the decision, against some opposition, had anything to do with his then wish to run for the presidency in France. Fierce internal criticisms have been expressed by some top IMF officials about their own responsibility for the utter disaster of the Troika's bailout programs (Roos 2015). Moreover, the IMF admits that: "Earlier debt restructuring could have eased the burden of adjustment on Greece and contributed to a less dramatic contraction in output.

The delay provided a window for private creditors to reduce exposures and shift debt into official hands. This shift occurred on a significant scale and left the official sector on the hook" (IMF 2013).

The lessons learned by observing the role of banks and financial institutions can be drawn even more sharply by a wider perspective, namely the division of two fractions of capital, with the growing supremacy of finance capital in comparison to industrial capital. Generally speaking, we are no longer allowed to speak of *capital*, but have to divide capital into two - in part conflicting - fractions. We should make a distinction between two types of capitalism: finance capitalism, which seeks to accumulate profit in and through a diversity of financial institutions and organizations; and industrial capitalism, which seeks to accumulate profit through a complex system of manufacturing and selling goods and services. The first achieves its goals by buying and selling bonds, stocks, futures, and other types of investment, and by borrowing and lending money; while the second achieves its purpose by securing the material and human resources it needs for the production and sale of products, with the aid of what has become a highly sophisticated system of marketing. Of course, both fractions have the common goal of maximising profit, but the way to reach this goal is diverse and in some cases might be conflicting. Following the ingenious observations of Stephan Schulmeister (2014) from the Austrian Economic Research Institute (IÖW), finance capital is primarily is interested in high interest rates and high exchange rates, and favours unstable financial markets, and to this extent its interests are conflicting with the interests of the production capital, which wants low interest rates, stable currency exchange rates, and stable finance markets. Furthermore, in the phase of an economic crisis production capital even needs state intervention to stabilize the business cycle by a growth policy, whilst finance capital favours a weak state with a powerful central bank to execute a restrictive monetary policy. The analysis of the crisis and the specific public reactions and measures designed to meet the problems might be perceived as an empirical proof of this new supremacy of finance capitalism.

All in all, the influence of finance capital, mainly exerted by the big banks that greedily bought the risky asset-backed securities and collateralized debt obligations of Lehman Brothers, was successful in avoiding huge losses, by urging the states to rescue their profits by immense bailouts at taxpayers' cost. These bailouts increased the public debt and threatened several European countries with insolvency, the most prominent example here being Greece. That's why the following text concentrates on this case, generally demonstrating that the austerity policy is totally misleading.

5. Causes of the catastrophic Greek budget crisis

There are three main reasons for the catastrophic situation in Greece. First, Greece has had a relatively weak economic performance which, after having entered the euro zone, could not be compensated by devaluation of the former currency, the drachma. Second, the Greek state has an income problem, owing to a woeful tax administration and corruption, giving space for tax evasion. Third, Greece was incomparably hit by extremely high interest rates, due to its low ranking by the rating agencies. Of course, it's true that Greece had already very high debt, exceeding the stability criteria of the overall zone, but nevertheless the way it was treated by the troika and the austerity policy made things worse.

The deep world financial crisis led not only to a banking crisis in Europe, but to an existential crisis of the European Monetary Union. This so-called 'euro crisis' - which is an inaccurate term because the euro has always remained a stable currency - was on the one hand triggered by additional costs of banking and the economic crisis after 2007, and is therefore often referred to as European sovereign debt crisis. Nonetheless we do face a dilemma of the Monetary Union, because general financial policy coordination, which is a perquisite of a well-functioning common currency, is missing. This would include, in particular, coordination between the euro member countries in their economic, financial, social, and labour market policies. The consequences of the missing financial instruments and policy have led to a very different development of competitiveness in the euro zone countries and massive imbalances of trade, seeing Germany, as one of the main creditors of heavily indebted southern European countries, as the 'winner', and Greece, Portugal, Spain, Italy, and in part France, as the 'losers'. Aside from the costs of the bailouts, the missing capability to offset Germany's high competitiveness by devaluation in the weaker countries has caused heavy problems. Throughout the years, with the exception of a shrinkage in 2008 Germany's foreign trade has risen every year and reached a positive trade balance in 2014 of about 230 bn. euros. Because of the zero-sum-game, there were many losers among the trade partners of Germany. For example; Germany had a positive trade balance with France of +34.5 bn. euro in 2014, with Italy the data shows +5.9 bn. euro, and with Spain +10.1 bn. euro. This negative situation for the EU trade-partners has not changed during the last year, but even worsened.[5]

From 2000 to 2013 the development of wage-per-unit costs (which connects the development of wages and productivity and is the main indicator of competitive position) indicates that Germany, with an increase of only +11%, was far better off than the EU average of +27%. Italy with an increase of wage-per-unit costs by

[5] Deutsche Bundesbank 7/2015, p.76.

+34% and France by +28% were even in a worse situation than the other EU Member States. Spain by +24% and Portugal by +23% had an increase just below the average, while in Greece the data show an increase of +17%, the low result due to the impact of harsh dismissals of work force and downsizing of wages.[6]

Concerning the impact of speculation on state bonds, we can observe that Greece in the worst situation. In the face of its low ranking, Greece had to pay extremely high interest rates as a risk premium in order to avoid the insolvency of the state. Since late 2009, Greece has not been able to find enough investors willing to lend it money to service its old debt under the previous conditions. Therefore, in order to get money at all, Greece has been forced to offer higher interest rates to its creditors. Before, not only Greece but all euro zone crisis states had to pay interest rates of about 5% and below. This changed dramatically mainly in the case of Greece, which was hit by the highest interest rate for its bonds, an incredible 48.6%.This mind-boggling increase of interest rates only could be mitigated after the intervention of the European Central Bank in January 2012. Portugal and Ireland as the next problematic cases, were "only" hit by a maximum of 13.5% and 12.5% respectively. Other crisis countries maintained their interest rates below 10%.[7]

Yet even currently Greece continues to be punished by the international creditors, as the overview in Table 1 below indicates.

Table 1: Harmonised long-term interest rates

	Sep. 14	Oct. 14	Nov. 14	Dec. 14	Jan. 15	Feb. 15	Mar. 15	Apr. 15	May 15	June 15
Germany	0.92	0.79	0.72	0.59	0.39	0.30	0.23	0.12	0.56	0.79
Ireland	1.75	1.74	1.58	1.31	1.22	1.12	0.80	0.73	1.25	1.65
Greece	**5.89**	**7.26**	**8.10**	**8.42**	**9.48**	**9.72**	**10.52**	**12.00**	**10.95**	**11.43**
Spain	2.20	2.12	2.07	1.78	1.54	1.52	1.23	1.31	1.78	2.22
France	1.35	1.26	1.14	0.92	0.67	0.60	0.51	0.44	0.89	1.20
Italy	2.40	2.42	2.29	1.99	1.70	1.56	1.29	1.36	1.81	2.20
Portugal	3.18	3.21	3.13	2.81	2.49	2.32	1.74	1.87	2.41	2.93

Source: http://www.ecb.europa.eu/stats/money/long/html/index.en.html

While Germany has had to pay only less than 1% for its state bonds during the last 10 months (till June 2015), in Greece the interests rates have continuously risen September 2014, up from 5.89% to 11.43%. Thus, Germany can make a good

[6] In 2014 the wage per hour was in Greece only 14.6 euro (outside agriculture and public service). This is 5% less than a decade earlier, and exactly half of the wage per hour level in the other euro countries of 29. 2 euro (see Eurostat release 56/2015, 30 March 2015).

[7] http://www.tradingeconomics.com/greece/government-bond-yield

deal by giving loans to Greece, which were taken before on the international finance markets. In the face of these data the head of the German Institute of Economy, Berlin (among others) stated that: "Germany is not only the most important architect of the European crisis policy, but also one of the biggest beneficiaries of this policy. (…) The rescue and assistance programs and also the measures by the European Central Bank, which were met with controversial opinion in Germany, reduced the risks. (…) And there were and are mainly German banks, German companies and German individuals whose interests and investments were protected by the bailout policy. (…) A look at the catastrophic collapse of the economies and societies of the countries in crisis, and the disappointing development in the whole of Europe and Germany leaves little doubt that the European crisis policy as a whole must be regarded as a failure" (Fratzscher 2014, p.12).

In addition there are home-made causes of the crisis - like corruption, nepotism, a non-functioning tax administration, and tax evasion by the rich in Greece (see the previous section). Other crisis countries like Spain had specific problems because of their own real estate bubble and its burst, leading in the end to bailouts for banks and to rapidly-increasing debt. Before the crisis Spain, alongside Ireland for example, was perceived as a prime example of a country following the stability criteria of the common euro zone, limiting the total amount of public debt below the 60% line of GDP (see Table 2).

Table 2. Development of total public debt as % of GDP

	2007	2008	2009	2010	2011	2012	2013	2014
Ireland	24	42.6	62.3	87.4	111.2	121.7	123.2	109.7
Greece	103.1	126.8	146	171.4	171.3	156.9	175	177.1
Spain	35.5	39.4	52.7	60.1	69.2	84.4	92.1	97.7
France	64.4	68.1	79	81.7	85.2	89.6	92.3	95
Italy	99.7	102.3	112.5	115.3	116.4	123.1	128.5	132.1
Portugal	68.4	71.7	83.6	96.2	111.1	125.8	129.7	130.2

Source: Eurostat and European Commission**,** http://ec.europa.eu/eurostat/ last update 10.7.2015; Deutsche Bundesbank, Monthly Reports 3/2013, p.6.

However, in the period since 2010 this limit was exceeded. In all six crisis countries the state debt has risen dramatically. Thus, the ongoing increase in public debt shows that the forced austerity policy has been far from successful.

Despite its promises, the austerity policy has had a negative impact in Greece, whose public debt reached the enormous amount of 177.1% of its GDP in 2014, followed by Italy and Portugal, whose public debts amounted to 132.1% and 130.2%, respectively, of their GDP. Only because of the harsh cuts in state expenditure was Greece able to reduce its annual new credits, down to -3.5% from -12.2 in 2013.

Maybe, despite this obviously huge debt, we should keep in mind what Piketty stated in this context: "The European countries as a whole were never as rich as today. Of course, there are our governments which are poor. This in fact creates a lot of problems at the organizational level. But overall the available assets of Europe have never been greater than today. In terms of GDP, private ownership increased far more than the state debt. And the euro zone as a whole (…) has more assets in the rest of the world than the rest of the world in Europe. So the debt is ultimately an internal fault and could, just as 1945/1950, be 'eliminated' with a stroke of the pen." (Piketty 2014, p.51) However, despite this interesting theoretical point of view, the practice is far more complicated and we are miles away from making the stroke of a pen.

6. Greece as laboratory of the austerity policy

The most prominent country in the euro crisis is undoubtedly Greece, and the remaining text will concentrate on the impacts of the austerity policy, showing Greece as a laboratory for neoliberal strategies. To a certain degree, we can show how much the externally imposed austerity has influenced peoples' lives.

Despite the relatively complicated history and the diversity of causes of the crisis, the European Commission, the European Central Bank (ECB) and the International Monetary Fund (IMF) – as a so-called 'Troika' – follow dogmatic market strategies. They argue that the crisis countries had created cumulative mismanagement due to lack of budgetary discipline and a high propensity to consume large debts by high wages, thus losing competitiveness. This way of thinking results in an equally simplistic euro rescue philosophy: The states should cut back, especially the general consumptive government expenditures, i.e. pensions, the number of public staff, and public welfare.[8] As the EU Commission stated: "Full and timely implementation of the comprehensive policy package agreed during the mission should ensure further progress towards fiscal consolidation, financial stability and improved competitiveness. In particular, the ambitious medium-term fiscal strategy and the enhanced privatisation programme are expected to keep the economic adjustment programme on track. However, there are significant implementation risks, which, if not properly addressed, would endanger the success of the programme in restoring competitiveness and debt sustainability" (EU Commission 2011 a).

[8] See among others, the report of the IMF on Greece: https://www.imf.org/external/pubs/ft/scr/2013/cr1320.pdf

The first aid package for Greece was supplemented in May 2010 by the European Financial Stabilisation Mechanism (EFSM). Meanwhile Greece received three rescue packages, all of them prescribing a strict reduction and limitation and control of public debt and deficits. The final third one was even clearly harsher than what Greece rejected in the referendum on the 5th of July 2015. The new EU demands, inter alia, to increase VAT, to privatise state enterprises, to cut pensions, and to deregulate the labour market.[9] In addition to requirements that the Greek government had already accepted, the memorandum demanded that creditor representatives return to Athens with full access to ministers and a veto over relevant legislation. Eurogroup leaders also want Prime Minister Tsipras to transfer as much as 50 billion euros of state assets to a Luxembourg-based company for sale, and make him fire workers he hired in defiance of previous bailout commitments. These obligations look like to wish for a complete capitulation from the Syriza-led government. "This Eurogroup list of demands is madness," Nobel laureate Paul Krugman wrote on his blog. "It's a grotesque betrayal of everything the European project was supposed to stand for."[10]

Equally amazing in this context is the double standards displayed by, among others, the German politicians. On one hand they support the very detailed demands addressed to the Greek government connected with the last aid programme, like higher taxes on agricultural diesel or Sunday shopping. At the same time, what the German political class so vehemently demands of Greece, they refuse in their own country, and using the same arguments as those of the criticized Greek government.[11]

To sum up, the financial subsidies of the ECB and also from the IMF did not support the people or companies in Greece, but were directly spent to a large extent for the benefit iof German and French banks, which had given most of the state loans to Greece. The unprecedented cuts in Greece, made a condition of the Troika for the disbursement further loans, has led already to a reduction of state expenditures such that many fields were hit negatively, like cutting back on pensions, dismissing public servants, reducing health care and closing schools.[12] According to the latest edition of an OECD study, the number of people living in a household with no earned income doubled in Greece, Ireland and Spain. (…)

[9] http://www.n-tv.de/politik/Athen-braucht-schnell-gruenes-Licht-article15680656.html

[10] krugman.blogs.nytimes.com

[11] http://www.ardmediathek.de/tv/Monitor/Doppelz%C3%BCngig-Was-Deutschlands-Politiker/Das-Erste/ Video?documentId=29715730&bcastId=438224

[12] Closing of 1,056 schools and of 800 school libraries and supporting courses; decreasing the budget for education: 2009: 2.9% des BIP; 2011: 2.7%; 2015: 2.2%; see the general secretary of Greek Teacher's Association OLME Themis Kotsifakis , in: Hessische Lehrerzeitung (HLZ) 1-2/2012.

The proportion of people who reported that they do not always have enough money to buy enough food rose in the OECD average by two percentage points, to 13.2 percent.[13]

The negative impact was visible when expenditures on salaries and pensions for civil servants were reduced from 25.2 billion euros (2009) to 20.5 billion euros by 2014. Furthermore, dismissals have encompassed at least 11,000 civil servants in Greece by the end of 2014, and nearly 4,000 have already lost their jobs. Domestic demand collapsed, about 100 000 companies went bankrupt, and Greeks have lost an average of 30% of their income. The country now has around 500,000 families without any labour income. Unemployment has exploded to 26.5%, and about one million people have lost their jobs.

Table 3: Development of General Unemployment Rates

	2007	2008	2009	2010	2011	2012	2013	2014
Ireland	4.7	6.4	12	13.9	14.7	14.7	13.1	11.3
Greece	8.4	7.8	9.6	12.7	17.9	24.5	27.5	26.5
Spain	8.2	11.3	17.9	19.9	21.4	24.8	26.1	24.5
France	8.0	7.4	9.1	9.3	9.1	9.8	10.2	10.2
Italy	6.1	6.7	7.7	8.4	8.4	10.7	12.1	12.7
Portugal	9.1	8.8	10.7	12	12.9	15.8	16.4	14.1

Source: http://ec.europa.eu/eurostat/ update 10.7.2015.

The situation is most dramatic with respect to the young generation, which has paid an extremely high price. Within the span of seven years from the start of the crisis, their official unemployment rates went up from 18.1% in 2007 to 53.2% in 2014, comparable to the negative trend in Spain.[14]

What will be their reaction when they've lost all hope for the future? Interviews shown on TV demonstrate that most of them want to leave their country and search for a job abroad. The question then becomes: Who will bring the economy in Greece and Spain up again in future, in view of the fact that the (mostly better educated) next generation of workers have emigrated. We have known of this dilemma for a long time in the south of Italy, called the mezzogiorno effect. Thus the nearly eleven million Greeks have paid a high price for the neoliberal shock treatment.

If we look at the impact of austerity measures on the health system of the country, the political mantra - which consequently demands Greece reduce health costs, only can be described as cynical in view of the fatal consequences for the population (Stuckler, Basu 2014). The International Monetary Fund

[13] http://www.oecd.org/berlin/soc_glance-2014-sum-de.pdf

[14] http://ec.europa.eu/eurostat/ update 10.7.2015.

(IMF) called for a cap on expenditures in the public health sector. An arbitrary limit of a maximum of 6% of the GDP should be achieved (in comparison to an average in OECD-countries of 9.3%!).[15] The health care reform enacted brought about savings of 1.5 billion euros, but with the consequence that many people lost their access to health services.

The fatal consequences of the impact of the rigid austerity policy on the health of people are visible in the statistics: The infant mortality rate rose from 2008 to 2010 by 40%; the number of suicides in Greece increased 45.4% from 2007 to 2012, from 328 to 477.[16] It is particularly worth noting in this context that up until 2007 Greece had one of the lowest suicide rates in the whole of Europe. But not only has the suicide rate increased during the years of crisis, but also the murder rate rose between 2010 and 2011 by almost 45%. But the deadly effects of austerity are reflected not only in these aspects. The radical cuts of publicly funded health care programs have had major impact on, for example, the HIV protection programmes. They were cut back, which has created a backdrop of increased new infections in Greece, particularly tragic since 2010-2011 when there was a significant increase (52%) of new HIV infections, mainly of drug users. This impact of the austerity policy is particularly visible in the discrepancies with the recommendations of the World Health Organization, which recommends 200 sterile needles for each drug-addicted person annually. Because of the budget cuts, however, only about three needles per year were provided. Owing to the radical output restrictions placed on drugs, in Greece there have been phases of a lack of antibiotics and insulin. Following the massive cuts in the healthcare system, the outbreak of certain diseases such as malaria and the West Nile Virus has even become a threat. The Greek health care system has become so severely limited in its ability to act that foreign relief organizations which were originally exclusively addressed to refugees now need to help large parts of the Greek population. The case of Greece shows that recession is painful, and austerity can be fatal.

What's more, these painful impacts of the austerity policy have not paid off by the promised recovery of the economy. Quite the contrary: Only France with a growth of 2% and Ireland with + 1.4% had a slightly higher GDP in 2014 than in 2008. All other crisis states lost and had a lower GDP than six years before. The GDP in Greece in 2014 amounted to 25.5% less than its GDP in

[15] In accordance with OECD statistics in 2011, expenditures for the health care sector in the OECD averaged 9.3% of GDP, in comparison, the average in Germany was 11.3%, see: http://www.oecd.org/els/health+systems/oecdhealthdata2013+frequentlyrequesteddata.htm

[16] Leben ohne Perspektiven. Selbstmordrate in Griechenland steigt rasant [Life withoutperspective. Suicide is extremely increasing], n-tvvom 9.9.2013, http://www.n+tv.de/ticker /Selbstmordrate+in +Griechenland+steigt+rasant+article11330116.html

2008; Italy lost -8%, Spain -6%, and Portugal -7.5%.[17] "Overall, the austerity policies on the Greek economy were a shock. (…) All this accelerated the recession and had a destabilizing effect on the political system. (…) The country needs investment to return to a growth path." (Troost 2014)

After years of austerity policy, Europe will never be the same. On the 5th of July 2015, the Greek people made their choice in a referendum and refused to any longer carry the burden of the forced and harmful austerity measures. Not only are the people in the affected southern EU countries distressed, so too are many economists in Europe and the USA (like Stiglitz, Krugman), who vehemently criticize this austerity course. Their message is clearly stated in an edition of TIME: "Since it's impossible to grow while both the private and public sector cut costs, deficit problems in southern Europe are getting worse, not better" (Time 12/08/2013, pp. 26, 27). There is empirical proof, even proffered by scientists within the IMF, that the austerity policy worsens economic performance. In their examination of the short-term effects of fiscal consolidation on economic activity, researchers of the IMF showed that the changes in fiscal policy, motivated by a desire to reduce the budget deficit and not by responding to prospective economic conditions, had negative results. They suggest that fiscal consolidation has contradictory effects on private domestic demand and GDP (Guajardo et al. 2011). In the end, the austerity policy is economically a fiasco, a humanitarian catastrophe, and politically a danger for democracy.[18] Facing these effects, five leading economists warned the German chancellor Merkel to continue her austerity course in an open letter.

7. Conclusions: A fair chance for Greece

The Troika has made Greece a "laboratory of austerity", with decidedly negative results. It is time to stop this policy and give more time for the programme announced by the Greek Prime Minister Alexis Tsipras in his speech in the European Parliament on 8 July 2015. Among other things. he wants to destroy the "cronyism between politics and business". Oligarchs, banks and the rich have formed a "triangle of corruption," he said. What is ignored in the austerity policy is that Greece has an enormous income problem, as there are many rich

[17] http://epp.eurostat.ec.europa.eu; update 22.7.2015; https://stats.oecd.org/index.aspx?queryid =60702#

[18] Heiner Flassbeck, Thomas Piketty, Jeffrey D. Sachs, Dani Rodrik, Simon Wren-Lewis (http://www.analyzegreece.gr/topics/greece-europe/item/276-th-piketty-j-sachs-h-flassbeck-d-rodrik-s-wren-lewis-austerity-has-failed-an-open-letter-to-a-merkel) download 11.7.2015).

citizens not paying taxes. Tsipras assured that he would take action against these "cartels" and tax evasion. His government is not fighting against the EU, but against their own establishment. He fights for a fairer Greece - and for a fairer Europe.[19] We should support this view and give more time for Tsipras and his newly elected coalition to put this concept into practice. Indeed, latest estimates put the damage caused by tax evasion in Greece to the amount of 13 billion euros annually. This estimate is the result of a conference which was organized by the policy think tank "Hellenic Foundation for European and Foreign Policy."[20] While Greece is fighting for its survival and for its future, rich Greeks are taking their money out of the country and investing it in "safe havens," a preferred option being to London.[21] Another proof of the corrupt system can be seen in the handling of the so-called 'Lagarde list'. The former French Minster of Finance – now head of the IMF- Lagarde received a list from the French secret service listing about 2,000 potential tax evaders with undeclared accounts at Swiss HSBC bank's Geneva branch. Lagarde passed this list in October 2010 to Greek officials to help them crack down on tax evasion. However, nothing happened for two years until Greek journalist Kostas Vaxevanis leaked it in his magazine Hot Doc.[22] The real scandal is that it took nearly four years until the prosecutor started to work on the list, and in the end the prosecution was part of the new Tsipras government, which has pledged to put an end to tax evasion and establish a more fair tax system. The new anti-corruption agency is meanwhile investigating 80,000 wealthy Greeks who are suspected of having at least 200,000 euros each in undeclared funds in bank accounts abroad. Its chief, Panagiotis Nikoloudis, told 'The Times' that the Lagarda-list "is just a footnote in this overarching bid to hunt down tax cheats. Most importantly though, the money which the Greek state stands to rake in from that list, in connection with fines on undeclared incomes, is peanuts compared to what can be collected from this roster of 80,000 individuals."[23] A fair tax system is more than overdue: following a recent study between 2008-2012, during the worst of Greece's financial crisis, the tax burden on the poor increased by 337 percent while the burden on upper-income classes increased by only 9 percent. The country's poor lost 86 percent of their income, while the rich lost between 17-20 percent (Giannitsis, Zografakis 2015).

[19] http://www.primeminister.gov.gr/english/2015/07/08/prime-minister-alexis-tsipras-speech-to-the-european-parliament/

[20] http://www.eliamep.gr/en/

[21] http://news.google.de; download 15.12.2011

[22] "Greece arrests journalist over 'Lagarde List' banks leak." BBC News. 28 October 2012, retrieved 28 October 2012.

[23] http://greece.greekreporter.com/2015/03/24/greek-govt-to-go-after-80000-rich-tax- evaders/ sthash.6ct8vkvs.dpuf

The economic crisis has thus created more social inequalities, as the financially weaker social groups, such as public sector employees and pensioners, have shouldered the majority of tax hikes and benefit cuts, while the richest strata have paid very little in taxes. So far the austerity policy, with its main focus on cutting back public expenditures, is more than inadequate.

Besides its expenditure problem, Greece mainly has a revenue problem. What is additionally needed is a hair-cut or significant extension of the unpayable debt, and an economic recovery program. Greece must invest in its competitiveness by better technology, for instance the future energy (solar) market, in improving the infrastructure in Greece as an important tourism location, in its huge ship repairing facilities (being close to the Suez channel) etc., based on financial aid in the spirit of solidarity and on a fair taxation system. However, this will take time, and we should give the Greek government that time.

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Streszczenie

KRYZYS FINANSOWY, POLITYKA OSZCZĘDNOŚCIOWA I GRECJA

Artykuł zawiera krótki przegląd głównych przyczyn obecnego kryzysu i dotyczy strategii dogmatyzmu rynkowego i ich skutków, które pojawiły się po zakończeniu powojennego boomu i tzw. systemu z Bretton Woods. Rosnące nierówności i deregulacja spowodowały wzrost inwestycji kapitału spekulacyjnego (kapitalizm kasynowy), przyczyniając się do bańki na rynku nieruchomości w USA. Dzięki pomocy z środków publicznych kapitał ten nie poniósł większych strat po jej pęknięciu. Jednak pomoc publiczna naraziły na poważne kłopoty budżety państw, które już były ograniczone w wyniku „podatkowego wyścigu na dno", spowodowanego specyficznymi neoliberalnymi zaleceniami, mającymi pomóc w przełamaniu kryzysu ekonomicznego. Słabe wyniki ekonomiczne i wysokie oprocentowanie obligacji skarbowych – wynikające z niskich ocen wystawianych przez agencje ratingowe – zagroziły niektórym państwom w strefie euro niewypłacalnością. Sytuację pogorszyły błędy w zarządzaniu. Zaoferowana przez „trójkę" (EBC, MFW i UE) pomoc finansowa wiązała się z „twardymi" reformami w duchu polityki oszczędności. Następstwem tego był kryzys społeczny i humanitarny o kolosalnych skutkach; było to dowodem ekonomicznego fiaska i zwiększyło dług publiczny do nieznośnych rozmiarów, głównie w Grecji, którą można uznać za laboratorium dla takiej strategii.

Kraje w Europie Środkowo-Wschodniej powinny wyciągnąć wnioski z greckiej polityki oszczędności. Po pierwsze, powinny dłużej zachować własną walutę, gdyż pozwoli im to zachować konkurencyjność, dzięki możliwości dokonania dewaluacji w celu zrównoważenia większej produktywności ich partnerów handlowych. Po drugie, cięcia wydatków z pewnością nie rozwiążą problemu równoważenia budżetu państwa. Wprost przeciwnie, zwiększą napięcia społeczne i ekonomiczne w wyniku ograniczenia popytu publicznego i prywatnego i zagrożą niezbędnym inwestycjom w przyszły rozwój (infrastruktura, edukacja). Dlatego zwiększanie przychodów państwa i sprawiedliwa polityka podatkowa powinny być na liście celów, dopóki bogaci będą unikali proporcjonalnego wkładu w zwiększanie potencjału państwa do działania.

***Słowa kluczowe**: kryzys finansowy, pomoc publiczna dla banków, budżet i kryzys zadłużenia, polityka oszczędności, Grecja*

10.1515/cer-2015-0026

ALINA JĘDRZEJCZAK*

Regional Income Inequalities In Poland And Italy

Abstract

Reducing regional inequality was one of the key means of promoting the "harmonious development" within Europe envisioned in the EEC Treaty of 1957. The pursuit of "economic, social and territorial cohesion" through ever closer regional and national harmonisation was also proclaimed in the 2007 Lisbon Treaty, but deepening European integration has not always been matched with convergence in living standards between sub-national regions. The gap between poorer and richer areas increased during the last economic crisis even in some developed economies, and the income discrepancy between richer and poorer regions is likely to widen further as government-spending cuts disproportionately hurt less prosperous regions.

Regional inequalities can be measured in many ways - the extent of inequality may be mapped in terms of demography, income and wealth, labour markets, and education and skills. The main objective of this presentation is to analyse regional inequalities in terms of household income distribution. The empirical evidence comes from the GUS, Istat and Bank of Italy databases and has been analysed by means of inequality and poverty indices calculated at NUTS 1 and NUTS 2 levels. In order to work out the intra-regional and inter-regional contributions to the overall inequality, the Gini index decomposition has been applied. While presenting similar levels of income concentration, Poland and Italy turned out to follow different regional inequality patterns.

Keywords: *income inequality, poverty, inequality decomposition*

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1. Introduction

A poll by the BBC in February 2008 suggested that about two-thirds of the population in 34 countries thought that "the economic developments of the last few years" have not been shared fairly. The evidence on income distribution and poverty gathered for OECD countries in the latter part of the first decade of the 2000s confirms that there has been an significant increase in income inequality, which has grown since at least the mid-1980s, and probably since the mid-1970s. This widening gap has affected most (but not all) countries, with large increases recently in Canada, Germany, Italy and Poland, for example, but decreases in Mexico and the United Kingdom. Within the last 25 years income inequalities measured by the Gini index increased by almost 0.03 (see: *Growinq Unequal*, OECD 2008; *Divided We Stand. Why Inequality Keeps Rising.* OECD 2011).Analysis conducted by *The Economist* reveals that the gap between poorer and richer regions increased during the last economic downturn in some developed economies and the income gap between richer and poorer areas is likely to widen further as government-spending cuts disproportionately hurt the less prosperous areas (*Regional Inequality*, The Economist, March 10th 2011). According to the *Tárki European Social Report* from 2009, a study on the intolerance to income inequality across countries confirmed a markedly lower level of acceptance of inequality in the post-socialist bloc than in other European countries.

Nonetheless income inequality in Poland increased significantly during the process of transformation from a centrally-planned to a market economy - the Gini index went up by approximately 10 percentage points. After the period of rapid economic changes the rate of growth of the Gini index slowed down and now we can observe only slight fluctuations, at about the level 0.34-0.35, according to the Household Budget Survey (HBS) data, and 0.31 according to EU-SILC. In Italy, after the post-war boom accompanied by extremely high income concentration, there was a clear decline in the income inequalities at the end of the 1970s (the Gini index decreased from the level of 0.39 in 1979 to 0.33 in 1990). In contrast, ten years later the Gini index rose dramatically and in 1995 exceeded 0.36. The decline corresponded with a period of economic expansion characterised by liberal policies, whereas the rapid increase coincided with the striking economic crisis, which nearly led the country to bankruptcy. After 2008, the beginning year of the current financial crisis, inequality in Italy slightly increased again to the level 0.35 in terms of the value of the Gini coefficient. These regularities seem to partially confirm the well-known Kuznets' "inverted -U" relationship between the level of development and income inequality.

For Poland in the early stages of its economic development, increasing inequality was probably a necessary consequence of future growth as the transformation benefits were first concentrated among the wealthiest segments of

the population. On the other hand, the Italian example from the 1980s was a good illustration of the right side of the Kuznets curve, typical for developed countries. It is worth noting that the discussion on the possible relationship between GDP and the inequality level, which has been present in the economic literature since the mid- 1950s, has produced very inconclusive results. We can find many countries (e.g. the Czech Republic) where the process of transformation was connected with no substantial inequality growth, while for many developed countries the inequality first declined, then increased again after a tipping point has been reached (e.g.: Italy in the 1990s). Deininger and Squire (1998, pp. 259-287), using their famous panel data on income inequality, did not find any significant relationship between income inequality and the level of development, even when country-effects were included into the analysis. Li, Squire and Zou (1998, pp.26-43) found out that the Kuznets relationship seems to work better in cross-sectional than time-series analyses. However, since income inequality has important implications for a country's development, one would rather look for the level of income inequality (specific for each country) which is optimal from the point of view of economic growth and social welfare (see: Sztaudynger, Kumor 2007, pp. 117-132; Krajewska 2010, pp. 85-116), or concentrate on inequality decomposition analysis.

Even when the data on GDP per capita and the estimates of household income suggest that there are substantial differences in regional income levels across countries, little can be deduced from this about differences within countries and the relative number of people in different regions with income below the poverty line, as defined at the national level. At first glance, in the last few years the income inequalities in Poland and Italy would seem to be the same, as the overall Gini index values are very similar. Nevertheless, the following questions arise: Did the process of growing inequalities over the last few decades affect both these countries uniformly? What can be concluded about the discrepancies between regions? Is the statement "inequality induces poverty" relevant to both these countries?

The increasing amount of micro data available at the regional level (EU -SILC, HBS etc.) makes it possible to examine this issue.

2. Inequality versus poverty

Income inequality refers to the degree of income differences among various individuals or segments of a population. The Gini index is a well-known and widely used synthetic inequality measure usually expressed in terms of the area under the Lorenz curve. In numerous works on income distribution it is considered

the best synthetic measure of income inequality, which is mainly due to its statistical properties (see: Yitzhaki, Schechtman 2013 pp.11-31). It has also a clear economic interpretation (e.g. as the average expected gain of the population) and thus has been applied in various empirical studies and in policy research.

It is well known that high income inequality can have several undesirable political and social consequences, such as poverty and the polarization of particular economic groups. Although they are usually perceived as similar and are in fact highly related concepts, inequality and poverty may not always come together. One can imagine a strictly egalitarian distribution of incomes, where all the income receivers are poor, or a highly dispersed population without poverty. Setting aside these theoretical considerations, there is strong empirical evidence based on income data from many countries that confirms a strong positive correlation between inequality and poverty. As a consequence, the countries with a more dispersed income distribution tend to have a higher relative level of income poverty, with only a few exceptions. According to the Eurostat database, the Pearson correlation coefficient between the Gini index and the "at-risk-of-poverty" rate for the EU countries in 2011 was 0.86. However, it is worth mentioning that a few countries (including the United States and the United Kingdom) are traditionally characterized by relatively high income inequalities accompanied by relatively small poverty rates. This can be explained by the fact that the concept of inequality and poverty aversion developed under the social welfare approach (see: Atkinson 1996, pp.15-28). It has been shown that at the regional level the relationship between poverty and inequality can be twofold, depending on the country (see e.g.; *Social Inclusion and Income Distribution in the European Union*, European Commission Report, 2008). For some European countries the correlation is positive (Belgium, Spain, Italy) while for others a negative relationship was observed (Czech Republic, France, Finland, Poland).

The Gini coefficient, estimated using data relating to income for 2009 recorded by a survey on income and living conditions (Eu-SILC), directly comparable at the European level, places Italy (0.312) at a level similar to Poland (0.311) and slightly below Estonia (0.313), Greece (0.329) and Bulgaria (0.332). EU countries are nevertheless characterised by considerable differences. The countries that display the most unequal distributions are Lithuania (0.369), Latvia (0.361), Spain (0.339) and Portugal (0.337). At the opposite extreme, in Slovenia (0.238), Hungary and Sweden (both 0.241) and the Czech Republic (0.249) the inequality is significantly lower. The estimates of regional characteristics of income distribution in Poland and Italy presented in a paper based on sample micro data coming from Eu-SILC, Polish HBS and Bank of Italy Survey of Income and Wealth. The basic results are contained in Tables 1 and 2.

Among Italian NUTS 2 regions (Table 2; Figs. 3 and 4), Sicilia has the lowest average annual income (22,575 euros, e.g. over 25 percent lower than the average Italian figure). Furthermore, based on the median income in this region 50 percent of households fall below 18,302 euros per year (about 1,525 euros per month). The autonomous province of Bolzano shows the highest average annual household income (35,116), followed by Emilia Romagna (33,827), Lombardia (33,511) and Valle d'Aosta (32,730). At the same time, the highest income concentration is also observed in Sicilia, with the value of the index standing at 0.343, and values above the average national value are also recorded in Calabria and Campania. Conversely, a high degree of income distribution equality is observed in the autonomous provinces of Trento and Bolzano, in Veneto, Umbria and Friuli-Venezia Giulia (see: Itstat, www.istat.it).

Table 1. Statistical characteristics of regional income distributions in Poland (NUTS 1, NUTS 2)

REGIONS GEOGRAPHICAL AREAS	Average income (in thds PLN)	Median income (in thds PLN)	Gini coefficient	At-risk-of-poverty rate (%)
NUTS 2				
Dolnośląskie	3.194	2.641	0.355	15.9
kujawsko–pomorskie	3.000	2.530	0.336	19.2
Lubelskie	2.779	2.260	0.367	30.7
Lubuskie	3.150	2.780	0.310	23.3
łódzkie	2.936	2.459	0.352	17.8
małopolskie	3.152	2.700	0.328	17.7
Mazowieckie	3.866	3.033	0.385	15.0
opolskie	3.052	2.596	0.343	14.7
podkarpackie	2.727	2.366	0.334	24.1
podlaskie	3.115	2.516	0.384	13.4
pomorskie	3.383	2.830	0.350	15.1
śląskie	3.056	2.710	0.310	12.4
świętokrzyskie	2.948	2.489	0.332	23.2
warmińsko–mazurskie	2.901	2.429	0.358	15.1
wielkopolskie	3.341	2.750	0.358	17.6
Zachodniopomorskie	3.067	2.638	0.331	17.4
NUTS 1				
Central	3.554	2.802	0.381	15.9
Southern	3.093	2.700	0.318	14.6
Eastern	2.861	2.395	0.355	24.3
North-Western	3.227	2.723	0.342	18.5
South-Western	3.159	2.630	0.352	15.6
Northern	3.122	2.618	0.348	16.6

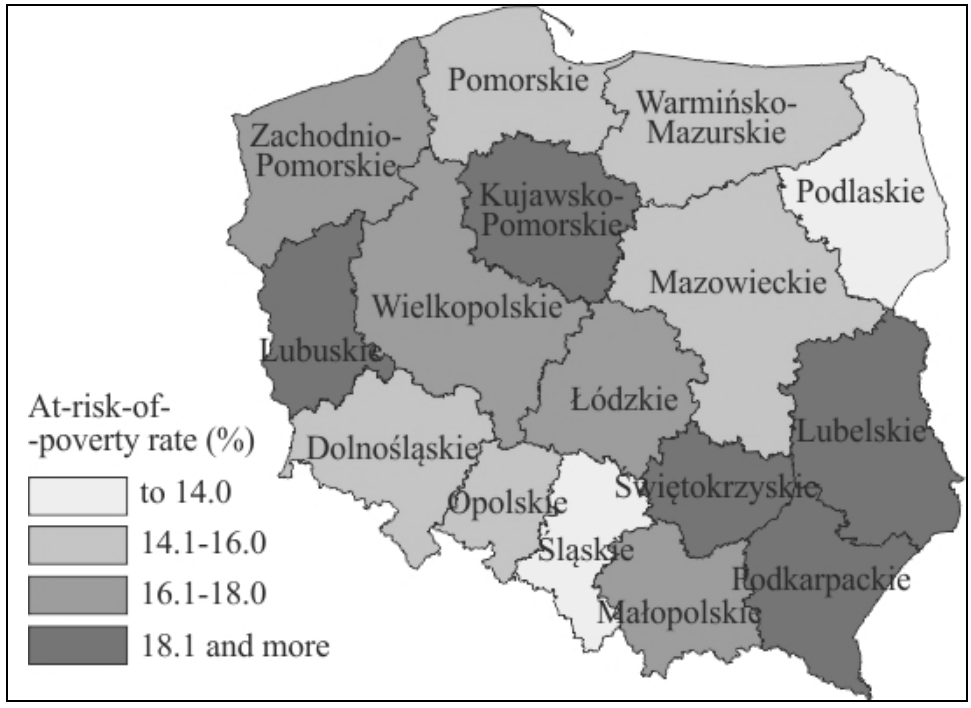
Source: author's own calculations based on micro data from the HBS 2009.

Table.1a. Correlation between regional characteristics of income distribution in Poland

Statistical characteristic	Average income	Median income	Gini index	Poverty rate
Average income	1			
Median income	0.91459	1		
Gini index	0.40153	0.01070	1	
Poverty rate	–0.50876	–0.56911	–0.08145	1

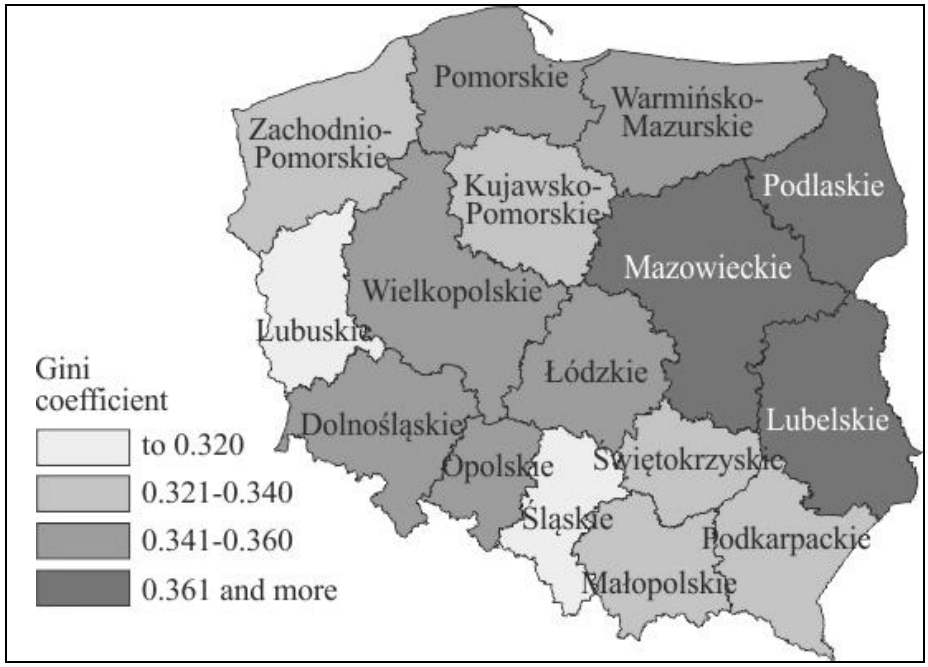
Source: Author's own calculation based on Table 1.

Figure 1. Relatively poor households [in %] by region NUTS 2 in 2009



Source: "Incomes and living conditions of the population in Poland" (Report of EU- SILC 2009), GUS, Warszawa 2012.

Figure 2. Gini inequality coefficient by region NUTS 2 in 2009



Source: author's calculation based on micro data from the HBS 2009.

Table 2. Statistical characteristics of regional income distributions in Italy (NUTS 1 and NUTS 2)

REGIONS GEOGRAPHICAL AREAS	Average income (in euro)	Median income (in euro)	Gini coefficient	At-risk-of-poverty rate (%)
NUTS 2				
Piemonte	2 621	2 145	0.301	5.3
Valle d'Aosta/Vallée d'Aoste	2 728	2 176	0.289	7.5
Lombardia	2 793	2 344	0.301	4.0
Liguria	2 398	1 977	0.283	6.9
Trentino-Alto Adige/Südtirol	2 813	2 464	0.263	7.6
Bolzano/Bozen	2 926	2 519	0.269	9.5
Trento	2 710	2 375	0.255	5.9
Veneto	2 568	2 306	0.257	5.3
Friuli-Venezia Giulia	2 511	2 073	0.271	5.6
Emilia-Romagna	2 819	2 244	0.301	4.5
Toscana	2 575	2 186	0.276	5.3

Umbria	2 474	2 060	0.271	4.9
Marche	2 553	2 203	0.274	8.5
Lazio	2 658	2 181	0.312	6.6
Abruzzo	2 255	1 915	0.274	14.3
Molise	2 178	1 757	0.307	16.0
Campania	2 084	1 743	0.329	23.2
Puglia	2 193	1 815	0.298	21.1
Basilicata	2 077	1 717	0.309	28.3
Calabria	2 042	1 659	0.324	26.0
Sicilia	1 881	1 525	0.343	27.0
Sardegna	2 318	1 914	0.277	18.5
NUTS 1				
North-west	2 701	2 254	0.299	4.7
North-east	2 682	2 255	0.279	5.2
Centre	2 667	2 173	0.292	6.3
Centre-north	2 603	2 224	0.293	5.3
South and Islands	2 083	1 717	0.319	23.0

Source: Istat, on the basis of the micro data from EU-SILC 2009.

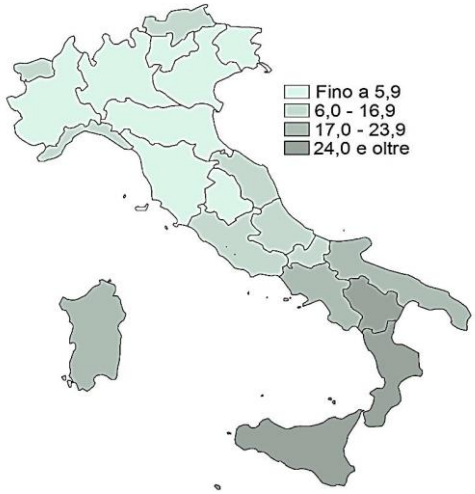
Table 2a. Correlation between regional characteristics of income distribution in Italy

Statistical characteristic	Average income	Median income	Gini index	PovertyRate
Average income	1			
Median income	0.99112	1		
Gini index	–0.60330	–0.69892	1	
Poverty rate	–0.88619	–0.86181	0.63419	1

Source: author's own calculation based on Table 2.

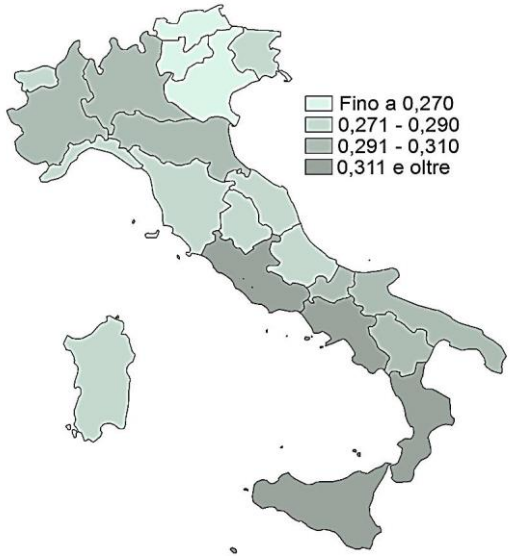
In Poland (Table 1; Figs. 1 and 2), the lowest median income was observed in *lubelskie*, where 50 percent of households fall below 2,260 PLN per month), while the most affluent region was *mazowieckie*, with its highest values of both average (3,866 PLN) and median income (3,033 PLN). Contrary to the Italian case, maximum inequality was recorded not only in the poorest but also in the most affluent regions. In particular, the Gini index estimate was high not only in relatively poor voivodships such as *podlaskie* (0.384) and *lubelskie* (0.367), but also in the wealthy voivodship of *mazowieckie* (0.385), where the highest Gini value was recorded. This situation is quite untypical and could be the result of the rapid economic growth in some regions (e.g. *mazowieckie*) that took place in the transformation period (see for example: Krajewska 2010, pp. 85-116).

Figure 3. Relative poor households by region in 2009 (percentage values)



Source: Istat: EU-SILC 2009.

Figure 4. Income distribution inequality by region in 2009 (Gini coefficient on net household income excluding imputed rent)



Source: Istat: EU-SILC 2009.

Similarly to the differences between mean and median incomes, there are wide variations in the proportion of the population at risk of poverty between regions in both countries, measured in the conventional way, i.e. as those with equivalised income below 60% of the national (rather than the regional) median (Tables 1 and 2; Figs. 2 and 4). In Poland, the regions with a high inequality level contain a relatively low percentage of people living below the poverty threshold and the correlation between the Gini index and at-risk-of poverty rate is slightly negative (Tables 1 and 1a). By contrast in Italy the poor provinces - Sicilia, Calabria, Sardegna, Puglia, Campania and Basilicata – contain the highest proportions of poor households (Tables 2 and 2a). It is worth mentioning that many Italian provinces placed in the north of the country show a negligible incidence of poverty, such as Lombardia (where the at-risk-of-poverty rate is only 4%), followed by Emilia Romagna (4.5%). In consequence, the correlation between the poverty rate and the Gini index is high and positive, taking the value of 0.63.

3. Inequality decomposition

In the analysis of income inequality it may be relevant to assign inequality contributions to various income components (such as labor income or property income) or to various population subgroups associated with various socio-economic characteristics of individuals (age, sex, occupation, composition of their household, ethnic groups, regions etc.). Such an approach can be useful to help social policy makers better understand the influence of various socio-economic determinants on income levels and income inequality. When a country has been partitioned into regions according to some criterion, one common application of inequality measurement is evaluation of the relationship between inequality in the whole country and inequality in its constituent regions, in order to work out the intra- and the inter-regional contributions to the overall inequality. The differences between regions are often not as great as the disparities within them. It is worth mentioning that poor people in regions with a high mean income and a wide income distribution (high inequality) can have a lower living standard than poor people in regions with a lower mean income but more equal distribution.

The most widespread approach to the group decomposition of the Gini index was given by Dagum (1997, pp. 515-531; Dagum, 2008, pp. 131-160) and is based on the concept of economic distance between distributions and relative economic affluence (REA). It takes into account different variances and asymmetries of income distributions in subpopulations and makes an important contribution to the understanding of the overlapping term.

The Gini index of inequality is usually defined by means of a geometric formula since it can be expressed as double the area between the Lorenz curve and the straight line called the line of equal shares. The Gini index can also be seen as a relative dispersion measure when expressed by means of the mean difference Δ, a dispersion measure which is defined as the average absolute difference between all possible pairs of income observations. This concept can be called a statistical approach and was introduced by Gini in 1912. It was subsequently used by many authors to derive various Gini index decompositions, but the most interesting and informative decomposition by subpopulations was undoubtedly that proposed by Dagum (1997, pp. 515-531). The starting point for this decomposition was the Gini index formula based on the Gini mean difference, extended to the case of a population divided into *k* subpopulations (groups):

$$G = \frac{\Delta}{2\bar{Y}} = \sum_{r=1}^{n}\sum_{i=1}^{n} |Y_i - Y_r| \Big/ 2n^2\bar{Y} = \sum_{j=1}^{k}\sum_{h=1}^{k}\sum_{i=1}^{n_j}\sum_{r=1}^{n_h} |y_{ji} - y_{hr}| \Big/ 2n^2\bar{y} \qquad (1)$$

The Gini index expressed in terms of the Gini mean difference can also be generalized for a two-population case, measuring the between-populations (or intra-groups) inequality. Thus the extended Gini index between groups *j* and *h* can be written as follows:

$$G_{jh} = \frac{\Delta_{jh}}{\bar{Y}_j + \bar{Y}_h} = \frac{1}{\bar{Y}_j + \bar{Y}_h} \sum_{i=1}^{n_j}\sum_{r=1}^{n_h} |y_{ji} - y_{hr}| \Big/ n_j n_h \qquad (2)$$

where: Δ_{jh} - mean difference modified for two income distributions.

The Gini index for a population of economic units partitioned into *k* subpopulations of sizes n_j ($j = 1,\ldots, k$), can be expressed as the weighted sum of the extended Gini ratios (eq. 2) weighted by the products of the *j*-th group population share p_j and the *h*-th group income share s_h. Using the symmetry properties of G_{jh} and Δ_{jh} the Gini index can be decomposed into two elements: the **within G_w** and **gross-between G_{gb}** inequality:

$$G = \sum_{j=1}^{k} G_{jj} p_j s_j + \sum_{j=2}^{k}\sum_{h=1}^{j-1} G_{jh}(p_j s_h + p_h s_j) = G_w + G_{gb} \qquad (3)$$

where: $G_{jj} = \frac{\Delta}{2\bar{y}_j} = \frac{1}{2\bar{y}_j} \sum_{r=1}^{n_h}\sum_{i=1}^{n_j} |y_{ji} - y_{jr}| \Big/ n_j^2$ is the Gini index for the subpopulation j , $\bar{y}_j$ - mean income in group j, n_j- frequency in group j.

The formula for G_{gb} given above suggests the possibility of further decomposition of the Gini index by subgroups. The contribution of gross between-groups inequality can be divided into two separate parts: the first one consistent with the differences between the mean incomes and the remaining part, called "transvariation" (*transvariazione*). Such a decomposition enables to analyse and to interpret income inequality in a population partitioned into subpopulations more precisely. Finally, the total Gini ratio of a population of size *n* divided into *k* subpopulations can be decomposed as follows:

$$G = G_w + G_b + G_t$$

G_w – the contribution of ***within-groups inequality*** to the Gini index (see; eq. 3),

G_b – the contribution of ***net between-groups inequality*** to the Gini index, which can be given by the following formula:

$$G_b = \sum_{j=2}^{k} \sum_{h=1}^{j-1} G_{jh}(p_j s_h + p_h s_j) D_{jh} \tag{4}$$

G_t – the contribution of "***transvariation***" to the Gini index which can be written as:

$$G_t = \sum_{j=2}^{k} \sum_{h=1}^{j-1} G_{jh}(p_j s_h + p_h s_j)(1 - D_{jh}) \tag{5}$$

where: D_{jh}– "economic distance" ratio (Dagum, 1980, pp. 1791-1803).

The basis for the inequality decomposition presented in this paper was the micro data coming from the Household Budget Survey (HBS) conducted by the Central Statistical Office of Poland (GUS) in 2009. The data obtained from the HBS allow for the detailed analysis of the living conditions in Poland, being the basic source of information on the revenues and expenditure of the population. In 2009 the randomly selected sample covered 37, 302 households, i.e. approximately 0.3% of the total number of households. The adopted sampling scheme was a geographically stratified and two-stage one, with different selection probabilities at the first stage. The estimation of inequality measures and their components incorporated "survey weights" based on inverse inclusion probabilities calculated for each household. In order to maintain the relation between the structure of the surveyed population and the socio-demographic structure of the total population, the data obtained from HBS were weighted with the structure of households by number of persons and class of locality, coming from Population and Housing Census 2002.

The inequality analysis (Table 3) was carried out after dividing the overall sample by NUTS 1 regions, constructed according to the Eurostat classification. The variable of interest was a household's available income, which can be considered as the basic characteristic of its economic condition. It is defined as the sum of households' current incomes from various sources, reduced by prepayments on personal income taxes made on behalf of a tax payer by a tax-remitter (this is the case of income derived from hired work, social security benefits, and other social benefits); by tax on income from property; taxes paid by self-employed persons (including professionals and individual farmers), and by social security and health insurance premiums. A similar calculation for Italy has been conducted by Costa (2009, pp. 229-241) on the basis of the database: Survey of Income and Wealth, Bank of Italy (Table 4).

The decomposition of the Gini index presented in Tables 3 and 4 takes into account the splitting up into several NUTS 1 administrative regions, separately for Poland and Italy.The results of the calculations can assist in answering the questions: To what extent do particular regions contribute to the overall income inequality? What is the contribution of inter-regional differences? Do the NUTS1 regions in both countries constitute separate or overlapping groups?

Table 3. Inequality decomposition in Poland by NUTS 1 regions

Measure	Region of Poland						Total
	Central	Southern	Eastern	N-Western	S-Western	Northern	
Mean income [1000zl]	3.554	3.093	2.861	3.227	3.159	3.122	3.186
Population share p_t	0.218	0.208	0.168	0.154	0.107	0.145	1
Income share s_i	0.243	0.202	0.151	0.156	0.106	0.142	1
Gini index G_i	0.381	0.318	0.355	0.342	0.352	0.348	**0.352**
Within-groups term (D)	0.020	0.013	0.009	0.008	0.004	0.007	**0.062**
Between-groups term (D)							**0.042**
Overlapping term (Gini transvariation) (D)							**0.248**

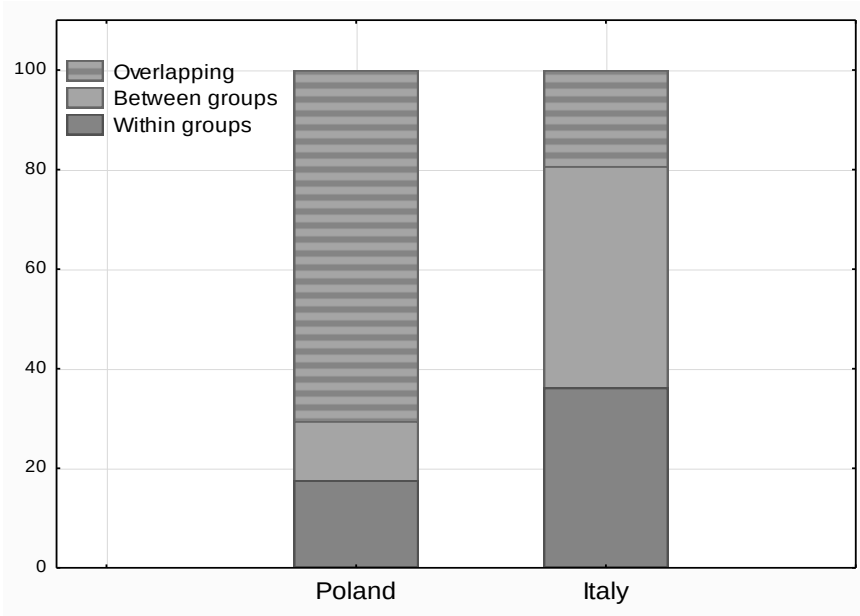
Source: author's own calculations based on the HBS data, GUS 2009.

Table 4. Inequality decomposition in Italy by NUTS 1 regions

Measure	Region of Italy			Total
	North	Center	South	
Mean income $\bar{y}_i$ [euro]	2781	2748	1788	2456
Population share p_t	0.477	0.203	0.320	1
Income share s_i	0.540	0.227	0.233	1
Gini index G_i	0.337	0.323	0.348	**0.353**
Within-groups term (D)	0.087	0.015	0.026	**0.128**
Between-groups term (D)				**0.157**
Overlapping term (Gini transvariation) (D)				**0.**068

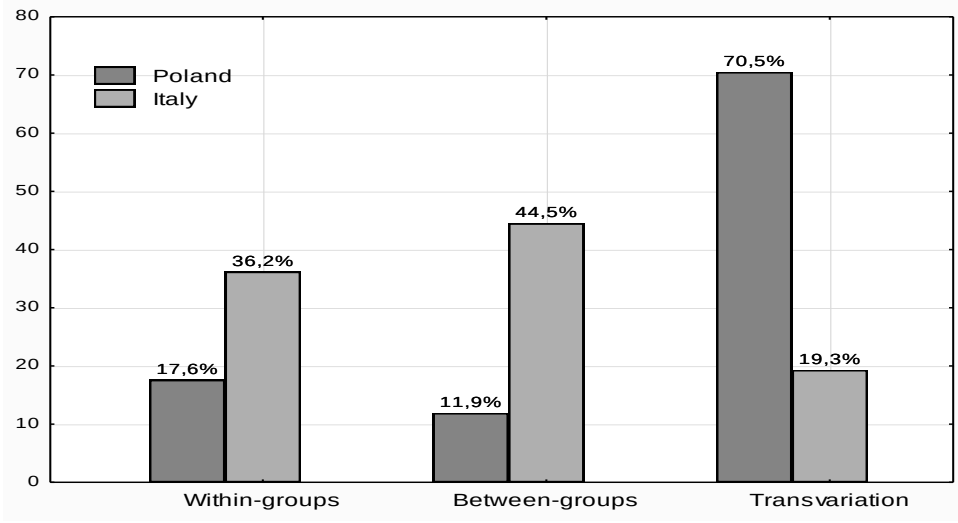
Source: Costa (2009, pp.229-241), based on: Survey of Income and Wealth, Bank of Italy, 2004.

Figure 5. Inequality decomposition by regions in Poland and Italy



Source: author's calculations based on Tables 3 and 4.

Figure 5. Shares [in %] of inequality components in Poland and Italy



Source: author's calculations based on Tables 3 and 4.

The within-group component reflects the inner polarization of different groups of households: households of self-employed; households of employees (managers, office workers, blue-collar workers, school teachers etc.); households of not employed (retirees and pensioners); households of other not employed (mainly unemployed); and households of farmers. Income polarization within regions gives rise to remarkable differentials in average income between managers and blue-collar workers within the group of employees, between entrepreneurs and the others within the group of self-employed, and between retirees and pensioners. In Poland the within-group contribution to overall income inequality is rather small and equals 17.6%, in contrast to Italy, where the discrepancies within regions account for 36.2% of all income differences. According to formula (3), the contributions of within-group components depend on the Gini index among the households of each group, and on income and population shares of the group in relation to the total population of households. Because of the very small income and population shares, the income disparities among smaller regions (*South-western* in Poland and Central in Italy) weigh only slightly on the total inequality. The region with the highest share (6%) in the overall Gini index in Poland is definitely the *Central* region, presenting the highest values of the Gini index (0.381) as well as of income and population shares. In Italy, the inequalities within the most affluent *North* region contribute 25% to the total Gini index, which reflects similar regularities, except for the fact that the Gini index for Italian *Northern* provinces is rather intermediate (0.337).

Turning to the inequality between regions (eq. 4), the net between-group component of the Gini index contributes only 11.9% of the overall income inequality in Poland, while the "transvariation" component (eq. 5), describing the overlapping of the subpopulations, accounts for the remaining 70.5 % of this measure (Table 3; Figs.: 5, 6). Thus, the reasons for income differences mentioned above are located mainly within regions, which are relatively similar to each other. Nevertheless the discrepancies between regions of Poland (mainly between western and eastern ones) are significant, which can be easily noticed in Figures 1 and 2, but slightly underestimated due to the negative correlation between the Gini indices and the mean incomes.

In Italy the situation is quite opposite - the main component of the overall income inequality is the between-region one, which accounts for 44.5% of all income differences, leaving the "transvariation" term quite small 19.3% (Table 4; Figs.: 5, 6). This is because of huge disparities between the North and South, which began in the 1980's as a consequence of the second oil crisis, and even increased both during the economic crisis of 1992 and the crisis of 2008.

The empirical evidence demonstrates that the pattern observed for the Italian case persists at the local level, with the Southern regions more affected by the national economic condition than the rest of the country.The regional income disparities in Poland are rather small: the between regions inequality is only 1/10 of the total Gini. The substantial contribution of transvariation is evidence of the notable overlapping of income distributions for NUTS1 regions. In analyzing the problem more thoroughly one can observe differences between the basic statistical characteristics of regions (mean and median incomes) measuring the relative economic affluence of one region with respect to another (Table 1). It can be easily noticed that only the *Central* region is significantly more affluent than the others. As a result, the transvariation component is dominated mainly by the overlap between the distributions of the *Central* region and the other regions. The highest distance between the means was observed for the *Central* and *Eastern* regions. The Gini ratios and means within regions do not differ significantly, so the contributions of particular subpopulations to overall inequality are determined mainly by their sizes.

It is worth mentioning that the main source of income inequality in Poland are wages and salaries, which have the biggest influence on the overall inequality measurement. The contribution of this factor to the total Gini index is about 60%. In contrast to wages and salaries, the contribution of other income components which are negatively correlated with the total income, such as pensions and social benefits, can be negative, and income increases within these income sources can reduce overall inequality. Such a situation was observed in Poland (Jędrzejczak, 2010, pp. 109-123), and is partially connected with the defective system of social

assistance and social transfers (Aksman, 2008, pp.1-6). Moreover, a large share of pensioners can paradoxically reduce the Gini index value as this income component makes a substantial contribution to the total household income in Poland (about 30%), and presents a relatively small level of inner concentration.

4. Conclusions

The empirical evidence presented in this paper enables the detailed analysis of income distributions in Poland and Italy. In particular, the household income disparities have been verified from the point of view of inequality decomposition by region. Moreover, the relationship between poverty and inequality in regional distributions has been considered in order to characterise national inequality patterns. The analysis, based on the Dagum group decomposition of the Gini inequality coefficient, helped to formulate several conclusions.

- Income inequality in Poland and Italy followed different patterns across regions.
- In Italy the poorest regions are usually also those with the highest income inequality, as measured by the Gini index.
- Contrary to the Italian case, maximum inequality in Poland was recorded not only in the poorest but also in the most affluent regions.
- In Poland the regions with a high inequality level contain a relatively low percentage of people living below the poverty threshold, and the correlation between the Gini index and at-risk-of poverty rate is slightly negative.
- By contrast, the correlation between the poverty rate and the Gini index in Italy is high and positive.
- In Italy the basic contribution to the overall income inequality is due to inter-regional discrepancies which account for almost half of all income differences.
- In Poland, the reasons for major income differences are located mainly within regions, which are relatively similar to each other.

These results can be helpful for social policy-makers in making policy decisions concerning the reduction of income inequality and poverty (which may not always go hand-in-hand). One should be conscious, however, that the more the income distribution varies between regions, the greater is the risk to social cohesion, even if inequalities at the national level are kept within bounds.

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Streszczenie

ROZKŁAD NIERÓWNOŚCI WEDŁUG REGIONÓW W POLSCE I WE WŁOSZECH

Redukcja różnic między regionami Europy była głównym celem polityki "zrównoważonego rozwoju", której założenia znalazły się już w tzw. Traktatach Rzymskich (1957). Postępujący proces integracji europejskiej tworzył wciąż nowe instrumenty i inicjatywy (tzw. mechanizmy solidarności), wyrażające dążenie do niwelowania ekonomicznej i społecznej nierównowagi między regionami. Okazało się jednak, że różnice

między regionami biednymi i bogatymi w wielu krajach wcale się nie zmniejszają, a spowolnienie gospodarcze spowodowało odwrócenie pozytywnych tendencji nawet w krajach relatywnie najbardziej rozwiniętych.

Różnice między regionami (NUTS -Nomenclature of Territorial Units for Statistics) można mierzyć z punktu widzenia rozwoju demograficznego, poziomu dochodów i zamożności, sytuacji na rynku pracy, edukacji itp. Głównym celem prezentacji jest analiza porównawcza różnic regionalnych w Polsce i we Włoszech, biorąc pod uwagę rozkłady dochodów gospodarstw domowych.Parametry tych rozkładów, a w szczególności miary nierówności i ubóstwa, oszacowane zostały dla jednostek terytorialnych na poziomie NUTS 1 i NUTS 2 na podstawie danych pochodzących z badań reprezentacyjnych prowadzonych przez GUS, Istat oraz Bank of Italy. Przeprowadzono następnie analizę wpływu różnic między regionami oraz różnic wewnątrz regionów na całkowitą nierównomierność rozkładu dochodów w każdym z analizowanych krajów, wykorzystując do tego celu dekompozycję współczynnika Giniego według podpopulacji. Pozwoliło to na wykrycie istotnych różnic w rozkładzie nierówności dochodowych w Polsce i we Włoszech, mimo zbliżonego poziomu współczynnika Giniego.

***Słowa kluczowe**: nierówność dochodu, ubóstwo, rozkład nierówności*

10.1515/cer-2015-0028

TOMASZ URYSZEK*

Long-term Sustainability Of Public Finance In The Central And Eastern EU Member States

Abstract

The main goal of this article is to investigate the level of long-term sustainability of public finance in the Central and Eastern EU Member States. This aim is accompanied by the following hypothesis: an inability to generate primary surpluses and significantly growing public debt volumes prevent the attainment of sustainability in the area of public finance. The research method is based on GDP and public debt growth rates, as well as on the values of discounted primary fiscal balances at the actual and structural level. The research period covers the years 2000–2014. Data were taken from Eurostat, the European Commission's Directorate General for Economic and Financial Affairs and the European Central Bank.

Keywords: *public debt, primary net lending, sustainability*

1. Introduction

Fiscal deficits and public debt are currently immanent characteristics of almost all free market economies. Financing current consumption and investment expenditures via borrowing seems to be attractive to governments, as it is perceived as an alternative to tax burden increases or expenditure cuts. However, public authorities cannot (or at least they shouldn't) incur ever-increasing debt.

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Despite this, many countries, including some Central and Eastern EU economies, have generated significant (and rapidly rising) volumes of public debt. In such a situation some basic questions arise, such as: Should we consider public finance sectors of indebted economies as sustainable or seeking sustainability? Can indebted public finances be sustainable at all? To answer these questions and compare the outcomes between different countries we should focus on the deficit and debt volume rather than on public revenues and expenditures. The latter are very important, but they are relevant, among other things, to the political system, level of development and fiscal needs of a particular country (and these can be hard to compare). The level of deficit and debt – as the outcomes of fiscal policies in the different economies – are easier to compare.

The main goal of the article is to investigate the degree of long-term sustainability of public finance in the Central and Eastern EU Member States. This aim is accompanied by the following hypothesis: an inability to generate primary surpluses and significantly growing public debt volumes prevent the attainment of sustainability in the area of public finance.

To ensure comparability between countries, the data on overall public finance (General Government) sectors, based on the European System of Accounts methodology, were used. The research period covers yearly observations between 2000 and 2014. Data were taken from Eurostat and the European Commission's Directorate General for Economic and Financial Affairs. They are expressed in nominal values and as a percentage of GDP (at actual and structural levels). The Central and Eastern EU Member States investigated in the article are: Bulgaria (BG), Czech Republic (CZ), Latvia (LV), Lithuania (LT), Hungary (HU), Poland (PL), Romania (RO), Slovenia (SI) and Slovakia (SK). Estonia and Croatia were excluded from the research because of the lack of the reliable and comparable data on their public sectors.

2. The problem of long-term public finance's sustainability

The idea of public finance sustainability is linked directly with the volume of public debt and dates back to the first classical economists, such as Adam Smith, David Hume or David Ricardo (see e.g.: Rowley et al. 2002). They compared the effects of tax and debt financing of public expenditures and then focused on the effects of public debt.

The most common justification for public borrowing derives from the Keynesian approach. According to his model the additional government spending which can be financed through debt becomes an instrument for increasing aggregate demand and national income (see e.g.: Gali 2013, pp. 973-1003).

The classical economist also provided justification (sometimes indirectly) for public debt as an instrument of fiscal policy. In the light of the *Ricardian equivalence theorem*, as reviewed and examined by Robert J. Barro (Barro 1974, pp. 1095–1117; Barro 1989, pp. 37–54), the consequences of public debt can be neutral to an economy. That means that debt and tax financing of government expenditures should be equivalent with respect to capital accumulation (Neck and Strum 2008, p. 2).

Another explanation offered to justify public debt financing of government spending is based on the idea of intergovernmental redistribution in the area of public finance. This idea encompasses the distribution of the tax burden, and transfers and liabilities between different generations (Lindbeck and Weibull 1986, pp. 239–267). The literature review shows that sometimes governments can be forced to postpone debt repayments over time and affect future generations (Miles and Cerny 2006, pp. 549–550; Laffargue 2009, pp. 79–104). This may, however, have negative consequences for the economies (Heller 2003, pp. 2–3), and in addition it does not seem to follow, to some extent, the idea of sustainable development, according to which the government should take into account the welfare of future generations (Uryszek 2014, pp. 448–457). On the other hand, if one assumes that debt is used to finance investment expenditures, then future generations will benefit from them, so they can participate in the financing process (see e.g.: Lindbeck and Weibull, 1986, pp. 239–267). Following this we can assume that the idea of sustainable public finance depends not only on the level of debt but also on the particular expenditures financed by borrowing.

The above-mentioned theories and ideas do not give a clear answer to the question concerning the optimal or maximum value of the deficit and debt. However, according to the literature sustainable public finance can be defined as a situation which excludes financing debt servicing costs exclusively by new borrowing (Fan and Arghyrou 2013, p. 961). The sustainability of public finance should then be based on generating primary budget surpluses (primary net lending) and – in this way – controlling public debt volume (Gevorkyan 2010, p. 169). In other words governments should not incur ever-increasing debt. This means they cannot run so-called "Ponzi games" (see e.g.: Martins-da-Rocha and Vailakis 2012, pp. 455–488; Wigger 2009, pp. 492–499; Minea and Villieu 2010, pp. 709–711). Based on the literature one can risk saying that indebted public finance can be considered sustainable as long as the future primary balances will be able to cover the already existing debt volume.

3. Research methodology

The research problem undertaken focuses on two steps. The first is connected with the comparison of the growth rate of GDP and the increase in public debt. As long as the GDP rises faster than debt, the debt-to-GDP ratio will decrease. This is particularly important in the light of Maastricht Treaty criterion relevant to public borrowing, which can be pictured as follows:

$$\Delta GDP_t \geq \Delta PD_t \tag{1}$$

where:

- GDP_t - gross domestic product in the period t,
- PD_t- public debt in the period t.

The second step is relevant to a more in-depth analysis based on intertemporal budget constraints (cf. Hall 2014, pp. 4–22; Baglioni and Cherubini 1993, pp. 206–223) and the *no-Ponzi condition*. If we assume that governments cannot run Ponzi games, we deduce that the discounted volume of all the future primary net government lending values should be enough to cover the already existing debt. This idea has been already used to assess fiscal sustainability in practice (see e.g.: Qin et al. 2006, pp. 63–84). The primary balances, as well as the GDP and public debt values, have been already used for in-depth analyses of fiscal stability in Poland and other Central and Eastern EU Member States (see: Molendowski and Stanek 2012, pp. 267–284). The results showed, *inter alia*, that there is a positive correlation between a change in the values of primary balances in a given period and the volume of public debt in the previous period (Molendowski and Stanek 2012, p. 276).

In investigating the problem of public finance sustainability in practice it is necessary to check whether the intertemporal budget constraints work in the reality of the Central and Eastern EU economies. If so, the sum of discounted primary net lending values (*PNL*) should be a positive amount (or at least zero). This can be pictured as follows:

$$\sum_{t=0}^{n} \frac{PNL_t}{(1+r_t)^t} \geq 0 \tag{2}$$

where:

- PNL_t- primary net lending in the period t,
- r_t - discount rate in the period t.

In theory this formula is relevant to all the future primary balances (which means that $n \to \infty$ and *PNL* are *ex ante* forecasts). In empirical analyses, however, it is calculated *ex post* using historical data. The cost of public debt service as percentage of gross public debt of the preceding year (according to the excessive deficit procedure, based on ESA 2010) was used as the discount rate (*r*). This properly describes the real cost of the debt service. We should keep in mind that the interest rate in the Central and Eastern European countries was relatively high at the beginning of 21st century, then declined for the next several years. Because of this, the costs of debt service were a significant burden for those economies, especially at the very beginning of the research period.

Calculations were made for two different periods. The first was equal to the average term to maturity (*ATM*) of government debt instruments. The *ATM* is defined as the number of years after which an existing debt must be repaid. (cf. Uryszek 2012, p. 146). Its values for the Central and Eastern EU economies are presented in the Table 1.

Table 1. Average terms to maturity in the Central and Eastern EU economies (in years)

Country	average term to maturity (in years)
Bulgaria	8.05
Czech Republic	n/a*)
Latvia	5.91
Lithuania	6.00
Hungary	4.26
Poland	4.75
Romania	4.59
Slovenia	6.84
Slovakia	n/a

*) n/a – data not available

Source: own elaboration based on European Central Bank database.

Using ATM as the number of years for the formula presented in equation 2, we could check whether the public finance sector remained sustainable over the average period of public debt refinancing ($n=ATM$). The mean value of ATM was used for Slovakia and the Czech Republic, as data for these countries were unavailable.

The second period covered the years 2000–2014 ($n=15$), which seems to be a long enough period to investigate long term sustainability.

The primary net lending was calculated as the difference between the value of public revenue and expenditure, reduced by the costs of debt service. It can be written as follows:

$$PNL_t = \mathrm{Re}v_t - (Ex_t - DSC_t) \tag{3}$$

where:

- Rev_t - public revenue in the period t,
- Ex_t - public expenditure in the period t,
- DSC_t - public debt servicing cost in the period t.

Primary net lending (surplus) causes the volume of public revenue to exceed the sum of current and investment budget expenditures. The existing surplus is able to cover a part of (or even all of) the debt servicing costs. Primary net borrowing (deficit) proves a lack of fiscal balance, resulting from a shortage of the revenues needed for financing current and investment expenditures. A primary deficit results in a rise in the volume of public borrowing (Uryszek 2011, pp. 93–102).

We must take into account that cyclical changes can affect the outcomes of the above-mentioned formula, even to a great extent, especially in the long term. To exclude them from the calculation process, this formula was also estimated using the cyclically adjusted primary net lending values. They were calculated on the basis of the potential GDP, according to the directives of the European Commission's Directorate General for Economic and Financial Affairs. Despite some controversy, the cyclically adjusted fiscal variables (including deficits or surpluses) are often used to assess the economic situation of countries in Europe (Socol 2013, pp. 51–56) and all over the world (Pastor and Villagomez 2007, pp. 1599–1607), for international comparative research (Sterks 1984, 183–203), as well as to study the economic conditions on the regional (Yuhua 2006, pp. 284–305) and to some extent even local government levels (Williams and Onochie 2013, pp. 1–21; Slavin 2013).

4. The Maastricht Treaty criteria in the Central and Eastern EU economies

According to the Maastricht Treaty, primary net borrowing (the fiscal deficit) should not exceed 3% of GDP. The volume of public debt should not be higher than 60% of GDP. In Europe "…fiscal criteria of the Maastricht Treaty (…) are considered major devices to prevent excessive debt increases" (Neck and Sturm 2008, p. 8). The values of General Government net lending/net borrowing and debt in the Central and Eastern EU economies are shown below in Table 2.

Table 2. Net lending and gross public debt in the Central and Eastern EU economies (in % of GDP)

		2000	2004	2008	2012	2014
Bulgaria	Net lending	-0.5	1.8	1.6	-0.7	-2.8
	Debt	70.1	36.1	13.3	18.0	27.6
Czech Rep.	Net lending	-3.5	-2.7	-2.1	-3.9	-2.0
	Debt	17.0	28.5	28.7	44.6	42.6
Latvia	Net lending	-2.8	-1.0	-4.0	-0.8	-1.4
	Debt	12.2	14.2	18.6	40.9	40.0
Lithuania	Net lending	:	-1.4	-3.1	-3.1	-0.7
	Debt	:	18.7	14.6	39.8	40.9
Hungary	Net lending	-3.0	-6.4	-3.7	-2.3	-2.6
	Debt	55.2	58.8	71.9	78.5	76.9
Poland	Net lending	-3.0	-5.2	-3.6	-3.7	-3.2
	Debt	36.5	45.3	46.6	54.4	50.1
Romania	Net lending	-4.7	-1.2	-5.6	-2.9	-1.5
	Debt	22.4	18.6	13.2	37.3	39.8
Slovenia	Net lending	-3.6	-2.0	-1.4	-4.0	-4.9
	Debt	25.9	26.8	21.6	53.7	80.9
Slovakia	Net lending	-12.1	-2.3	-2.4	-4.2	-2.9
	Debt	49.6	40.6	28.2	52.1	53.6

Source: own elaboration based on Eurostat data.

Data analysis proves that the Central and Eastern EU Member States have had problem with balancing their public finance sectors. The recorded deficits affected in a strong increase of the volume of public debt in most investigated economies. Bulgaria was the only country which significantly decreased the total amount of public debt in the years 2000–2014. There were some problems with fulfilling the criterion relevant to the deficit, but the debt criterion was generally met in most countries (except Hungary and Slovenia). In the case of these countries (which are "new" EU members with an approximately 25 year history of a free market economy) the rapid increase of the debt can be recognized as more dangerous than the volume of the debt itself. In this situation a question arises: can we consider the public finance sectors of these countries sustainable or – at least – seeking sustainability in the long run? The first step to check it is to check and compare the GDP and public debt growth rates.

5. GDP and public debt increases

The outcome of the debt-to-GDP ratio is determined by the volume of both the public debt and the gross domestic product. It will diminish if the debt growth rate will be lower than the GDP growth rate. The growth rates for nominal GDP and the nominal volume of General Government debt in the Central and Eastern EU Member States are shown below in Table 3.

Table 3. GDP growth rate vs. public debt increases in the Central and Eastern EU economies (in %)

		2000–2004	2004–2008	2008–2012	2012–2014
Bulgaria	GDP increase	44.0	74.6	0.0	2.6
	Debt increase	-25.9	-35.6	51.8	57.7
Czech Rep.	GDP increase	28.9	31.3	0.8	5.4
	Debt increase	115.4	32.3	56.7	0.7
Latvia	GDP increase	63.9	119.7	-9.7	9.1
	Debt increase	90.5	187.0	98.8	6.9
Lithuania	GDP increase	n/a	79.3	1.9	9.0
	Debt increase	8.4	39.9	178.6	11.8
Hungary	GDP increase	57.3	28.9	5.9	11.7
	Debt increase	67.5	57.5	15.7	9.4
Poland	GDP increase	24.1	37.7	26.5	7.0
	Debt increase	54.1	41.8	47.5	-1.4
Romania	GDP increase	206.1	110.8	13.8	11.7
	Debt increase	154.9	48.9	222.8	19.1
Slovenia	GDP increase	46.4	37.1	-5.1	3.4
	Debt increase	52.0	10.6	135.4	55.8
Slovakia	GDP increase	46.1	47.6	5.9	4.2
	Debt increase	19.4	2.6	95.7	7.1

*) n/a – data not available

Source: own elaboration based on Eurostat data.

The data in Table 3 shows that the rapid increase of GDP values in the years 2000-2008 resulted in relatively low (or even decreasing) values of debt-to-GDP ratios. This changed during the recent financial crisis: very low GDP growth rates were accompanied by significantly rising public debt. It is worth mentioning that, with the exception of Bulgaria (and, to a very limited extent, Poland), all the analysed countries were characterized by continuously rising public debt ratios. Such a situation is interesting in the context of the "no Ponzi games" condition and the aim of long term public finance sustainability.

6. Long term sustainability and intertemporal budget constraints

As the intertemporal budget constraint in this research was based on the primary fiscal (im)balances, we should first check the values of primary net lending for the investigated economies. They are shown in Table 4.

Table 4. Primary net lending values for the Central and Eastern EU economies (in % of GDP)

	BG	CZ	LV	LT	HU	PL	RO	SI	SK
2000	3.5	-2.7	-1.8	n/a	2.2	0.0	-0.7	-1.3	-8.1
2001	5.2	-4.4	-1.1	n/a	0.6	-1.7	-0.1	-1.6	-2.5
2002	1.1	-5.2	-1.5	n/a	-4.9	-2.0	0.5	-0.3	-4.6
2003	1.8	-5.4	-0.8	n/a	-3.1	-3.1	0.1	-0.7	-0.3
2004	3.7	-1.6	-0.3	-0.5	-2.0	-2.4	0.2	-0.6	-0.2
2005	2.6	-2.0	0.1	0.4	-3.8	-1.5	0.1	0.1	-1.2
2006	3.2	-1.2	-0.1	0.4	-5.5	-1.2	-1.4	0.0	-2.1
2007	2.3	0.4	-0.3	-0.2	-1.0	0.3	-2.2	1.2	-0.6
2008	2.5	-1.1	-3.5	-2.4	0.4	-1.5	-4.9	-0.7	-1.1
2009	-3.4	-4.3	-7.5	-7.9	-0.1	-4.8	-7.4	-4.8	-6.5
2010	-2.5	-3.1	-6.3	-5.1	-0.4	-5.1	-5.1	-4.0	-6.2
2011	-1.3	-1.4	-1.6	-7.1	-1.3	-2.4	-3.7	-4.8	-2.6
2012	0.2	-2.5	0.8	-1.2	2.3	-1.1	-1.2	-2.0	-2.4
2013	-0.1	0.2	0.7	-0.9	2.1	-1.5	-0.4	-12.3	-0.7
2014	-2.1	-0.7	-0.1	0.9	1.5	-1.2	0.1	-1.6	-0.9

*) n/a – data not available

Source: own elaboration based on data from the European Commission's Directorate General for Economic and Financial Affairs.

The data analyses prove that, with the exception of Bulgaria, the investigated economies recorded significant negative net lending values, i.e. net borrowing values. In such a situation it is hard to talk about sustainability not only in the long run, but also in the short term. To complete the research and to investigate the level of long term unsustainability of the Central and Eastern EU Member States, the formula shown in equation 2 was calculated for them. The results are shown in Table 5.

Table 5. The results for long term sustainability testing in the Central and Eastern EU economies (in % of GDP)

	outcomes for:	
	n=ATM	*n*=15*)
Bulgaria	-3.2	15.9
Czech Rep.	-11.2	-28.8
Latvia	-13.7	-15.7
Lithuania	-20.0	-13.1
Hungary	4.1	-10.1
Poland	-10.7	-19.7
Romania	-16.8	-13.7
Slovenia	-25.7	-20.5
Slovakia	-18.4	-31.2

*) n=11 for Lithuania (because of the lack of comparable data for 2000-2003)

Source: own calculations based on data from Eurostat and the European Commission's Directorate General for Economic and Financial Affairs.

The results show that eight out of nine countries failed the test, with Bulgaria being the only country that recorded a surplus in the 15 year period (2000–2014). Hungary got a positive result for the period equal to the average time to maturity of public debt instruments. The other countries were strongly in the red. They recorded negative results for the sums of the discounted primary net lending values for both periods. This means that their public finances are unsustainable in the long run. Moreover, it is hard to find evidence that they are on the path to recovery.

It is necessary to engage in more detailed research to check whether the lack of sustainability derives from cyclical changes in the global economy or is connected with structural problems of these countries.

7. Long term sustainability and intertemporal budget constraints – cyclically adjusted data

As the research period (years 2000–2014) was strongly affected by cyclical changes (which was especially evident during the financial crisis), the cyclically adjusted data on primary net lending values were used for further research, in order to exclude the impact of these changes. The cyclical component is a temporary phenomenon, while the structural deficit (or surplus) seems to be long-term and – to some extent – permanent in its nature (cf. Józefiak, Krajewski and Mackiewicz 2006, p. 95).

The adjustment was based on potential GDP. This method uses the Cobb-Douglas production function. Global product in this model is dependent on the level of employment, the volume of accumulated capital, and the surplus of unused factors of production and productivity (Denis, Mc Morrow and Roger 2002, p. 7). The level of unemployment is estimated using the NAIRU index (*non-accelerating inflation rate of unemployment*) (cf. Kwiatkowski 2002). This method is used by Eurostat and the European Commission's Directorate General for Economic and Financial Affairs (*Cyclical* ... 2013).

The values of cyclically adjusted net lending for Central and Eastern EU economies are listed below in Table 6.

Table 6. Primary net lending values for the Central and Eastern EU economies (cyclically adjusted values, in % of potential GDP)

	BG	CZ	LV	LT	HU	PL	RO	SI	SK
2000	3.7	-2.6	-1.4	n/a	2.3	-0.2	0.9	-1.5	-7.0
2001	5.2	-4.7	-0.5	n/a	0.5	-0.4	1.0	-1.6	-1.1
2002	0.7	-5.0	-1.3	n/a	-5.4	0.3	0.7	-0.6	-3.5
2003	1.7	-5.4	-1.4	n/a	-3.7	-0.8	-0.3	-0.9	0.3
2004	3.4	-2.0	-1.4	-1.3	-3.2	-1.0	-1.4	-1.2	0.0
2005	2.5	-3.1	-1.9	-1.2	-5.4	-0.2	-1.3	-0.9	-1.5
2006	2.7	-3.3	-3.6	-1.7	-7.8	-1.3	-3.6	-1.9	-3.4
2007	1.2	-2.1	-4.5	-3.9	-2.5	-1.4	-4.5	-2.3	-3.6
2008	1.1	-3.1	-4.7	-5.1	-0.8	-3.1	-7.9	-4.0	-4.1
2009	-2.7	-3.5	-3.3	-3.7	2.2	-5.8	-7.3	-3.5	-5.9
2010	-1.9	-2.6	-1.9	-1.5	1.5	-5.8	-4.3	-3.0	-6.0
2011	-1.2	-1.2	0.8	-5.6	-0.2	-3.3	-2.8	-4.0	-2.1
2012	0.2	-1.7	1.7	-0.7	4.1	-1.2	0.1	-0.1	-1.5
2013	-0.1	1.4	0.4	-1.0	3.5	-1.1	0.3	-10.1	0.5
2014	-2.1	0.2	-0.6	0.7	1.9	-1.0	0.6	-0.3	0.2

*) n/a – data not available

Source: own elaboration based on the data from the European Commission's Directorate General for Economic and Financial Affairs.

The cyclically adjusted primary net lending reflect actual borrowing in the investigated countries in most years, again with the exception of Bulgaria. This means that eight out of the nine countries generated primary deficits even after excluding the cyclical component from the calculation formula. It also shows that the recent financial crisis was not the only reason for public finance instability, and that structural reforms seem to be necessary to improve the situation.

The outcomes do not yield premises for long term sustainability. However, the formula defined in equation 2 was tested for the cyclically adjusted values. The results are shown below in Table 7.

Table 7. The results for long term sustainability tests in the Central and Eastern EU economies (cyclically adjusted values, in % of potential GDP)

	outcomes for:	
	n=ATM	*n*=15*)
Bulgaria	-4.2	14.4
Czech Rep.	-7.3	-32.0
Latvia	-3.1	-17.3
Lithuania	-11.0	-16.1
Hungary	8.4	-11.4
Poland	-11.9	-16.1
Romania	-13.0	-15.8
Slovenia	-21.9	-23.4
Slovakia	-14.3	-29.8

*) n=11 for Lithuania (because of the lack of comparable data for 2000-2003)

Source: own calculations based on data from Eurostat and the European Commission's Directorate General for Economic and Financial Affairs.

The results are similar to those presented in Section 6. Hungary again passed the test for the period equal to ATM. The Bulgarian public finance sector (despite problems for the years 2007–2014) remained sustainable for the entire analyzed period (years 2000–2014). The other countries did not meet the intertemporal budget constraints for both periods.

8. Conclusions

It is evident that the Central and Eastern EU economies have significant problems with the long term sustainability of their public finance sectors. They mostly fulfil the Maastricht criterion with respect to the maximum volume of public debt, but this is not enough. The relatively low debt-to-GDP ratios in most investigated economies were shaped by significant increases of GDP values. The nominal volumes of gross public debt in the analyzed period were continuously rising, with the exception of Bulgaria and – to a very limited extent – Poland. Therefore the problem is not the volume of the debt itself.

The outcomes of the research prove that the hypothesis put forward in the introduction is true. The real obstacle in the path to achieving sustainability in the area of public finance is the issue of primary deficits. The results show that eight out of the nine investigated countries were unable to generate primary surpluses. The sum of discounted primary net lending values was strongly negative in these eight economies.

Similar results were obtained with cyclically adjusted variables. This proves that the recent financial crisis is not the only reason for the unsustainability of public finances in the Central and Eastern EU economies. There is a problem at the structural level, which means that some significant reforms and tightening of fiscal policies are necessary to recover from permanently imbalanced budgets.

The Central and Eastern EU economies need to generate primary surpluses (instead of primary deficits) in order to have the potential to achieve sustainability in their public finances in the long run.

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Streszczenie

DŁUGOTERMINOWE ZRÓWNOWAŻENIE FINANSÓW PUBLICZNYCH W KRAJACH EUROPY ŚRODKOWEJ I WSCHODNIEJ NALEŻĄCYCH DO UE

Głównym celem artykułu jest zbadanie poziomu długoterminowego zrównoważenia finansów publicznych w krajach Europy Środkowej i Wschodniej należących do Unii Europejskiej. Tak postawionemu celowi towarzyszy następująca hipoteza badawcza: brak zdolności do generowania pierwotnych nadwyżek budżetowych i szybko rosnące wartości zadłużenia publicznego uniemożliwiają osiągnięcie zrównoważonego systemu finansów publicznych. Metoda badawcza oparta jest na wskaźnikach wzrostu PKB i długu publicznego oraz na zdyskontowanych wartościach pierwotnych sald sektora finansów publicznych na poziomie wartości zrealizowanych oraz strukturalnych. Okres badań stanowią lata 2000-2014. Dane pozyskano z Eurostatu, Dyrektoriatu Generalnego Komisji Europejskiej ds. Ekonomicznych i Finansowych oraz z Europejskiego Banku Centralnego.

Słowa kluczowe: *dług publiczny, saldo pierwotne, zrównoważenie*

10.1515/cer-2015-0029

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Catching Up And Falling Behind: Four Puzzles After Two Decades Of Post-Communist Transformation

Abstract

After more than two decades since the exit from Communism, no former communist country has been completely successful in catching up with the technological frontier countries. However, they divide into two groups: those which decreased the GDP gap with frontier countries since 1989-1990, and those which failed to do so. One may ask: What were the decisive causal conditions for their progress or failure in convergence? Were they the early implementation of Washington consensus style market reforms; their neighbourhood with advanced affluent countries; peaceful transition; accession to the EU; endowment with natural resources; state sovereignty before post-communism; or interactions between these factors (or others)? Because of the small N, statistical analysis is not an appropriate tool for testing these hypotheses. Hence this paper uses qualitative comparative analysis to identify four explanatory puzzles of the catching-up growth performance of the post-communist countries.

Keywords: *Post-communism, catching up growth, qualitative comparative analysis, market reforms, location, EU membership, war, natural resources, statehood*

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1. Introduction

The aim of this contribution is to compare the vertical mobility of the former communist countries during the first two decades of post-communist transformation and explore the causes their variation by means of qualitative comparative analysis. By vertical mobility I mean progress in the convergence (or catching up) with affluent technological frontier countries, which World System analysis describes as the capitalist world system (CWS) core countries (Wallerstein 2000; 2004). According to the belief popular during the time of the "extraordinary politics" (Balcerowicz 1995, pp. 265–273) in the early 1990s, market reforms were supposed to enable former post-communist countries to join the club of affluent countries during the span of one generation or so. This belief helped to endure the hardships of "shock therapy", but it was not fulfilled in any former communist country. Even if complete convergence with CWS core countries in only two or three decades was too high an expectation, some progress in convergence can be considered as a necessary condition for describing post-communist transformation as economically successful.

In the next (second) section, I present my measure of the economic success of post-communist transformation ("American standard"), then describe the data and explain the selection of the cases and of the time frame. This section closes with the division of the cases set into two subsets, one of them encompassing the "failures" and another the "successes" of post-communist transformation. Such a dichotomic construction of the outcome variable is a technical necessity for the application of the crisp sets qualitative comparative analysis (csQCA), which I use in this contribution. The third section discusses the selection of explanatory conditions, and the fourth section identifies four puzzles of post-communist transformation, which must be resolved in order to improve generalized explanations of the success and failure of the catching up post-communist development. The paper closes with a list of the puzzles and with a discussion of the limiting conditions (features of good solutions) with respect to the solutions of these puzzles.

2. Background, data and cases

Convergence or catching up with advanced Western countries is a consensual long-run national development goal in all former communist countries. To measure the progress towards this goal, public opinion makers and analysts in the new EU member states most frequently use the index of gross domestic product (GDP) per capita at purchasing power parity (PPP), in

percentage of the EU average (since 2014, the EU-28). The EU average as a benchmark works rather well in measuring the convergence progress since 2004, which was the accession year for most of formerly communist countries, which became EU members. However it has serious drawbacks if applied to all post-communist countries or if the comparison intends to cover the entire period since the demise of communism.

Firstly, many former communist countries (e.g. former Soviet Union republics, now independent states in Central Asia) do not aspire and/or do not have real chances to become members of EU. Therefore the Eurostat GDP data covers only a part of the formerly communist countries. Secondly, although for new EU member countries Eurostat provides cross-country and cross-time comparable data (in purchasing power standards; PPS), it does so only for the time since the mid-1990s. Thirdly, with every new (relatively poor) member joining, the "EU mean standard" benchmark value sinks. For example, if Ukraine and/or Turkey join the EU, many countries which have accessed EU in 2004 will converge with the EU during just one year.

Therefore, I prefer the "American standard" to assess the progress in convergence. Such measurement involves the comparison of the GDP per capita at PPP of a specific country with that of the US (US=100 %) at two points of time. Convergence progress means decreasing the GDP gap with the US, while lack of such progress means that this gap has increased or remains unchanged. To apply the "EU mean standard", it is necessary to calculate the EU GDP per capita mean value at PPP, which is a very complicated procedure not only because of changes in the EU composition, but also due to the increasing internal heterogeneity of the EU in terms of size and levels of development of individual members. To measure the convergence with the US it is enough to compare relative changes of GDP per capita at PPP in the US with those in the country of interest during a specified period, or the mean annual growth rates in both countries. Under this proposed operationalization, to converge or "catch up" simply means growing more rapidly than the US. Thus the economic success of post-communist transformation means the reduction or closing of the GDP gap with the US, while failure encompasses the increase of this gap or its remaining unchanged.

To assess convergence progress I use the World Development Indicators (WDI) database, compiled and regularly updated (presently up to six times during a year) by the experts of World Bank. As of 2015, it provides 1343 data series for 249 countries, some of them starting in 1960. However, for most countries that were parts of Soviet Union and Yugoslavia, the data starts with 1990, which thus imposes itself as the base year. The few exceptions are the former Yugoslavia republics with transitional political identities during first

post-communist decade – their data series start at later dates.[1] To maximise the comparability, they are dropped from the case population. The year 2014 is the latest date for which the most recent (as of July 2015) WDI release provides the data about in the GDP per capita at PPP (in 2011 international $).

However, there are several difficult problems with the choice of 2014 as the endpoint of the time period. The absence of data points for 2014 in the data series of some countries is only minor problem, which can be solved by choosing 2013 as the end year. The major problem is created by the efforts of the World Bank experts to update WDI. They convert (deflate) nominal GDP into real GDP, changing the benchmark year every five years, with 2005 and 2011 used in the most recent updates. Disappointingly, these changes are accompanied by the disappearance of datapoints for former years for some countries. These data gaps may remain unfilled for years, as happened with the GDP per capita at PPP values for the 1990-1994 periods in the data series for Croatia and Estonia. They disappeared in the 2012 July WDI release and still remain empty as of now, i.e. in July 2015. The 2014 December release is the last WDI version, providing the GDP per capita values for Slovenia in 1990-1994. The disappearance of data points for Lithuania 1990-2004 in the most recent update (July 2015) is no less inconvenient.

These and other minor gaps in the most recent releases of WDI databases reduce the population of post-communist countries, depriving the researcher of many crucially interesting cases. Comparing available releases of WDI, I came to the conclusion that the WDI 2012 May release provides most encompassing picture of the growth performance of the former communist countries during the first two decades of transformation. Most data series in this release end in 2010, providing the possibility to compare the convergence performance during the first two post-communist decades. These decades encompass the transformation recession in the early 1990s, the boom years in early 2000s, and the 2008-2009 crisis. In addition, in 2010 most post-communist countries were already recovering from the crisis, so 2010 as a closing point may provide an optimal observation point for the objective assessment of the economic successes or failures of post-communist transformation during the two decades since the exit from communism.

[1] Reflecting the fact that Bosnia and Herzegowina split into three parts during the civil war (1992-1995), and is still not a fully integral state. Kosovo was under Serbian sovereignty at this time.

Table 1. GDP per capita at PPP (in 2011 international $) growth performance in 1990-2010

Nr.	Country	1990	2010	2010 % (1990=100)	Catching up
1	Albania	3,910	7,658	196.9	1
2	Armenia	2,938	4,901	166.8	1
3	Azerbaijan	4,754	8,913	187.3	1
4	Belarus	6,434	12,494	194.2	1
5	Bulgaria	7,529	11,490	152.7	1
6	China	1,101	6,816	619.6	1
7	Croatia	13,387	16,128	120.5	0
8	Czech Republic	16,367	22,575	138.0	1
9	Estonia	10,146	16,561	163.2	1
10	Georgia	6,138	4,552	74.2	0
11	Hungary	13,120	16,958	129.3	0
12	Kazakhstan	7,089	10,916	154.0	1
13	Kyrgyzstan	2,524	2,008	79.6	0
14	Laos	937	2,288	244.2	1
15	Latvia	10,109	12,948	128.1	0
16	Lithuania	12,500	15,534	124.3	0
17	Macedonia	8,523	9,192	107.9	0
18	Moldova	4,583	2,790	60.9	0
19	Mongolia	2,435	3,620	148.7	1
20	Poland	8,182	17,352	212.1	1
21	Romania	7,853	10,921	139.1	1
22	Russia	12,626	14,183	112.3	0
23	Serbia	11,602	9,598	82.7	0
24	Slovakia	12,693	20,164	158.6	0
25	Slovenia	16,455	25,048	152.2	1
26	Tajikistan	2,961	1,940	65.5	0
27	Turkmenistan	3,749	7,422	198.0	1
28	Ukraine	8,063	6,029	74.8	0
29	**USA**	**31,899**	**42,297**	**132.6**	**N/A**
30	Uzbekistan	2,002	2,786	139.2	1
31	Vietnam	905	2,875	317.7	1

Source: WDI 2012 May release. N/A (not applicable) applies for the US, which is the benchmark country.

Table 1 provides the GDP per capita at PPP data excerpt from the 2012 May release of WDI. The value 1 in the last column indicates that GDP per capita of a country did increase more than that of US in 1990-2010 (132.6%, 1990=100%), implying a reduction of the GDP gap or progress in convergence.[2] The value 0 in this column indicates that the distance separating country from the World Champion increased or remained unchanged. The data set includes China, Vietnam and Laos, which some public opinion makers still consider as communist. However, with working market economies and booming private enterprise they are capitalist countries if measured by the Marxist and Weberian ideas of capitalism, and so they can be considered as cases of (maybe incomplete) post-communist transformation (cf. Norkus 2012, pp. 42-49).

3. Explanatory conditions and some findings

In this section I explore the explanatory power of six variables, which are most frequently referred to as conditions of economically successful post-communist transformation in the transition studies and by influential public opinion makers (see Table 2). They can be rather compellingly dichotomized, which is important for the application of the non-standard techniques of the data analysis – crisp set qualitative comparative analysis (csQCA). The standard technique of the statistical test of causal hypotheses in the macroeconomic research is statistical regression analysis. The obstacle to application of the standard technique – regression analysis – is the rather small N size (N=30). The country-years as cases is an easy way to circumvent this obstacle technically, but this solution is exposed to the (in)famous "Galton's problem" (Ross and Homer 1976; Schaefer 1974; Schweizer 1987). These predicaments are part of the reasons for using the alternative data analysis technique – qualitative comparative analysis (QCA).[3]

The obvious first candidate in the list of relevant conditions of successful catching up growth are early market reforms (variable "market"). Given the time frame of present analysis, I will classify those countries which implemented all basic market reforms by the end of first post-communist decade (around 2000)

[2] Actually, in many former post-communist countries the GDP per capita in 2010 was below the 1990 level.

[3] For instance, see Ragin 1987; 2000; 2008; Rihoux and Ragin 2009; Caramani 2009; Schneider and Wagemann 2012; Berg-Schlosser 2012; Thiem and Duşa 2013; Norkus and Morkevičius 2011.

as "early reformers" (coded by 1). This would leave another decade for these reforms to deliver fruit. For presentation of the reasons for the codings of the specific countries with respect to this variable, see Norkus 2012, pp 77-88.

The next candidate for inclusion into the list of causal conditions favouring the success of catching up is the neighbourhood of an advanced affluent (CWS core) country (Lankina and Getachew 2006). I will code the variable „neigh" with 1 for the post-communist countries which have a land or sea border (no further than some 100 miles) with such countries. Therefore, Albania (sea border with Italy) and Estonia (sea border with Finland) are coded 1 alongside with the Slovenia, Hungary, Czech Republic, and Poland. However, because of its huge size Russia is coded with 0, even though it borders Finland and Norway by land, and the U.S. and Japan by sea. For the same reason, China is coded 0, although it has sea border with Taiwan, which is just another China by the official definition of Taiwan itself.

Countries with "good" neighbours in Europe had the best chances of access to EU. However, there are post-communist countries neighbouring advanced EU countries (e.g. Albania) which are still not EU members. On the other hand, some new members of EU do not border affluent advanced countries (Latvia, Lithuania, Slovakia, Bulgaria, Romania). So the neighbourhood of a rich advanced country and EU membership are two different causal conditions. I code the variable "eumem" (EU membership) with 1 if a post-communist country joined EU in 2004 (Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Slovenia) or 2007 (Bulgaria and Romania). With respect to the two last cases there may doubts about the relevance of only three membership years. However, according to recent research on "Europeanization", there are strong "anticipation effects" (Campos et al. 2013, pp. 18-23) on growth during the accession process (as soon as the international business community becomes convinced that upcoming EU membership is a sure thing). Other authors explain the positive growth impact of upcoming EU membership by the institutional reforms undertaken while harmonizing national legislation with the *acquis communitaire* – the body of law common to all EU countries (e. g. Karmazinaitė et al. 2014, pp. 83-84).

The next candidate for inclusion into the list of the most causally powerful conditions for the variation in the economic success of post-communist transformation is endowment with natural resources (variable "endow"). If a country is richly endowed with marketable natural resources (oil, gas, minerals etc.), receiving natural resources income (rent), it is coded with 1, and otherwise with 0. According to newly established wisdom, "oil rent" is a mixed blessing, causing military conflicts, "Dutch disease" or the establishment and survival of authoritarian regimes (Colgan 2013; Luong and Weinthal 2006; Ploeg and Venables 2012; Ross 2015; Wick and Bulte 2009). However, the same authors

emphasize that this is not an unavoidable outcome, but depends on other interacting conditions. So one may ask: What do the lessons of post-communism teach about this intensely discussed topic?

There are no such discussions about the positive versus negative impact on catching up impact of the next condition. This is the variable „war“– Was a country involved in an interstate or intrastate (civil) war, including large scale ethnic violence? If this was the case during the two decades examined, the variable is coded with 1, and otherwise with 0. In contrast to the variables “market” and “eumem”, timing is not an issue, because war can not only complicate the exit from communism but also destroy its achievements at every later time, no matter how modest they were.[4] I code with 1 all former Yugoslavia republics included into my population of cases, with the exception for Slovenia. Although this country fought the Ten-Day independence war (27.06-07.07.1991) against the Yugoslavian federal army, this war did not bring about significant destruction due to its short duration and the low intensity of military action (Cox 2005, pp. 79-82).

Importantly, the list of post-communist countries ravaged by wars does not includes any country which was at least nominally sovereign under communism. This invites us to consider the status of sovereign states with internationally recognized borders before the exit from communism (variable “indep”) as an important asset, and the absence of such status as a liability during the first decades of post-communist transformation. This pre-communist independence can be considered as a condition favouring the catch-up with CWS core countries because polities without such a status faced the challenge of a triple – and sometimes fourfold – transition (nation building, state making, market reforms, democratic transition), while independent states had to cope only with the challenges of market reforms and of democratization (Kuzio 2001; Offe 1991). So I code all post-communist countries which were internationally recognized states at the time of the exit from communism with 1, and by 0 the countries which had no such status.

The data from Table 2 were processed using TOSMANA software (Cronqvist 2011). Table 3 is the configuration table, where rows contain countries with similar initial conditions for catching up growth. Four configurations are contradictory (rows with C in final column), with similar initial conditions leading to different outcomes (some countries are catching up, and the rest are not). As a matter of fact they are most interesting for the case-oriented causal analysis of the variations in the outcomes of post-communist transformation. I will discuss them separately in the next section, skipping the causal patterns in the non-contradictory configurations.

[4] The Russian-Ukrainian “hybrid war” is beyond the temporal scope of my analysis, so Ukraine is coded with 0.

Table 2. Explanatory conditions of the catching up development in the post-communist world

Nr.	Country	market	neigh	eumem	endow	war	indep	catch
1	Albania	0	1	0	0	0	1	1
2	Armenia	0	0	0	0	1	0	1
3	Azerbaijan	0	0	0	1	1	0	1
4	Belarus	0	0	0	0	0	0	1
5	Bulgaria	0	0	1	0	0	1	1
6	China	0	0	0	0	0	1	1
7	Croatia	0	0	0	0	1	0	0
8	Czech Republic	1	1	1	0	0	1	1
9	Estonia	1	1	1	0	0	0	1
10	Georgia	0	0	0	0	1	0	0
11	Hungary	1	1	1	0	0	1	0
12	Kazakhstan	0	0	0	1	0	0	1
13	Kyrgyzstan	0	0	0	0	1	0	0
14	Laos	0	0	0	1	0	1	1
15	Latvia	1	0	1	0	0	0	0
16	Lithuania	1	0	1	0	0	0	0
17	Macedonia	0	0	0	0	1	0	0
18	Moldova	0	0	0	0	1	0	0
19	Mongolia	0	0	0	1	0	1	1
20	Poland	1	1	1	0	0	1	1
21	Romania	0	0	1	0	0	1	1
22	Russia	0	0	0	1	1	1	0
23	Serbia	0	0	0	0	1	0	0
24	Slovakia	1	0	1	0	0	0	1
25	Slovenia	1	1	1	0	0	0	1
26	Tajikistan	0	0	0	0	1	0	0
27	Turkmenistan	0	0	0	1	0	0	1
28	Ukraine	0	0	0	0	0	0	0
29	Uzbekistan	0	0	0	1	0	0	1
30	Vietnam	0	0	0	0	0	1	1

Source: own elaboration.

Table 3. Configuration table of the conditions of the catching-up post-communist growth. Created with Tosmana Version 1.3.2.[5]

Country	market	neigh	eumem	endow	war	indep	catch
Albania	0	1	0	0	0	1	1
Armenia, Croatia, Georgia, Kyrgyzstan, Macedonia, Moldova, Serbia, Tajikistan	0	0	0	0	1	0	C
Azerbaijan	0	0	0	1	1	0	1
Belarus, Ukraine	0	0	0	0	0	0	C
Bulgaria, Romania	0	0	1	0	0	1	1
China, Vietnam	0	0	0	0	0	1	1
Czech Republic, Hungary, Poland	1	1	1	0	0	1	C
Estonia, Slovenia	1	1	1	0	0	0	1
Kazakhstan, Turkmenista, Uzbekistan	0	0	0	1	0	0	1
Laos, Mongolia	0	0	0	1	0	1	1
Latvia, Lithuania, Slovakia	1	0	1	0	0	0	C
Russia	0	0	0	1	1	1	0

Source: own elaboration.

While the main reason for skipping them is due to space limitations, an additional substantial reason is that contradictory configurations cover the majority (17 out of 30) of the observed configurations. This means that patterns covering only completely consistent configurations can explain only 43.3% of total N, leaving beyond their scope those cases which may matter most for readers of this contribution: Poland, Czech Republic, Hungary, Slovakia, Latvia, and Lithuania. So long as contradictory configurations remain unresolved, the generalizations over the non-contradictory configurations that are derived by the Boolean minimization (this is the core procedure of QCA) are of minor value.

Therefore in the next part of this paper I focus on the inconsistent configurations. Importantly, without the resolution of these inconsistencies Boolean minimization can contribute to the explanation of the positive outcomes, but not to that of the negative outcomes, because there is only one non-contradictory configuration with a negative outcome, which covers only one case (Russia). For only one configuration, Boolean minimization is just not applicable. In the entire population, there are 12 failures of post-communist transformation, which make up 40% of the total case population. The explanation of only one case out of 12 (8.3% of total failures) is a very poor record, and the analysis of contradictory configurations is the only way to improve it.

[5] Letter C in the last column refers to contradictory configurations.

4. Puzzles of the catching up development: discussion of contradictory configurations

The discovery of "middle range" generalizations the is only one among the several purposes for which QCA can be used. Another one is the identification of problems for research of the case study type, which focuses on the "abnormal" (deviant, crucial or extreme cases). In terms of the improvement of the explanatory power (total coverage of the solution), the resolution of the contradiction in the first configuration (see Table 3) may be the most promising. This configuration or Boolean product (market_ref × neighbo × eumemb × endowm × WAR × indep_st), covers eight cases, or 26.6% of N.[6] All countries covered by this configuration are former republics of Yugoslavia and the Soviet Union and did suffer from inter-state or civil wars. As expected, most of them failed to reduce the GDP per capita gap with the U.S. However, one cannot say that war precludes the catching up development. There are two exceptions: Armenia and Azerbaijan, which fought each other in the Nagorno-Karabakh war in 1992-1994.

The success of Azerbaijan can be explained by its rich natural resource endowments (oil and gas), which provided income (rents) that were more than sufficient to compensate for war losses and to finance a post-war military build-up. However, the relatively good performance of Armenia is real puzzle. Although this country was the war victor, it remains under economic blockade by Turkey and Azerbaijan. Landlocked by these hostile powers, and by the not much friendlier Georgia and Iran, it is in a rather adverse geographical position to communicate with the outer world. In order to keep Azerbaijan's revenge in check, and with no reliable allies, heavy military spending is a necessity (see Adalian 2010; World Bank 2002). So how does one explain that its catching up performance was not much worse than that of its adversary Azerbaijan (see Table 1)? Was it due to a strong entrepreneurial spirit, allegedly characteristic for the Armenian nation, Armenian diaspora investments, or something else that helped Armenia perform better than could be expected given the adverse conditions?

The configuration (market_ref × neighbo × eumemb × endowm ×war × indep_st), which covers two cases – Belarus and Ukraine – represents next puzzle. There is huge disparity in their growth performance: while Belarus nearly doubled its GDP per capita during its two post-communist decades, Ukraine did not even manage to attain its 1990 level (see Table 1). While the similarity in the growth performance between Armenia and Azerbaijan is

[6] Variable names in capital letters refer to value 1, and those in lower case to value 0.

puzzling because of the huge advantages in the initial conditions favouring Azerbaijan, the disparity between Belarus and Ukraine is puzzling because of the similarity of the initial conditions of the post-communist development between the two countries. Both these former Soviet republics were populated by strongly russified Eastern Slavic populations, had similar historical destinies, and their economic structures were very similar. Perhaps Ukraine was even better endowed due to its favourable conditions for agricultural production and its greater share of industries with the potential to compete on the world market.

According to the most influential and frequently provided explanations, Belarus just profited from Russian subsidies: owing to political reasons, Russia sold oil and gas to Belarus below the world market prices and opened privileged access to its market for goods from Belarus which were not competitive on the world market. So the Belorussian "economic miracle" is either a myth or is built on very shaky foundations (see e.g. Wilson 2011). The problem with this explanation is that until the recent Maidan revolution in February 2014, Ukraine also benefited from Russian energy subsidies. A *prima facie* plausible explanation may be the differences in the post-communist political economies of these countries. While post-Soviet Ukraine may be considered as a textbook case of political oligarchic capitalism, Belarus' may serve as the ideal type of state capitalism (Norkus 2012: 119-132). While Russian subsidies to Ukraine ended in the pockets of Ukrainian oligarchs, those to Belarus were used more productively (Balmaceda 2013).

Another puzzle is the difference in the catching up performance between Hungary and the other Visegrád countries (Poland, the Czech Republic and Slovakia). The failure of Hungary is puzzling not only because of the similarity in the initial conditions of the post-communist development of these countries, but also because of the Hungarian record as the most advanced country in terms of market reforms during the late communist period. It was also very successful in its early attraction of foreign direct investments (see e.g. Walder 1995; Stark and Bruszt 1998; King 2001). Hungary's case is also important as an illustration of the perils in failure to maintain pace in the catching up development. The failure can have political consequences, destabilizing established post-communist regimes. So why did Hungary perform worse in the catching up development than other Visegrád countries?

The last puzzle is the uneven pace of catching up in the Baltic States. While there were no remarkable differences in the initial conditions of post-communist transformation (except the greater ethnic homogeneity of Lithuania), Estonia managed to build the reputation of a "star performer" in the post-communist transformation already by the end of first post-communist decade (Laar 2002), while the record of Latvia and Lithuania was rather mediocre. The

most obvious explanation of this difference for populations of Baltic countries is the geographic and cultural vicinity of Finland, which helped Estonia to win the inter-Baltic contest over FDI and in many other respects (Lauristin and Vihalemm 2009; Lauristin et al. 2011; Norkus 2012: 201-295). However, a systematic comparison of post-communist countries within the framework of QCA discloses similarities between Latvia and Lithuania on the one side, and Slovakia on another, which make the explanation by location too easily-applied. Slovakia, which shared similar initial conditions with Latvia and Lithuania, displayed a much more impressive catching up performance. Like Latvia and Lithuania, Slovakia has no direct border with any rich affluent capitalist country. So which causal condition(s) then decided upon this difference?

5. Conclusions

Going against canonic grains, I close with a list of questions for further research:

1. The Armenia versus Azerbaijan puzzle: How did the first country did display such catching-up growth despite the gruelling war with Azerbaijan in 1992-1994, heavy defence spending, and its absence of the resource income (rents) which fuelled the catching up growth of its foe?
2. The Belarus versus Ukraine puzzle: How does one explain the huge disparity in the catching up performance of these two former Soviet republics, which were very similar in terms of history, culture, economic and social structure at the time of the USSR's dissolution?
3. Hungary versus the other Visegrád countries puzzle: Why, despite the significant progress in the marketization of its economy already before the demise of communism, was Hungary's catching up performance worse than that of other Central European countries which bordered rich affluent 'old' EU members?
4. The Baltic puzzle: why two of three Baltic States – Latvia and Lithuania – did perform much worse in catching up than Estonia and the Visegrád country of Slovakia, which is most similar in the framework of the six chosen variables disclosing the most important explanatory dimensions of similarities and differences between the former communist countries?

There is an important constraint on any proposed answers to these puzzles. A proposed solution should not be *ad hoc*, i.e. apply to only one of the puzzles in question. With four such solutions, the number of initial conditions would expand to 10, and the number of theoretically possible configurations of initial conditions would grow to 1024. In light of such an expansion of the set of

explanatory conditions, there would not be any more contradictory configurations, but most (if not all) observable configurations would have only one instance. While such a solution may satisfy a historian with his or her "idiographic" leanings, this would be a rather disappointing outcome for social researchers because of their generalizing ambitions.

The best possible solution for four all puzzles would be only one additional explanatory condition, which would dissolve the contradictions in all four problematic configurations, allowing to differentiate between cases with positive and negative outcome. The next best solution would involve two new variables. A solution introducing three new variables would only be slightly better than the patchwork produced by four new variables.

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Streszczenie

DOGANIANIE CZY POZOSTAWANIE W TYLE: CZTERY ZAGADKI PO DWÓCH DEKADACH TRANSFORMACJI POSTKOMUNISTYCZNEJ

Po ponad dwudziestu latach od upadku komunizmu, żaden z byłych krajów bloku komunistycznego nie był w stanie całkowicie dogonić krajów technologiczne przodujących. Jednak, kraje postkomunistyczne można podzielić na dwie grupy: te, którym udało się zmniejszyć lukę w produkcie krajowym brutto (PKB) w stosunku do krajów technologiczne przodujących, i te, którym nie udało się tego zrobić. Nasuwa się zatem pytanie, jakie uwarunkowania zadecydowały o powodzeniu lub niepowodzeniu konwergencji? Czy to było wczesne wdrożenie reform rynkowych w stylu Konsensusu waszyngtońskiego; Sąsiedztwo zaawansowanych gospodarczo krajów zamożnych; spokojny, pokojowy przebieg transformacji systemowej; przystąpienie do Unii Europejskiej, zasobność kraju w zasoby naturalne, skala suwerenności państwa przed transformacją lub interakcje między tymi czynnikami (lub inne czynniki)? Ze względu na małą liczebność próby (N), analiza statystyczna nie jest odpowiednim narzędziem do testowania tych hipotez. Dlatego w artykule zastosowano jakościową analizę porównawczą identyfikując cztery zagadki w wyjaśnianiu przyczyn powodzenia lub klęski wzrostu doganiającego w krajach postkomunistycznych.

***Słowa kluczowe**: postkomunizm, wzrost doganiający, jakościowa analiza porównawcza, reformy rynkowe, lokalizacja, członkostwo w UE, wojny, zasoby naturalne, państwowość*

10.1515/cer-2015-0030

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Determinants Of European Banks' Capital Adequacy

Abstract

This paper examines the factors affecting the Common Equity Tier 1 Ratio (CET1), which is a measure of the relationship between core capital and the risk-weighted assets of banks. The research is based on a randomly selected sample from the group of banks examined by the European Central Bank authorities. The ECB conducted stress tests assessing the CET1 Ratio with respect to the Basel III regulations. The findings confirm the hypothesis about the impact of bank size and the risk indicators (risk-weight assets to total assets ratio and the share of loans in total assets) on banks' capital adequacy. They also confirm strong effect of competitive pressure and the negative correlation between the CET1 Ratio and the share of deposits in non-equity liabilities, which may be explained by the existence of the deposit insurance system. Finally the paper presents the limitations of the study and conclusions regarding possible further research in this subject area.

Keywords: *capital adequacy, Basel III, regulatory capital, leverage ratio, Tier*

1. Introduction

The global financial crisis could stand as empirical evidence of the ineffectiveness of the prudential mechanisms of the global financial system. It turned out that banks' capital equipment was insufficient to absorb losses resulting from shocks which were experienced by the markets after the collapse

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of the US mortgage sector. The necessity for government intervention - i.e. recapitalization or, in some extreme cases, nationalization of bank entities paved the way for resumption of the discussion on the optimal capital structure of banks, and led to the adoption of Basel III package in December 2010 specifying new minimum capital requirements for financial institutions.

In 2014 the European Central Bank conducted comprehensive stress tests of 124 European commercial banks, assessing whether they met the requirements of the Basel III Regime. As a result of this assessment, among others, it turned out that the majority of European banks not only meet the minimum criteria of the solvency ratio,[1] which is currently 8%, but structures their liabilities in such a way that this ratio reaches a value much higher than the required minimum.

It is therefore necessary to assume the existence of additional, non-regulatory determinants of the capital adequacy of banks, measured by the level of the solvency ratio (the Cook's ratio, capital adequacy ratio, CAR). A review of the literature also confirms the assumption that when capital structure decisions are made, banks managers do not rely only on prudential regulations.

The study presented in this article aims to assess the impact of various financial indicators on the level of core capital in banks. This will allow to verify a hypothesis assuming the imperative impact of supervising institutions on the safety of the banking sector, and the marginal role of internal mechanisms aimed at increasing banks' stability and resilience to market shocks.

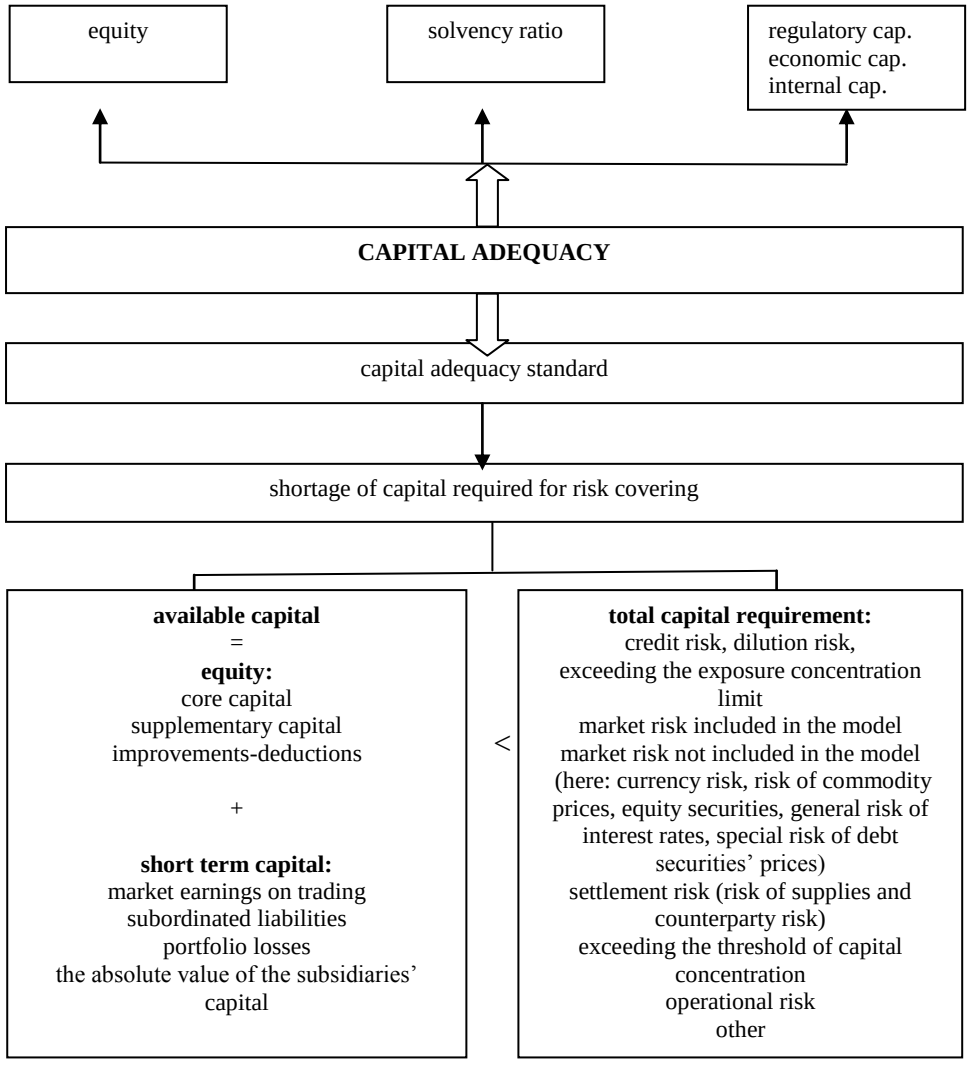
The first part of the article presents the specific nature of the activities of financial institutions in the context of their capital adequacy assessment. Next the concept of capital adequacy and the importance of different categories of capital in minimizing the risk of bank collapse is described and examined. The following part presents a review of the literature related to the determinants of capital structure in financial institutions. Finally, the article describes the assumptions, methodology and results of the author's research. which could be important in the discussion on ways of improving the safety of financial markets.

2. Capital adequacy - definition and evaluation methods

The assessment of bank's capital adequacy is based on an analysis of the level of equity, which consists of regulatory, economic and internal capital, as well as on information about the solvency ratio. This value is then compared with the capital adequacy standard and the possible shortage of capital required for risk covering is estimated (see Figure 1).

[1] The ratio of core capital to risk-weighted assets.

Figure 1. Elements of a bank's capital adequacy assessment



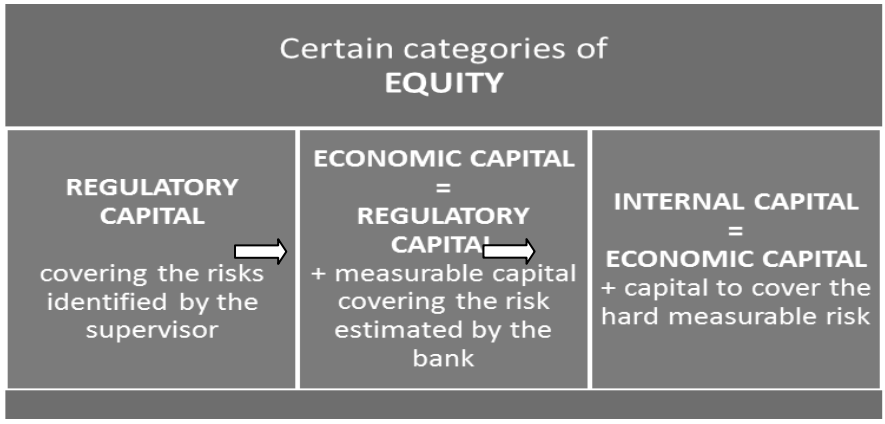
Source: Own study based on: (Capiga, 2010, p.97; KNF, 2010).

The term 'capital adequacy standard' is not defined explicitly by the KNF[2]. However, Annex 20 to Resolution 76/2010 obliges banks to immediately notify the KNF about exceeding the norm of capital adequacy, which means that the supervised bank experiences a shortage of capital to cover potential losses arising from the different types of risk (KNF 2010).

[2] Polish Financial Supervision Authority (pol. Komisja Nadzoru Finansowego).

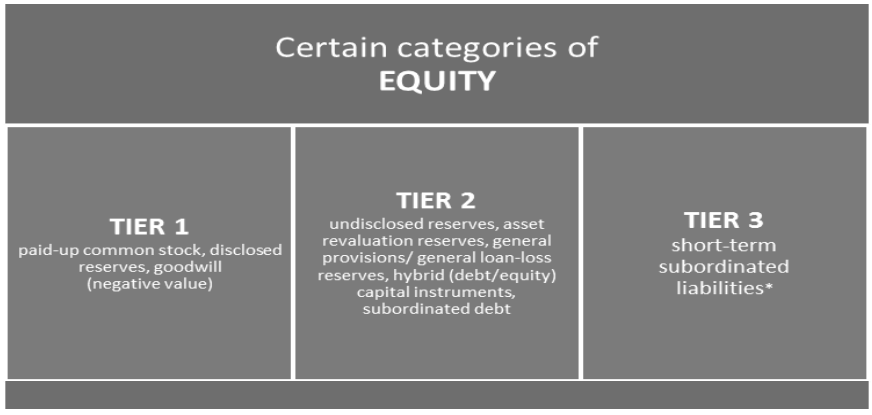
For a full understanding of the capital adequacy issue it is necessary to characterize the various categories of evaluated capital. The criterion of the degree of coverage of each risk occurring in a bank allows it to divide its equity into regulatory, economic and internal capital (Figure 2). It should be assumed that it is the level of equity that sufficiently absorbs any losses resulting (respectively) from the risks identified by the supervisor, the calculated risks measurable by the bank, and the immeasurable risks associated with the occurrence of unexpected losses in a given time horizon (GINB 2005, p.4).

Figure 2. Types of bank capital - classification according to the degree of risk absorption



Source: Own compilation.

Figure 3. Types of bank capital - classification according to the source of origin



*meeting certain conditions (see, for example: (Iwanicz-Drozdowska, 2004, p. 90)

Source: Own study based on: (BCBS 1988, pp. 15-16).

The Basel Committee on Banking Supervision characterizes specific groups of capital according to the source of origin, dividing them into core capital (Tier 1), supplementary capital (Tier 2) and short term capital (Tier 3).

The construction of the capital adequacy ratio (CAR) is based on the above described division and is represented with the following formula:

$$CAR = \frac{Tier1 + Tier2}{r_{cred} + 12{,}5 \times (r_{oper} + r_{mrk})}$$

where:

Tier1 / Tier2 – core / supplementary capital
r_{cred}– exposure to credit risk
r_{oper}- exposure to operational risk
r_{mrk} - exposure to the market risk

As part of Tier 1 capital the Basel Committee additionally distinguishes the Common Equity Tier1 (CET1) and defines the CET1 Ratio, the minimal standard (the minimum ratio of CET1 to risk-weighted assets) of which was established in 2013 at the level of 3.5-4.5%.

According to the Basel III definitions, Common Equity Tier 1 consists of the following:

- common shares issued by the bank that meet the criteria for classification as common shares for regulatory purposes (or equivalent for non-joint stock companies),
- stock surplus (share premium) resulting from the issue of instruments including CET1,
- retained earnings,
- accumulated other comprehensive income and other disclosed reserves,
- common shares issued by consolidated subsidiaries of the bank and held by third parties (i.e. minority interest) that meet the criteria for inclusion in CET1,
- regulatory adjustments applied in the calculation of CET1 (BCBS, 2010, p.13).

For a full explanation of the formula of the CET1 Ratio it is necessary to describe the concept of risk-weighted assets. The value of risk-weighted assets (the denominator in capital ratio formulas) may be calculated using the standard or Internal Rating Based (IRB) approach. In the standard method banks use the regulatory risk weight coefficient, which is based on the quality of the loan quantified by external ratings. However for some institutions (like the BIS, IMF, ECB, EC) the risk weight is always 0%, which means that they are considered solvent at all times by the BCBS (Genest and Brie 2013, p. 5). For different kinds of contracting parties the risk weights are as follows:

Table 1. Risk weights in the standard approach

Rating	Sovereigns	Banks	Corporations
AAA : AA-	0%	20%	20%
A+ : A-	20%	50%	50%
BBB+ : BB-	50%	100%	100%
BB+ : BB-	100%	100%	100%
B+ : B-	100%	100%	150%
Below B-	150%	150%	150%
Unrated	100%	100%	100%

Source: (Genest and Brie, 2013, p. 6).

The IRB method assumes that the bank is able to calculate the risk using internal models, instead of relying on an outside rating agency. This would seem to be more accurate in terms of precisely aligning the capital requirements with credit risk.

3. Literature review

If a bank finds all its instruments with a 0% coefficient, the CET1 Ratio takes the form of a classic indicator of capital structure (Equity-to-asset ratio). The following research can thus be treated as an attempt to evaluate capital structure determinants, which has been one of the most important topics in corporate finance area since Modigiliani and Miller's theorem (M&M) was formulated in 1958. It seems, however, that the decisions on capital in financial institutions should be considered separately because of the unique kind of activities they deal with. The specificity of the activities of the banking sector entities is associated with the characteristic structure of liabilities, dominated by outside funding. The primary sources of funding are liabilities to depositors, which, in Poland represent more than75% of total liabilities (NBP).

Although there are a great number of studies relating to capital decisions in production, service and trading entities, the literature on capital structure in financial companies is limited. Miller (1995) states that there are some fundamental differences in bank financing, but they may not be important enough to overturn M&M Propositions. Berger and Herring (1995) argue that there are two contrary forces that determine a bank’s capital structure. The first - the bank's market capital requirement - causes bank to hold additional capital as a financial slack to take advantage of profitable opportunities or to guard against unexpected losses. This causes a bank to increase its capital buffers. The second force is the

regulatory safety net (deposit insurance, access to the discount window, etc.), which is likely to lower bank capital. Berger and Herring also emphasize the importance of legal capital requirements, as do Osterberg and Thompson (1990) in analyzing the optimal leverage ratio taking into account the balance between the tax advantage of the debt and the costs of bankruptcy.

If one assumes that the legal capital requirements are a key determinant of the capital structure in banks, then the capital equity tier ratios should be constant and equal to the minimum required levels. This statement is in line with Mishkin (2000), who argues that "Banks also hold capital because they are required to do so by regulatory authorities. Because of the high costs of holding capital [...], bank managers often want to hold less bank capital than is required by the regulatory authorities. In this case, the amount of bank capital is determined by the bank capital requirements" (Mishkin 2000, p.227).

There are many studies which call into question the above-mentioned opinion. Barth et al. (2005) assesses the strength of influence of the Basel Committee's regulations on banks' capital level and empirically proves that it is much higher than formally required. Similar conclusions are drawn from the research of Flannery and Rangan (2008). They argue that bank counterparties have strong incentives to monitor and price default risk and that there is a strong cross-sectional relation between capitalization and asset risk. That validates the claim put forward by Berger et al. (2007), according to which financial institutions manage their capital ratios actively and adjust the level of capital to their own targets, set quite above the regulatory minimum.

The legal regulations thus seem not to be important when establishing the capital level determinants. Flannery (1994) maintains that the liabilities structure reflects liquidity risk in the asset portfolio. Myers and Rajan (1998) explain 'the paradox of liquidity' phenomenon, stating that in some circumstances the greater the asset liquidity, the lesser a company's capacity to raise external finance. Diamond and Rajan's (2000) studies show that, apart from liquidity creation, the optimal bank capital structure results from trading off the effects of equity capital on the expected costs of bank distress and the ease of forcing borrower repayment.

Considering the determinants of capital ratios, which reflect a bank's stability and security better than the traditional capital structure indicators, one can find very few studies that relate to specific markets. Ahmad et al. (2009) examines capital ratios in Malaysian banking firms. He finds that risk variables (non-performing loans and the risk index) have a positive correlation with bank capital, while there is no significant association between the bank managers' capital decisions and profitability. This last statement however is not consistent with the prior studies carried out by Berger and Herring (1995) or Saunders and Wilson (2001).

Van den Brink and Arping (2009), who analyze data from 11 countries (the G-10 and Switzerland), prove a negative correlation between size, asset structure (risk weighted assets to total assets) and capital structure (total liabilities to total assets) of a bank. Gropp and Heider (2008) confirm the negative correlation between size and Tier 1 capital, and a positive one between collateral and risk (measured by the asset volatility) and the capital level. They focused their research on 200 largest banks from the US and Europe, also finding that more profitable banks have better capital equipment – which contradicts the conclusions by Ahmad et al. (2009).

Considering the fact that financial markets around the world have become more tightly integrated, an important research was carried out by Mili et al. (2014). It concentrates on 340 subsidiaries of 123 multinational banks and tests whether the subsidiaries' capital ratio depends on the parent banks' fundamentals. The investigation leads to the conclusion that the CAR of the foreign subsidiaries depends on the fragility of the parent bank, the regulatory framework of a parent bank's home country, and the role of the interbank market.

4. Data source and the description of variables

The data came from the SNL Financial database.[3] CET1 Ratios have been taken from the 2014 EU-wide stress test carried out by the European Banking Authority. The test includes 123 banking groups across the EU and Norway, with total assets of EUR 28000 Bln, comprising more than 70% of total EU banking assets (EBA, 2014, p.7). The rest of the financial data was generated with the SNL tools and is based on the banks' financial reports.

The dependent variable, the CET1 Ratio, shows the relation of core equity capital to total risk-weighted assets and is a measure of a bank's financial strength. The fundamental assumption relating to this indicator is that it should be at the level minimizing the cost of debt and maximizing the bank's stability and security.

Taking the above into account it seems very important to define the set of determinants that affect the CET1 Ratio. Hence I examine the strength of influence of the following: bank's size (ln assets), profitability (ROA), alternative cost of the capital (ROE), competitive pressure (average country CAR1 ratio), share of deposits in non-equity liabilities, asset risk (risk-weighted assets/total assets), asset structure (loans/total assets) and macroeconomic uncertainty

[3] http://www.snl.com/

(average country inflation rate). The last three measures may be treated as a set of risk indicators as they show the level of risk connected with bank instruments, structure of assets. and the external market conditions.

Asset size however is also strongly risk-related. Wong et al. (2005) prove that larger banks have better risk management techniques than smaller ones. This is why they need less capital to maintain the same level of uncertainty. Besides, they can relatively easily cover their capital requirements from external sources due to their stronger market position. Thus it is usually argued that asset size is negatively correlated with capital adequacy.

Profitability, normally measured through return on total assets of the bank, tends to be positively correlated with the capital level. This is consistent with the pecking-order theory suggesting that retained earnings are a better source of funding than debt, and debt is better than equity (Myers 1984). It implies that, for a pre-set level of investments, capital adequacy (which includes retained earnings) is higher for more profitable companies. This is also in the line with the dynamic trade-off theory (Hennesy and Whited, 2005), according to which every entity establishes its capital structure taking into consideration the benefit (tax deduction) and cost (bankruptcy), and finally it can be proved that profitable firms tend to be less highly leveraged (Murray and Goyal, 2005).

An increase of the alternative cost of the capital, the most suitable measure for banks of which is the return on equity (ROE), causes a decrease of the willingness of banks to hold more capital (Asarkaya and Ozcan 2007). This will probably result in a lower level of the capital adequacy ratio.

The cost of the capital varies depending on the instruments of non-equity liabilities. Deposits are usually thought to be a cheaper source of funding than borrowing. Therefore if there is a decreasing in the share of deposits in total liabilities, there is a higher cost effect related to other borrowing using financing sources. That cost decreases the bank's profitability, which leads to a lower capital level, as was explained above with the pecking-order and dynamic trade-off theories. Nevertheless it should be mentioned that according to the static trade-off theory more profitable firms retain less capital to shield their profits from corporate income tax (Bradley et al. 1984).

Competitive pressure should affect the CAR 1 ratio as a kind of benchmark. The higher the indicator maintained by other market players, the higher is the motivation to get the same level of trust, as the amount of core capital can be perceived by clients as a guarantee of security. Another reason for adjusting the level of capital adequacy to the business environment is to attempt to get at least the same ratings as the competitors.

The main risk indicator - the relation between the risk-weighted assets and the total assets, would be expected to be positive as more risky assets require a higher capital buffer. However the correlation is often negative because of the difference in the risk perception - the assets that a regulator rates as a high level of risk are not found to be so risky by the managers (Wong et al. 2005). Another reason could be the deposit insurance system, increasing risk appetite, which results in a higher risk and higher balance sheet total financed mainly by deposits, with a relatively lower level of equity capital.

The share of loans in total assets generally indicates the level of assets' risk, since the lending of funds is always connected with some level of uncertainty related to the borrower. Therefore a bank with more risky assets should balance out the higher risk with the better capital coverage. Besides, the larger the share of loans, the lesser the share of tangible assets which provide the creditors with a guarantee that the money they lend will be repaid (Kamran et al., 2014). This causes more difficulties in financing with debt and affects the capital proportion by increasing the share of equity in total liabilities.

The last dependent variable put into the model - average country inflation rate - could be a measure of market uncertainty, as inflation uncertainty is a key and distinct element of a general uncertainty about the future (Clements and Galvao 2014). The higher the average inflation rate the higher the uncertainty, which should result in an increase in the CET1 Ratio.

5. Data and preliminary statistics

The presented random sample covers 22 European countries, includes 49 banks and consists of 441 observations of 2013 financial and macroeconomic data. The given sample allows for the estimation with a 95% confidence level and +/- 0.11 confidence interval (measurement uncertainty).

As shown in Table 2, the surveyed banks are large - with an average asset value at the level of 292 billion Euro, and median 73 billion Euro. This observation could also have arisen from the EBA's stress-test assumptions, which examined the largest bank groups in Europe and Norway. But although all entities are considered to be large, there is nevertheless a great heterogeneity among the sample - the biggest had an asset value at the level about 1,810 billion Euro (PNB Paribas), and the smallest at about 3 billion Euro (ABLV Bank).

One can observe a similar situation with respect to the other variables. The RWA/TA ratio varies from 1.71 (which means that the risk weights of

assets is almost negligible[4]) to 78.75. There is also a great spread in the structure ratios – from 0.23 to 0.85 considering the share of loans in assets, and from 0.05 to 0.93 when deposits in non-equity liabilities are considered.[5] Profitability indicators are even more diversified – with negative means between the level -0.39% and -7.02%, but positive medians at the level 0.22% and 5.03% for ROA and ROE respectively. The lowest profitability ratios apply to two Slovenian banks - Nova Kreditna Banka Maribor d.d. (ROA – 13.25% and ROE – 227.19%) and Nova Ljubljanska banka d.d. (ROA – 10.45% and ROE – 136.38%). It should be noted that they are essentially higher (in absolute value) than the rest of the sample and the Slovenian banking sector was the only one in East-Central Europe that reported a loss in 2013. Moreover, Nova Kreditna Banka Maribor d.d. was put up for sale and its securities were invalidated.

As far as the dependent variable is concerned, the case of Nederlandse Waterschapsbank N.V. seems to stand out once again. If it is deleted then the mean is lower than the median and stands at 12.44%, which is still much higher than the required 4.5%. The lowest CET1 Ratios are reported for banks in Cyprus and the United Kingdom.

Table 2. Descriptive statistics

	mean	median	st. dev.	Max	min
CET1 Ratio (%)	13.66%	12.99%	9.06%	72.51%	5.22%
RWA/TA	44.12	43.90	19.00	78.75	1.71
loans/TA	0.57	0.60	0.16	0.85	0.23
Inflation rate (%)	1.08	1.22	0.95	2.56	-0.92
ROA (%)	-0.39	0.22	2.80	4.08	-13.25
av. CET1 Ratio	13.76%	12.29%	5.51%	32.51%	6.25%
ROE (%)	-7.02	5.03	43.22	46.65	-227.19
TA (000)	291 837 159	73 006 000	471 944 418	1 810 522 000	3 316 077
dep/ n-eq. liab	0.55	0.55	0.22	0.93	0.05

Source: Own study.

[4] The case of Nederlandse Waterschapsbank N.V. (NWB Bank) which provides services for the public sector.

[5] The 0.05 ratio concerns the Nederlandse Waterschapsbank N.V. again.

Table 3. Correlation matrix

	CET1 Ratio	*RWA /TA*	*Loans /TA*	*infl.*	*ROA (%)*	*av. CET1 Rat.*	*ROE (%)*	*lnA*	*dep/ n-e liab*
CET1 Ratio	1.00								
RWA/TA	-0.39	1.00							
loans/TA	0.21	0.32	1.00						
Infl.rate (%)	0.24	-0.36	-0.19	1.00					
ROA (%)	0.03	-0.17	0.06	-0.13	1.00				
av. CET1 R.	0.60	-0.47	0.24	0.37	-0.01	1.00			
ROE (%)	0.03	-0.16	0.04	-0.15	0.97	-0.07	1.00		
lnA	-0.04	-0.50	-0.11	0.22	0.25	0.11	0.27	1.00	
dep/ n-e liab	-0.37	0.52	0.17	-0.18	-0.12	-0.21	-0.15	-0.46	1.00

Source: Self study.

Table 3 displays the correlation matrix of the variables used in the regression analysis. The risk-weight assets/total assets ratio, deposits/non-equity liabilities ratio, and asset size are negatively correlated with the dependent variable, whereas the loans/total assets ratio, profitability indicators, average CET1 Ratio, and average country inflation rate are positively correlated. These results are consistent with the preliminary assumptions, with two exceptions. The return of equity and deposits/non-equity liabilities have the opposite signs than expected. However, if the Nederlandse Waterschapsbank N.V. is deleted as the extreme case, the correlation for ROE is negative and for deposits/non-equity liabilities is much weaker (-0.18).

The highlighted values are these with strong correlation. The CET1 Ratio is strongly correlated with country average CET1 Ratio, which would seem to be obvious taking into account that the country average was estimated on the basis of the banks included in the sample. There is also near 100% association between the ROE and ROA indicators, as they have the same numerator (net income). The RWA/TA ratio correlates positively with deposits/non-equity liabilities and negatively with average CET1 and assets size. There is also negative relationship between the asset size and the deposits to non-equity liabilities, which can be explained by the fact that the largest banks look for other, more sophisticated sources of funding than deposits.

6. Econometric analysis

The baseline specification of the regression model is premised on finding the level of CET1 Ratio as a function of the above-mentioned variables, and can be formulated as follows:

$$\text{CAR1 Ratio} = \alpha_1+\alpha_2\text{RWA/TA}+\alpha_3\text{loans/TA}+\alpha_4\text{av.CET1 Ratio}+\alpha_5\text{lnA}+\alpha_6\text{dep/n-e liab}$$

The author used the OLS regression model, assuming that this is the normal, independent distribution and constant variance of errors. Table 4 shows the regression results for the determinants of the core capital adequacy ratio.

Table 4. Regression results for all explanatory variables - dependent variable: CET1Ratio

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.481878	0.162819	2.9596	0.00516	***
RWATA	−0.00130862	0.00082835	-1.5798	0.12203	
loansTA	0.144916	0.0772822	1.8751	0.06809	*
Infl	0.00940736	0.0118075	0.7967	0.43031	
ROA	−0.0193789	0.0163494	-1.1853	0.24289	
avCET1	0.6373	0.256732	2.4824	0.01735	**
ROE	0.00138569	0.00107791	1.2855	0.20600	
lnA	−0.0214507	0.00736717	-2.9117	0.00585	***
depneliab	−0.136857	0.0548051	-2.4972	0.01674	**

Mean dependent var	0.136626	S.D. dependent var	0.090646
Sum squared resid	0.176780	S.E. of regression	0.066479
R-squared	0.551776	Adjusted R-squared	0.462131
F(8, 40)	6.155138	P-value(F)	0.000036
Log-likelihood	68.27637	Akaike criterion	−118.5527
Schwarz criterion	−101.5264	Hannan-Quinn	−112.0930

Source: Own study.

On the basis of the above-presented estimation it can be seen that some preliminary predictions are not confirmed. ROA and ROE coefficients are not consistent with the sign predicted, nor is the ratio of deposits to non-equity liabilities. The negative sign of the ROA coefficient may be an argument for the accuracy of the static trade-off theory. The positive sign of the ROE coefficient is not be analyzed because of its relatively low value. However, the negative correlation between bank adequacy and the deposits to non-equity liabilities ratio seems to be very important. Decreasing the amount of core capital with the increase

of the share of deposits in the liabilities structure may be a result of the deposit insurance system. The deposit guarantees protect banks against the risk of loss, so they may feel it is not necessary to retain more capital buffer for protection.

After adjusting the model by deleting the variables with p-value exceeding 0.05, the following results are obtained:

Table 5. Regression results for statistically significant explanatory variables - dependent variable: CET1Ratio

	Coefficient	Std. Error	t-ratio	p-value	
const	0.478304	0.15952	2.9984	0.00450	***
RWA/TA	−0.00143133	0.000808409	-1.7706	0.08372	*
loans/TA	0.138081	0.0733777	1.8818	0.06664	*
avCET1	0.599553	0.228639	2.6223	0.01203	**
lnA	−0.019787	0.00708813	-2.7916	0.00779	***
dep/n-eliab	−0.14482	0.0537508	-2.6943	0.01002	**

Mean dependent var	0.136626	S.D. dependent var	0.090646
Sum squared resid	0.186367	S.E. of regression	0.065834
R-squared	0.527470	Adjusted R-squared	0.472525
F(5, 43)	9.599909	P-value(F)	3.32e-06
Log-likelihood	66.98257	Akaike criterion	−121.9651
Schwarz criterion	−110.6142	Hannan-Quinn	−117.6586

Source: Own study.

Thus the final equation takes the following form (standard errors in parentheses):

CET1Ratio = 0.478 - 0.00143*RWA/TA + 0.138*loans/TA + 0.600*avCET1 - 0.0198*lnA - 0.145*dep/n-eliab (0.160) (0.000808) (0.0734) (0.229) (0.00709) (0.0538)

The analysis fails to confirm the impact of profitability indicators and the inflation rate on the capital adequacy ratio. Nevertheless, most of the findings are in line with the rest of the predictions from the theory. In particular, risk-weighted assets to total assets ratio negatively affects the CAR1 Ratio, which confirms the difference in the risk perception within the regulatory authorities (or internal risk models) and the managers. One could also explain the above described phenomenon with the hypothesis that banks conducting more risky activities (having more risky assets) are managed with a less conservative prudential policy as well. It has been confirmed, however, that more loans in total assets implicates a more prudential capital structure, which refutes this latter assumption. Banks expanding their lending activities seem to strengthen their source of funding by increasing the level of core capital.

There is also a significant impact of competitive pressure in terms of prudential standards and the predicted negative correlation between the CAR1 Ratio and the bank size. Larger banks feel more safe despite their lower capital buffers. This could be connected with the "Too Big To Fail" doctrine (TBTF), which should be revised as one of the causes of the financial crisis. The issue of deposits to non-equity liabilities ratio has already been analyzed and should be considered important when discussing the terms and conditions of a deposit insurance system.

7. Limitations and conclusions

The main limitation with respect to the presented research is the non-random selection of the banks that were examined by EBA, although the 49 banks selected in the sample were randomly chosen, which allows for drawing conclusions in terms of the banks which survived the EBA stress tests. Irrespective of this limitation, the results seem to be significant since they cover more than 70% of total EU banking assets.

The taking into account of only banks examined using the stress-tests was motivated by the fact that CET1 calculations according to Basel III require a detailed specification of equity structure, which is normally not reported in the financial reports. The EBA engaged competent authorities, including the ECB for the Eurozone banks, who were responsible for checking the quality of the data submitted by the banks. In this respect, the EBA has provided competent authorities with a reasonably constrained methodology and consistent data definitions and templates (EBA, 2014a). This should establish a guarantee of the correctness of the data, especially concerning the capital categories. For this reason it was impossible to work out the analyses for previous years. The implementation of Basel III regulations will enable researchers to conduct this kind of research in the future.

Regardless of these limitations, the study provided important findings involving the determinants of the Common Equity Tier 1 Ratio. They prove the different perception of risk assessment made by managers and authorities, as can be concluded from the fact that the higher the risk weights of assets, the lower the capital buffer. Furthermore, banks with a more risky asset structure try to increase their level of security by raising the core capital level. At the same time, banks with a higher total value of assets and higher share of deposits in their non-equity liabilities seem to feel more protected by the externalities (the TBTF doctrine and the deposit insurance regulations). This causes them to tend to lower the CET 1 Ratio while increasing the assets value or the share of deposits in their liabilities structure.

The last significant variable - that stays for the competitive pressure - is positively correlated with capital adequacy, which is justifiable on the basis of likely benefits taken from higher ratings and shareholder confidence. The higher the competitors' CET1 Ratio, the greater are managers' efforts to catch up with the approximate market level so as to be as reliable as the others.

The findings reject the hypothesis of the impact of profitability indicators and the average inflation rate on capital adequacy. Nevertheless, the model explains the CET1 Ratio variation with 53%. And as capital adequacy is the most important prudential indicator in the banking sector, it is necessary to continue researches taking into consideration other financial and macroeconomic measures and some corporate governance data as well. It would also be useful to include lagged variables to incorporate feedback over time.

Pointing out a complete set of bank capital structure determinants should be crucial for regulatory purposes and the working out of good banking practices. It is important to know most of the elements influencing the level of the capital and to be able to effectively increase the stability and security of the banking sector.

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Streszczenie

DETERMINANTY ADEKWATNOŚCI KAPITAŁOWEJ BANKÓW EUROPEJSKICH

W artykule przedstawiono analizę czynników wpływających na poziom wskaźnika CET 1 ratio, będącego miarą relacji pomiędzy kapitałem podstawowym banku a aktywami ważonymi ryzykiem. Badaniu poddano próbę losowo wybraną z grupy banków uczestniczących w tzw. stress-testach przeprowadzonych przez władze Europejskiego Banku Centralnego. EBC przeprowadził testy warunków skrajnych oceniając m.in. poziom współczynnika CET1 obliczanego według regulacji wynikających z III Reżimu Bazylejskiego. Wyniki potwierdzają hipotezę o wpływie wielkości banku i wskaźników ryzyka (aktywa ważone ryzykiem do aktywów ogółem; udział pożyczek w aktywach ogółem) na poziom adekwatności kapitałowej. Potwierdzono również silny wpływ konkurencji, a także ujemną korelację między wskaźnikiem CET1 i udziałem depozytów w zobowiązaniach kapitałowych, którą można uzasadnić istnieniem systemu gwarantowania depozytów. W końcowej części artykułu przedstawiono możliwe słabości przeprowadzonych badań, wynikające z nich ograniczenia wnioskowania oraz koncepcje ewentualnych dalszych analiz przedmiotowego obszaru tematycznego.

***Słowa kluczowe**: adekwatność kapitałowa, Bazylea III, kapitał regulacyjny, wskaźnik lewarowania, kapitał Tier 1*

10.1515/cer-2015-0031

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Economic Factors Concerning The Migration Of The Best Educated Workers. The Case Of College Teachers

Abstract

The migration flow of highly skilled workers is a growing and changing issue, especially under the economic conditions in recent years. This research focused on the migration of university teachers, a highly skilled collective responsible for the training of future skilled workers and also the innovation of a country through their research. An empirical analysis of migration flow of this collective and its relation with economics factor in Europe in the last decade showed that earnings are a key factor explaining variations in the migration flow of university teachers over time. Furthermore, considering the real purchasing power and the effect of personal taxes, it would be possible to show which countries are more relevant to the decisions of this collective on migration. Thus, the higher the purchasing power, the greater the number of university teachers who migrate to a given country. Hence those countries that keep or increase the earnings level of university teachers, especially during an economic depression, can attract or maintain highly skilled workers. In addition, the results showed that unemployment is a push factor for migration for these best educated workers.

Keywords: *international migration, economic factors of migration, university teacher's migration, highly skilled workers*

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1. Introduction

The migration of highly skilled workers is a noteworthy question. It entails important economic consequences for any country, such as higher added value, highly skilled workers and economic progress (Hawthorne 2009; Krisciunas and Greblikaite 2007), especially in the time of global and growing migration in Europe (Kaczmarczyk and Okólski 2008).

University teachers represent a highly skilled collective. They are responsible for the future training of skilled workers and also they decisively contribute to the innovation of a country through their research.

Hence all changes in this collective should be given special attention, especially if they decide to settle down in other countries. While decision to migrate is also related to non-economic reasons, such as the reputation of the host organization, etc. (Eurydice, 2012), the economic aspects constitute the main factor in this decision (Papademetriou and Sumption 2011; Schierup et al. 2006).

Economic factors have a different impact on migration owing to their continuous variations over time (Aceleanu 2011), especially with respect to different and changing economic cycles (Stulgienė and Daunorienė 2009). Further, activities connected with research and development conducted in the university have a significant impact on the evolution of the economic cycles of any country (Fix et al., 2009; Krisciunas and Greblikaite 2007).

However, the literature on the migration of highly skilled workers is focused on brain drain at the general level. In the case of academic research it is limited to the migration of primary and secondary education teachers (EACEA´s 2012), in particular because it is very difficult to obtain relevant data.

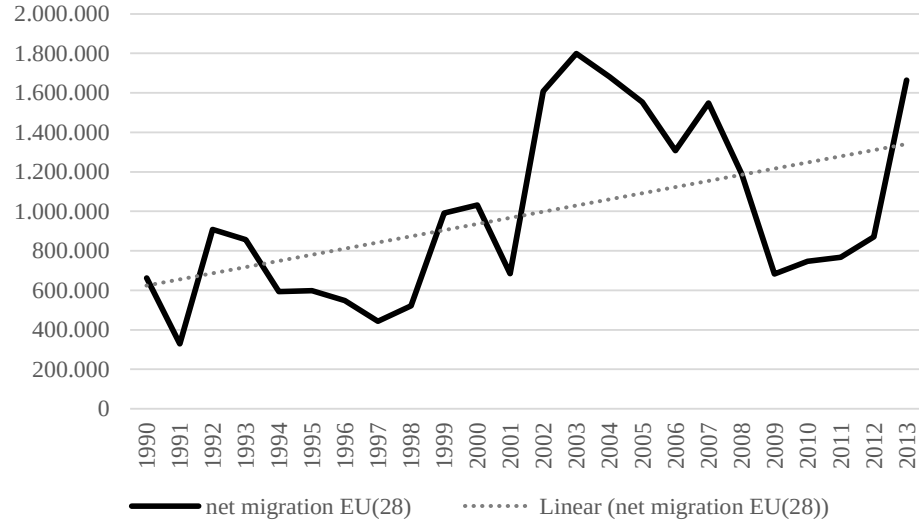
Therefore, this paper analyses the migration of university teachers and the impact of variations of economic factors on this migration flow. This research analyses the literature and empirical data from the Organisation for Economic Cooperation and Development statistics (OECD) and Eurostat. The contents of this paper are organised into the following sections: introduction, theoretical background, methodology and discussion, and concluding remarks.

2. Theoretical background

Net migration in Europe (the difference between the number of immigrants and the number of emigrants during a period of at least 12 months) has been growing since the second half of the twentieth century, and especially from 1990

to the present (see Figure 1). Each country has a different situation, according to their differences in economic, demographic and social factors. (Aceleanu 2011).

Figure 1. Net migration plus statistical adjustment in Europe since 1990



Source: Eurostat (2015).

Economic factors are the main factors in migration (Čiarnienė and Kumpikaitė 2011; Cushing and Poot 2004). For these reasons this analysis focuses on such factors. Among these factors are earnings, consumer prices, personal income tax, gross domestic product, unemployment, and public investment (Kumpikaitė and Žickutė 2012; Stulgienė and Daunorienė 2009).

Several studies have analysed worker migration, but only a small proportion are dedicated to the highest educated workers, an issue which is called 'brain drain'. (Daugeliene and Marcinkeviciene 2009). Krisciunas and Greblikaite (2007) analysed migration conditions in the European Union countries of 'knowledge workers'. Bagdanavičius and Jodkoniene (2008) examined brain drain according to push-pull factors for qualified specialists, scientists, and students.

Mobility of university teachers is an important and necessary aspect in this profession in order to improve learning. Even national institutions encourage it because it enables the development of a scientific network and the improvement of human capital (Kilijonienė et al. 2010).

With respect to earnings, they encompass gross annual earnings before any tax deductions and social security contributions (Eurostat, 2015). Earnings imbalances between regions causes workers move to other regions in order to

obtain higher earnings (Jennissen 2003; Zimmermam 1996). Thus, a reduction in earnings imbalances could encourage the return of emigrants to their native countries (Boman, 2011). In addition, this analysis also pointed out that migrants decide to stay in new countries when their earnings increase.

The harmonised index of consumer prices (HICP) is widely used for international price comparisons, so it is also indicated to compare the living costs for migrants Mihi-Ramírez and Kumpikaitė 2013). In this sense EACEA (2012) evaluated earnings with respect to their purchasing power (prices). Price imbalances in different countries could be analysed according to purchasing power parities (PPPs) per capita, which reflect differences in the volume of goods and services produced (OECD, 2015).

While a higher level of personal income tax negatively affects disposable incomes, it also is linked to a better welfare system (Kumpikaitė & Žickutė 2012). Both personal income taxes and consumer prices have increased in Europe in recent years, reducing the purchasing power (Mihi-Ramírez and Kumpikaitė 2013).

The gross domestic product (GDP) per capita is used for international comparison between countries in order to evaluate different levels of development. Higher levels of development could be a prerequisite for a reduction of migration (Mixon 1992). The evolution of GDP (economic cycles) can also condition migration flows, but with different intensity according the situation of each country (OECD 2015).

Van der Gaag and Van Wissen (2008) demonstrated that the level of unemployment was the most important reason for international migration in the Netherlands, Germany and England. When unemployment grows in a given country, emigration increases, and vice versa (Kumpikaitė & Žickutė 2012; Martinoia 2011). Likewise the unemployment of workers with the highest education demonstrates the level of labour market demands for an educated labour force, and a low demand has negative consequences for the economy of any country (Glinskienė and Petuškienė 2009).

According to Eurostat (2015), expenditures on education favour economic growth. Such expenditures are structured by the governments of each country of Europe. Expenditures on education are analysed in combination with economic variables because they are considered an investment that enhances the prosperity of a country, diminishing the unemployment rate and emigration (De Haas 2010).

3. Methodology and Discussion

The growing trend in migration in Europe, as shown in Figure 1, changes according to the economic circumstances (Reher and Requena 2009; Rey and Cebrán 2010). Therefore, an empirical analysis should take into account the evolution of the migration and those economic factors affecting it. The migration data was collected from several sources: OECD, Eurydice, national statistics, and Eurostat.

This research analyses how the number of university teachers who migrate is explained by the following economic factors: Gross Domestic Product (GDP), Harmonized Index of Consumer Prices (HICP), public expenditures on education in universities (EXPENDITURE), earnings of university teachers (EARNINGS), unemployment (UNEMPLOYMENT) and personal income tax (TAX).

The sample includes 32 countries of Europe: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom (EU28), as well as Iceland, Norway, Switzerland and Turkey. The analysis of migration flow was performed taking into account its evolution over time (Cushing & Poot 2004), focusing on three economic cycles: the economic recession in Europe in 2002; the economic expansion (2006); and the latest crisis (2010).

Description of variables

The number of researchers and teachers at the tertiary level is determined based on collected data from the National Statistics Offices, Eurydice, OECD, and Eurostat. The number of annual contracts is an essential requirement for any worker and are officially registered by the National Ministries, which include statistical information such as native country, occupation, age, etc. Thus inconsistencies in the collection of available data are eluded.

The earnings of teachers and researchers is calculated taking into consideration the total gross yearly salary given by Eurostat and Eurydice in Euros, adjusted by a corrective coefficient to improve the precision of the study data. The yearly salary consisted of gross earnings paid during a year by the employer before tax deductions and social security contributions. The corrective coefficient is the most recent update of Power Purchase Parities (PPPs) by Eurostat. The application of the corrective coefficient selected is as follows:

Annual Earnings in Euros divided by PPPs. These salaries can be compared in terms of standardised PPS, taking into consideration the different costs of living in each country.

The HICP provide the official measure of consumer price inflation in the euro area and is produced by National Statistical Institutes and also collected by Eurostat.

Personal income tax is applied to the gross wage earnings plus the employee's social security contributions, less universal cash benefits, expressed as a percentage of gross wage earnings. The tax rate corresponds to a typical married couple with two children, where both spouses earn 100% of the average wages.

Gross Domestic Product (GDP) is the main indicator of economic development of any country and is calculated on an annual basis by Eurostat.

Unemployment data is collected from Eurostat and includes all persons between 15 and 74 years that are not working and are registered in the employment services.

Expenditure on education at the tertiary level is compiled by OECD and Eurostat through educational questionnaires that cover expenditures on universities and other public and private institutions delivering or supporting educational services, including instruction services, ancillary services for students and their families, and research expenditures by educational institutions. Around 77% of total public expenditure on education in Europe consists of teachers' salaries (Eurostat, 2015).

Results and Discussion

Several scientific works have used correlations and multiple linear regression research about migration. Vojtovich (2013) analysed migration flow and its relation to GDP in Slovakia through correlations and regressions. Schulzek (2012) studied immigration and economic factors in several OECD countries. Chun and Griffith (2011) examined internal migration in the United States. Dreher and Poutvaara (2005) focused on students' migration flow in the United States. Zhan and Song (2003) analysed the migration of several regions of China. In addition, Zimmermam (1996) studied migration flow in Germany.

Therefore, we used correlations and multiple linear regression in this research.

The correlation coefficients for the years 2002, 2006 and 2010 were calculated with the aim of analysing what extent the predictors (Arah et al. 2008) - i.e. earnings, HICP, tax, unemployment, GDP and expenditure - are associated with endogenous variables, i.e. migrant university teachers.

Migrant university teachers are significantly and positively associated with the number of university teachers who migrated and earnings (r=0.916 (2002); 0.936 (2006) and 0.972 (2010) respectively, P<.001), and also with the personal income tax (r=0.870; 0.898 and 0.904 respectively, P<.001). This relation is stronger over time. In the case of the unemployment it is negatively associated with the number of university teachers who migrated (r=-0.781, -0.969 and -0.789 respectively, P<.001). This result underlines the role of unemployment as a push-pull factor. An unemployment increase denotes a migration decrease and vice versa (Mihi-Ramírez and Kumpikaitė 2013). Thus, during the economic stabilisation of 2006 the number of migrants was reduced due to the better economic conditions in the sender countries, and higher unemployment would imply a lower inflow of migrant teachers.

In addition, the results showed that earnings are associated with tax and also with unemployment, but in this latter respect it is negative (the higher the earnings, the less unemployment and vice versa, (r=-0.554 (2002); -0.867 (2006) and -0.763 (2010) respectively, P<.001). Earnings were higher during the periods of economic growth and the unemployment rate was the lowest in the analysed period. We attempted to explain the relationships between:

- Earnings and the number of university teachers who migrate.
- HICP and the number of university teachers who migrate.
- GDP and the number of university teachers who migrate.
- Unemployment and the number of university teachers who migrate.
- Expenditures for education and the number of university teachers who migrate.

The variables followed a normal distribution (K-S test) and our model met the assumptions with respect to linearity (R(X,Y)), independence (Durbin-Watson), and homoscedasticity (p. F-Snedecor) (Arah et al. 2008).

Moreover, changes in the economics factors explained 97.9% of the changes in the number of university teachers who migrated (see Table 1).

Although earnings is the most decisive variable in explaining university teachers' migration, the results of our analysis showed that personal income tax was also meaningful.

Table 1. Standardized parameter estimates of the determinants of the numbers of migrant university teachers in Europe

Constant		24340.20 (1.86)
Earning		-0.58 (-2.58)
hicp		257.93 (0.16)
Tax		-748.05 (-1.37)
GDP		-0.52 (-2.93)
Unemployment		3.99 (0.87)
expenditure		15.13 (9.47)
Pearson's correlation coefficient R(X,Y)		0.989
Coefficient of determination R2		0.979
Durbin-Watson		2104,00
F-Snedecor		115.96
Average	**Earning**	29753.66
	hicp	2.10
	Tax	22.18
	GDP	434390.16
	Unemployment	875.86
	Expenditure	5632.10
Standard Deviation	**Earning**	16678.15
	hicp	2.04
	Tax	6.81
	GDP	650894.22
	Unemployment	1170.90
	Expenditure	7641.82
Kolmogorov-Smirnov	**Earning**	0.75
	hicp	0.74
	Tax	0.59
	GDP	1.53
	Unemployment	1.52
	Expenditure	1.10

dependent variables:teachers
explanatory variables: earnings, hicp,tax, gdp, unemployment, expenditure
Numbers in parentheses are t-statistics

Source: own elaboration.

Hence, earnings are the main factor to explain variations in the number of university teachers who migrated.

According to EACEA (2012), application of a corrective coefficient considering the power purchase parities (PPPs) could reduce the differences between the remunerations of different countries by 26%, but the existence of different tax rates throughout the European and Associated Countries has the most significant impact on the nominal wages, reducing differences in the cost of living (r=0.987, 0.983 and 0.961 respectively, P<.001, table 1).

Therefore, earnings after fiscal deductions improve the attractiveness of any research location. As a result the highest earnings, taking in account the PPPs and personal income taxes, could help to benchmark attractive research locations (EACEA, 2012). In this sense, Figure 2 shows a map of the attractiveness of various countries for migrant teachers at tertiary level in 2010, based on Eurostat data about PPPs and using the tax rate corresponding to a married couple with two children.

Figure 2. Map of attractiveness of European countries for migrant teachers according to the PPPs level after taxes, 2010

Source: own elaboration based on Eurostat data.

According to this methodology, and based on the results of our research, earnings were the main reason for the migration of university teachers in Europe in the last decade. In this respect, Luxembourg, Switzerland, Ireland, Cyprus and Austria were the most attractive countries for such highly skilled workers in 2010.

This result extends to ISCED level 5-6 the EACEA´s (2012) results for teachers at ISCED level 1-4. Therefore this issue is an imperative element in designing an appropriate policy for keeping teachers and researchers and attracting more highly skilled workers, which improves the economic development of a country.

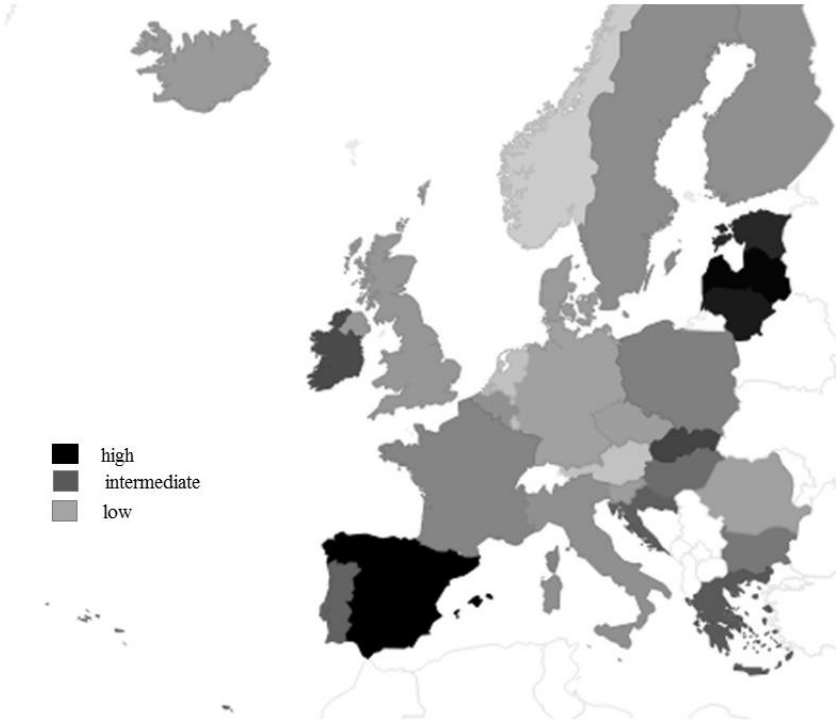
Furthermore, according to data from Eurostat and Eurydice (2013) during the economic recessions of the last decade a large number of European countries adopted a policy of salary restrictions for teachers. Taking in account the strong association between personal income tax and earnings, and also the number of migrant teachers (Tables 1 and 2), a nominal earnings reduction would decrease their purchasing power, and also would reduce the attractiveness of these countries for migrant university teachers. Thus several countries, such as Denmark, Estonia, Czech Republic, Finland, Norway, Poland, Latvia, Luxembourg, Iceland, Romania, Slovakia, Sweden and Switzerland, have tried to increase the nominal earnings of teachers in order to maintain or increase their purchasing power, although an absolute growth in earnings does not always translate into a real growth due to rises in the cost of living (Eurodyce 2012), (Figure 3).

Figure 3. Changes in the level of the nominal statutory earnings of teachers in Europe

Source: own elaboration based on Eurostat data.

Additionally, the results addressed the significant but negative association between the number of migrant university teachers and unemployment (r=-0.781, -0.969 and -0.789 respectively, P<.001, see Table 1). Thus, during the economic downturn of 2002 and 2010 the higher unemployment level in a country implied a reduction in the number of university teachers who migrated to that country. And during the economic stabilization of 2006 the opposite effect occurred. For instance, Figure 4 shows the level of the unemployment rate in Europe in 2010 (the higher unemployment rate, the lower the number of university teachers migrating to that country).

Figure 4. Map of attractiveness of European countries for migrant teachers according to the unemployment rate in 2010



Source: Eurostat, 2015.

4. Concluding remarks

This article has analysed the role of economic factors in the migration of university teachers, focusing on the three different economic stages of the last decade for 32 countries of Europe, with the aim of analysing how the economic factors affect the migration of high skilled workers to a particular country, which can strongly contribute to the economic development of a country.

The results showed a significant association between the number of university teachers and earnings. Further, this association became stronger over time. Thus earnings are the main factor explaining changes in migration flows of university teachers.

Additionally, personal income tax was significantly associated with the number of university teachers who migrated, and also with their earnings. Therefore, taking in account the impact of taxes on earnings it would be possible to show which countries are more attractive in the decision to migrate. Thus, including the purchasing power parity (PPP) is be an excellent method to analyse the real attractiveness of a country. The higher the PPP, the larger the number of university teachers who migrate to that country. Therefore those countries that keep or increased the earnings level of their teachers, especially in downturn moments, could attract or maintain such highly skilled workers as university teachers.

Contrary to this, our results showed unemployment is a push factor for migration for the best educated workers. This finding could be added to literature about the relation between unemployment and migration (e.g. Vojtovich 2013; Zimmermam 1996).

If, after reading this article, the reader would like to know more about the labour conditions of the higher education system of the European countries analysed, Appendix 1, based on Eurodyce, 2012, shows them in detail and is attached at the end of this article.

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Appendix 1

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Austria

Planning Policy	By 2015 roughly one fifth of the 1,900 professors who are employed for an unlimited duration will be emeriti or retired. This makes it possible for universities to restructure and gives them the option to *increase their proportion of women*. The number of tenured university teachers decreased to 4,662 employment relationships by late 2010, 963 fewer or 17% less than 2007. There were even higher proportions of civil servants among professors according to §98 of the University Act (52%) and readers (93%). In 2010 a total of 315 appointments were recorded. In 2008 and 2009 the proportion of women was, at 34.6%, higher for professorships of limited duration than for those of unlimited duration (23.7%). A share of 40.9% of those appointed in 2008-2010 came from a university or employer in Austria, 48.2% from countries of the European Union.
Professional Status	The collective bargaining agreement which has been valid for all 21 public universities since October 2009 forms the basis of the law of personnel management pursuant to the 2002 University Act.
Salaries	According to the collective bargaining agreement entered into between the umbrella organisation of universities and the Union of Public Service for employees of all universities, the minimum entry salary for university assistants is € 2,398 (including two to four weekly hours of teaching a semester) at the beginning. For assistant professors the minimum salary is € 3,270, for associated professors € 4,142, and for an appointed university professor € 4,360.

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Greece.

Planning Policy	The appropriations granted every year by the Ministry of Education for the Teaching and Research Faculty Staff, are distributed by the Senate of the Universities to the Departments and by the general assemblies of the Departments to the Sectors. The Rector announces the opening, following the decision of the relevant Department, in the framework of the four-year academic-development programme and the relevant programme agreements, and after the Institution has conducted a legality control.
Professional Status	Higher Education Teaching Staff members are public servants. The Institutions' teaching staff is divided into ranks. Teaching staff progression from one rank to the next requires that the abovementioned conditions be met.
Salaries	Average monthly salary €1.773 (Eurostat 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Belgium.

Planning Policy	Current legislation does not define any planning policy with regard to higher education.
Professional Status	The function of a member of the teaching staff can be modified by the executive board, on the advice of the body responsible for his/her workload, after asking the views of the staff member in question, and with due consideration of the latter's qualifications and rights.
Salaries	Salary supplements depend in particular on: • the possession of special diplomas; • social programming (end-of-year bonus); • exercising a selection-grade, promotion-grade or better paid function. Average monthly salary €3.910 (Eurostat 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Spain.

Planning Policy	The Education Authorities, both the Ministry of Education, Culture and Sport (*MECD*), the Regional Ministry or Department of Education of each Autonomous Community, are responsible for managing the conditions of service for professors of university institutions. There are also several bodies for coordinating the education policy where these entities and other ones reach agreements on the teaching staff. When all the necessary agreements are reached, the universities themselves, depending on their needs, publish their own public vacancies for teaching staff, both for the teaching bodies and the staff on a contractual basis.
Salaries	Average monthly salary €2.172 (Eurostat 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Lithuania.

Planning Policy	competence of every higher education institution
Professional Status	Teachers and management staff are employees working under a contract of employment concluded with a higher education institution concerned.
Salaries	4 April 2007, in Resolution No. 337 teachers' position-based salary coefficients: 22.7–40.9 (€761–€1,371) for professors; 15.6–31.8 (€523–€1,066) for associate professors; 13.2–24.2 (€441–€811) for lecturers; and 13.2–16.7 (€441–€560) for assistants.

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Sweden

Planning Policy	competence of every higher education institution
Professional Status	Teachers are state employees.
Salaries	Salaries at all institutions are individually negotiated between the teacher, the employer and a trade union, and there are no salary scales and not rules on minimum or maximum years of work before obtaining any specific salary level. Average monthly salary €3,617 (Eurostat 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Latvia	
Planning Policy	The Action Plan for Necessary Reforms of Higher Education 2010-2012 envisages that the number of new doctors has to be increased especially for multidisciplinary study fields. The Plan envisages regular evaluation of the efficiency of doctoral study programmes in terms of enrolment and number of graduates. The planned number of new doctors graduated in 2010-2012 is 600. Implementation of the objective is supported by the European Structural Fund programme.
Professional Status	In general teachers do not have a civil servant status. Employment terms and conditions are defined by the Law on Institutions of Higher Education and by the contract, and the collective agreement if there is such. The employment contract with a person elected to an academic position (professor, associate professor, docent, lecturer or assistant) is signed by the rector of higher education institution for the period of election – six years. The contract may be prolonged.
Salaries	Professor average monthly salary €928 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Estonia.	
Planning Policy	In Estonia, there is no national planning policy for academic staff working in higher education.
Professional Status	All academic staff in universities and professional higher education institutions is employed on the basis of employment contracts.
Salaries	. Average monthly salary €1.121 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Poland.	
Planning Policy	The responsibility for teaching staff policies and planning for the higher education sector rests with the Ministry of Science and Higher Education, established on 5 May 2006, following the division of the former Ministry of Education and Science into the Ministry of National Education and the Ministry of Science and Higher Education.
Professional Status	Academic teachers are employed on the basis of appointment, providing greater legal protection, or an employment contract. They may now be employed on the basis of appointment only when they hold a professorial title and are employed on a full-time basis in a given HEI as the place of their primary employment (before the last amendments to the Law on Higher Education (LoHE), teachers were not required to have a professorial title in order to be appointed).
Salaries	. Average monthly salary €1.154 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Cyprus.	
Planning Policy	N/A
Professional Status	Academic staff at the university level are accountable to the governing bodies of the universities.
Salaries	Professors: A15 to A16 (€5208.24 - €6769.96)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Malta.	
Planning Policy	While it is recognised that employing part-time academic/vocational staff (or visiting professionals in the case of UOM) can bring a wider range of educational experiences to the educational institutions involved in higher education, it is the established procedure to first engage full-time academic staff. A call for more lecturing staff (full-time or part-time) will be made by the respective Heads of Department if the incumbent staff is deemed not to be enough.

Professional Status	n/a
Salaries	Average monthly salary €1.680 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Slovakia.	
Planning Policy	The planning policy indicating filling the posts of university teachers has not been worked out.
Professional Status	Higher education institutions are legal entities. The labour-legal relations of employees of the public higher education institutions and the State higher education institutions with an employer are regulated by a special provision, unless set up otherwise.
Salaries	Average monthly salary €1.054 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Switzerland.	
Planning Policy	There is no planning policy at national level. Each university usually takes charge of its own planning policy, in some cases within the framework of the relevant conferences.
Professional Status	Employees at higher education institutions are state, in some cases private employees of the canton, or employees of the Confederation in the case of the Federal Institutes of Technology (FIT), the Swiss Federal Institute for Vocational Education and Training (SFIVET) and the Magglingen Federal University of Applied Sciences for Sports (EHSM).
Salaries	Average monthly salary €5.716 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Czech Republic.	
Planning Policy	The Higher Education Act lays down the obligation of both the Ministry of Education and higher education institutions to publish long-term objectives for institutions of higher education and keep them up-to-date. These long-term objectives are one of the factors on the basis of which the level of subsidies for the public higher education institutions is determined. In the long-term objectives, principal priorities and goals relating to the development of higher education are worked out, The Long-Term Plan for Educational, Scientific, Research, Development, Artistic and Other Creative Activities of Higher Education Institutions for 2011 – 2015.
Professional Status	Academic staff are subject to general labour legislation (only the employees of the state schools with the status of civil servants are governed by specific legislation). The status of academic staff is set by the Higher Education
Salaries	Average monthly salary €1.297 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. France.	
Planning Policy	By virtue of the reform of the teacher-researcher status introduced by decree no. 2009-460 of 23 April 2009 amending decree no. 84-431 of 6 June 1984 defining the status of teacher-researchers and decree no. 93-1335 of 20 December 1993 relative to the decentralisation of certain management operations relating, amongst other things, to teacher-researchers, all routine management actions regarding the career of these personnel which were previously the responsibility of the minister for higher education, are transferred to the presidents of universities and directors of higher education institutions.

Professional Status	Teachers in higher education are Category A civil servants and are therefore subject to the rules that apply to all civil servants.
Salaries	Average monthly salary €3.399 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Italy.	
Planning Policy	n/a
Professional Status	University professors have always enjoyed a particular status and privileges. One privilege is lack of mobility, meaning that they cannot be transferred to another campus without their consent. As regards their activity, the assurance of freedom to teach and carry out scientific research is fundamental, but they must assure their presence for not less than 250 hours per year for the teaching activities, including the participation to the examination boards and degree examination board.
Salaries	Average monthly salary €2.747 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. United Kingdom (England).	
Planning Policy	Recruitment and retention of academic staff is a matter for individual higher education institutions (HEIs).Each higher education institution is responsible for deciding which qualifications and skills it requires to fill a particular post.
Professional Status	Academic staff in higher education institutions (HEIs) are employees of the individual institution. They are considered to be part of the public sector but they are not civil servants. They are not guaranteed employment at any stage of their professional life and must apply for specific posts.
Salaries	Average monthly salary €3.759 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Bulgaria	
Planning Policy	The state exercises its higher education management functions through the National Assembly and the Council of Ministers. The National Assembly approves Higher Education Development Strategy which sets national priorities and aims for higher education development as well as measures for their fulfillment.
Professional Status	Academic staff is appointed in compliance with the general Labour Code and its members do not have the status of state employees.
Salaries	Average monthly salary €505 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Croatia	
Planning Policy	The Draft Strategy on Education, Science and Technology envisages measures for redefining selection criteria and grading system of academic staff as well as redefining of conditions of service in regard of working time, posts, workloads and hiring policy of academic staff.
Professional Status	Academic staff on public higher education institutions are public servants
Salaries	Average monthly salary €1587 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Denmark	
Planning Policy	There is no specific legislation concerning forward planning policy for teacher supply and demand.

Professional Status	In tertiary education, almost all categories are employed on a group contract basis, as this form of employment is gaining more and more ground. In certain areas, the predominant form is however still employment as a civil servant or on civil servant-like conditions, e.g. the educator training colleges. Fixed-term employment is also a widely used form of employment.
Salaries	Average monthly salary €5237 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Finland.	
Planning Policy	There is no national programme or initiative for anticipating the quantitative and qualitative needs of university academic staff as there is for teachers in primary and secondary education. The higher education institutions are themselves responsible for planning policies.
Professional Status	Since the reform of university legislation, teaching staff at universities are appointed in accordance with general employment legislation. In polytechnics teachers generally hold tenured posts as municipal civil servants.
Salaries	Average monthly salary €3479 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Germany.	
Planning Policy	Staff planning in the higher education sector is implemented primarily on the basis of staff appointment plans laid down by the relevant Land ministry; however, the legal situation differs in each Land depending on whether there is a need for such plans and how binding they are. With the increasing autonomy of the higher education institutions, responsibility for staff planning is increasingly devolving on the institutions themselves.
Professional Status	As part of the process of increasing the autonomy of institutions of higher education, the responsibility for appointing Professors as civil servants with limited or unlimited tenure has in several Länder been transferred from the ministries responsible for science to the institutions of higher education. Professors can, however, also be taken on as employees.
Salaries	Average monthly salary €3584 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Hungary.	
Planning Policy	n/a
Professional Status	The professional status of teachers is similar to that of school teachers. The Act on Higher Education determines professional conditions of employment. That includes a clear criminal record, unobstructed capacity to act, a Master degree and compliance with the requirements of the institution. The most usual type of employment in tertiary education is for an unspecified period.
Salaries	. Average monthly salary €1175 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Iceland.	
Planning Policy	There is no planning policy in Iceland on educational staff working in higher education.
Professional Status	University teachers are state employees.
Salaries	25.357€ (Eurostat, 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Ireland.	
Planning Policy	Staffing is a matter for the institutions. However, an employment control framework has been in place since 2008 to bring about a reduction in overall pay costs in light of the need to reduce public expenditure to alleviate economic difficulties. While this framework provides the sector with overall target reductions, institutions have been given flexibility in how they achieve these targets.
Professional Status	Academic staff members in higher education institutions are public servants
Salaries	Average monthly salary €3 788 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Liechtenstein.	
Planning Policy	n/a
Professional Status	Academic staff working in higher education institutes are no civil servants but are privately employed.
Salaries	5,835€ (Eurostat, 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Luxembourg.	
Planning Policy	The planning policy for academic staff is defined at the level of the institution concerned. The University of Luxembourg defines a wage bill within its four-year plans. This budget is taken into account when the four-year contracts (*contrat d'établissement pluriannuel*) with the Ministry for Higher Education and Research are established.
Professional Status	Members of academic staff hold private working contracts with the University of Luxembourg. They enjoy academic freedom (*liberté académique*) which includes freedom of thought and expression, freedom of education as well as freedom of research and studies.
Salaries	Average monthly salary €4605 Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Netherlands.	
Planning Policy	The conditions of service and legal status of education personnel in both the public and private sectors are determined partly at suprasectoral and sectoral level and partly at decentralised and institutional level.
Professional Status	Teaching staff in public-authority schools and institutions are formally public sector personnel; they are public servants.
Salaries	Average monthly salary €3639 Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Norway.	
Planning Policy	n/a
Professional Status	For conditions for academic staff in higher education, the HEIs must adhere to the ordinary provisions of the Working Environment Act , Civil Service Act (employees at state HEIs), and special provisions pursuant to the Act relating to universities and university colleges. Some conditions of service also follows from various collective agreements applying to public or non-public HEI.
Salaries	Average monthly salary €5767 E urostat 2010)

Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Portugal.	
Planning Policy	Public HEI must have a permanent group of professors who are beneficiary of a reinforced statute of working stability, in an appropriate number, and complying with the Education Careers Statutes.
Professional Status	Teachers and management staff are employees working under a contract of employment.
Salaries	Average monthly salary €1708 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Romania.	
Planning Policy	National educational planning regarding recruitment of the teachers applies only to Pre-academic education
Professional Status	Teaching positions in higher education can be occupied with permanent teachers, associate teachers and consultant teachers. Permanent teachers are appointed for an indefinite period of time through decision of the rector. Permanent teachers are the only one that can be elected for management positions.
Salaries	. Average monthly salary €748 (Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Slovenia.	
Planning Policy	Demographic projections, student intake, the number of employees and the manner of employment is monitored and published by the National Statistical Office. The Ministry of Education monitors statistics and gives consent to student intake proposals. There are no regulations regarding long-term human resources planning in higher education. Planning in individual higher education institutions is only partially influenced by financial regulations and regulations related to the quality in higher education.
Professional Status	Lecturers and instructors in public vocational colleges are public servants.
Salaries	Average monthly salary €1892(Eurostat 2010)
Conditions of Service for Academic Staff Working in Higher Education in the field of the humanities and social sciences. Turkey.	
Planning Policy	Higher Education Law (Yükseköğretim Kanunu): This law is the basic law regulating Turkish Higher Education System. In this context, the said law includes issues related to duties, working principles, appointments, promotion, training and assignment to other universities or in abroad of teaching staff.
Professional Status	"Associated professors" and "professors" among the teaching staff in higher education institutions in Turkey are employed in the status of permanent position. Working type of the same can be either full time or part time status
Salaries	Average monthly salary €1289 (Eurostat 2010)

Streszczenie

WPŁYW CZYNNIKÓW EKONOMICZNYCH NA MIGRACJĘ PRACOWNIKÓW Z WYSOKIMI KWALIFIKACJAMI. PRZYKŁAD PRACOWNIKÓW NAUKOWYCH NA EUROPEJSKICH UNIWERSYTETACH

Migracja pracowników posiadających wysokie wykształcenie znacząco zwiększyła się w ostatnich latach. Szczególny wpływ na te zmiany wywarły określone warunki ekonomiczne. Przeprowadzone przez nas badanie koncentruje się na analizie przepływów migracyjnych pracowników naukowych, a więc wysoce wykształconej grupy zawodowej i kształtującej również w przyszłości przygotowanie zawodowe innych pracowników, ale również odpowiedzialnej w wysokim stopniu za realizowane innowacje m.in. dzięki badaniom naukowym jakie prowadzą.

Analiza przepływu migracji tego gremium zawodowego i jego relacja z różnymi czynnikami ekonomicznymi (w Europie) w ostatniej dekadzie – pokazała, że dochody są kluczowym czynnikiem, który tłmaczy zmienność w przeływach migracyjnych pracowników naukowych.

Poza tym, biorąc pod uwagę rzeczywistą siłę nabywczą i efekt podatków osobistych, można dowieść w których konkretnie krajach podjęcie decyzji dotyczącej migracji jest kwestią bardziej wrażliwą i istotną zarazem.

Generalnie większa siła nabywcza w jakimś kraju jest czynnikiem przyciągającym większą liczbę pracowników naukowych do takiego kraju. W związku z tym, te państwa, które zwiększają poziom zarobków dla swoich pracowników naukowych (szczególnie w okresie dekoniunktury ekonomicznej) – jednocześnie utrzymują i przyciągają wysoce wykwalifikowanych pracowników.

Wyniki naszego badania pokazały również, że bezrobocie stanowi czynnik wypychający (push factor) dla najlepiej wyedukowanych pracowników naukowych.

***Słowa kluczowe**: migracja międzynarodowa, czynniki ekonomiczne wpływające na migrację, migracja pracowników naukowych*

10.1515/cer-2015-0032

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Spatial Diversification Of Living Standards In The Former Communist Countries Of Central And Eastern Europe And The Balkans

Abstract

The aim of this paper is to present the results of research on the variation in the standard of living and quality of life of the inhabitants of Central and Eastern European and the Balkan countries previously belonging to the Soviet sphere of influence. Nineteen post-communist countries were selected for this research, including: seven from the group of post-socialist countries, seven post-Soviet countries, and five from former Yugoslavia. The research procedure adopted involved static (comparative analysis of life quality indexes - Quality of Life Index (QLI) and Human Development Index (HDI) and dynamic (assessment of standard of living based on synthetic taxonomic measures for the years 2007 and 2012) data analysis. The findings indicate a significant variation in the living standards among the inhabitants of post-communist countries. Depending on the scope and accuracy of the quality life measures used, the countries' ranking positions show a slight variation, though in all cases similar trends are noticeable. The countries of former Czechoslovakia (the Czech and the Slovak Republics) show the highest standard of living. Other countries belonging to the EU also ranked relatively high. Such Balkan states as Albania, Moldova, Bosnia and Herzegovina ranked poorly. The results of multidimensional analysis confirmed these findings and, moreover, allowed for the determination of the trends in living conditions in particular countries. In 2007 a higher-than-average standard of

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living was identified in nine countries, whereas in 2012 this was the case for 10 countries. As compared to 2007, GDP growth was observed in 16 countries, as well as improvements in health care (increases in health care outlays) and increases in the number of Internet users. However, some phenomena may be disturbing – the rise in unemployment (16 countries), decline in population growth (9 countries) and growing inflation (7 countries).

To recapitulate, the standard of living enjoyed by the population of post-communist countries is gradually improving, though the pace of changes and trends vary across those countries. What's more, the results show that with the exception of those countries which are EU members, belonging to specific groups of post-communist countries (post-socialist, post-Soviet and former Yugoslavia) does not affect significantly their populations' standard of living and quality of life.

Keywords*: post-communist countries, standard of living, socioeconomic development*

1. Introduction

One of the objectives of regional development is an improved livelihood (improvement in living standards and quality of life) of the region's inhabitants. The fact that nowadays social and economic policies pay increasingly more attention to the quality of life reflects the general need to shift the focus from consumption-oriented lifestyles towards lifestyles that encompass other values. Assessment of life quality is a truly challenging task and so it must be considered from various perspectives. The objective approach allows for drawing conclusions about life quality based on quantitative and qualitative measures, whereas the subjective approach enables a researcher to consider subjective measures such as reported overall life satisfaction, corresponding to satisfaction of individual needs. Assessment and measurement of the quality of life depend on, *inter alia*, access to material goods and social infrastructure, the condition of the economy, and the quality of the natural environment.

The crisis in the Soviet Union (USSR) and subsequent disintegration of the so-called people's democracies led to the dissolution of the Warsaw Pact and the Council for Mutual Economic Assistance. The consequences were the creation of sovereign nation states, unification of Germany, and collapse of the Soviet Union. At the turn of the 1980s and 1990s a new group of states which departed from socialism emerged on the world's political map, now referred to as the post-communist states.

Our main research objective was to objectively assess the quality of life in selected post-communist countries of Central and Eastern Europe and the Balkans. To achieve that, the following research questions were formulated: Are there any differences in terms of life quality between those countries, and if so, how big are they? How does the changing socioeconomic environment affect the quality of life in those countries? To answer these questions, comparative analysis of objective life quality measures (QLI, HDI indexes) and taxonomic methods (multidimensional analysis) were applied.

2. Material and research methods

The main aim of this study was to analyse and assess the quality of life of inhabitants of post-communist countries of Central and Eastern Europe, with the application of static (comparative analysis of life quality measures for 2011) and dynamic (assessment of life quality in 2007 and 2012) approaches. The chosen time frame was dictated by source data availability (in case of rankings) and the planned scope of analysis, which gave consideration to individual countries' membership in the EU. The research made use of statistic data compiled by the World Bank and other reports (UN HDI Ranking, QLI calculated by the Economist Intelligence Unit).

The Quality of Life Index, currently referred to as the where-to-be-born index, is an indicator developed in 2005 by the Economist Units to reflect the standard of living and life satisfaction in individual countries. This index is based on a unique methodology that links the results of subjective life-satisfaction surveys to the objective determinants of quality of life across countries. The QLI reflects the current situation and does not attempt to make any predictions of the future. As such, it does not take into account dynamic factors such as growth, and only represents their visible results. The QLI is a composite of six sub-indexes, each describing one of the domains considered to objectively influence the quality of life. Each sub-index is briefly explained in Table 1.

The national ranking is created on the basis of the value of QLI, calculated according to the formula:

$$QLI = 20\%I_{health} + 20\%I_{edu} + 15\%I_{wealth} + 15\%I_{dem} + +15\%I_{peace} + 10\%I_{env} \quad (1)$$

The Human Development Index (HDI) is used to measure the development of human resources in each country and allows to specify achievements in key dimensions of human life:

- long and healthy life (I_{health}), incorporating the life expectancy (in years) indicator,
- access to knowledge ($I_{Ieducation}$), calculated on the basis of two indicators: mean years of schooling and expected years of schooling,
- decent standard of living (I_{income}), and gross national income (GNI) per capita (Technical Notes. Human Development Report 2014).

The value of HDI is the geometric mean of normalized indices for each of the three dimensions.

$$HDI = \sqrt[3]{I_{health} I_{education} I_{income}} \tag{2}$$

Dimension indexes for each country are calculated based on the following equation:

$$Index_{national} = \frac{value_{national} - value_{min} + 15\% I_{peace} + 10\% I_{env}}{value_{max} - value_{min}} \ldots\ldots . \tag{3}$$

Table1. Description of the QLI sub-indexes and list of the diagnostic variables

No.	Name of sub-index	Description	Diagnostic variables
1.	Health Index (I_{health})	Health of average person, access to and quality of health care	- Life expectancy at birth - Mortality amenable to health care (when available) - Infant mortality - Access to health care
2.	Education Index (I_{edu})	Education, access to and quality of education	- Adult literacy rate - School life expectancy - PISA results (when available)
3.	Wealth Index (I_{wealth})	Wealth of the average person	- GDP (PPP) per capita - Gini coefficient of national income distribution
4.	Democracy Index (I_{dem})	Individual rights and liberties	- Freedom House political rights index - Freedom House civil liberties index - Freedom House freedom of the press index
5.	Peace Index (I_{peace})	Security from crime, repression and armed conflict	Global Peace Index
6.	Environment Index (I_{env})	Quality and preservation of the environment	Environmental Performance Index

Source: https://nationranking.wordpress.com/category/quality-of-life-index/

To assess the variation in the quality of life score in respective countries, multidimensional analysis using non-parametric aggregate measures was applied. To achieve that, a synthetic indicator Qi was computed from selected

diagnostic variables that met the substantive and formal criteria (relative informative value, high degree of variability and capacity to comprehensively capture the research problem). Before proceeding, data were preliminarily analysed using the zero unitarization method, which consists in stimulation of destimulants and standardization of variables (Kukuła 2000, pp. 98-102; Karmowska 2013, p. 10). X_i variables, depending on the way they affect the phenomenon analysed, were transformed into z_i according to the following formulas:

- stimulants (positive impact)

$$z_{ij} = \frac{x_{ij} - \min_i x_{ij}}{\max_i x_{ij} - \min_i x_{ij}}; \quad \max_i x_{ij} \neq \min_i x_{ij} \tag{4}$$

- destimulant (negative impact)

$$z_{ij} = \frac{\max_i x_{ij} - x_{ij}}{\max_i x_{ij} - \min_i x_{ij}}; \quad \max_i x_{ij} \neq \min_i x_{ij} \tag{5}$$

Further on, synthetic indicators q_i, and their statistical measures were calculated:

$$q_i = \frac{1}{s}\sum_{j=1}^{s} z_{ij}; \quad \bar{q} = \frac{1}{r}\sum_{i=1}^{r} q_i; \quad S(q) = \left[\frac{1}{r}\sum (q_i - \bar{q})^2\right]^{0,5} \tag{6}$$

The synthetic indicators obtained were later on used to aggregate objects according to ranges formed by the $\bar{q}$ arithmetic mean and *S(q)* standard deviation (Table 2).

The synthetic indicators obtained were later on used to aggregate objects according to ranges formed by the $\bar{q}$ arithmetic mean and *S(q)* standard deviation (Table 2).

Table 2. The classification criteria and the diagnostic meaning of the groups

Group	Range	Diagnostic significance
1	$q_i \leq \bar{q} + S(q)$	High standard of living
2	$q_i \in \langle \bar{q}, \bar{q} + S(q))$	Good standard of living
3	$q_i \in \langle \bar{q} - S(q), \bar{q})$	Below average standard of living
4	$q_i < \bar{q} - S(q)$	Low standard of living

Source: own compilation based on (Kukuła 2000).

To determine where the trends are heading in particular countries, a comparative analysis of the results obtained for selected time frames was conducted.

3. Genesis and characteristics of post-communist countries

The political and economic changes in the socialist bloc, which later took on a "domino effect", were triggered by 1989 elections in Poland followed three months later by the establishment of the first non-communist government in the Socialist bloc. In October of the same year mass protests in DDR forced Erich Honecker to step down as leader and eventually led to the collapse of the Berlin Wall. In the same month the Hungarian Socialist Workers' Party was dissolved. In November, the Velvet Revolution was set in motion in Czechoslovakia, whereas in Bulgaria a communist dictator, Todor Zhivkov, was overthrown. This process ended in the December 1989 revolution in Romania. The new political order was consolidated and legitimized by free elections held in 1990: in DDR (in March, leading to the unification of Germany), in Hungary (in April), in Romania (in May), in Czechoslovakia and Bulgaria (in June). In Poland elections were held as late as in autumn 1991, however they were preceded by first direct presidential elections (November-December 1990). In academic publications these former socialist countries are jointly referred to as "*Former Socialist Republics*" (FSR).

One of the most salient events of the 20th century was the breakup of the Soviet Union. This was one of the turning points in Europe's political history, as it transformed the political situation not only in Eurasia, but in the entire world. This was the effect of growing internal opposition in the socialist bloc, as well as changes occurring within the USSR during the "perestroika" period. The factor that played a crucial role in the overthrow of the satellite regimes was the Soviet Union's departure from the Brezhnev doctrine and its release of its hold on the so-called external empire – the sphere of influence granted to the Soviets under Yalta-Potsdam agreements. The collapse of the Soviet Union was a process that lasted over the period 1988-1991, during which all federal republics were first granted autonomy within the Union of Soviet Socialist Republics, later to break away from the USSR and become independent states. The dissolution of the Soviet Union was formally enacted on 26 December 1991. As a result, fourteen new states appeared on the world's political map, including, *inter alia*: Estonia, Lithuania, Ukraine, Belarus and Moldova (including Moldova in the category of post-Soviet states might not be accurate as since 2001 its ruling party is a communist party). Along with the Russian Federation, these post-Soviet states are collectively known as the "*Former Soviet Union"* (FSU).

Yugoslavia was the most densely populated country in the Balkans, incorporating territories that for centuries remained under various influences of both the West and the East. Initially its political system was modelled on the Russian constitution, but following the 1948 political changes implemented in Yugoslavia it had nothing ideologically to do with the USSR, due to the conflict

between Josip Broz Tito and Josef Stalin. Its 1963 constitution was the result of the belief that the economic model should be based on self-management of working people, with districts of the state (municipalities, counties, provinces) becoming autonomous socio-political communities; and the country was renamed the Socialist Federal Republic of Yugoslavia (SFRY). Beginning in June 1991 a series of political upheavals and referendums led to the dissolution of SFRY and creation of a new political order in the region – three out of six republics of former Yugoslavia declared independence: the Republic of Croatia, Slovenia and Macedonia. On 5 April 1992 the Republic of Bosnia and Herzegovina declared sovereignty and few weeks later (on 28 April 1992) two remaining republics – Serbia and Montenegro – formally dissolved the SFRY and formed the Federal Republic of Yugoslavia, with its capital in Belgrade. This situation lasted until 4 February 2003, when the Republic of Yugoslavia ceased to exist and Serbia and Montenegro were reconstituted as a state union. This form the state as very short-lasting, on 3 June 2006 this nominally single country split into two sovereign states: Montenegro and Serbia. Finally, on 17 February 2008 Kosovo unilaterally declared its independence from Serbia (a decision which was not recognized by Serbia) (Podolak pp. 65-80). States which came into being on the territory of former Yugoslavia are called "*Former Republic of Yugoslavia"* (FRY).

Largely because of data availability, for the purpose of detailed research nineteen countries were selected from among the newly established post-communist states, comprising seven post-socialist countries, seven post-Soviet and five post-Yugoslavian countries. Table 3 below presents general characteristics, classification of countries by research criteria and, in the case of the EU states – date of accession.

The data clearly demonstrate that the Russian Federation is the largest state in terms of its size (88.8% share in the overall structure) and population (44.7%), but it has the lowest population density (9 persons per 1 km^2). In stark contrast to the Federation, Montenegro comprises only 0.1% size-wise and 0.2% population-wise in overall structure. The most densely populated countries are the Czech Republic (136 persons per 1 km^2), and Poland and Moldova (over 120 persons per 1 km^2). Croatia is the top destination in terms of attracting the highest stock of immigrants (17.65%) as opposed to Bosnia and Herzegovina with merely 0.61%.

Table 3. Basic characteristics of selected countries (year 2013)

Country	Population (in millions)	Stock of immigrants (% of population)	Surface area (in thousand sq. km)	Population density (people per sq. km)	Date of accession to the EU	Symbol of the group of countries
Albania	2.8	3.05	28.8	101		FSR
Belarus	9.5	11.60	207.6	47		FSU
Bosnia and Herzegovina	3.8	0.61	51.2	75		FRY
Bulgaria	7.3	1.16	111.0	67	1.01.2007	FSR
Croatia	4.3	17.65	56.6	76	1.07.2013	FRY
Czech Republic	10.5	4.04	78.9	136	1.05.2004	FSR
Estonia	1.3	16.31	45.2	31	1.05.2004	FSU
Hungary	9.9	4.75	93.0	109	1.05.2004	FSR
Latvia	2.0	13.80	64.5	32	1.05.2004	FSU
Lithuania	3.0	4.90	65.3	47	1.05.2004	FSU
Moldova	3.6	8.16	33.9	124		FSU
Montenegro	0.6	1.74	13.8	46		FRY
Poland	38.5	0.92	312.7	126	1.05.2004	FSR
Romania	20.0	5.60	238.4	87	1.01.2007	FSR
Russian Federation	143.5	7.73	17098.2	9		FSU
Serbia	7.2	2.75	88.4	82		FRY
Slovak Republic	5.4	11.26	49.0	113	1.05.2004	FSR
Slovenia	2.1	11.39	20.3	102	1.05.2004	FRY
Ukraine	45.5	11.39	603.6	79		FSU

Source: own compilation.

4. Social development and life quality

General aspects of the quality of life are captured in measures such as the HDI and the Quality of Life Index (QLI). Wellbeing is a broader concept, and captures not only GDP/GNP and material and physical standards of living, but also hedonic aspects. Wellbeing is a global concept reflecting incomes, physical standards of living and happiness. There is increasing interest in measuring wellbeing and behavioral economics offers some insights into how to capture the psychological, hedonic nature of happiness and how to build this into

a macroeconomic measure of aggregate wellbeing. Wellbeing has both intrinsic and instrumental value: instrumental because happiness promotes learning, productivity, creativity and health, all of which impact on social welfare. But it also has an intrinsic value of its own, which partly links it with utilitarianism (Baddeley 2013, p. 247). The QLI ranking has been calculated for 137 countries, and the HDI ranking is for 144 countries. Both rankings apply for the year 2011 are presented in Table 4 below.

Table 4. Summary of rankings for post-communist countries, according to the indicators: QLI (with its sub-indices) and HDI

Country	**QLI rank**	Components of the QLI						**HDI rank**
		Health	Education	Wealth	Democracy	Peace	Environment	
Czech Republic	**16**	24	33	30	15	12	20	**28**
Slovenia	**20**	27	15	26	29	11	46	**25**
Slovakia	**24**	35	31	34	23	21	11	**37**
Hungary	**25**	30	28	37	23	20	29	**43**
Poland	**29**	32	24	43	27	29	55	**35**
Lithuania	**30**	34	25	44	20	42	33	**36**
Estonia	**32**	42	6	41	13	46	50	**33**
Croatia	**33**	31	39	40	40	41	31	**45**
Latvia	**37**	47	32	46	34	53	18	**48**
Romania	**40**	51	46	52	49	45	39	**54**
Serbia	**41**	37	50	51	46	85	25	**75**
Bulgaria	**43**	64	48	47	44	50	57	**58**
Ukraine	**49**	52	30	72	59	90	74	**82**
Macedonia	**55**	55	59	65	62	79	64	**83**
Bosnia and Herzegovina	**56**	36	52	89	69	59	84	**84**
Belarus	**60**	43	29	45	128	97	45	**52**
Moldova	**66**	58	54	106	76	64	73	**116**
Albania	**70**	66	64	64	63	63	21	**96**
Russian Federation	**83**	65	37	50	114	131	60	**57**

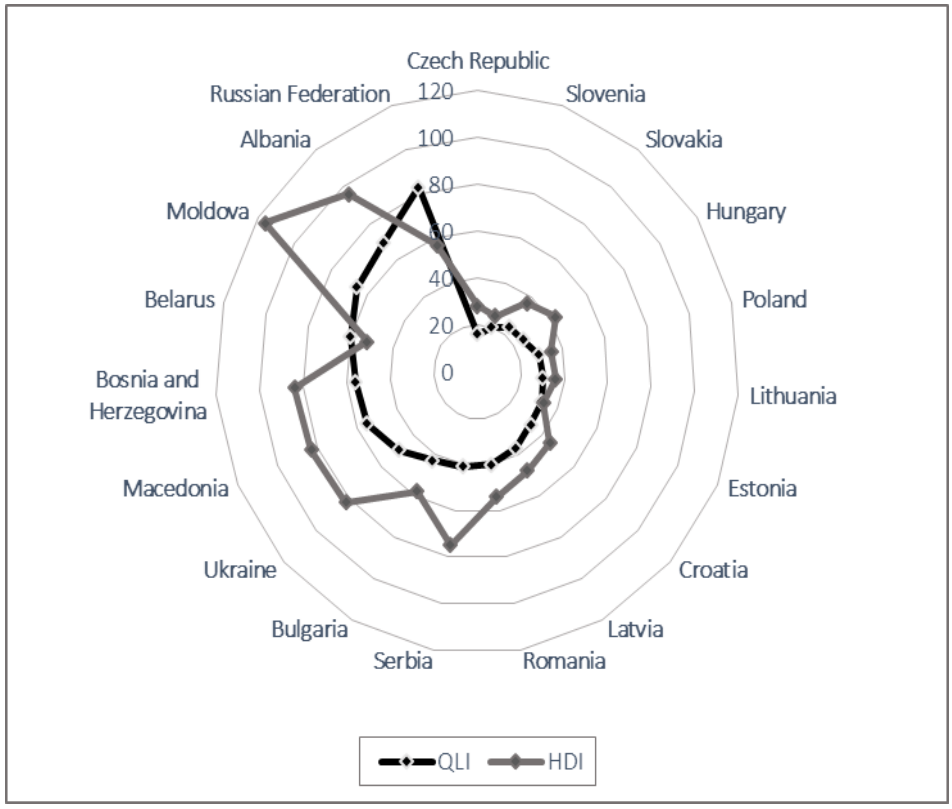
Source: based on (2011 Quality of Life Index, Human Development Report 2011).

Our analysis of QLI and HDI indicated that the Central and Eastern European countries, as well as Slovenia and Croatia, came out on top in both rankings, whereas Moldova and Albania ranked at the bottom of the list.

Interestingly, in case of Russia the situation is different. According to QLI, Russia is last in the ranking (83rd position), though in HDI classification it holds a middle position in the ranking (57th). It is thus noticeable that there are considerable differences between the classifications. Moldova (-50), Serbia (-34) and Ukraine (-33) placed significantly lower in the HDI ranking as compared to the QLI ranking, while higher positions were obtained only by post-Soviet countries, that is Russia (+26) and Belarus (+8). Among the EU member states the highest differences in ranking positions were observed in the case of: Hungary (-18), Bulgaria (-15), Slovakia (-13) and the Czech Republic (-12).

A Graphical comparison of the countries' positions in the ranking is presented in Figure 1.

Figure 1. The comparison of national rankings according with QLI index and HDI index



Source: own compilation.

Rankings of QLI sub-indices provide information on the quality of selected domains of life for average inhabitant. As is evident from the chart above, the best conditions in terms of healthcare and environmental protection are present in the

countries of former Czechoslovakia (Czech Republic and Slovakia), whereas with respect to education and democracy Estonia ranked highest. In turn, the inhabitants of Slovenia enjoyed relatively the most wealth and the highest sense of safety.

Belarus and the Russian Federation were found to be the most dangerous and undemocratic states among the countries analysed, whilst their economic results indicate a relative wealth of their inhabitants. These two countries also showed the biggest differences in their ranking positions (a difference of 99 for Belarus and 94 for Russia). Definitely the least developed countries in terms of economy and environmental protection are Moldova and Bosnia and Herzegovina, whereas Albania ranked the lowest with respect to education and healthcare.

5. Spatial diversification of the populations' living standards

The set of potential diagnostic variables contains all measures which, according to experts, have the highest informative value and best capture the phenomenon in focus. The set of potential diagnostic variables was reduced using statistical procedures to a set of features with discriminatory value. From among a wide range of statistical data describing the standard of living and life quality, eight indicators (features) were selected from the World Bank database. These are based on data aggregated on the country level, comprising the years 2007 and 2012. Table 5 presents these diagnostic variables along with diagnostic properties assigned to them (where S is a stimulant, and D – a destimulant).

Table 5. Characteristics of diagnostic variables

Diagnostic variable	Diagnostic property	Maximum		Minimum		Coefficient of variation [%]	
		2007	2012	2007	2012	2007	2012
Population growth (annual %)	S	0.5835	0.2100	-1.4772	-1.3412	-151.64	-153.78
GDP per capita (current US$)	S	23841.32	22488.44	1230.81	2046.537	61.14	54.26
Health expenditure per capita (constant 2005 international $)	S	2148.21	2419.86	296.08	490.27	48.14	43.86
Inflation, consumer prices (annual %)	D	12.84	59.22	1.52	0.56	55.85	200.09
Unemployment, total (% of total labor force)	D	29.7	28.1	4.3	5.5	69.03	50.55

Internet users (per 100 people)	S	66.19	78.39	6.55	35.27	45.45	20.56
Motor vehicles (per 1,000 people)	S	547.03	614.86	105.93	118.07	44.53	40.75
Hospital beds (per 1,000 people)	S	11.23	11.30	2.92	2.43	32.76	32.83

Source: own compilation.

In accordance with the methodology we adopted, synthetic measures were computed for each of the subject countries for the years 2007 and 2012, and finally, based on that, rankings of these countries were created (Table 6).

Table 6. Rankings of countries by synthetic indicators

Country	Q_{2007}	Ranking in 2007	Q_{2012}	Ranking in 2012
Slovenia	0.85496	1	0.84214	1
Czech Republic	0.80529	2	0.82390	2
Croatia	0.71253	3	0.66546	6
Slovak Republic	0.69802	4	0.74434	3
Poland	0.63989	5	0.70302	4
Hungary	0.62020	6	0.64816	8
Lithuania	0.61905	7	0.55010	11
Latvia	0.59890	8	0.60263	9
Estonia	0.58166	9	0.65428	7
Bulgaria	0.46938	10	0.59314	10
Russian Federation	0.46833	11	0.68392	5
Belarus	0.44032	12	0.41594	16
Montenegro	0.43441	13	0.47394	13
Serbia	0.39439	14	0.38785	18
Romania	0.39089	15	0.49180	12
Bosnia and Herzegovina	0.29689	16	0.38850	17
Ukraine	0.28777	17	0.44407	14
Moldova	0.28773	18	0.43624	15
Albania	0.26528	19	0.30325	19

Source: own compilation.

In the 2007 ranking the first 10 positions were held by the EU member states (although Croatia joined the EU much later, in 2013). Two post-Soviet countries were found near the bottom of the ranking (Ukraine and Moldova), followed only by Albania. In the 2012 ranking, as compared to the previous classification, only six countries remained in the same position, while six moved up and seven dropped down. It was Russia that moved up most strikingly

(shifting by 6 positions), whereas the worst drop (by 4 positions) was observed in the cases of Lithuania, Belarus and Serbia. In the FSU group, four states improved their ranking positions and three went down (including two EU states). Among the FSR states, decline was noted only in one case (Hungary), while three states were upgraded (including Romania by three positions) and three held their positions. The worst situation was observed in case of the FRY group – three states recorded a drop and two remained in the same low positions. Analysis of the shifts in the rankings among the EU member states leads to rather distressing conclusions. Romania, the newest EU member (since 2007) made the biggest upward move (by three places), whereas states with longer EU membership recorded a drop, including Hungary (-2 positions) and two Baltic states, i.e. Lithuania (-3 positions) and Latvia (-1).

Finally, all countries being the subject of this research were grouped according to the classification criteria adopted. The classification of countries based on a synthetic measure is provided in Table 7.

Table 7. Summary of the countries' classification by a synthetic measure

Class number	2007 classification	2012 classification
1.	Slovenia, Czech Republic, Croatia	Slovenia, Czech Republic, Croatia
2.	Slovak Republic, Poland, Hungary, Lithuania, Latvia, Estonia	Slovak Republic, Poland, Hungary, Latvia, Estonia, Russian Federation, Bulgaria
3.	Bulgaria, Russian Federation, Belarus, Montenegro, Serbia, Romania	Lithuania, Belarus, Montenegro, Romania, Ukraine, Moldova
4.	Bosnia and Herzegovina, Ukraine, Moldova, Albania	Serbia, Bosnia and Herzegovina, Albania

Source: own compilation.

According to the 2007 classification the overall situation was as follows:

- FSR countries–the highest standard of living was recorded for the Czech Republic (class 1), with three EU states showing a good standard of living (class 2), two new EU member states (Bulgaria and Romania) displaying a below average standard (class 3), and Albania showing the lowest standard of living (class 4);
- FSU countries –countries being members of the EU (Latvia, Lithuania and Estonia) definitely enjoyed a higher standard of living than others (class 2) since Russia and Belarus were classified as below the average (class 3), with the remaining countries belonging to class 4;
- FRY countries – there has always been a conspicuous divide between the rich North and poor South, and in line with that Slovenia and Croatia ranked highest in terms of wealth (class 1). Both countries are members of the EU.

A significantly lower standard of living, that is below the average standard (class 3), was observed in the eastern (Serbia) and south-western parts of the former Federation (Montenegro). The lowest standard of living was identified in the central part (Bosnia and Herzegovina).

The cluster formed on the basis of 2012 data resulted in a new classification of countries. **Class 1** countries did not change their positions. In case of **class 2** countries, Bulgaria and Russia moved upwards, whereas Lithuania fell down considerably (owing to a twofold rise in unemployment and deterioration of healthcare infrastructure, with a 50% drop in the number of hospital beds). In the case of Russia, its position improved as its GDP per capita increased by 54%, inflation dropped by 43%, the unemployment rate fell by 8%, healthcare outlays increased by 82%, and the population of Internet users went up by as much as approximately 160%. In turn, Bulgaria's progress can be attributed to improved economic situation (an approximate 25% increase in GDP per capita and an almost 65% drop in the inflation rate), as well as improved healthcare (67% rise in the number of hospital beds) and access to Internet (increase of 163%). The standard of living in the cases of Ukraine and Moldova also improved, moving from the lowest standard in 2007 to below the average (**class 3**). Ukraine recorded relatively the biggest drop in inflation (by almost 96%), while the number of Internet users grew almost fourfold and healthcare infrastructure showed considerable improvement (twofold rise in the number of hospital beds). When it comes to Moldova, its GDP per capita increased by over 66% and its inflation declined by circa 62%. However, in comparison to the 2007 classification, a drop into the lowest-ranking class (**class 4**) was recorded in the case of Serbia, with its deteriorated economic situation attributable to a 32% increase in the unemployment rate and 15% increase in the inflation rate. The remaining countries did not change their classification.

6. Conclusions

The research findings confirm the existence of significant variation in the standard of living among post-communist countries. The analysis of the nations' ranking positions showed only insignificant differences, depending on the scope and accuracy of the indicators applied, while the same trends could be observed in all the states researched. The highest standard of living was found in the countries of former Czechoslovakia (the Czech and Slovak Republics) and Slovenia. Other EU states were also classified relatively high in this regard, whereas such Balkan states as Albania, Moldova, and Bosnia and Herzegovina showed the lowest standard of living.

The results of the multidimensional analysis led to the conclusion that overall the overall standard of living in post-communist countries is gradually improving. In 2007 it was classified as above the average (class 1 and class 2) in nine countries, and in the year 2012 – in ten. Among the selected subject countries 16 recorded increases in GDP per capita, improvements in healthcare (increased healthcare outlays) and a rise in the number of Internet users (in Ukraine by a stunning 438.5%). However, certain distressing phenomena could also be noticed, such as increased unemployment (16 states), declining population growth (9 states), and rising inflation (7 states).

It could also be observed that a country's historical background (being part of either the FSR, FSU or FRY group of post-communist countries) did not have a salient impact on the standard of living and quality of life of its inhabitants, as opposed to the positive effects associated with EU membership, which was found to stimulate socioeconomic development.

It might be thus concluded that the pace and changes taking place in individual countries with regard to their populations' standard of living vary strongly despite the new political and economic order and ongoing globalization.

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Streszczenie

ANALIZA ZRÓŻNICOWANIA PRZESTRZENNEGO POZIOMU ŻYCIA W KRAJACH POSTKOMUNISTYCZNYCH EUROPY ŚRODKOWO- WSCHODNIEJ I NA BAŁKANACH

Celem artykułu jest przedstawienie wyników badań dotyczących zróżnicowania poziomu i jakości życia mieszkańców krajów postkomunistycznych Europy Środkowo-Wschodniej i krajów bałkańskich. Z grupy państw postkomunistycznych, do badań szczegółowych wybrano 19 krajów, w tym: 7 z grupy państw postsocjalistycznych, 7 poradzieckich i 5 z byłej Jugosławii. Przyjęta procedura badawcza pozwoliła na analizę zagadnienia zarówno w ujęciu statycznym (analiza porównawcza rankingów wskaźników jakości życia – Quality of Life Index (QLI) i Human Development Index (HDI)), jak i dynamicznym (ocena poziomu życia na podstawie taksonomicznych mierników syntetycznych za lata 2007 i 2012). Wyniki przeprowadzonych badań wskazują na znaczne zróżnicowanie poziomu życia mieszkańców w krajach postkomunistycznych. W zależności od zakresu i stopnia szczegółowości użytych wskaźników jakości życia pozycje rankingowe badanych krajów nieznacznie się różnią, ale we wszystkich zauważalne były te same tendencje. Najwyżej oceniono warunki życia panujące w krajach byłej Czechosłowacji (Czech i Słowacji) oraz Słowenii. Na stosunkowo wysokich pozycjach sklasyfikowano także pozostałe kraje należące do UE. Natomiast najsłabiej wypadły kraje bałkańskie takie jak: Albania, Mołdawia i Bośnia i Hercegowina. Wyniki analizy wielowymiarowej potwierdziły te oceny i ponadto, pozwoliły na określenie kierunków zmian w warunkach życia mieszkańców poszczególnych krajów. W 2007 roku poziom życia określony jako wyższy od przeciętnego stwierdzono w 9 krajach, a w 2012 roku było już 10 takich krajów. W porównaniu do 2007 roku wzrost GDP per capita odnotowano w przypadku 16 państw, poprawiła się sytuacja w ochronie zdrowia (wzrost wydatków na ochronę zdrowia) oraz wzrosła liczba użytkowników Internetu. Odnotowano również niepokojące zjawiska– wzrost bezrobocia (16 krajów), spadek przyrostu naturalnego (9 krajów) oraz rosnąca inflacja (7 krajów).

Reasumując, poziom życia mieszkańców w krajach postkomunistycznych stopniowo się poprawia, lecz tempo i kierunki zmian w poszczególnych krajach nadal są różne. Ponadto stwierdzono, że w przeciwieństwie do członkostwa w Unii Europejskiej, przynależność danego państwa do określonej grupy krajów postkomunistycznych (postsocjalistycznych, poradzieckich i byłej Jugosławii) nie ma istotnego wpływu na poziom i jakość życia jego mieszkańców.

***Słowa kluczowe**: kraje postkomunistyczne, poziom życia, rozwój społeczno-gospodarczy*

10.1515/cer-2015-0033

MAGDALENA SZYSZKO[*]

Inflation Forecasts Versus Shaping Inflation Expectations. Comparative Analysis[1]

Abstract

This article jointly analyzes inflation expectations of consumers and inflation forecasts. Its starting point is the predominant role of expectations in monetary policy. This is crucial market information in the decision-making process of the central bankers as it may show the actual future inflation. On the other hand, the central bank wants to influence expectations in order to facilitate achieving the main goals of monetary policy. Inflation forecasting is a tool for shaping public expectations. In the research, covering four central banks (the National Bank of Hungary, National Bank of Poland, the Czech National Bank, Sveriges Riksbank), the author analyzes the interdependencies of inflation forecasts and inflation expectations of consumers. Data on expectations are derived from the surveys and quantified. Then non-parametric measures of association are calculated. The results confirm the hypothesis on the existence of such relationships. The strength of this interdependence varies among countries, from weak to strong. The study opens the field for further discussions on strengthening this relationship.

Keywords: *inflation forecasts, inflation forecast targeting, inflation expectations*

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[1] The article presents the results of research financed by the National Science Center: Interdependences of Inflation Forecasts and Inflation Expectations of Market Participants. Implications for the Central Banks contract No.: 2011/03/B/HS4/03705.

1. Introduction

Inflation expectations are at the center of central bankers' interests. A wide range of literature confirms the importance of inflation expectations in monetary policy. Expectations constitute specific market information that the central bank (1) uses in its analyses and in decision-making and (2), wishes to influence, as well-anchored expectations facilitate the conduct of monetary policy. This paper focuses on the tools for shaping inflation expectations, especially inflation forecasts. The production and publication of inflation forecasts should support economic agents in the formation of expectations. The paper covers the inflation expectations of consumers. In comparison with firms and specialists, they have a quite low awareness of the economic situation. At the same time, this group of economic agents has a great impact on economic performance, including inflation.

The main research question of this paper is whether a central bank can affect market information, i.e. consumers' inflation expectations, by the use of inflation forecasts. **The hypothesis assumes that there are interdependencies between the inflation forecast of the central bank and the inflation expectations of households** The main objective of this research is to verify this hypothesis.

The research covers four countries: Hungary (the National Bank of Hungary, NBH), Poland (National Bank of Poland, NBP) the Czech Republic (the Czech National Bank, CNB), and Sweden (SverigesRiksbank, SR). They are all inflation targeting (IT) countries which have produced and published inflation forecasts for some time. The scope of this research enables comparative analysis. The choice of CNB, NBH and NBP is obvious: they are the central banks of young market economies; they started to implement inflation targeting in the late 1990s (Hungary[2] in 2001); and several years later they started to produce and publish inflation forecasts. They all declare that the forecasting of inflation is an input in decision making, however the strength of this declaration and its execution differs among the countries. The inclusion of the Sveriges Riksbank – one of the most experienced inflation targeters worldwide – makes it possible to compare the results. The research period varies because the starting point depends on the development of a forecasting system in the countries covered by the research. It finishes in 2014 for all countries.

The research covers quantification of expectations and interdependencies of the forecasts and consumer expectations. The results are explained by analysis of the implementation of inflation forecast targeting (IFT).

[2] Hungarian monetary policy strategy in 2001-2011 was rather eclectic. Frameworks of inflation targeting were accompanied by a fixed exchange rate.

The paper is divided into three sections. The following section presents an overview of the literature on expectations in monetary policy and how the forecasting of inflation functions. The next section describes the research methodology. In the last section the results are presented and analysed. The paper contributes to the literature on IT as well as on the role of market information in monetary policy.

2. Modern monetary theory and the role of expectations in monetary policy

The expectations of economic agents are crucial for monetary policy makers as they are a pivotal variable in the monetary transmission mechanism. Inflation expectations drive inflation directly. They are also decisive for the output gap, which is the second determinant of inflation. The reaction function of the central banker also refers to inflation expectations.

Table 1. New Neoclassical Synthesis – basic equation

	Equation	Interpretation
Dynamic IS curve	$y_t = -1/\sigma\,(i_t - E_t\{\pi_{t+1}\} - i_n) + E_t\{y_{t+1}\}$ y – output gap π - inflation i – nominal interest rate E_t expected i_n – natural interest rate,	The DIS curve expresses relationships of production (in terms of the output gap) and the interest rate. The equation is derived as an optimization procedure made by the representative household that seeks to maximize the objective function while choosing between spare time and working hours.
Inflation equation	$\pi_t = \alpha\, E_t\{\pi_{t+1}\} + \beta y_{t+1}$	Inflation depends on inflation expectations and the output gap (DIS). The equation is derived from the staggered prices model (Calvo model).
Monetary policy rule	$i_t = i_n + E_t\{\pi_{t+1}\} + \gamma y_t + \lambda[E_t\{\pi_{t+1}\} - \pi^*]$ π* - central bank's inflation goal	Central banks' reaction function. The nominal interest rate depends on the output gap and inflation gap.

Source: Galí 2008, pp. 41–52.

Acceptance of the New Neoclassical Synthesis as the theory that captures the cause and effect relations in the economy results in a special role of expectations in modern monetary policy. Successful monetary policy should shape market expectations in a way in which interest rates, inflation and income are likely to evolve over the upcoming year and later. As summarized in (Woodford 2003, pp. 15-18), an optimizing model implies that private sector behaviour should be forward looking; hence expectations about future market conditions should be a significant determinant of current behaviour. If the central bank is able to affect expectations, it will have more opportunities to achieve the goals that have been set. One of the most concise descriptions of expectations role in monetary policy was given by (Woodford 2003, p. 15): not only do expectations about policy matter, but, at least under current conditions, very little else matters.

This is why expectations are at the centre of monetary policy research. Research questions focus on several aspects: the fulfilment of the rational expectations hypothesis (are the expectations of a forward-looking nature?); consistency with the inflation target, and insensitivity to changes in current inflation (are the expectations well anchored?); and the role of expectations in affecting actual price dynamics in the economy (Łyziak 2014, p. 7).

When considering the purpose of this paper, the most important question is of a practical nature: how can a central bank support the formation of expectations? Inflation targeting is a monetary policy framework designed to support the shaping of inflation expectations. This framework encompasses five main elements: (1) the public announcement of medium-term numerical targets for inflation; (2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated; (3) an information-inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used in order to set policy instruments; (4) increased transparency of the monetary policy strategy through communications with the public and the markets about the plans, objectives, and decisions of the monetary authorities; and (5) increased accountability of the central bank for attaining its inflation objectives (Bernanke, Laubach, Mishkin, Posen 2001, pp. 4-9). Fully fledged inflation targeting also requires a floating exchange rate (which enables the central bank to maintain an independent interest rate policy) and inflation forecasting as a quite important support of the conduct of monetary policy. Such preconditions, if implemented by monetary authorities, enable the central bank to manage expectations.

Except for institutional preconditions and creating a credible nominal anchor, one of the most important tools of expectations management is the central bank's inflation forecast. The forecasts are produced, used as the input in

decision making, and then published. Inflation targeting may become **inflation forecast targeting** (IFT), where the inflation forecast is an intermediate objective of monetary policy. Subscribing the function of an intermediate target to the inflation forecast simplifies the implemention and monitoring of monetary policy (Svensson 1996, p. 3). Inflation forecast targeting is a simple rule of monetary policy. The central bank's inflation forecast for the period of the inflation forecast targeting horizon becomes an intermediate target. Hence the instrument should be set so as to make the inflation forecast equal to the inflation target. If the inflation forecast is above (or below) the target, the main rate of the monetary policy should be raised (or lowered). Adherence to this rule is claimed to be a best practice of a central bank. Ex post inflation may differ from the targeted level because of the forecast errors (Svensson 1996, p. 9). The decision-making procedure of IFT is repeated by the monetary committee at any decision point. The forecasts and interest rate level are brought up to date if necessary. This is why IFT becomes a dynamic optimization procedure. The central bank's inflation forecast can be perceived as a quite good intermediate target. It is by definition the current variable which is the most correlated with the final goal, it is more controllable than the final goal, and it can be made more observable. It can also be made very transparent and facilitate the central bank's communications with the public (Debelle 1997, p. 19, Svensson 1996, p. 3). Forecast targeting is perceived as policy rule that involves a commitment to a particular decision procedure for monetary policy and distinctive approach to communication policy (regular publication of quantitative projections together with extensive discussion of the reasoning underlying these projections) (Woodford 2012, p. 185).

Moreover, inflation forecasts integrate a broad set of historical and current data, as well as expectations. This means that one variable – the forecast – includes the analysis of various data, which makes following the intermediate target commitment much easier, simultaneously giving the simplicity of following an intermediate target commitment (Szyszko 2011, p. 13).

Inflation forecasts fulfil several functions, including the most important one: **shaping inflation expectations**. The inflation forecast may shape expectations both directly and indirectly. And indirect effect occurs when the central bank does not publish the forecast, but uses it in internal analysis. This affects the monetary policy committee's deliberations and decisions. The public gets to know the decision itself, and can adjust their economic decisions to the new (or unchanged) monetary conditions. The most obvious role in shaping expectations appears when the forecast is revealed: it opens the possibility to influence longer term rates. When making decisions, economic agents are taking into consideration the entire expected interest rate path. It is relatively easy to

manage short term interest rates and more difficult to anchor longer term expectations on interest rates. Inflation forecasts can also anchor expectations when the inflation target is temporarily missed. It can serve as such a temporary anchor, especially in situations where the target is missed because of shocks that are outside the control of the central bank. An anticipated course of inflation shown by a credible central bank may limit the expectations' growth (Skořepa, Kotlán 2003, pp. 154-155).

Nowadays the advantages of publishing inflation forecasts prevail. They are numerous, and they directly or indirectly touch the aspect of the formation of expectations, by means of helping to understand the central bank's actions and the way and how it sets its instruments, which helps to reduce uncertainty (Mishkin 2007, p. 514). The practice of central banks is in line with the theory and mainstream research: central banks do publish forecasts. However, there are papers underlining the drawbacks of forecasts' publication. The central bank can be bound more tightly by the publication of an inflation forecast than is actually warranted by the quality of that forecast. In practice, a forecast cannot amount to a complete summary of all the information relevant to the monetary policy decisions, mainly because there is no universally optimal forecasting method (Remsperger, Worms 1999, p. 5). However, the discussion on the forecast disclosure is not so vivid nowadays. Instead it rather concerns the extent to which the future path of the economy should be revealed (the forecast itself, or the policy path as well).

As a summary of the discussion on forecast publishing it may be stated that a majority of the central banks publish their inflation forecasts. In this way they mean to influence the inflation expectations of consumers. If they are efficient in doing so, an interdependency between the forecast and inflation expectations should exist. The hypothesis given in the introduction is thus justified.

From the central banks' point of view, these expectations should be analysed from two different angles. The first concerns the **ability to influence expectations** by the policymakers, and the second refers to the **information value of the expectations themselves** – they are used as input in the decision-making process and as the measure of the central bank's credibility. Both approaches need a sound measure of expectations that are not directly observable. This is why the next question concerns their measurement. Expectations can be derived from financial market data (prices and yields of bonds, for example) or they can be examined in surveys. They can be also inferred from a macroeconomic model.

The survey-based approach to the quantification of expectations is broadly accepted. Its advantages include: the forecast's accuracy (specialists and consumers expectations are better predictors of inflation a year ahead); dispensing with the need for an *a priori* assumption (which is needed in model based

forecasts); no contamination of the data by transaction costs, risk premium, taxation (which is characteristic of financial assets prices) (Ang, Bekaert, Wei 2007, pp. 1203-1206). There is however research in the literature which uses all the measures of expectations, including numerous positions on survey-based expectations, and several texts covering the subject can be found in (Sinclair 2009). Survey-based expectations are also used in this study. The use of these expectations is also justified by the choice of reference group: expectations of consumers are referred to in the following study. One needs to bear in mind that consumers are a less qualified group in the economy.

3. Research methodology

The empirical research covers four countries: the Czech Republic, Hungary, Poland and Sweden. Details on the sample are given in Table 2 below.

Table 2. Description of the Sample

Central bank	CNB	NBH	NBP	SR
Number of forecasts	50*	54	33	46
Months	151	161	125	96
Period	July 2002-2014	August 2001-2014	August 2004-2014	2007-2014*

Source: own work.

The research is divided into three specific steps. The first covers the **quantification of the expectations**. This was necessary here because the surveys on expectations are of a qualitative nature (quantitative surveys for consumers with direct questions on the expected level of inflation were either abandoned or were never held). The survey data on expected inflation is taken from the Business and Consumers Surveys – The European Commission survey on business and household situations. The surveys are held monthly. Consumers answer questions on their inflation perception and expectations. Inflation perception refers to the past inflation and is not the subject of this research (in the quantification procedure it is represented by last known inflation figure). The question for inflation expectations is as follows: By comparison with the past 12 months, how do you expect that consumer prices will develop in the next 12 months? The answers to choose from are: They will…increase more rapidly, increase at the same rate, increase at a slower rate, stay about the same, fall, don't know (The Joint Harmonized… 2007, p. 51). The answers can then be used in two ways. First of all, a balance of the answers is calculated. The balance

of answers does not however directly measure the inflation expectations, thus it cannot be interpreted in a straightforward way. For example, when it is positive, it means that the number of respondents who expected the prices to increase more rapidly over the next 12 months than in the past exceeded the number of those who expected prices to remain the same or increase more slowly than in the past (The Joint Harmonized… 2007, p. 18).

The answers to the survey's question on expected inflation are the starting point for quantifying inflation expectations, using the adjusted Carlson–Parkin probability method (Crlson, Parkin 1975, pp. 123-138). It assumes that if the number of respondents is sufficiently large, the expected rate of price change is normally distributed. The quantification of qualitative responses makes use of the fact that, in replying to the survey question regarding inflation expectations, respondents compare their predictions with the rate of price change as perceived when the survey is carried out (Łyziak 2003, pp. 11-13). The latest inflation figure remains here for inflation perception.

The second step in the research procedure was **encoding the forecast results**. The data on the inflation forecast is encoded for two reasons. First of all, consumers' inflation expectations are considered. Consumers are not specialists. They do not read the forecasts on their own. They do not understand sophisticated information on inflation forecasts. It is enough to say that qualitative surveys on expectations were abandoned by the central banks, as the awareness of households concerning the economic situation was poor and the results of surveys were not reliable. The second reason for encoding the data is connected with the way in which the forecast is revealed. No detailed information on levels was given at the beginning of the research period. The forecast and the policy path were presented in the Inflation Report in a descriptive way. Some central banks avoid revealing additional information. The encoding procedure ensures a comparable set of data for all four countries. The way of encoding the message of the forecast is given in Table 3. Five options are distinguished. This encoding procedure assumes that the central bank establishes the accepted boundary of the inflation fluctuation around the target of +/- 1 p.p. This is not necessarily true however, as the SR does not establish such a corridor (it did so up until 2010). However, the assumption of giving the central bank the freedom to respond (or not) to the inflation fluctuation is justified.

The central path of the forecast was compared to the inflation target at the beginning of the monetary policy horizon – a year ahead after publishing the forecast. This is consistent with the survey question on expected inflation.

Table 3. The options for inflation forecasting

Forecast of:	Options:	Timing
Central path of inflation (CP)	- the central path is below the lower boundary of the fluctuation band, - the central path t is below the inflation target, but within the fluctuation band; - it is at the inflation target level; - it is above the inflation target, but within the fluctuation band; - the central path is above the upper boundary of the fluctuation band	Beginning of the monetary transmission horizon

Source: own work.

As the forecasts are produced 3-6 times per year[3] and the expectations are examined monthly, the research assumes that one forecast message may influence the formation of expectations three times. This is why the central path was repeated for the months following the month in which the forecast was produced (called here the 'central projection repeated', or CRP). Lags are also assumed: the forecast may influence expectations in the month of its disclosure as well as during the following months.

The last step of the research is the examination of the **interdependencies of inflation forecasts and the inflation expectations of consumers**. The theory assumes that an inflation forecast may be an important factor in the formation of expectations. On the other hand, inflation expectations are the input to the decision making process of the monetary policy committee and – sometimes – to the forecast itself. The research is limited to the correlation of both variables and does not refer to the cause and effect relation. Non-parametric correlation measures are used. Under a null hypothesis there is no monotonic association between inflation forecast results and expectations, or the two variables are independent at $\alpha = 0.05$.

Auxiliary (qualitative) research will be carried out to explain the quantitative findings. It will cover analysis of the IFT implementation according to four factors (Szyszko 2013, pp. 22-23):

- formal declaration on the importance of inflation forecasts;
- consistency of the decision of the Monetary Policy Committee (MPC) with the inflation forecast result: the rule of thumb is that when the central path of inflation in the monetary policy horizon is above (or below) the target, the interest rates are to be raised (or lowered); when the forecasted inflation is

[3] The number of forecasts produced yearly varies among countries and over time.

within the fluctuation band of the target, any MPC reaction is consistent with the IFT implementation; the central path of inflation at the targeted level means that the rates should remain unchanged;

- timing of the decision: this shows whether the central bank perceives the forecast as the best information on the future state of the economy. If it does, it makes decisions consistent with the forecast message just after the forecast is made;
- justification of the decision: this shows the main rationale behind the decision on the interest rate; the central bank sends a message on the importance of forecast to the public if it refers to the forecast's message in its justification.

4. Results

The empirical results are presented below in Table 4. They are clear for the CNB, the NBH the NBP and SR: the null hypothesis at $\alpha = 0.05$ is rejected – there is a monotonic relationship between the inflation forecast and expectations. The strength of interdependencies varies among countries. The weakest correlation is observed for the Czech Republic, a moderate one for Hungary and Poland, and it may be interpreted as moderate-to-strong for Sweden.[4] Sweden, which was a reference country in the research, proved to be correctly chosen: its longest history in targeting inflation and in forecasting inflation, as well as its consistency in implementing inflation forecast targeting, brought about strong interdependencies between the forecast and expectations. The reason for such a strong correlation may also be of a technical nature – the time series for Sweden was shortened to observations starting in January 2007. This is the date when a technical change was introduced: endogenization of the interest rates.

The strength of interdependencies rises if the lag is longer. This is acceptable because consumers are included in the scope of the research. Households need time to digest the information on such sophisticated topics as inflation forecasts. The charts presented below show the time series (central path for inflation and inflation expectation t+3) for the countries covered by the research.

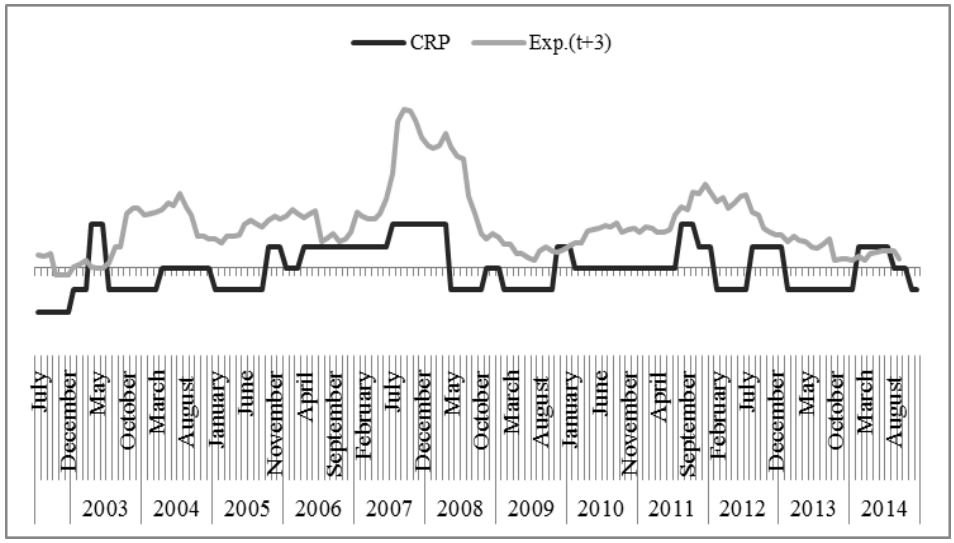
[4] The interpretation of the strength of correlation depends on the variables and the context of the research. Here it is acceptable to assume that a coefficient above 0.7 determines a strong correlation.

Table 4. Interdependencies of the inflation forecast and expectations

CNB	CPR/Exp(t)	CPR/Exp(t+1)	CPR/Exp(t+2)	CPR/Exp(t+3)
r_s	**0.300223**	**0.315742**	**0.323945**	**0.344746**
Gamma	**0.278290**	**0.294854**	**0.302782**	**0.319144**
τ	**0.238926**	**0.253425**	**0.260584**	**0.274611**
NBH				
r_s	**0.406887**	**0.427387**	**0.439394**	**0.436730**
Gamma	**0.361664**	**0.381515**	**0.393794**	**0.394843**
τ	**0.304825**	**0.320833**	**0.331060**	**0.331826**
NBP				
r_s	**0.571530**	**0.590092**	**0.588259**	**0.589018**
Gamma	**0.523190**	**0.539947**	**0.537704**	**0.542294**
τ	**0.449249**	**0.463943**	**0.461651**	**0.464771**
SR				
r_s	**0.703830**	**0.730024**	**0.751113**	**0.754107**
Gamma	**0.736215**	**0.765329**	**0.781538**	**0.780297**
τ	**0.564824**	**0.588714**	**0.602763**	**0.603379**

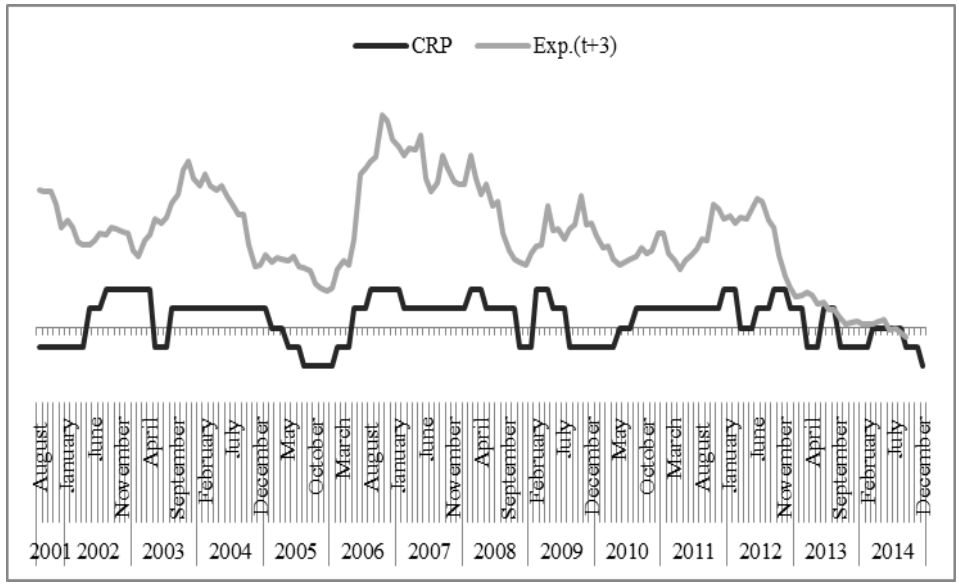
Source: own calculations.

Chart 1. Interdependencies of inflation forecasts and expectations – the Czech Republic



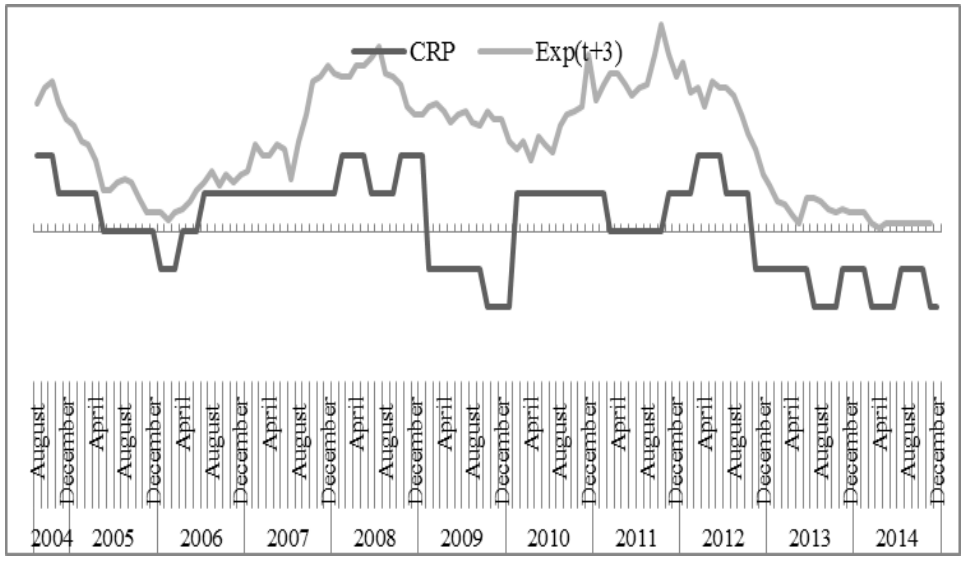
Source: own work.

Chart 2. Interdependencies of inflation forecasts and expectations – Hungary



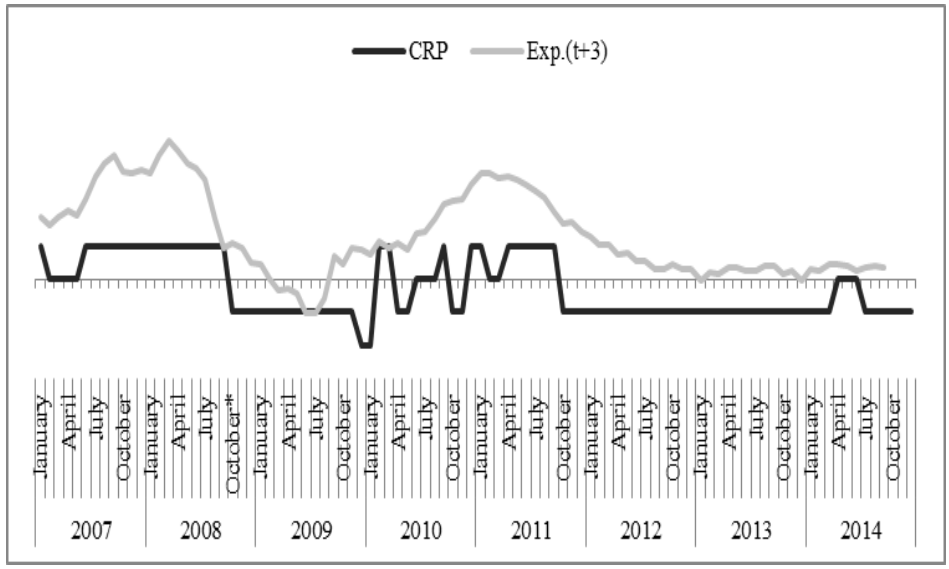
Source: own work.

Chart 3. Interdependencies of inflation forecasts and expectations – Poland



Source: own work.

Chart 4. Interdependencies of inflation forecasts and expectations – Sweden



Source: own work.

The results do not exhibit any relation between the forecast methodology and the strength of the interdependencies. The CNB and SR produce unconditional forecasts (endogenous interest rates). Except for the central path for inflation, the policy path of interest rates is produced and revealed. A policy path consistent with the forecast should result in the projected inflation attaining the goal. In a conditional forecast (in the sample the case of Poland, and Hungary until 2011), there is a counterfactual assumption of a constant interest rate of the central bank. The way in which the public can assess the next step of the central bank and the development of future inflation depends on the conditionality of the forecast. If it is conditional, the relation between the central projection and the inflation goal should be compared. When the forecast is higher that the goal – the public might raise their inflation expectations. If the interest rates decisions of the monetary committee are endogenous within the model, the policy path indicates the possible next decision of the central banker. However, the central path of inflation is also important – if the policy path does not bring inflation back to the target in the monetary policy horizon, it demonstrates to the public that the central bank may not be able to fulfill its goal. In the research there is no answer to the question: Which kind of the forecast better supports expectations?. They both do. The weakest and the strongest interdependencies were observed for unconditional forecasts.

Regarding the results, the next research question concerns the other factors which may influence expectations. There are several possible answers to this question. The first question concerns the central bank's consistency in implementing inflation forecast targeting. If the central bank announces that the forecast is (the most) important input in the decision-making process, and follows this commitment, the public is more inclined to change their expectations. Table 5 briefly describes the qualitative analysis of central banks' consistency in implementing IFT. It presents four factors which help to assess the real significance of the forecast in the decision-making process.

Table 5. Inflation forecast targeting implementation in practice

	The Czech Republic	**Hungary**	**Poland**	**Sweden**
Declaration on the forecast's role in monetary policy	The forecast is of greatest relevance in decision-making	Partial input in decision-making process; reviously: intermediate objective	Partial input in decision-making process	Very important input, together with other information on the future development of the economy
Consistency in IFT implementation	On four occasions the MPC did not follow the message of the forecast; each time this was due to exogenous factors and clearly explained; when the CNB hit zero bound it had to ease monetary conditions via the exchange rate channel	Low - numerous decisions were not in line with the forecast result; they were explained by the current economic situation	The MPC's decisions were in line with the message of the forecast; however a flexible approach to input in the decision-making process was dominant.	The decisions were in line with the message of the forecast except for two cases, which were explained by inflation pressures
Timing of decision-making	Just after the forecast is made	A wait and see position	A wait and see position	Just after the forecast is made
The forecast in explanation of the decision	The main factor, even in the months when the new forecast was not revealed	One of numerous factors; sometimes neglected	One of numerous factors; sometimes neglected	One of numerous factors; sometimes neglected

Source: own work.

There is no simple way to rank the countries considering their consistency in IFT implementation. The CNB was showing the best practice here (in the sense of consistency), however in 2012 it lowered its main rate to 0.05%, which made the process of further lowering of the interest rate impossible. And this is counterintuitive as the interdependencies for the CNB are the weakest. The results are in line with the findings for the other countries – the consistent implementation of the IFT for Sweden resulted in a high correlation coefficient, and the moderate results confirm the attitudes of the NBH and NBP.

There are other possible explanations for the strength of the interdependencies: central bank transparency, including forecasting transparency, and a central bank's credibility. The search for relationships here will be the subject and scope for further research.

5. Conclusions

This paper contributes to the literature on modern monetary policy strategy and its implementation. It focuses on the interdependencies of the inflation forecast results and inflation expectations of consumers. A broad theoretical background shows the importance of inflation expectations in modern monetary policy, as well as the usefulness of the inflation forecast in managing the expectations. These theoretical underpinnings, accompanied with the behaviour of the central banks (producing and revealing inflation forecasts) led to presentation of the hypothesis that assumes the existence of associations between the inflation forecast and consumers' expectations. The empirical analysis proved that for the countries covered by the examination such relationships exist and are statistically significant. For Sweden, which was a reference country here, they are quite strong, while being moderate for Poland and Hungary and the weakest for the Czech Republic.

The main conclusion here is that central banks may use inflation forecasts to influence market information on inflation expectations. This result is remarkable because the research covers the unqualified group of economic agents – consumers. In the first instance, consumers represent the households. However, they are also owners of small and medium-sized enterprises that establish their prices in line with the staggered-prices model (Calvo 1985, p. 384-393). The possibility of managing their expectations brings benefits to a central bank, as was described in the theoretical section.

The research led to further research questions. The first concerns the deeper justification of the differences between the countries. Qualitative analysis of IFT consistency allows for the preparation of some draft conclusions, but there are other factors explaining the situation. One of the crucial factors here may be the mechanism of forming the expectations. The results show the actual hybrid nature of expectations - partly adaptive and partly forward-looking - which is in line with the literature (Gerberding 2001, Forsells, Kenny 2002). The composition of expectations is reflected in the Hybrid New Keynesian Phillips Curve (the idea of bounded rationality, the adaptive learning hypothesis).

The issue of whether households understand the central bank forecast and its communications as a whole was not the subject of this study. Possible differences in interdependencies might lay beneath the forecast interpretation and the interpretation's correctness. Transparency (not only understood as the scope of information revealed but also as the understanding of the information) might be another explanatory factor here.

The other source of the differing results is the quality of the forecast. It was not the scope of research here, but *ex ante* (a model's adequacy) and *ex post* errors of the forecast differ among the countries. The central banks implement different methods of forecasting. As the research covered the period of turbulence on the financial markets and in the economies, one can assume that the model's inadequacy was higher. Some central banks reoriented their policy during the crisis and thereafter, while others hit the zero bound problem. The input to the decision making could be (temporarily) changed.

Inflation expectations play a dual role in monetary policy. On one hand they constitute crucial market information which should be considered by the central bank, while on the other hand this is the information that can be actively shaped by the central bankers. The efficiency of the central banks in shaping expectations via inflation forecasts was assessed here.

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Streszczenie

PROGNOZA INFLACJI WOBEC KSZTAŁTOWANIA OCZEKIWAŃ INFLACYJNYCH. ANALIZA PORÓWNAWCZA

W artykule przedstawiono problematykę oczekiwań inflacyjnych konsumentów i prognoz inflacji banku centralnego. Punktem wyjścia w analizie jest istotna rola oczekiwań inflacyjnych w polityce pieniężnej. To ważka zmienna uwzględniania w procesie decyzyjnym przez komitety monetarne, gdyż obrazuje ona przyszły poziom inflacji. Banki centralne chcą również wpływać na poziom oczekiwań, gdyż kontrola nad nimi ułatwia osiąganie celu nadrzędnego polityki pieniężnej.

Prognoza inflacji jest narzędziem, którego główną funkcją jest kształtowanie oczekiwań inflacyjnych uczestników życia gospodarczego. W obejmującym 4 banki centralne porównawczym badaniu empirycznym (Narodowy Bank Węgier, Narodowy Bank Polski, Narodowy Bank Czech, Bank Szwecji), autorka analizowała istnienie współzależności między prognozami inflacji banków centralnych a oczekiwaniami inflacyjnymi konsumentów. Dane o oczekiwaniach pozyskane są z sondaży i skwantyfikowane. Do badań ilościowych wykorzystano nieparametryczne miary współzależności. Wyniki badań potwierdzają istnienie takich współzależności. Ich siła jest różna w badanych krajach i zmienia się od słabej do umiarkowanej. Badanie otwiera pole do poszukiwań dalszych współzależności.

Słowa kluczowe: *prognoza inflacji, celowanie w prognozę, oczekiwania inflacyjne*

10.1515/cer-2015-0034

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The Location Premises Of FDI In Poland. The Case Of The Lodz Province

Abstract

This paper aims to study the role of various factors in attracting foreign capital to the Province of Lodz. Conclusions are based on the direct questionnaire study conducted among 188 companies with foreign capital which invested in the region. The obtained results indicate that specific Lodz Province (voivodeship) characteristics were of little importance to foreign investors. Both in Poland and in the voivodeship, they were looking for relatively cheap and skilful labour in order to lower their total costs of production. We confirmed that investment incentives were of little importance for the inflow of FDI to the communes and counties of the Province of Lodz. The factors which most discouraged investment in the region were poor transport infrastructure and an uninteresting social infrastructure decisive for the quality of everyday life. Our conclusion is that the inflow of FDI does not eliminate intra-regional disproportions; on the contrary it probably deepens them.

Keywords: *FDI, Lodz Province, Location Decisions*

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1. Introduction

The development of international trade theory has resulted in the divergence from the Heckscher-Ohlin's model, which formed the foundation of previous analyses, and in recent decades theories evolved, mostly due to the novel approaches of Krugman (Krugman 1979) and Melitz (Melitz 2003), towards the development of more realistic models of international trade referred to as the "new" new trade theory (NNTT). According to its assumptions, there are increasing returns to scale, products have many varieties, firms differ among themselves with their cost function and the economy operates in accordance with the rules of monopolistic competition. The basic model may be also extended to oligopolistic market structures, where companies play strategic games (Neary 2010). Hence it is natural that the theory focuses not only, as was the case in Heckscher-Ohlin's model, on the trade in goods but also on the economic operations of multinational enterprises (Rainelli 2003; Helpman 2013), i.e. operators who exercise control over production assets in various countries as a consequence of foreign direct investment (FDI).

One of the three major questions which NNTT is trying to answer with respect to multinational enterprises (MNE) is to identify the factors decisive for the selection of a country wherein to locate economic activities (Antràs, Yeaple 2013). Data concerning the intensity of flows and the size of FDI stock indicate that, when it comes to these aspects, the attractiveness of countries is very much differentiated and also changes over time (e.g. WIR 2013). For the governments interested in obtaining more of the assets usually brought in by FDI, such as capital, technology, managerial know-how and access to foreign markets, it is crucial to understand the background of the phenomenon. On the other hand, experts in international business stress that the decision regarding FDI location is one of the crucial decisions in a multinational enterprise as it impacts on access to markets, production resources, and strategic assets, and by the same token it is vital for the efficiency and competitiveness of such an enterprise (Kandogan 2014).

The assets brought in by foreign investors are especially in demand in economies which, like Central Europe, go through a process of intensive modernisation. This is why global competition for FDI has been going on for many years, which is evidenced by the progressing liberalisation of regulations concerning the FDI in most countries. At the same time, these regulations have become more selective, which may suggest that governments are more and more aware that not all investors are equally welcome from the point of view of their own economic policy objectives (WIR, 2013). According to the vast literature on FDI, their net balance for growth and development is not always positive (see, e.g., Moran, Graham, Blomström eds. 2005, Tytel, Yudaeva 2006, Herzer 2012, Temiz, Gökman 2014).

External factors which impact on the selection of concrete sites in concrete countries or regions have been widely described in the economic literature (for an overview, see, e.g., Blonigen 2005), but researchers have failed to explain many issues and the matter will probably remain open for a long time to come (Blonigen 2005). In addition, firm-specific characteristics influencing location decisions, such as ownership structure, are much less often analysed. They may also play a role, as pointed out by Strange et al. (2009).

From the macroeconomic perspective, in a uniform general equilibrium-based model of location selection only aggregated FDI flows can be considered. In two basic cases the horizontal MNEs are attracted by the big size of the market when trade costs are high enough (Markusen 1984), and the vertical MNEs by the abundance of production factors needed to optimise their geographic configuration of the value chain (Helpman 1984). These are very general reasons, referred to as fundamental and long-term (Azémar, Desbordes 2010), hence they are not very useful for recommendations vis-à-vis current economic policy. On the other hand, the analysis of the many detailed factors that together make up the size of the market, trade costs and abundance of resources causes researchers to use partial equilibrium models and focus on concrete cases which allow them to draw conclusions on what attracts investors, always with the reservation "it depends".

There is a long list of location-specific attributes which impact FDI inflow. Independent variables used by researchers in various combinations include: economic and social stability in the host country (Asiedu 2001, Bartels, Napolitano, Tissi 2014); its foreign exchange rate, taxes, institutions, barriers to trade, and trade with FDI home country (Blonigen 2005); size of the host market and the ease of entry into neighbouring markets; cost of labour, employees' skills, availability and quality of infrastructure, agglomerations benefits (Cheng, Kwan 2000); political risk (Jimenez, de la Fuente, Duran 2011); border effects (Cieślik 2005); subsidies to foreign investors (James, 2009); a liberalised labour market (Azémar, Desbordes 2010); promotion activities of host governments (Harding, Javorcik 2011); and the size of domestic investment in the host country (Lautier, Moreau, 2012). The importance of these factors may vary over time (Bartels, Napolitano, Tissi 2014). However, despite the plethora of analyses devoted to individual variables, the only one undisputable conclusion is that FDI inflow depends on demand as estimated by an entrepreneur (market size) and the estimated investment risk (stability of the business environment and conditions), i.e. it is subject to the general investment decision rules formulated already by Keynes (Lautier, Moreau 2012).

Hence general knowledge concerning the factors decisive for foreign investors' location decisions, so useful to decision-makers, can be supplemented by case studies. They may be of interest not only to central governments but also

to regional and local authorities (Christiansen, Oman, Charlton 2003). This is true not only of federal but also unitary states, where territorial self-governments are separate entities with some degree of independence from the central government. For example in Poland they perform their own economic and social tasks, using their own financial resources, economic assets and human resources, i.e., administration and public services (Wojciechowski 2012). Hence, the inflow of FDI into territories administered by autonomous local governments may create an opportunity to better execute tasks entrusted to them by law.

First of all, local governments, due to their legal and political obligations vis-à-vis their communities, should be very much interested in the positive long-term outcomes of FDI inflow: new production facilities, more employment opportunities, better paid jobs, local suppliers' connections to more advanced enterprises, and additional tax revenues. Economic successes which improve the standard of living of the population are strong arguments for winning votes in an election campaign. At the same time, the arrival of a foreign investor may easily destabilize the local community and economy by, e.g., threatening the natural environment, crowding out local businesses, contributing to higher unemployment (Gorynia ed. 2005), or increasing demand for specific categories of workers and skyrocketing their wages (Mullen, Williams 2007). A high quality job done by local authorities may facilitate the absorption of positive outcomes of FDI and mitigate their negative impact (Wang et al. 2013). This is the case because, in contrast to the central or even regional levels, foreign investors are not anonymous to local authorities, who often engage in direct contact with them. Thus, effectively dealing with an investment at the local administrative level, cross-cultural sensitivity, moderation of potential conflicts between an investor and the local community (Calvano 2008), and readiness to help the investor, especially in recruiting appropriate employees, become much more important. Last but not least, the presence of a big MNE may turn out to be more crucial to building a positive image of the local economy and its local authorities in the world than for the image of the country as a whole. In sum, the attitudes and professionalism of local authorities are decisive for the economic and social climate, which is an important factor for any businessperson.

Empirical studies over the determinants of FDI spatial distribution are much more numerous with respect to the developed countries' perspective than with respect to countries with transition economies (Chidlow, Salcuviene, Young 2009), where they are focused mainly on China (Cieślik, 2005a). In Poland the issue has been dealt with at the regional level by, *inter alia*, Cieślik (2005), Cieślik

(2005a), and Cieślik, Ryan (2005), and at the macroregional level by Chidlow, Salcuviene, Young, (2009),[1] while at the local level of the Lodz voivodeship it has been analysed by Różański (2010) and Świerkocki (2011).

This article analyses the role of various factors in attracting foreign capital to the Province of Lodz as of the end of 2010.[2] It is a descriptive presentation which, contrary to other surveys in Poland, makes an effort to examine internal location factors within the province at the level of communes and counties (LAU2 and LAU1).[3] Thus we try to broaden the scope of the current research on FDI in Poland by concentrating on the local economy, and we offer implications for both the practice and policy of local authorities. Conclusions are drawn based on the results of a direct questionnaire study.

2. Study description and method

This article was drafted on the basis of results of a direct questionnaire study conducted in 2011 by a team of academics of the University of Lodz from the Department of International Trade, and students from the Faculty of Economics and Sociology who conducted the polls (Świerkocki 2011).

The study included 188 companies with foreign capital (CFCs) from the voivodeship of Lodz i.e. 9% of their overall number. They were located in 28 towns and cities in the Province (voivodeship) of Lodz. Statistical data show that the operations of foreign investors are concentrated in cities, therefore almost all of the respondents were based there. We managed to reach the CFCs from all the more important cities of the voivodeship. As many as 63% of CFCs in the sample were based in the city of Lodz, i.e. the capital of the voivodeship. According to National Register of Economic Entities (REGON 2009), this proportion accurately reflects the share of CFCs from the capital of the voivodeship in relation to their total population.

[1] Following the distribution pattern of FDI in Poland, the authors grouped the provinces (voivodeships) into five macroregions, while the classification by the Central Statistical Office (Polish abbr. GUS) distinguishes six macroregions in accordance with NUTS1 (GUS, 2014).

[2] The earlier version of the text was presented at the 40th European International Business Academy (EIBA) Annual Conference in Uppsala, Sweden, in December 2014. We want to thank the two anonymous referees and conference participants for their comments.

[3] A Local Administrative Unit (LAU) is a low level administrative division of a country, ranked below a province or a region. In the EU LAUs are basic components of NUTS regions, according to Eurostat classification.

The sample included CFCs from the industry and services sectors only. The study covered mostly manufacturing CFCs and only 5% of construction enterprises. Among CFCs active in services, half was made up of trade companies and 8% were transport and warehouse companies. Other types of businesses were very much dispersed.

3. Motivations behind the location of FDI in Poland

When working on the study we assumed that seeking a particular location for an FDI begins with the identification of the desired host country. There are no uniform rules, however. For example decisions on FDI location made by Spanish businesses vary depending on whether the expansion is to take place in the countries of the "old" or "new" European Union (Jimenez, de la Fuente, Duran, 2011). Some of our respondents admitted that when considering the choice they immediately compared the characteristics of Lodz with its competitors (e.g. with Bratislava, Kosice, Prague, Brno, Budapest), disregarding the comparison of conditions at the national level.

To the best of the respondents' knowledge the most important motivation behind FDI location in Poland was connected with the possibility to find a relatively cheap labour force with suitable skills (Świerkocki 2011). This was the most common reason given by foreign investors in Poland (e. g. Różański 2010, Kalinowski 2008, Cieślik 2005), and the study confirmed them.

Hopes for sales in the Polish market also ranked high in location motivation. They were assessed as a relatively large, especially when compared to other countries of the "new EU" which were most often considered as an alternative place of an investment's location. However the answers varied a great deal. While a large number of declarations indicated that the factor was seriously considered, almost one quarter of companies' representatives stated that it did not play any role or that its impact was "very little" or "little" (Świerkocki 2011).

This variation can be explained by the differing shares of exports in sales. The manufacturing sector in particular was export-oriented. In the opinion of two thirds of its companies achieving more than 75% of revenues abroad, the size of the domestic market in the choice to locate the investment in Poland was of little or no importance. The biggest impact of the domestic market upon the decision to invest in Poland was declared by trade companies (Świerkocki 2011).

4. Motivations behind FDI location in the Lodz Region

In order to identify the reasons for location of FDI in the voivodeship of Lodz, the representatives of CFCs were asked to evaluate the extent to which specific factors were encouraging or discouraging. On a 7-degree scale, they assessed 26 suggested reasons (see Table 1 below).

Table 1. FDI location determinants in the voivodeship of Lodz *

No.	Specification	Average of answers	Standard deviation	Variation
1.	Possibility to find staff with adequate skills	5.887	1.240	1.539
2.	Salaries and wages	5.816	1.078	1.162
3.	Possibility to find workers with adequate skills	5.812	1.308	1.710
4.	Production costs (services)	5.737	1.208	1.460
5.	Closeness (geographical) to suppliers and business partners	5.339	1.335	1.782
6.	Availability of developed plots, production, office and warehouse space, etc.	5.049	1.461	2.134
7.	People's mentality	4.995	1.389	1.929
8.	Profile of vocational schools and universities	4.984	1.270	1.614
9.	Possibility to sell in the market of the voivodeship	4.866	1.152	1.328
10.	Economic image of the voivodeship	4.720	1.079	1.164
11.	Presence of business environment institutions	4.640	1.000	1.000
12.	Attitude of commune authorities to foreign investors	4.627	1.358	1.844
13.	Existing competition in the market of the voivodeship	4.602	1.077	1.160
14.	Lodz Special Economic Zone	4.529	1.035	1.071
15.	Attitude of county authorities to foreign investors	4.489	1.250	1.563
16.	Public safety	4.443	1.314	1.726
17.	Attitude of voivodeship authorities to foreign investors	4.435	1.190	1.416
18.	Access to information about the voivodeship	4.435	1.064	1.132
19.	Support for foreign investors from communes, counties or the voivodeship	4.321	1.327	1.760
20.	Natural environment	4.258	0.952	0.906
21.	Social infrastructure (hotels, catering, culture, etc.)	4.151	1.470	2.161
22.	Railway infrastructure	3.941	1.356	1.840
23.	Speed of operations and flexibility of administration at various levels in the voivodeship of Lodz	3.871	1.619	2.621
24.	Stability of regulations adopted by the authorities at various levels in the voivodeship of Lodz	3.863	1.248	1.558
25.	Road infrastructure	3.763	1.958	3.836
26.	Airport infrastructure	3.753	1.687	2.847

* Using the following responses to each factor: encouraging to the following extent: large (7), medium (6), little (5), neither encouraging nor discouraging (4), discouraging to the following extent: little (3), medium (2), large (1).

Source: own study.

Similar to the part concerning the motivation of foreign investors to come to Poland, in this analysis both the distribution of answers and statistical ratios (average of answers, variation, and standard deviation) were used. The calculated Cronbach's alpha coefficient was 0.884, which indicates a very high accuracy of the measurement.

The answers were mostly positive and neutral. The latter, describing a given factor as one "of no importance" shows that it was not considered when making the decision whether to invest in the voivodeship of Lodz. Negative answers indicating that a factor was rather insignificant were relatively few.

All factors included in the questionnaire could be divided into three groups, reflecting supply conditions, demand conditions and institutional conditions.

It turned out that foreign investors were attracted to the voivodeship of Lodz mostly by its favourable supply conditions, such as:

1. low nominal salaries and wages,
2. low level of overall costs of doing business,
3. possibility to find workforce with suitable skills,
4. opportunity to find management staff with suitable skills.

Answers evaluating the impact of salaries and wages and overall costs were rather unanimous. There were no major differences of opinion among companies from different sectors and with different export orientations. As for the possibility to find suitable employees (workforce and staff), the diversification of answers was also not very large across companies by sections and sectors of the economy. However, the latter element constituted a greater encouragement to invest in manufacturing, compared to trade.

Greater differences in the evaluation of the importance of available human capital occurred among companies with differing levels of internationalization. Those with larger shares of exports in sales (from 25%) much more appreciated the possibility to find skilful workers than those which did not export or those which do so only occasionally. In Polish conditions exports, especially to Western countries, may still require an offer of better quality than that for the domestic market. Sales abroad also entail a large organizational effort and higher trade costs, as is explained in numerous theoretical works (e.g. Melitz 2003) and confirmed by empirical research (e.g. EFIGE 2011). Therefore companies oriented at foreign markets emphasise the employment of workers with relatively high skills and greatly appreciate the possibility of finding them. As a consequence of this demand, CFCs positively evaluated the profile of education in local universities and vocational schools. There were fewer neutral opinions and on average the opinions were more favourable.

CFCs also paid much attention to agglomeration benefits resulting from the presence of suppliers and business partners. Some of them invested in the region following producers of final goods with whom they used to cooperate in other countries. They appreciated developed plots, production space, and the availability of offices at competitive prices compared to other parts of Poland. In the respondents' opinion market competition was not very intense, and business environment institutions (i.e. Lodz Regional Development Agency, Foundation for Promotion of Entrepreneurship in Lodz, Lodz Regional Science and Technology Park) were quite numerous although not very important for implementing their projects.

An important part of supply conditions concern the availability and quality of various types of infrastructure, which in sum rather discouraged the respondents from investing in the region. Transport infrastructure ranked especially low, and the averages obtained in this category were the lowest of all factors in the study. The critical opinions referred almost unanimously to all types of transport infrastructure: roads, railways, and airport. While we also came across positive ratings, they were much more scarce than for other factors. The distribution of ratings divided by sections and sectors of the economy and export involvement were very consistent. Poor transport infrastructure clearly did not allow the region to make good use of its geographical advantage. Our respondents had a little better opinion about public safety and social infrastructure like hotels, restaurants, and cultural amenities making business and private life easier.

The impact of demand conditions in the voivodeship on the FDI location decision was assessed differently (see Table 2 below). Half of our respondents indicated that the possibilities of sales in the local market were of "no importance" and were not taken into consideration in choosing the site for an investment. The other half consisted mostly of trading CFCs, for which, obviously, this factor was rather decisive in making a positive decision.

Table 2. Impact of market size in the decision to locate in the voivodeship of Lodz

Factor:	Number of CFCs with the share of the Lodz voivodeship in sales:				Lack of data	Total
	to 0.99%	1% - 24.99%	25%- 49.099%	over 50%		
discouraging to a medium extent	-	1	-	-	-	1
of no importance	50	35	5	4	10	104
encouraging to a little extent	6	16		1	3	26
encouraging to a medium extent	7	13	1	5	2	28
encouraging to a large extent	3	7	3	14	-	27
Lack of data	1	-	-	1	-	2
Total	67	72	9	25	15	188

Source: own study.

Institutional conditions (in the behavioural sense) consist of formal (legal) rules and informal constraints stemming from various social norms (see, e. g., North, 1991). They were not evaluated in a homogenous way by CFCs. The factor defined as "people's mentality" (i.e. attitude to foreigners and foreign working methods, reflecting cultural distance and clearly belonging to the category of informal institutions) was considered on average as relatively encouraging to invest in the region. In the opinions of one third of respondents the factor did not matter. They perceived the relations with territorial self-government less positively. Half of the CFCs declared that the attitude of authorities at various levels vis-a-vis foreign investors was generally of no importance. This suggests that local civil officers neither encouraged nor discouraged foreign entrepreneurs when it came to the location of an investment project in the voivodeship, being thus indifferent to their presence. Also half of the CFCs stated that formal institutions, i.e. the possibility of receiving various forms of support from the authorities, were of no importance in their decision either. This may mean that available instruments (limited mostly to tax breaks, legal and economic advice, assistance in searching for investment sites, and providing road infrastructure to large investors) were not attractive enough when compared with the fundamental supply factors. In this context it is worth stressing that a clear majority of respondents claimed that the presence of the Lodz Special Economic Zone (SEZ) offering conditioned tax incentives and other assistance did not have any bearing on their choice of the region. As many as 37% of surveyed companies launched their operations within the present borders of the voivodeship of Lodz before the Lodz Special Economic Zone was established in 1997, and other respondents did not wish to operate in the Zone. Similar conclusions about the insignificance of the SEZ for FDI location decisions in Poland can be found in Różański (2010), Cieślik (2005), Cieślik and Ryan (2005).

In general, the distribution of opinions about the attitude of territorial self-government towards investors was similar at the different levels (communes, counties and the voivodeship). There were no major differences in this respect among companies representing different sections of the economy and engaged in exports to a different degree. At the same time, the most critical evaluation concerned two aspects of relations with the administration – speed and flexibility of decision making, and the stability of adopted regulations. The obtained average scores (below 4), indicate a prevalence of negative opinions and are among the lowest for all factors which impact location decisions in the region. Such a critical assessment prevailed among CFCs from all industries and sectors of the economy (see Table 3 below).

Table 3. Evaluation of territorial self-government and the location of FDI in the voivodeship of Lodz*

Sector or section of economy		
	Speed and flexibility of reaction by the administration at various levels in the voivodeship of Lodz	Stability of regulations adopted by authorities at various levels in the voivodeship of Lodz
	Average of answers	
Industry,	3.947	3.979
including manufacturing	3.940	3.881
Services,	3.793	3.742
including trade	3.792	3.596
Total	3.871	3.863

* Ranking scale of answers as in Table 1

Source: own study.

The question concerning determinants of FDI location in the Province of Lodz also provided for an open answer as it included the option "Other, please specify". Thus we were able to learn about a collection of various motives reflecting the role of informal institutions behind the location decision, which often are based on special cases. These include: an attempt to acquire a particular company based in the voivodeship of Lodz; former business links with enterprises in the region; personal contacts; and emotional reasons such as the origin of a foreign investor or even historical sentiments from before World War II. As over two-thirds of respondents did not select the "Other" option, we should thus assume that the majority of them thought that the list of potential factors given in the closed question was complete and the study well reflected the reality. But on the other hand it should be noted that the remaining one third who selected the "Other" response usually claimed that it was the most important and decisive element for choosing the location for their company in the region of Lodz. Such a large margin of individuality in business decisions, combined with the necessary economic calculations, probably reflects the fact that most of investors established small and micro-CFCs here. Their owners usually have a different business perspective than the managers of large MNEs (Strange et al. 2009).

5. Factors encouraging or discouraging for the location of FDI in the Lodz Region

In order to verify the accuracy of the answers regarding the 26 selected factors which could influence the decision about investing in the Lodz voivodeship, we additionally asked our respondents to select from among them the three the most encouraging and three the most discouraging ones. Accordingly we received and compared new rankings based on Table 1. The first group consisted of:

1. factors identified most often as encouraging (ranked first, second or third),
2. factors considered as the most encouraging (ranked first),
3. factors which scored the highest averages in the scale question.

Table 4. The most encouraging factors for the location of FDI in the voivodeship of Lodz

	Production costs (services)	Closeness (geographical) to suppliers and business partners	Possibility to recruit staff with adequate skills	Possibility to recruit workers with adequate skills	Salaries and wages	Possibility to sell in the market of the voivode-ship	Availability of developed plots, production, office and warehouse space, etc.	Mentality
1. Factors indicated as the most encouraging and ranked first, second or third								
Number of scores	62	57	51	49	44	33	27	-
Order	1	2	3	4	5	6	7	-
2. The factor indicated as the most encouraging								
Number of scores	22	30	15	19	8	21	11	-
Order	2	1	5	4	7	3	6	-
3. Ranking based on average of answers calculated in the scale question*								
Average of answers	5.737	5.339	5.887	5.812	5.816	x	5.049	4.995
Order	4	5	1	3	2	x	6	7

*contained in Table 1.

Source: own study.

In the first two perspectives the results were very similar (Table 4, points 1,2). They contained the same items, with some differences only in their positions in the rankings. Both hierarchies showed a large similarity to the selection of factors, based on the averages calculated from the answers to the scale question (Table 4, point 3). Its first five items also coincided with the most important ones in two previous rankings. Differences were present for further ranks. To summarize, based on Table 4 one could indicate with certainty the group of the most important factors for foreign investors. They were:

1. low production costs,
2. geographical vicinity of suppliers and business partners,
3. possibility to recruit staff with adequate skills,
4. possibility to recruit workers with adequate skills,
5. low salaries and wages.

Among factors essential, but probably a little less important, we found:

1. possibility to sell in the market of the voivodeship,
2. availability of developed plots, production, office and warehouse space, etc.,
3. people's mentality.

The second group of new rankings based on Table 4 consisted of:

1. the factors most often mentioned as discouraging (ranked first, second or third),
2. factors considered the most discouraging (ranked first),
3. factors which scored the lowest averages in the scale question.

The question about discouraging factors, unlike the one concerning the encouraging ones, was troublesome to many respondents. They were often unable or unwilling to point out any specific element. Perhaps the main reason was that we were not able to ask this question to those companies who abandoned the idea of investing in the Lodz voivodeship and located their facilities elsewhere in Poland or in other countries. So it may be said that the rankings point rather to disadvantages (weaknesses) of doing business in the region rather than factors discouraging investment in the region. Therefore the percentage of obtained answers was only 70%.

In the first two rankings based on a non-scale question one finds the same factors and their order is identical (Table 5, points 1, 2). They also occur (although in a different order) in the list based on the average from the scale question (Table 5, point 3). With the exception of railway infrastructure, the results are coherent. Thus we can conclude that the most discouraging factors for foreign investors in the region are the ones from Table 5, points 1, 2.

Table 5. The most discouraging factors for the location of FDI in the voivodeship of Lodz

	Road infrastructure	Speed and flexibility of administration at various levels	Stability of regulations adopted by the authorities at various levels	Airport infrastructure	Social infrastructure	Railway infrastructure
1. Factors identified by respondents as the three most discouraging						
Number of scores	51	39	38	34	26	-
Order	1	2	3	4	5	-
2. The factor identified by respondents as the most discouraging						
Number of scores	39	22	13	11	5	-
Order	1	2	3	4	5	-
3. Ranking based on average of answers calculated in the scale question*						
Average of answers	3.763	3.871	3.863	3.753	4.151	3.941
Order	2	4	3	1	6	5

*contained in Table 1.

Source: own study.

6. FDI location and the differences in the development of counties in the Lodz Province

So far we have outlined the motivation behind choosing Poland and its provinces as FDI location by investors who launched their economic operations in the Lodz voivodeship. Now we shall identify relations between the characteristics of the various counties in the Lodz voivodeship and FDI distribution. Our main reference point will be the level of economic development of counties, which represents in a nutshell the factors decisive for the location decision, such as agglomeration benefits, workers' skills, labour costs, and availability and quality of infrastructure (Cheng, Kwan 2000).

The administrative structure of the Lodz voivodeship includes 24 counties (poviats) with three townships (towns having the rights of counties). Development rankings or similar surveys concerning intra-regional differentiation at the level of these units have been conducted so far by only a handful of public institutions and research centres in Poland (Jabłoński, Robaszek 2000, Spójność… 2009, Diagnoza… 2013). We used the study by Krajewska (2012) and the ranking of counties by the percentage of urban population. The first choice was dictated by the

comprehensive nature of the study, which compared counties in 12 economic and social categories. The second was guided by the results of other analyses, which suggested that counties with a higher percentage of urban population achieve a higher level of economic development (Burdziak, Myślińska 2008). Hence, the indicator may be interpreted as its approximate measure.

On top of that, our analysis takes account of the following individual variables which describe the economic performance of a given county (Krajewska 2012) and may impact its overall location attractiveness:

1. communes' own revenue per capita, aggregated at the level of counties,
2. gross fixed assets per capita,
3. number of economic operators per 10 K inhabitants,
4. industrial production sold per capita,
5. average gross remuneration,
6. EU funds per capita,
7. unemployment rate.

The above seven variables were identified for each county, starting from the best position in the hierarchy (1) to the worst (24). The sum of scored points determined the rank of a given county. Rankings of individual variables and general development rankings of the counties in the Lodz voivodeship were compared to the rankings of counties by the number of CFCs and FDI stock value in 2011, which we computed based on the data of the Central Statistical Office (GUS 2014). In order to specify which variables might impact the choice of a county as an FDI location we used the Spearman's rank order-correlation coefficient (r_s). It assesses the statistical relationship between two variables, i.e. two-dimensional correlation. By using it, we could identify the strength and make suppositions about the direction of dependence between analysed characteristics by comparing the ranks of two variables. This coefficient, contrary to the Pearson correlation coefficient, measures a broader scope of relationships showing a monotonic dependence between them, which does not have to be linear. It is also more resilient to the presence of outliers in a sample (Sobczyk 2010).

There are several versions of Spearman's coefficient. The study was conducted using the formula used in the SPSS software (version 14.0 PL). The coefficient adopts values within a closed interval [-1, +1]. The closest the r_s is to the absolute value of 1, the stronger is an analysed relationship. A positive sign indicates that there is correlation, while a negative sign means the distinguished characteristics are divergent. The rank correlation coefficient may be assessed against its statistical significance.

Coefficient r_s may be used when analysed characteristics are measureable and the sample is small, and also when the characteristics are qualitative and we can put them in order (Rószkiewicz 2002, Sobczyk 2010). The data used in the study met these conditions.

Results of the calculations are presented in Table 6. They demonstrate, firstly, that general coefficients reflecting the level of economic development of counties are clearly correlated with FDI stock in two aspects (quantitative and value-wise). The correlation is highly significant at the level of p = 0.01, and significant at p = 0.05 (respective values of the coefficients are below these thresholds).

Table 6. Correlation between the development level and FDI location in the counties of the Lodz voivodeship – Spearman's rank correlation

Item	value of the coefficient (p)		significance of the coefficient (p)	
	No. of CFCs	FDI value	No. of CFCs	FDI value
General coefficients				
General ranking	0.579	0.540	0.003	0.006
Percentage of urban population	0.766	0.689	0.000	0.000
Individual coefficients				
Own revenues of communes in the county per capita	0.749	0.627	0.000	0.001
Gross fixed assets per capita	0.673	0.695	0.000	0.000
No. of economic operators per 10 K inhabitants	0.578	0.448	0.001	0.028
Industrial production sold per capita	0.390	0.446	0.060	0.029
Average gross remuneration	0.260	0.421	0.220	0.041
EU funds per capita	0.047	0.033	0.826	0.880
Unemployment rate	-0.090	0.156	0.090	0.467

Source: own computations based on SPSS software.

Secondly, there is a strong correlation dependence in counties between the number of CFCs and the value of FDI resources, on the one hand, and communes' own revenues, the value of fixed assets, and the number of economic operators per capita on the other hand. These dependencies are statistically highly significant, which is shown by the value of p coefficients.

Thus, both patterns suggest that there is correlation between the distribution of FDI stock in the Lodz Region and the development level of its counties. This would mean that FDI deepens territorial economic differentiation in the voivodeship rather than eliminating it.

At the same time, some individual variables connected with economic development turned out to be insignificant to investors. The first one is the use of structural funds by counties. The reason may be the timing of our study, which overlapped with the beginning of the programming period, when the allocation of funds had not yet fully started. Another possible reason may be the relatively low interest of MNEs in regional EU programmes, as the access to these is hampered by numerous and complex administrative procedures. This may also confirm the slight importance of state aid tools, partly co-financed with EU money, to foreign investors. The same was suggested by the results of another study, which concluded that investment incentives were not important for the inflow of FDI entities to the communes and counties of the Lodz voivodeship (Dorożyński, Świerkocki, Urbaniak 2014).

Another individual variable not connected with the inflow of FDI is the unemployment rate in counties. There are several reasons for this. First and foremost, the unemployment rate in all counties, including Lodz, remains high, albeit differentiated. Answers to the questionnaire show that when choosing a location in a region, investors were guided by the low costs of labour and the possibility to find skilled workers. This is confirmed by the statistically significant and positive correlation between average remuneration in counties and the stock of FDI, which concentrated in more developed locations where the remuneration was higher because of the higher skills of the workers. But we cannot forget that CFCs usually pay their employees better than domestic companies, so FDI inflow increased the average wage in the county.

The third individual variable which was little correlated with FDI is the value of industrial production sold per capita in a county. The dependence confirms a small relationship between the condition of a particular industry and investors' location decisions, as the investors were probably not very much interested in cooperation with local businesses and did not look for subcontractors. Hence the technological and financial *spillover* effects, which FDI may potentially bring, were surely modest in the Lodz region.

7. Conclusions and recommendations for local and regional authorities

The main objective of the paper was to identify those factors decisive for the inflow of FDI into the Lodz voivodeship. The voivodeship is one of moderately prosperous, moderately internationalised and moderately attractive regions in Poland, which in turn, despite a relatively high GDP growth rate in the last 25 years, is still one of the least wealthy EU member states (Kaliszuk 2014). Our empirical study demonstrated that the region's individual characteristics were of little

importance to those foreign entrepreneurs who decided to launch their economic operations here. In both in Poland in general and the voivodeship in particular, they were looking first of all for relatively cheap and skilful labour, meaning that they were guided primarily by the will to enjoy the advantages stemming from low costs of production. That motivation was true mainly for investors whose expected a larger part of their output to be exported rather than sold in the domestic market. At the same time, skills were more important than remuneration, as more FDI targeted counties with a lower unemployment rate and higher salaries and wages. Investment incentives offered by the authorities at the central, regional or county (commune) level were of secondary importance for the location decision.

Foreign investors also listed factors which were the most discouraging in terms of commencing economic operations in the Lodz voivodeship, and indicated its main disadvantages. These included: poor transport infrastructure (road, airport, and railway) and a little interesting social infrastructure, decisive for the quality of life in the region (lack of international schools in the region, poor quality of hotel, restaurant and entertainment offers). The obsolete infrastructure prevented CFCs from fully exploiting the location advantage of the voivodeship, which is naturally situated at the junction of transportation routes North – South and East – West. Many critical remarks, although not of fundamental importance, concerned the regional and local administration. On the one hand, they resulted from the opaqueness of Polish law, and on the other hand from complex administrative procedures, lack of business information, and the moderate-at-best quality of services offered by public institutions. It also seems that many local authorities did not pay much attention to attracting foreign capital to their jurisdictions.

The Lodz voivodeship is very much differentiated when it comes to the level of economic development of counties. The inflow of FDI does not eliminate these disproportions; on the contrary it rather deepens them. This is because there is a clear correlation between FDI inflows (in terms of value and quantity) and the development level of counties. A similar dependence has been observed between FDI inflows and communes' own revenues in a county, and fixed assets values.

The results of our study can be used as inspiration for several conclusions addressed to regional and local authorities, bearing in mind however their limited competence, as most questions are decided by the central administration (e.g.; law making and funding for infrastructure above the regional level). Firstly, the policy that they pursue vis-a-vis FDI should result from the economic development strategy of a given voivodeship and be based on knowledge about its comparative advantages. Secondly, various tools should be used more extensively in order to promote the region. In particular counties and communes need to have a presence in the Internet and seek to establish direct

relationships with potential investors by, *inter alia*, being actively involved in business missions abroad. Thirdly, education is worthy of attention as it should facilitate matching regional labour resources with foreign investors´ demands (e.g. through grants and internship schemes). Fourthly, there is still a lot of room for manoeuvre to improve services to investors, in particular in smaller towns, through closer cooperation among the administrations at different levels and with the business environment institutions. Fifthly, having an attractive offer of investment location and good social infrastructure are vital. Sixthly, we need a professional and stable staff in local government institutions, which would be responsible for economic policy-making at both the regional and local levels.

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Streszczenie

PRZESŁANKI LOKALIZACJI BIZ W POLSCE. PRZYKŁAD REGIONU ŁÓDZKIEGO

Głównym celem artykułu jest ocena znaczenia czynników, które przyciągają kapitał zagraniczny do województwa łódzkiego. Podstawę do wyciągania wniosków stanowią wyniki badania kwestionariuszowego przeprowadzonego wśród 188 przedsiębiorstw z udziałem kapitału zagranicznego.Uzyskane wyniki wskazują, że specyficzne cechy województwa miały niewielkie znaczenie dla inwestorów zagranicznych. Zarówno w Polsce, jak i w regionie, poszukiwali oni przede wszystkim taniej i wykwalifikowanej siły roboczej, aby obniżyć całkowite koszty produkcji. Potwierdziliśmy również, że zachęty inwestycyjne miały drugorzędne znaczenie dla napływu BIZ do gmin i powiatów województwa łódzkiego. Do inwestowania w regionie najbardziej zniechęcała infrastruktura transportowa oraz społeczna, która determinuje jakość życia w województwie. Podsumowując, napływ BIZ nie eliminuje dysproporcji wewnątrzregionalnych, wręcz przeciwnie, raczej je pogłębia.

Słowa kluczowe: *BIZ, region łódzki, decyzje lokalizacyjne*

10.1515/cer-2015-0035

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European Microfinance – Relevance, Efficiency And Impact

Abstract

Microfinance aims at providing basic financial services such as loans, savings and insurance to socially and financially excluded persons and micro-entrepreneurs. Among these services, microcredit is the most recognizable instrument of microfinance. Microcredit supplies financial means to start up businesses and to finance microenterprises.

Microfinance originated in poor countries. In recent years, however, it has also gained some recognition in European countries. This article presents the relevance, efficiency and impact of microfinance policy and its policy instruments with respect to support for microenterprises in the European Union.

***Keywords**: microfinance, EU policy, social and financial exclusion*

1. Introduction

This paper focuses on access to capital as one of the components of starting up and running a business. The need to acquire capital is faced by enterprises of various sizes and types at different stages of their development. It is also a common need faced by unemployed persons who would like to start their own business.

Access to capital is key to the proper functioning of enterprises, regardless of their size. However, even in prosperous economies enterprises encounter obstacles in acquiring funds. Uncertainty and information asymmetry between the party seeking capital (the enterprise) and the party providing capital (the

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financial institution) create barriers of a structural nature, especially for micro, small and medium-sized enterprises (MSMEs). MSMEs are defined according to their staff headcount, turnover, or annual balance-sheet total (Commission of the European Communities 2003), as follows:

- medium-sized enterprise - employs fewer than 250 persons, with an annual turnover that does not exceed EUR 50 million or whose annual balance-sheet total does not exceed EUR 43 million;
- small enterprise - employs fewer than 50 persons and has an annual turnover and/or annual balance sheet total which does not exceed EUR 10 million;
- microenterprise - employs fewer than 10 persons and has an annual turnover and/or annual balance sheet total which does not exceed EUR 2 million.

It can be argued that the younger and smaller an enterprise is, the more challenging is its financing. At the present time, which is marked by crisis,[1] microenterprises and the self-employed encounter more difficulties acquiring capital from traditional sources. It is even more difficult for members of ethnic minorities or women entrepreneurs.

In recent years, the conditions for business have worsened, particularly with regard to the financing of MSMEs by the banking sector. This situation highlights the growing role of microfinance, which is a potentially important instrument to counteract the negative effects of the crisis and to support a balanced growth that would promote social inclusion. This paper concentrates on microfinance, with special emphasis placed on microcredit as its most recognizable instrument, one which also plays a significant role in raising capital for small and medium-sized enterprises. The aim of this paper is to present and analyze the policies of the European Union aimed at developing microfinance, and to assess the effects of the measures taken. The study describes the European experience in micro funding by presenting the specifics of European microfinance, types of microfinance institutions, and the policies and regulations concerning microfinance services. The outcomes of the considerations should serve as a basis for drawing conclusions on how to improve the efficiency of the programs and the sources of financing.

The lack of capital is most acute for small and medium-sized enterprises, which play a significant role in economies as they stimulate structural changes and create workplaces. Raising funds has always been a significant obstacle for their activity, despite the fact that their demand for capital may be relatively small. European countries offer many different sources of funding for business activities, although not every enterprise has access to them, especially among the group comprised of microenterprises. Table 1 below presents the most important development barriers for European SMEs, in %, for the years 2010, 2012, 2014.

[1] The crisis from 2007, which in the opinion of many continues and is in a subsequent stage.

Table 1. The most important development barriers for European SMEs in % (in euro area)

Type of barrier	Type of enterprise								
	Micro			Small			Medium		
	2010	**2012**	**2014**	**2010**	**2012**	**2014**	**2010**	**2012**	**2014**
Finding customers	29.7	26.0	22.3	23.1	22.8	22.4	24.6	24.6	25.5
Competition	14.2	12.8	13.6	14.7	12.4	13.6	17.0	14.9	14.9
Access to finance	**17.2**	**17.2**	**13.3**	**16.6**	**15.4**	**12.2**	**12.0**	**13.4**	**9.8**
Costs of production or labour	11.4	14.3	13.9	13.9	13.8	13.2	14.1	12.9	13.8
Availability of skilled staff or experienced managers	8.7	9.2	13.0	15.3	16.8	17.5	15.6	15.6	17.0
Regulatory constraints	6.6	11.7	14.1	6.0	11.3	14.4	6.3	12.2	13.8
Other/Don't know/No answer	12.2	8.8	9.8	10.4	10.4	6.7	10.4	6.4	5.2

Source: own elaboration based on: European Central Bank, Data of the Survey on the access to finance of enterprises, https://www.ecb.europa.eu/stats/money/surveys/sme/html/index.en.html, (accessed on 11.06.2015).

Access to finance was, in 2010 and 2012, the second most pressing concern (after finding customers) among European microenterprises. It was cited by approximately one in seven respondents. In 2014 access to finance was the most important problem for only 13.3% of the respondents in this group.

Raising funds has always been a significant obstacle for SMEs' activity, even though their demand for capital may be relatively small, particularly in the case of microenterpises (see Table 2 below).

Table 2. The amount of loans in the European SMEs sector (2009-2011)

Use and size of the loans	Enterprise		
	Micro	Small	Medium
No loan	54.0	44.4	40.3
Less than EUR 25,000	17.5	9.4	3.5
EUR 25,000 - EUR 100,000	17.9	18.3	9.3
EUR 100,000 - EUR 1,000,000	7.6	22.2	27.0
More than EUR 1,000,000	0.9	3.9	17.3
Don't know/No answer	2.1	1.7	2.6

Source: own elaboration based on: European Central Bank 2011, *SMEs Access to Finance*, https://www.ecb.europa.eu (accessed on 11.06.2015).

Taking into consideration the problem of lack of capital and the relatively small demand for it, improvement of the access to finance may be possible by use of microfinance instruments.

2. Microfinance in the European dimension

Microfinance is that part of finance that is directed towards the poor strata of society. Unlike the traditional financial instruments, its mission is to counteract social and financial exclusion. Microfinance serves two purposes: 1) economic, as it promotes self-employment by providing funds to the poorest; and 2) social, as it counteracts poverty and promotes social inclusion.

Although microfinance originated in Asia,[2] it is now present in other continents of the globe, including Europe, which means that this segment of finance can develop not only in poor countries, but also in highly developed ones or in the countries that have experienced economic transformation. Microfinance combines financial and non-financial services and is by definition not-for-profit. Its existence, however, makes economic sense, which results from, *inter alia*, the promotion of job opportunities.

Microfinance is characterized by the microscale of services provided. The notion comprises basic financial instruments such as microcredit/microloans,[3] microleasing, microsavings, microinsurace and microtransfers. The term microcredit is used in reference to small loans granted to those people who are excluded from the traditional finance system or who lack access to banks to support them in starting or developing a business. Microfinance also includes social services, education and consulting, and mobile microfinance (Pluskota 2013, p. 39).

There are a great many differences between microfinance in Europe and in the developing countries. The differentiating feature include: main goal; scope of services; traditions; types of borrowers and microfinance institutions; and the interest rates of microloans (see Table 3 below).

[2] The idea originated in Asia in the 1970s. It was further propagated by the Nobel Prize that was awarded to Muhammed Yunus, founder of Grameen Bank in Bangladesh, in 2006. The idea of Grameencredit is based on the assumption that poor people and their skills are not sufficiently or adequately used. According to Yunus, charity does not eradicate poverty, it just postpones it.

[3] The Polish terminology makes a distinction between the terms "credit" and "loan". A credit is granted by banks for specific purposes and in accordance with the regulations of the Banking Law. Loans, on the other hand, may be granted by any natural or legal person in accordance with the provisions of the Civil Code. Thus, the term "microcredit" should be used in reference to those institutions which hold a banking license, and the term "micro loan" should be applied to other institutions that do not hold such a license. For the purposes of this study, the terminology has been unified and further on the term "microcredit" is used to denote both of these instruments.

Table 3. Differences in microfinance between Europe and the developing countries

Differentiating feature	Microfinance in Europe	Microfinance in developing countries
Scope of services	Mainly microloans	All microfinance services: microloans, microsavings, microsecurities, money transfers
Traditions	In the 1990s in Central and Eastern Europe; in the 21st century in Western Europe	The 1970s
Borrowers	Socially-excluded persons, first-time entrepreneurs, entrepreneurs in need of microloans	Poor and extremely poor persons
Maingoal	To develop entrepreneurship, to activate the job market, to counteract social exclusion	to counteract poverty
Type of institution	Formal, bank institutions are important	Non-formal sources of finance
Interest rates	Balanced	Highly unbalanced and high (amounting to dozens of percent)

Source: Mikołajczyk, Kurczewska 2011, pp. 44-45.

Microfinance in Europe has not, however, developed as quickly as in poor countries, which results from the following factors:

- an underdeveloped entrepreneurial spirit,
- welfare and social security (social protection),
- precise legal regulations for the business sector,
- easy access to consumer credit,
- highly developed banking systems and the accompanying regulations,
- impediments to the development of microcredit institutions, such as the lack of subsidies and/or guaranties for long-term activity.

The **crucial** aspect of microfinance in Europe is the differences between Western Europe and Central and Eastern Europe. Differentiating features include the reasons for developing micro finance, types of policy, and types of microfinance institutions (compare Table 4 below).

Table 4. Differences in microfinance between Western Europe and Central and Eastern Europe

Differentiating feature	Central and Eastern Europe	Western Europe
Reasons for developing microfinance	Political transformation, building a market economy	A desire to stimulate the job market and to promote self-employment, particularly among socially-excluded persons
Type of policy	economic	socio-economic
Type of microfinance institutions	independent financial institutions	various semi-independent institutions, including private, non-profit, or public

Source: Carboni, Caldron, Garrido, Dayson, Kicklul 2010, p. 5.

The interest that is generated by microcredit in the EU stems from the fact that even here some social groups experience social and financial exclusion. In 2009, 24.2% of the EU-27 population (119.6 million people) lived in households facing poverty or social exclusion. The percentage varies in individual member states and ranges between 7-50% (European Union 2013, p. 170). Poverty is a threat to, above all, women, young people and single parents. Financial exclusion is a major problem not only in poor countries but also in the member states of the EU. Financially-excluded persons constitute a section of the population that do not have a bank account, savings, loans, or insurance. The European considerations for microcredit are substantial also in the economic context, as microcredit is of some interest to microenterprises. The number of the microenterprises exceeds 19.1m, which is 92.2% of all the enterprises in the EU states (Wymenga, Spanikova, Barker, Konings, Canton 2012, p.15). One of the factors of social and financial exclusion is long-term unemployment. Thus microcredit may promote self-employment and affect the state of the economy.

The definition of microcredit varies among the member states of the European Union. It depends on the social environment, the economic situation and the policies of a given country. Generally, within the European Union microcredit is defined as an instrument for micro-enterprises, the unemployed, and professionally inactive persons who are planning to start up a business but who have limited access to traditional banking services. The amount of the loan does not usually exceed EUR 25,000 (European Commission 17.7.2012, p. 4). The European Commission refers to this amount in the EU microcredit programmes; however many European stakeholders define microcredit as loans with both much smaller or much higher amounts.

Microcredit is directed towards funding business start-ups and the development of a business. There are two group of borrowers in Europe:

- unemployed personsor in danger of losing their job, and those who face difficulties in entering the job market or are socially and financially excluded;
- entrepreneurs, mostly micro-entrepreneurs, who face problems with access to funds for starting up or developing their enterprises or those who are just in need of microloans.

In the European countries, it is primarily the banks that are involved in microcredit (Directive 2000/12/EC), but there are also microfinance institutions which are subject to the Banking Directive. Similarly to banks, these institutions aim at profit. Also other specialized institutions which share certain features, such as providing small loans for the poor, women and the unemployed, are involved in microcredit. Table 5 below presents the models of microcredit activity in Europe.

Table 5. Models of microcredit activity in Europe

Microcredit providers in Europe	
Banking model	Non-banking model
• commercial banks • cooperative banks • guarantee banks • savings banks • microcredit banks	• non-profit institutions • guarantee institutions • foundations • charity organizations • credit unions

Source: Pluskota 2013, p. 145.

In some member states, the microcredit provided by non-governmental organizations and promoting social inclusion plays a key role. Depending on the legal regulations and the tradition of the country, such organizations take the legal form of associations and non-profit or charity organizations (Mikołajczyk, Kurczewska 2011, pp. 36-37).

3. Microcredit policy and its instruments in the European Union

As was mentioned earlier, the benefits of microfinance - which were first recognized in poor countries - have also come to be appreciated in the European Union. The European Union has recognized the importance of microfinance and the need to intensify measures aimed at improving its accessibility. As early as towards the end of the 20th century new initiatives that aimed at the promotion of this segment were launched. Table 6 presents the stages in the way the problem of microfinance has been addressed in European policy.

The objectives of microfianance in Europe include:

- to create jobs and promote entrepreneurship;
- to promote small and medium-sized enterprises and economic development;
- to counteract social exclusion and to reduce poverty.

Therefore microfinance in the EU is situated between three political platforms:

- policy towards the corporate sector, particularly towards the development of small and medium-sized enterprises;
- regional policy which focuses on increasing economic and social cohesion between the individual regions of Europe;
- policy of employment and social inclusion directed towards the creation of employment and increasing social inclusion through the promotion of entrepreneurship and self-employment.

Table 6. Microfinance in the policy of the European Union

Years	Initiator	Type of activity
1998-2002	Experts, interested groups, European Commission (DG Enterprise and Industry, DG Employment, Social Affairs and Inclusion	Primarily research and scientific projects, recommendations for the second round table – banks and SMEs
2000-2002	Council of the European Union, European Investment Bank, European Commission	Microcredit Guarantee Window within the Multi-annual Programme for Enterprises and Entrepreneurship 2000-2005
2003	DG Enterprise and Industry, national governments, experts	Work on the project: Microcredit for Small Business and Business Creation: Bridging a Market Gap
2003-2005	DG Employment, Social Affairs and Inclusion, experts	Creation of the European Microfinance Network – EMN, studies of microfinance as a means to fight social exclusion
2003	Council of the European Union	Conclusions to activate microfinance
2004	European Microfinance Network, DG Enterprise and Industry	First conference on microfinance in Brussels
2005	European Commission, European Parliament, Council of the European Union	Incorporation of microcredit into Integrated Guidelines for Growth and Jobs
2005-2006	DG Regional Policy, European Investment Bank	JEREMIE initiative (Joint European resources for micro, small and medium-sized enterprises)
2007	European Commission, European Microfinance Network	European initiative for the development of microcredit in support of economic growth and employment
2008	European Commission, European Investment Bank	JASMINE initiative (joint action to support microfinance institutions in Europe)
2009	European Parliament	To strengthen efforts towards development of microcredit in support of growth and employment
2009-2010	European Commission	Launching of The European Progress Microfinance Facility (Progress Microfinance) in support of employment and combating social inclusion
2011	European Commission	Proposal for the Programme for Social Change and Innovation (2014-2020)

Source: own elaboration.

The emergence of microfinance issues in the policy of the EU is due to the interest in and concern for the development of small and medium-sized enterprises. It was, however, *A European initiative for the development of micro-credit in support of growth and employment* (Commission of the European Communities 13.11.2007) that finally addressed the issues of microcredit in a comprehensive manner. The initiative identified four priority areas for action:

- to improve the legal and institutional environment in the Member States;
- to create a climate for employment and entrepreneurship;
- to promote best practices;
- to provide additional capital for microfinance institutions.

A step towards the implementation of this programme was the launching of JASMINE initiative by the European Commission and the European Investment Bank (EIB) in 2008. It offered mentoring for those non-banking institutions that provided funds in the form of microcredit, and an EIB financing channel which amounted to a total of EUR 20 million. JASMINE provides support for microfinance institutions in terms of increasing their funds and transparency. It strengthens these institutions through counselling and training in administration, risk management, information systems, and marketing.

On 3 June 2009, the Commission issued the *Communication A Shared Commitment for Employment* (Commission of the European Communities 3.6.2009), in which it stressed the need to offer a new chance to the unemployed and to provide opportunities to those groups of citizens that face obstacles in accessing the traditional credit market. It was pointed out that, apart from the existing instruments, there is a need for further actions towards greater economic and social cohesion by supporting the activities of the European Investment Bank (EIB), the European Investment Fund (EIF), and other international financial institutions. The Commission therefore announced a proposal for a new microfinance instrument for the whole of the European Union, in order to effectively introduce microfinance to groups at risk of poverty and to integrate the support for entrepreneurship, social economy and microenterprises. As a result, on 2 July 2009 the Commission adopted two legislative proposals:

- to launch the European Progress Microfinance Facility (EPMF),
- to use the Progress[4] programme funds in order to finance this facility.

At the beginning of 2010 the European Parliament and the Council reached an agreement on the aforementioned proposals, which resulted in signing the joint decision to launch the European Progress Microfinance Facility (EPMF) for employment and social inclusion (**Decision No 283/2010/EU**). The Decision entered into force on 8 April 2010, amending Decision No 1672/2006/EC of the European Parliament and of the Council of 24 October 2006. Microfinance Progress is now the most recognizable instrument which facilitates integrated support for microcredit. Although the primary objective is still to recapitalize

[4] *The European Programme for Employment and Social Solidarity Progress* has been in operation since 2006 as a facility to promote the development and coordination of EU policy in the field of employment, social inclusion and social security, working conditions, and combating discrimination and working for the equality of men and women (Decision No 1672/2006/EC).

microcredit institutions, it contains a new component, namely guaranties (see Table 7 below). Progress Microfinance is funded by the Commission and the European Investment Bank (EIB), and implemented and managed by the European Investment Fund (EIF).

Table 7. The European Progress Microfinance Facility's (EPMF) objectives

The European Progress Microfinance Facility, implemented by European Commission in 2010 (Decision No 283/2010/EU of the European Parliament and of the Council of 25 March 2010)	
Objective 1 To provide easier access to microloans for persons who want to set up or develop micro-enterprises, including for the purpose of self-employment. This, in turn, should lead to a larger number of granted microloans in the EU	**Objective 2** To provide easier access to microloans by reducing the risks to the lender, thus reaching out to the persons who, under commercial rules, would not be considered creditworthy.

Source: own elaboration.

The new financial perspective for 2014-2020 presents a new regulation by the European Union with regard to the *Programme for Social Change and Innovation*, *EaSI* (European Commission 6.10.2011). The EPMF, first initiated in 2010, will operate in its current phase until 2016, with a successor instrument planned under the EaSI. The Commission proposed to combine three - so far separate - forms of European support - Programme Progress, EURES and EPMF. The main areas of support for changes in social innovations are supposed to be limited to labour market and social issues, which require a greater cohesion and efficiency of the actions taken by the European Union. Over EUR 958.19 million is planned to be spent on the implementation of the programme between 2014-2020. The funds have been divided into three complementary axes of action:

- Progress axis – it is proposed that 60% of the total programme budget should be directed to finance this axis, which is supposed to support research initiatives including evaluative ones and to elaborate innovative solutions within the employment and social policies of the EU and the EU regulations on working conditions;
- EURES axis – designed to support mobility on the European labour market by introducing systemic solutions for the exchange of information on job vacancies and the formalities related to employment;
- EPMF axis – aimed at promoting microfinance and social entrepreneurship. It is supposed to facilitate access to funds for those enterprises that are in the most difficult situation on the market and for the individuals that are at risk of social and occupational exclusion. Separate support in this area is provided for microenterprises. In addition, separate support is supposed to be directed towards an increase in the institutional potential of microcredit providers.

The EU policy for the development of microfinance in the Member States was hindered by the crisis of 2008, the negative effects of which affected the banking sector, i.e. financial intermediaries, in such a way as to reduce the propensity to lend money, to small enterprises in particular. Despite this, both the number of micro loans granted (after a temporary drop in 2009) and the volume of such loans demonstrate a steady increase (see Table 8 below).

Table 8. Number and volume of micro loans granted, 2005– 2011

Micro loans	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Number	27, 000	35, 553	42,750	90, 605	84, 523	178, 572	204, 080
Volume (in million Euros)	210	295	394	802	828	779	1,047

Source: Kraemer-Eis, Conforti 2009, p. 14; Bendig, Unterberg, Sarpong 2012, p. 22.

In 2011, over 204,000 micro loans were granted in a total amount over EUR 1 billion. The average value of a micro loan in the European Union stands at EUR 10,012, and the contract is usually concluded for 3 years. In most cases the borrowers are people who are excluded from the financial system (47%), women (27%), the unemployed (38%) and members of ethnic minorities (13%). The average interest rate amounts to 9% (2% - 36%). Microcredit is most frequently provided for new enterprises rather than existing ones. For many lenders (55%), the target group consists of registered enterprises which employ less than five people.

From the financial institutions' perspective, it is excluded persons and persons who start a business that belong to the target group of European microcredit, with 47% of microcredit institutions aiming at excluded persons, 44% at women, 41% targeting ethnic minorities and/or immigrants, 32% of the institutions addressing the needs of the unemployed, while 30% of the institutions do not define their target group.

The assessment of the effectiveness of the European microfinance policy must, first of all, take into account the EPMF implemented in 2010, with 2011 being the first year the programme was in operation. By the end of 2012, the European Investment Fund had concluded contracts with 23 entities, from several EU countries, which were involved in microcredit. The characteristics of these entities confirm the fact that microfinance institutions make up a very heterogeneous group. Banks, non-banking, and public institutions belong to this group. Since March 2012, the providers of micro loans in Belgium, Bulgaria, Spain, Holland, Poland, Romania and Lithuania have generated microcredit for a total value of EUR 26.8 million. In terms of numbers, this translates into 2,933 granted micro loans. EIF estimates that these results are consistent with a typical scenario of enlarging the microcredit portfolio within 2-3 years of the conclusion of the contract with credit providers (European Commission 17.7.2012).

The evaluation of the European Commisssion provides evidence of the effectiveness of EPMF in increasing access to finance for microenterprises: 17% of the borrowers that responded to the survey had formerly been rejected when applying for financing in the conventional credit market. At the same time, 68% of the individuals covered in the survey applied for a credit for the first time, while 56% assumed that it would have been impossible for them to receive a loan under similar conditions elsewhere. The efficiency of the programme can be assessed first of all by progress on implementation of the portfolios. The overall objective of EPMF was to disburse 46,000 microloans by 2020, worth an estimated amount of EUR 500 million. As of September 2013, microcredit providers had disbursed a total of 13,252 microloans with an overall aggregate value of EUR 124.6 million.

It is also useful to analyse the leverage achieved by the instruments when looking at the efficiency of the programme.[5] The utilised guarantee instrument had a leverage of 12.37, with EUR 20.96 million committed and microloans with an aggregate volume of EUR 259.2 million to be disbursed. The leverage for the funded instruments is agreed with each intermediary in their agreement with the EIF. The latest data indicates an estimated leverage effect of the funded instruments of 4.41 against the EU budget contribution to the committed funds, i.e. net commitments of EUR 111.5 million are expected to result in approximately EUR 204 mln micro-lending. (Attström, Kuhn,Blagoeva, Beavor 2015, pp. 12-16).

In addition to the priority of providing microcredit, EPMF is also supposed to have an impact on social issues and employment. This is based on the information from the microcredit providers that have received funds from this facility.

4. Conclusions

The microfinance sector has found its place in the economy of the European Union, which proves that the issues of exclusion can apply to both highly developed countries and those that aspire to this status. Microcredit, which is the most characteristic instrument of microfinance, varies in many aspects, starting from its definition and through to the social groups that are the recipients and the institutions which are the intermediaries in providing

[5] Estimates in 2010 suggest that every euro committed in guarantees could generate at least six euros in microcredit, while the funded instruments were expected to have a leverage effect of between one and three. The overall intended target in terms of the leverage effect was that the funds committed from the EU budget of approx. EUR 100 m should generate at least EUR 500 m in microcredits, i.e. a leverage effect of approximately five.

microcredit. What should be emphasized, however, is the determination of the European Union to improve the conditions for the development of microcredit. The EU microcredit policy has its origin in the programmes and initiatives undertaken for the benefit of the MSMEs sector, out of which microenterprises have become the most important group of recipients.

At present the EPMF, which was launched in 2010, is the main facility that promotes microfinance in order to support various institutions that grant micro loans. The first two years of the programme have demonstrated that many different entities from different EU Member States have applied for support.

The premises of the *Programme for Social Change and Innovation* clearly indicate that the European Union still considers the issues of the development and strengthening of microfinance as a priority, which is associated with innovativeness and social entrepreneurship.

European microfinance is addressed to specific groups of recipients –microenterprises and people excluded from the traditional banking services sector. Both of these groups are treated as "difficult" in the area of lending, so the European Union governing bodies use various incentives for financial institutions to create a market for this group of borrowers. Such initiatives can also be observed in Poland.

The microfinance market in Poland has been gradually developing since the economic transition, and it gained momentum when Poland joined the European Union. Although the institutions on the market have both a banking and non-banking character, they all present a market approach towards the entities that use the financial instruments. Their weakness, however, is a reluctance to finance the smallest enterprises, which are most at risk of bankruptcy. Both types of the institutions in Poland use the cheaper money and risk hedging instruments offered in the European Union program (EPMF). In Poland, there are two accredited institutions: BIZ Bank (former FM Bank), and InicjatywaMikro.

The ways to improve access to capital for the microenterprise sector in Poland are as follows:

- to enhance trust in the credit market – there are many potential borrowers whose creditworthiness is negatively assessed by banks. What should be taken into consideration, however, is the social responsibilities of businesses and good practices;
- to develop a credit guarantee system;
- to foster synergy in those activities that create the microfinance segment;
- to create an institutional base by implementing regulations that encourage the private sector to invest in microfinance (e.g. tax relief);
- to expand microfinance in such a way as to include smaller intermediaries, implement flexible contracts, and open microfinance operations to non-banking institutions;

- to simplify the regulations and procedures for public support;
- to deliver low-interest capital with clear rules, which would be supported by training and consulting (microloans should not only be easily available but also cheap);
- to monitor the entities receiving microloans, to evaluate the instruments, and to support the entities throughout their development, not only at the start up phase;
- to raise awareness of microfinance, to provide information for both lenders and borrowers (The first European Microfinance Day, 20th October 2015, was "What if we could turn job seekers into job creators?");
- to involve local governments, which can also benefit from microfinance via a reduction in social exclusion and unemployment.

It is believed that positive effects should be soon seen in Polish economy as there will be more enterprises, a reduction in the informal sector, and less emigration as starting up businesses will be much easier.

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Streszczenie

EUROPEJSKIE MIKROFINANSE – ISTOTNOŚĆ, SKUTECZNOŚĆ, ODDZIAŁYWANIE

Mikrofinanse wiążą się z oferowaniem osobom wykluczonym społecznie, finansowo i mikroprzedsiębiorcom podstawowych usług finansowych, takich jak kredyt, oszczędności czy ubezpieczenia. Mikrokredyt jest w tej grupie najbardziej rozpoznawalnym instrumentem mikrofinansów. Pozwala rozpocząć własną działalność gospodarczą, a także stanowi źródło finansowania istniejących mikroprzedsiębiorstw.

Mikrofinanse zaistniały w krajach ubogich, jednak w ostatnich latach zyskały uznanie także w krajach europejskich. Celem artykułu jest prezentacja istotności, skuteczności i oddziaływania polityki mikrofinansowej i jej instrumentów na wspieranie mikroprzedsiębiorstw w Unii Europejskiej.

***Słowa kluczowe**: mikrofinanse, polityka UE, wykluczenie finansowe i społeczne*

Contents