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State Aid In The European Union In The Period Of The Economic Crisis

Abstract

The global economic crisis has brought about the need for States' involvement to rescue many business entities from bankruptcy, initially in the financial sector, and at a later stage of the crisis in the real economy. In the countries of the European Union, these measures take the form of state aid, which is specifically regulated as it bestows benefits on its beneficiaries and therefore violates the rules of market competition. Thus, the provision of state aid is controversial, since it potentially adversely affects the competition policy pursued in the EU. This paper aims to analyse and evaluate the volume of state aid granted in the EU countries during the economic crisis and its potential impact on the health of the economy and the public finance sector.

***Keywords**: state aid, economic crisis, crisis and non-crisis aid, financial sector, real economy*

1. Introduction

In general, economists are not in agreement as to what the role of the State in the economy should be. The scope of State intervention in economic processes has been the subject of disputes for years. It is difficult, however, to question the issue of unreliability of the (imperfect) market - and thus the

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resulting need for State support for free market mechanisms - nor the State's ability to influence the decisions of business entities. In addition, the increasing competition in international markets necessitates an active role of the State as the initiator of desired changes in the economy. Appropriately targeted aid can play a major role in this area. Its mission is to help business entities overcome barriers and, consequently, stimulate an increase in their competitiveness on both the domestic and international markets.

In accordance with paragraph 1 of Article 107 of the Treaty on the Functioning of the European Union (TFEU) (formerly paragraph 1, Article 87 of the Treaty Establishing the European Community) state aid is that aid granted by a Member State, or through a State resources in any form whatsoever, which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods in so far as it affects trade between Member States.[1] State aid, therefore, can be defined as the expenditure of public funds or depletion of public contributions to support undertakings or the production of certain goods which constitute an economic advantage for the beneficiary. State aid occurs when the following conditions are met simultaneously:

- it is granted by the State or from State resources,
- it is provided on terms more favourable than those offered on the market,
- it is selective (favouring a particular undertaking or undertakings or the production of certain goods),
- it threatens to disrupt or distorts competition and affects trade between the EU Member States.

Granting state aid in the EU is incompatible with the common market rules. The principle of incompatibility, however, does not amount to a complete ban. There are cases (called exclusions) in which state aid can be declared compatible with the common market. These exceptions are catalogued in the provisions of Article 107, paragraphs 2 and 3 of the TFEU. The need to provide aid to companies arises from a number of premises. From the perspective of stimulating economic competitiveness, aid for research and development, which is mainly motivated by the need to improve the innovativeness of business entities, is especially important. State aid may also be conditioned by rapid technological changes which represent a real threat to certain industries. In these cases, state aid is an element that supports their adaptation and does not necessarily violate market rules. Environment protection is another factor that induces the granting of state aid for undertakings. In addition, state aid is a quite common phenomenon to help cultural institutions, and provide aid for the

[1] Treaty on the Functioning of the European Union (Official Journal of the EU, C 83/47, 30.03.2010).

development of transport infrastructure and agriculture. It is also important to help small and medium-sized enterprises due to the significant role of these companies in the creation of new jobs.

This paper aims to analyse and evaluate the volume and forms of state aid granted in the Member States of the European Union in the period 2006-2012, with particular emphasis on the so-called 'crisis aid'.

2. 'Non-crisis' state aid in the EU countries

The data presented in Table 1 shows that in the analysed period (2006-2011) the amount of state aid granted in the 27 EU Member States became generally reduced; the volume of granted aid reached 92,627.1 million Euro in 2006, while in 2011 it amounted to only 64,295.0 million Euro.[2] Analysing the data for each country, it should be noted however that in some of these countries the volume of state aid increased significantly during the studied period. That was the case, for example, with Greece, Cyprus, Lithuania and Slovenia. In Poland, the level of state aid increased significantly in 2008 (to the level of 3,097.3 million Euro), which in part was due to methodological reasons (since 2008 state aid also includes aid resources from the Structural Funds in the framework of the Financial Perspective 2007 – 2013). The increase was also the result of the granting in 2008 of aid which in previous years was not provided (or was not included in the statistics). This includes aid for bio-fuels, and aid to energy producers in the form of compensation for the voluntary termination of long-term power and electricity sales, granted by the President of the Energy Regulatory Office, as well as aid to entities operating in the film industry (Woźniak 2010, p. 152).

Similar conclusions can be drawn by analysing the volume of aid in relation to the size of each country's GDP (Table 2). On average, aid in the EU countries decreased over the studied period from 0.75 % of GDP in 2006 to 0.51 % of GDP in 2011. The Czech Republic, Estonia, Ireland, Greece, Cyprus, Lithuania, Holland, Portugal and Slovenia were the exceptions from this general rule during the analysed period. It should be also mentioned that in 2011 several countries (Greece, Hungary, Malta, Portugal, Slovenia and Finland) exceeded the scope of aid permitted in the Member States by the European Commission (1% of GDP) (Piotrowski 2012, pp. 39-41).

[2] It should be noted that the data contained in Table 1 does not include crisis aid.

Table 1. Non-crisis state aid in the EU Member States (excluding transport) in million Euro in the years 2006-2011

	2006	2007	2008	2009	2010	2011
EU 27	**92627.1**	**66719.0**	**73918.4**	**75831.6**	**71326.4**	**64295.0**
Belgium	1388.0	1555.2	1630.6	2267.5	2305.5	1594.4
Bulgaria	41.8	230.6	223.9	189.4	33.8	37.0
Czech Rep.	1060.9	1145.9	1439.4	1032.3	1236.6	1424.4
Denmark	1839.2	1932.3	1921.6	2296.9	1006.3	1093.4
Germany	18878.3	15262.9	16581.0	15985.2	15201.5	13621.4
Estonia	41.7	40.2	44.4	42.7	43.9	51.3
Ireland	900.5	1143.7	1996.2	1500.4	1649.8	1061.5
Greece	1016.9	1224.3	1825.1	2226.8	1988.2	2593.2
Spain	5195.5	5103.5	5655.0	5506.1	4900.2	4531.8
France	32763.1	10089.6	13190.0	14321.2	14751.7	12356.7
Italy	7255.8	5941.0	6049.5	5817.4	4235.4	3806.6
Cyprus	94.2	123.4	115.7	179.5	121.1	140.9
Latvia	285.6	519.7	134.1	138.0	187.5	184.9
Lithuania	155.5	198.5	147.2	179.2	167.3	209.8
Luxembourg	94.4	84.4	80.4	125.9	101.9	102.9
Hungary	1565.7	1376.4	2197.3	1630.4	1948.2	1120.5
Malta	163.1	143.9	124.2	116.2	87.3	102.7
Holland	2187.7	2283.8	2431.2	2653.6	2744.2	2673.2
Austria	2210.3	1296.6	1644.8	2373.7	2022.2	1707.3
Poland	**2517.1**	**1918.5**	**3097.3**	**3216.0**	**3324.9**	**2823.0**
Portugal	1534.8	2245.9	1631.0	1671.4	1531.4	1765.7
Romania	851.1	1607.3	907.7	885.6	308.5	546.0
Slovenia	251.2	207.0	252.3	365.0	367.0	396.3
Slovakia	351.2	319.2	387.0	326.0	307.8	170.7
Finland	2354.7	2230.7	2170.9	2180.8	2134.9	2343.7
Sweden	3555.4	3490.3	3320.2	3151.1	3069.2	3023.3
UK	4073.3	5004.2	4720.3	5453.2	5550.1	4812.5

Source: Author's own compilations based on State Aid Scoreboard. Report on State aid granted by the EU Member States, Autumn 2012 update, http://ec.europa.eu/competition/state_aid/studies_reports/expenditure.

Table 2. Non-crisis state aid in industry and services (excl. transport) in the EU Member States as % of GDP in the years 2006-2011

	2006	2007	2008	2009	2010	2011
EU 27	**0.75**	**0.53**	**0.58**	**0.52**	**0.57**	**0.51**
Belgium	0.40	0.43	0.45	0.64	0.64	0.43
Bulgaria	0.12	0.61	0.56	0.50	0.09	0.10
Czech Rep.	0.74	0.76	0.92	0.70	0.81	0.92
Denmark	0.74	0.77	0.77	0.98	0.42	0.46
Germany	0.78	0.61	0.65	0.66	0.61	0.53
Estonia	0.26	0.23	0.26	0.29	0.30	0.32
Ireland	0.55	0.66	1.19	0.96	1.06	0.68
Greece	0.42	0.49	0.74	0.93	0.86	1.21
Spain	0.49	0.46	0.51	0.52	0.46	0.42
France	1.69	0.51	0.66	0.74	0.75	0.62
Italy	0.45	0.36	0.37	0.38	0.27	0.24
Cyprus	0.59	0.72	0.65	1.03	0.69	0.79
Latvia	1.31	2.17	0.58	0.72	0.99	0.92
Lithuania	0.52	0.61	0.44	0.63	0.58	0.68
Luxembourg	0.23	0.20	0.19	0.31	0.24	0.24
Hungary	1.51	1.33	2.10	1.67	1.97	1.11
Malta	2.81	2.38	1.97	1.89	1.39	1.60
Holland	0.38	0.38	0.40	0.45	0.46	0.44
Austria	0.78	0.44	0.55	0.83	0.69	0.57
Poland	**0.84**	**0.60**	**0.92**	**0.94**	**0.94**	**0.76**
Portugal	0.89	1.27	0.92	0.98	0.88	1.03
Romania	0.67	1.19	0.63	0.65	0.23	0.40
Slovenia	0.73	0.56	0.66	1.04	1.03	1.11
Slovakia	0.49	0.45	0.55	0.51	0.46	0.25
Finland	1.28	1.15	1.11	1.22	1.16	1.24
Sweden	0.99	0.94	0.90	0.90	0.82	0.78
UK	0.24	0.28	0.27	0.32	0.32	0.27

Source: Author's own compilations based on State Aid Scoreboard. Report on State aid granted by the EU Member States, Autumn 2012 update, http://ec.europa.eu/competition/state_aid/studies_reports/expenditure.

3. State aid in the EU during the period of the financial crisis

Aid for the financial sector

The financial and economic crisis, the first signs of which began to be experienced by the global economy in 2007, resulted in the need for involvement of the EU governments via large amounts of money to combat its negative effects, especially in the banking sector. As a result, the level of state aid in the EU in 2008 compared to 2007 increased nearly fivefold, to 279.6 billion Euro, and constituted 2.2% of the EU's GDP. This was only because of the aid provided by the Member States to financial institutions. For comparison, in 2007 the volume of state aid amounted to 66.5 billion Euro, or 0.52% of the EU's GDP. Excluding the crisis state aid, the total volume of state aid in 2008 amounted to 67.4 billion Euro, which constituted 0.54% of the EU's GDP. The highest share of state aid in relation to GDP in 2008, taking into account the measures taken with respect to the financial crisis, was recorded in Ireland (20.2%), Luxembourg (7.83%), Belgium (5.63%), Latvia (5.05%) and the UK (4%). The lowest share of state aid to GDP was observed in Italy (0.35%), Greece (0.42%), Austria (0.46%), Slovakia (0.53%) and Spain (0.56%) (Korbutowicz 2011, p. 67).

The deteriorating economic situation prompted the EU authorities to take concrete measures, formulated in 2008 by the European Commission in the Communication "The application of state aid rules to measures taken in relation to financial institutions in the context of the current global financial crisis".[3] According to the provisions adopted, the EU countries could provide guarantees to financial institutions, recapitalise them, or institute an orderly winding up of certain financial institutions. The duration and scope of guarantees were to be limited to a necessary minimum, and the guarantee programme was to be based on the appropriate remuneration paid by the financial institution which was to benefit from the programme. At the same time, beneficiaries could not conduct aggressive expansion and had limited freedom in the conduct of trade policy (e.g. prohibition of advertising that referred to the awarded guarantees). The guarantees were treated as an extraordinary, transitional instrument and were to be accompanied by the restructuring or liquidation of the given entities-beneficiaries. The data presented in Table 2 allows us to conclude that, from 1 October 2008 to 1 October 2012, the total volume of guarantees accorded to the EU countries amounted to 3,646.6 billion Euro (28.9% of the EU's GDP). In terms of value, the guarantees that were used (in the period 2008-2011) equalled1,084.8 billion Euro (8.62% of the EU's GDP). The following countries used the aid granted to the highest extent: Ireland (284 billion Euro), the UK (158.2 billion Euro), Denmark (145 billion Euro) and Germany (135.89 billion

[3] Official Journal of the EU, C 270 of 25.10.2008, p. 8.

Euro). Analysing the percentage values (% of GDP), the largest beneficiary of the aid was Ireland (181.7% of GDP), then Denmark (60.6 %) and Greece (26 %).

The European Commission also permits the use of instruments other than guarantees to support the liquidity of banks (e.g. in the form of loans to the banking sector). The total volume of aid for improving the liquidity of banks in the analysed period amounted to 216 billion Euro (1.7% of the EU's GDP). Four countries: Holland (52.9 billion Euro), the UK (51.9 billion), Spain (50.8 billion) and Ireland (40 billion) received approximately 85% of the total allocated aid. In terms of percentage, the highest share of aid was allocated to Ireland (26% of GDP) and Latvia (13.5% of GDP). In analysing the degree of utilisation of the aid, it should be noted that in the period 2008-2011 the amount of aid used reached 89 billion Euro (0.7% of GDP). In absolute terms, Holland (30.4 billion Euro), Spain (19.3 billion) and the UK (18.5 billion) were the countries that used the aid granted to the highest degree. In terms of size relative to GDP, the following countries used the largest amount of aid: Denmark (5% of GDP), Latvia (4.9% of GDP) and Greece (3.2% of GDP).

As for recapitalisation, it should be based on objective and non-discriminatory qualification criteria, limited to a necessary minimum, and equipped with a protection mechanism against potential fraud or undue distortions of competition. The State ought to have the right to a obtain a value equal to the sum of recapitalisation, such as preference shares with the right to adequate remuneration. The issue price of new shares must be determined on the basis of market price. In addition, the beneficiary is required to prepare a restructuring programme. As the data in Table 2 indicates, the total volume of recapitalisation granted from 1 October 2008 to 1 October 2012 amounted to 777.3 billion Euro (6.2% of the EU's GDP). In terms of relative value, the largest beneficiary of that type of state aid was Ireland (57.9% of GDP), then Spain (19.5%) and Greece (16%). As regards the aid used in the period of 2008-2011, it amounted to 322.2 billion Euro (2.5% of GDP). The countries that recapitalised their banking system to the largest extent included the UK (82.4 billion Euro), Germany (63.2 billion Euro) and Ireland (62.8 billion Euro), whereas in term of relative values (as % of GDP), Ireland received the greatest capital "injection", in the amount of 40.1% of GDP. In two other countries, Luxembourg (6 % of GDP) and Belgium (5.5% of GDP), the percentage value of aid was significantly lower.

Another measure of state aid is controlled liquidation of a financial institution, which may be a consequence of failed restructuring or be part of a general guarantee programme. This liquidation needs to meet certain criteria, i.e. the sales process is to be carried out according to market rules and the financial institution or the State should obtain the highest price for the assets and liabilities sold.

Asset-related interventions are another type of state aid addressed to the financial sector. As a result of the financial crisis, many banks faced the problem of so-called impaired (toxic) assets, for which the market value became significantly lower than their book value. That problem forced the States to take action related to the "cleansing" of bank assets and the correct evaluation of their market value. The data presented in Table 3 indicates that the total volume of state aid related to the intervention in asset markets from 1 October 2008 to 1 October 2012 amounted to 445.75 billion Euro (3.5% of the EU's GDP in 2011). It should be emphasised that this form of aid was used in only 11 of the 27 EU countries. In absolute terms, the largest amount of aid was received by the UK (248 billion Euro), then Ireland, Germany, Belgium and Holland. In relative terms (as a % of GDP), Ireland ranked the first (34.5 % of GDP), followed by the UK (14.3 %).

In the period from 1 October 2008 to 1 October 2012, the European Commission took approximately 350 decisions concerning grants of state aid for the financial sector, based on Article 107, paragraph 3 of the Treaty on the Functioning of the European Union (TFEU). Aid measures were taken in almost all the EU Member States, excluding Bulgaria, the Czech Republic, Estonia, Malta and Romania. The value of financial aid granted in that period reached 5,058.9 billion Euro (40.3% of the EU's GDP). The largest share of aid was granted in 2008 in the amount of 3,394 billion Euro (27.7% of the EU GDP), mainly in the form of deposit guarantees and bank bonds. In subsequent years, state aid was mostly related to the recapitalisation of banks and asset-related interventions; however, recently guarantees have become more widely used again. Moreover, from 1 January to 1 October 2012 the EU granted additional aid for the financial sector in the amount of 429.5 billion Euro.[4]

Regarding the use of the aid granted, the total amount of funds used reached 1,615.9 billion Euro (12.8% of the EU's GDP) from 1 October 2007 to 31 December 2011. The largest portion of that sum was allocated to bank guarantees (1,085 billion Euro - 8.6% of GDP), recapitalisation (322 billion Euro - 2.6% of GDP), removing bad assets from banks (119.9 billion Euro - 0.9% of GDP), and finally to instruments to support liquidity (89 billion Euro - 0.7% of GDP).

The Table below presents the amount of state aid granted to entities in the financial sector in different EU countries during the financial crisis.

[4] Commission Staff Working Document Accompanying the Document: State aid Scoreboard 2012 Update - Report on State aid granted by the EU Member States, COM(2012) 778 final, Brussels, 21.12.2012; http://ec.europa.eu/competition/publications/ annual_report/2012/part1_en (03.09.2013).

Table 3. State aid granted to financial institutions by type of instrument, from 1 October 2008 to 1 October 2012

Country	Capitalisation		Guarantees		Asset-related interventions		Other liquidity support facilities		Total in 2008-2012	
	billion Euro	% GDP in 2011	billion Euro	% GDP in 2011	billion Euro	% GDP in 2011	billion Euro	% GDP in 2011	billion Euro	% GDP in 2011
Belgium	20.4	5.5	310.0	84.2	28.2	7.7	0.0	0.0	358.6	97.4
Bulgaria	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	**0.00**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Denmark	14.6	6.1	587.9	245.7	2.3	1.0	7.9	3.3	612.6	256.1
Germany	114.6	4.5	455.9	17.7	66.1	2.6	9.5	0.4	646.1	25.1
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	90.1	57.9	386.0	246.7	54.0	34.5	40.7	26.0	571.3	365.2
Greece	35.8	16.6	85.0	39.5	0.0	0.0	8.0	3.7	128.8	59.9
Spain	209.3	19.5	320.2	29.8	13.3	1.3	31.9	3.0	575.3	53.6
France	26.6	1.3	339.8	17.0	4.7	0.2	0.0	0.0	371.2	18.6
Italy	20.0	1.3	110.0	7.0	0.0	0.0	0.0	0.0	130.0	8.2
Cyprus	1.8	10.1	3.0	16.9	0.0	0.0	0.0	0.0	4.8	27.0
Latvia	0.8	4.1	5.2	25.9	0.5	2.7	2.7	13.5	9.3	46.2
Lithuania	0.6	1.9	0.3	0.9	0.6	1.9	0.0	0.0	1.5	4.7
Luxembourg	2.5	5.8	6.2	14.4	0.0	0.0	0.3	0.7	9,0	20.9
Hungary	1.1	1.1	5.4	5.3	0.0	0.0	3.9	3.9	10.3	10.3
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Holland	37.6	6.3	200.0	33.2	22.8	3.8	52.9	8.8	313.3	52.0
Austria	15.9	5.3	77.8	26,0	0.5	0.2	0.0	0.0	94.2	31.3
Poland	33.9	9.2	33.9	9.2	0.0	0.0	0.0	0.0	67.8	18.3
Portugal	26.3	15.4	40.7	23.8	4.0	2.3	6.1	3.5	77,0	45.0
Romania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Slovenia	0.6	1.8	12.0	33.7	0.0	0.0	0.0	0.0	12.6	35.4
Slovakia	0.7	1.0	2.8	4.1	0.0	0.0	0.0	0.0	3.5	5.0
Finland	4.0	2.1	50.0	26.4	0.0	0.0	0.0	0.0	54.0	28.5
Sweden	5.0	1.3	156.0	40.3	0.0	0.0	0.5	0.1	161.6	41.8
UK	114.6	6.6	458.8	26.3	248.1	14.2	51.9	3.0	873.3	50.0
EU 27	**777.3**	**6.2**	**3646.6**	**28.9**	**445.8**	**3.5**	**216.3**	**1.7**	**5086,0**	**40.3**

Source: Author's own compilation based on State Aid Scoreboard. Report on State aid granted by the EU Member States, Autumn 2012 update, http://ec.europa.eu/competition/state_aid/studies_reports/expenditure (29.08.2013).

It should be noted that in all the cases of state aid related to the crisis, the European Commission stressed the need for the greatest possible elimination of competition distortions and for maintaining the functioning of the single market. The announcement of the Irish Government's project concerning the granting of state guarantees to only six Irish banks is an example of a case in which the necessity to limit distortions of competition was emphasised. The Commission decided that such a project entailed a serious risk of capital outflow from undue competition. As a result, the Irish government had to make changes to the project so that the guarantee programme was available to all the banks along with their subordinate companies and branches located in Ireland.[5]

Aid for the real economy

At the beginning of 2009, the financial crisis in the banking sector began to spread and gradually encompassed other sectors of the economy. This was, among other things, due to a reduced propensity to take risks by banks, which in turn led to restrictions on access to credit and resulted in declines in demand and production in the real economy. In order to counter these adverse phenomena, the European Commission continued its policy of state aid related to the financial and economic crisis. This approach was manifested in the issuance of two Communications concerning the management of impaired assets in the Community banking sector, as well as rules regarding the aid granted within the Temporary Community Framework to facilitate access to financing during the financial and economic crisis.[6]

These rules were designed to prevent a decrease in bank liquidity and to increase the availability of credit to businesses, as well as to contribute to economic recovery. In order to facilitate businesses' access to finance, various forms of state aid were provided to the real sector of the economy. Direct grants for companies in the amount of 500,000 Euro were one of those measures. In addition, aid is provided in the form of loan guarantees, which allows authorities to grant aid in the form of subsidized loans for investment and in the form of working capital loans. Aid for companies in the form of reduced interest rates on loans is also permitted, especially for companies that invest in the production of organic products. Programmes to support small and medium-sized enterprises' access to venture capital (particularly in the early stages of their development), or export credit insurance are also provided. Since state aid within the Temporary Community Framework has been intended for the

[5] *Commission Staff Working Document Accompanying the Report from the Commission on Competition Policy 2008*, SEC(2009)1004 final, Brussels 23.7.2009, s. 49; http://ec.europa.eu/ competition/ publications/ annual_report/2008/part2_en, (04.09.2013).

[6] Temporary Community Framework for State aid measures to support access to finance in the current financial and economic crisis, Official Journal of the EU C 83/1, 07.04.2009

realisation of horizontal objectives, the EU countries are allowed to grant it to businesses from each sector of the economy.

In the years 2009 and 2010, the total used aid resulting from the adoption of the Temporary Community Framework amounted to 32.7 billion Euro (0.26% of the EU's GDP). In 2011 the Member States used aid in the amount of approximately 4.8 billion Euro (0.037% of the EU's GDP), i.e. less than half of the amount used in 2010. In general, the Member States used about 45% of the aid granted under the Temporary Community Framework. One reason for the relatively low use of the available resources are their strict criteria and the high discipline of their allocation. On the other hand, this could also have resulted from the increasing budgetary constraints in the Member States, due to high budget deficits and public debt.

Table 4. EU state aid in the years 2009-2011 granted under the Temporary Community Framework

	Aid granted in 2009-2011 (in billion Euro)	**Aid used in 2011 (in billion Euro)**	**Aid as % GDP in 2011**
EU-27	**82.9**	**4.8**	**0.04**
Belgium	8.1	0.2	0.05
Bulgaria	0.001	0	0
Czech Republic	1.1	0.1	0.06
Denmark	0,0	0	0
Germany	29.6	0.7	0.03
Estonia	0.2	0	0
Ireland	0.4	0.01	0.004
Greece	4.0	0.1	0.04
Spain	2.5	0.4	0.04
France	0.6	1.6	0.08
Italy	0.4	0.7	0.04
Cyprus	0.0	0	0
Latvia	0.6	0	0
Lithuania	0.1	0.001	0.002
Luxembourg	0.5	0	0
Hungary	9.7	0.01	0.01
Malta	0.04	0	0
Holland	0.0	0.02	0.003
Austria	10.2	0.004	0.001
Poland	0.2	0	0
Portugal	0.8	0.2	0.09

Romania	0.4	0	0
Slovenia	1.3	0.2	0.55
Slovakia	0.4	0.005	0.01
Finland	0.5	0.03	0.01
Sweden	1.3	0.7	0.17
UK	10.1	0.0005	0.00003

Source: Author's own compilations based on State Aid Scoreboard. Report on State aid granted by the EU Member States, Autumn 2012 update, http://ec.europa.eu/competition/state_aid/studies_reports/ expenditure (29.08.2013).

4. Conclusions

- The scope of non-crisis aid granted in the 27 EU countries in the analysed period (2006-2011) became incrementally reduced, both in absolute terms and in relation to the average GDP of the European Union. This should be considered as a favourable trend, given the fact that aid has a negative impact on business competition, causing its disruption.
- In Poland, the level of state aid increased significantly in 2008 (to the level of 3,097.3 million Euro), which in part was due to methodological reasons. The increase was also the result of the granting in 2008 of aid which in previous years was not provided (aid for bio-fuels, and aid to energy producers).
- At the same time, it should be pointed out that the European Union allocates substantial funds for crisis aid, which in some years of the studied period resulted even in quadruple the volume of this type of state aid (compared to non-crisis aid) in relation to the EU's GDP.
- As a result of the financial crisis, measures have been taken both to increase the liquidity of the financial system (e.g. provision of guarantees and loans, recapitalisation of financial institutions, purchase of impaired assets), as well as to support the real economy (e.g. direct grants to companies, loan guarantees, reductions of interest rates on loans, programmes supporting access of small and medium-sized enterprises to venture capital and export credit insurance).
- In the case of Poland, from 1 October 2008 to 1 October 2012, the total volume of crisis state aid for the financial sector amounted to 67.8 billion Euro (which accounts for 1,3 % of the total volume of aid granted in the EU countries). If support for the real economy is considered, the volume of state

aid in Poland was negligible, because it only amounted to 0.2 billion euros (compared to 82.9 billion euros of aid for all the EU countries).

- These facts indicate that Poland as a country slightly affected by the economic crisis, has relatively little benefited from the EU crisis state aid.
- This significant increase in state aid related to the financial crisis granted by the EU countries is associated with the risk of breach of single market rules and of the ban on granting state aid contrary to the Community competition law. At the same, the amount of aid granted reduces the Commission's ability to exercise effective supervision of the economic intervention instruments used by the Member States.
- It is difficult at this time to clearly identify what consequences this crisis state aid will have for the EU countries. There is no doubt that the aid has consumed a significant portion of the GDP of the countries undertaking interventions and has significantly increased their budget deficits and public debt.
- As a result of these actions, a visible tightening of fiscal policy resulting, inter alia, in a significant increase in the fiscal burden of the EU countries, is expected. This, in turn, may adversely affect the health of business entities and indirectly their competitiveness.
- One cannot underestimate, however, the fact that the aid granted during the financial crisis has saved many financial institutions and enterprises of the real economy from bankruptcy, as well as spared many EU countries a dramatic, long-term recession and a sharp rise in unemployment. Therefore, this aspect should also be taken into account when analysing the impact of state aid on the competitiveness of economies.

References

Korbutowicz T. (2011), *Pomoc publiczna w UE w warunkach kryzysu gospodarczego*, [in:] J. Kundera (ed.), *Globalizacja, europejska integracja a kryzys gospodarczy*, Prawnicza i Ekonomiczna Biblioteka Cyfrowa, Wrocław

Piotrowski J. (2012), *Strategia Lizbońska – przyczyny niepowodzenia*, Unia Europejska.pl, no. 1 (212)

Rutkiewicz K. (2008), *Główne kierunki udzielania pomocy publicznej w Polsce i jej wpływ na konkurencję*, PTE Toruń Working Papers, No 32/2008

Woźniak B. (2010), *Instrumenty i instytucje udzielania pomocy publicznej w Polsce*, 'Zeszyty naukowe: polityki europejskie, finanse i marketing', no. 4 (53), p. 152

Commission Staff Working Document Accompanying the Document: State aid Scoreboard 2012 Update - Report on State aid granted by the EU Member States, COM(2012) 778 final, Brussels, 21.12.2012; http://ec.europa.eu/competition/publications/annual_report/2012/part1_en (03.09.2013)

Commission Staff Working Document Accompanying the Report from the Commission on Competition Policy 2008, SEC(2009)1004 final, Brussels 23.7.2009; http://ec.europa.eu/competition/publications/annual_report/2008/part2_en. (04.09.2013)

Dz. Urz. UE, C 270 of 25.X.2008

Komunikat w sprawie aktywów o obniżonej jakości, Komisja Europejska, IP/09/322 25.02.2009; http://ec.europa.eu/competition/state_aid/legislation/specific_rules.html (29.08.2013)

Lisbon European Council: Presidency Conclusion, European Parliament 23 and 24 March 2000; http://www.europarl.europa.eu/summits/lis1_en.html (23.08.2013)

State Aid Scoreboard. Report on State aid granted by the EU Member States, Autumn 2012 update, http://ec.europa.eu/competition/state_aid/studies_reports/expenditure (29.08.2013)

Traktat o Funkcjonowaniu Unii Europejskiej, Dz. Urz. UE, C 83/47, 30.03.2010

Tymczasowe wspólnotowe ramy prawne w zakresie pomocy państwa ułatwiające dostęp do finansowania w dobie kryzysu finansowego i gospodarczego, Dz.Urz. UE C 83/1, 07.04.2009

Zastosowanie zasad pomocy państwa do środków podjętych w odniesieniu do instytucji finansowych w kontekście obecnego, globalnego kryzysu finansowego, Dz. Urz. UE, C 270, 25.10.2008

Streszczenie

POMOC PUBLICZNA W UNII EUROPEJSKIEJ W OKRESIE KRYZYSU GOSPODARCZEGO

Globalny kryzys gospodarczy spowodował konieczność zaangażowania państwa w ratowanie przed bankructwem wielu podmiotów gospodarczych, początkowo w sektorze finansowym, a następnie, w późniejszej fazie kryzysu, także w realnej sferze gospodarki. W krajach Unii Europejskiej działania te przyjmują formę pomocy publicznej, która jest szczegółowo uregulowana, ponieważ oznacza korzyści dla jej beneficjentów, a więc narusza reguły konkurencji rynkowej. W związku z tym udzielanie pomocy publicznej jest kontrowersyjne, gdyż potencjalnie wpływa ona niekorzystnie na politykę konkurencji prowadzoną w UE. Celem artykułu jest analiza i ocena rozmiarów pomocy publicznej udzielanej w krajach UE w dobie kryzysu gospodarczego oraz jej potencjalnego wpływu na kondycję ekonomiczną gospodarek i stan sektora finansów publicznych.

Słowa kluczowe: *pomoc publiczna, kryzys gospodarczy, pomoc kryzysowa i niekryzysowa, sektor finansowy, realna sfera gospodarki*

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Importance Of Employment Protection And Types Of Employment Contracts For Elasticity Of Employment In The OECD Countries

Abstract

This article presents the impact of the global crisis on employment in the OECD countries, and in particular is an attempt to explain why the impact is of a different scope in particular countries. Particular attention has been paid to the question of the role played by labour market institutions (such as employment protection legislation and fixed-term employment).

The global economic crisis has influenced the situation in the labour markets of OECD countries, causing declines in employment and increases in unemployment. Changes in the level of employment in individual countries varied. Between 2007-2012 declines in production took place in the majority of OECD countries. Declines in real wages were also observed in those countries. On the other hand, in the period of 2005-2012 relatively small changes in labour market institutions occurred. With respect to both the stringency of employment protection legislation, as well as the share of fixed-term employment, there were no clearly visible trends in the data during the period of economic crisis.

The econometric verification of theoretical hypotheses was performed using annual data from the 2005-2012 period for 26 OECD countries, and it shows that GDP and real wages were statistically significant determinants of employment size in the analyzed period. The study also confirmed the hypothesis of the existence of a non-linear (U-shaped) relationship between employment elasticity with respect to GDP and the level of stringency of employment

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protection legislation, as well as the share of fixed-term employment in the total number of employment contracts. The results show that the smallest declines in employment during a crisis might be expected in countries where the level of EPL is close to 2, and the share of fixed-term employment in the total number of employment contracts is close to 18%.

Keywords: *employment, labour market institutions, employment elasticity, employment protection, fixed-term employment*

1. Introduction

The global crisis which began in the second half of the first decade of the 21st century has become the recent object of lively debate and investigation in world economic literature. Detailed analyses have been undertaken with respect to its appearance, both from the worldwide as well as particular countries' perspective, and various concepts and hypotheses have been put forward with respect to the causes and determining factors of the crisis. A number of efforts have also been undertaken to identify and assess its basic effects. This widespread focus on the economic crisis issue in the world literature is hardly surprising. The crisis has affected the economies of a decided majority of countries in the world, the financial situations and positions of the entire range of economic entities, left its imprint on governmental activities and policies at all levels of government, and has led to the revision of a whole series of conventional economic theories. Thus it is no wonder the global crisis has become a hot topic in economic debate.

This article[1] focuses on the effects of the global crisis for the labour markets of the OECD countries, in particular with respect to the basic economic factor determining the situation in labour markets, i.e. employment. An attempt is made not only to identify those effects in particular countries, but above all to shed light on the differentiated scopes of such effects. In this regard special attention is paid to the issue of the role of labour market institutions. Taking into account the limited framework of our analysis, we focus on the roles of two labour market institutions, namely employment protection legislation (EPL), and the type of employment contracts. The main aim of this article is thus to assess the influence of these two selected labour market institutions on employment in the OECD countries during the global crisis.

[1] This article is a preliminary version of a much broader study prepared for the IXth Congress of Polish Economists.

The work consists of six sections. In section two we attempt to show the impact of global crisis on shaping both employment and unemployment, identifying countries in which the largest negative changes in these categories occurred. Section three is a theoretical analysis of the factors determining changes in employment during a crisis. This analysis is based on recognized economic theories, in particular the neoclassical and Keynesian theories. Section four is focused on presenting stylized factsabout the determinants of employment changes in the OECD countries during the period of the global crisis. Section five is devoted to econometric verification of the hypotheses concerning the influence of EPL as well as the share of fixed-term employment contracts in the total number of contracts on the changes of employment, based on statistical data concerning the OECD countries. The most important conclusions are presented in section six.

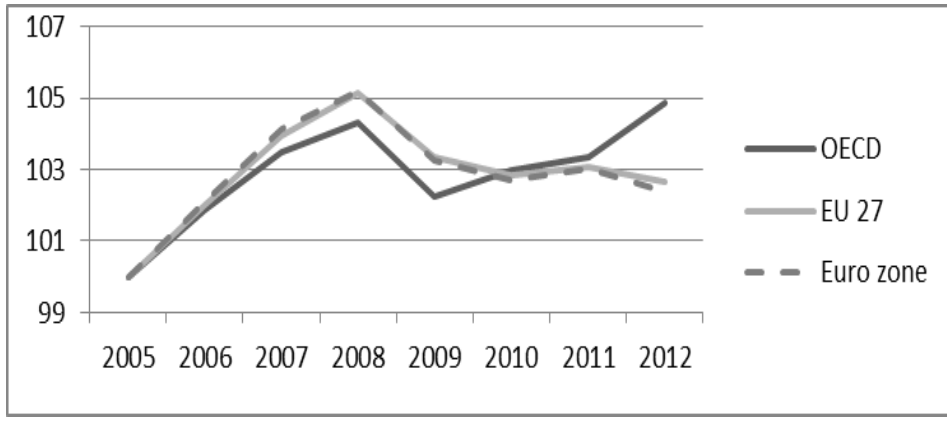
2. Changes in the labour markets of OECD countries in the years 2005-2012

The global crisis caused significant, negative changes in the labour markets of the majority of OECD countries, although the inception of the changes did not appear in particular countries at the same time. The decisive year, in which the negative tendencies gathered force in most of the countries, was 2009, although the effects continued to be felt in many of the countries in subsequent years as well. These effects concerned both employment and unemployment. Below we analyze the trends in more detail.

Chart 1 presents employment trends in three selected groups of countries during the period 2005-2012. The groups are: the OECD, the EU-27, and the Eurozone countries (it should be noted the groups contain significant overlap). While overall declining trends can be seen in all groups, they were stronger and lasted longer in the EU-27 and Eurozone countries than in the OECD countries as a whole. The negative trends in the OECD countries began to reverse after 2009.

Detailed data on the changes in employment in particular OECD countries indicates the differentiated situation in various countries in the years researched. The countries which have shown continual and significant employment growth are Israel, Chile, and Australia. A second group of countries also experienced a relatively advantageous situation, whereby employment growth was stunted for only one year and then stabilized at a constant rate. These countries include Austria, Belgium, Canada, the Netherlands, Mexico, New Zealand, Norway, and also Poland. The remaining countries are characterized by strong changes in employment trends, with significant declines in the crisis years.

Chart 1. Dynamics of change in groups of countries during 2005-2012 (2005=100)



Source: OECD internet database.

Table 1. Coefficients of annual variation and indices of negative semi standard deviation of the rate of change in employment in the years 2005-2012 in countries with indices higher than the mean value by ½ of standard deviation

Country	Coefficient of variation	Index of negative semi standard deviation of the rate of change in employment
Greece	5.87%	3.85
Estonia	4.78%	3.57
Ireland	6.05%	3.29
Spain	5.61%	3.07
Iceland	4.14%	2.14
Portugal	3.71%	2.11
Japan	2.08%	1.87

Source: own calculations.

Table 1 presents information about two indices which characterize employment changes in the countries which suffered the largest negative consequences in terms of employment as a result of the global crisis. This concerns the coefficient of variation in the rate of change of employment and the index of negative semi standard deviation of the rate of change in employmentin the years 2005-2012 in countries with indices higher than the mean value for the whole sample by ½of standard deviation[2]. The table shows that the largest

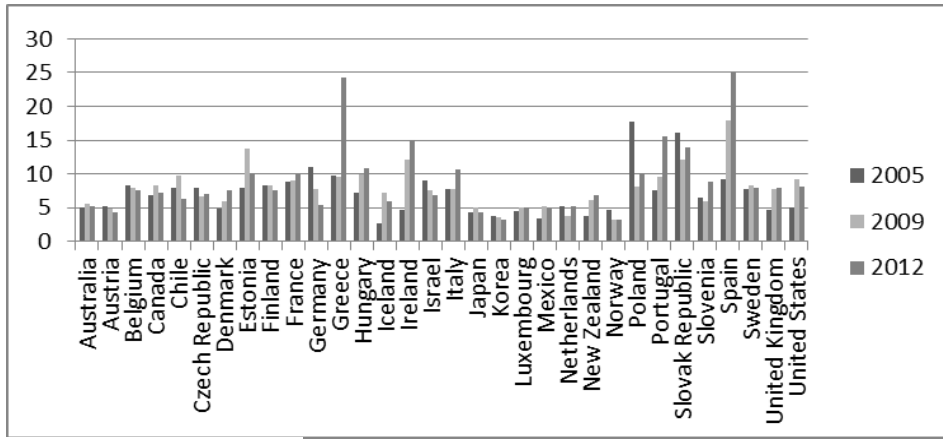
[2] The index of negative semi standard deviation of the rate of change in employment was calculated according to the following formula: $\sqrt{\frac{\sum_{i=1}^{N}(x_i - x_0 | x_i - x_0 < 0)^2}{N}}$ where $x_0 = 0$, and x_i is the rate of change of employment in the period i, while N is the number of periods.

variation in the rate of change of employment took place in Greece, Estonia, and Ireland. Greece, Estonia, Ireland, Spain, Iceland, Portugal, and Japan, were also the countries which demonstrated the biggest falls of employment in the analysed period, measured by the index of negative semi standard deviation of the rate of change in employment. The most difficult situations with respect to employment took place in Greece, Spain, and Portugal, where employment during the years 2008-2012 fell by 17%, 15% and 11% respectively.

The differentiated situation on the labour markets of the OECD countries is also reflected in the various levels and various dynamics of change in the unemployment rate in particular countries. Chart 2 presents the unemployment rate in the researched countries for the years 2005, 2009, and 2012. In the first place, it can be seen that the highest unemployment rates were noted in Slovakia, Poland, Spain, Greece, Portugal and Ireland, with the latter four (Spain, Greece, Portugal and Ireland) recording their highest unemployment rate in 2012, which indicates a longer and continuing economic slump in those countries. In both Poland and Slovakia the highest unemployment rate was recorded in 2005. The lowest unemployment rates were recorded in South Korea, Norway, Japan, Austria, Mexico and the Netherlands. Secondly, the sharp differences in the dynamics of changes in unemployment rates in particular countries should be noted. During the period of the global crisis the steepest increases in the unemployment rate occurred in Spain, Greece, Ireland, Portugal, and Hungary, which indicates these countries' high sensitivity to the overall downturn in employment. Thirdly, in the cases of Slovakia, Slovenia and Poland their unemployment rates dropped in 2009 in comparison to 2005, but unfortunately rose between 2009 and 2012.

The trends with respect to changes in the labour markets of the OECD countries presented above show that the crisis has left a significant imprint on the labour markets, causing decreases in employment and increases in unemployment. The scale of these changes however is strongly differentiated with respect to particular countries. The question thus arises: what are the main reasons for this high degree of differentiation? We begin below by examining the question from the theoretical aspect.

Chart 2. Unemployment rate in the OECD countries for the years 2005, 2009 and 2012 (in %)



Source: OECD internet database.

3. Determinants of changes in employment during the crisis – theoretical foundations

For many economies the global crisis is a negative shock that descend on their entire network of economic activities, the source of which lay outside their national economic system. In the modern globalized world external crisis impulses are readily transmitted into national economies, in particular through the channels of foreign trade and capital transfers. As a result of these impulses steep declines in exports and capital outflows take place, bringing about a reduction in aggregate demand in the short term. In many countries the effects of the global crisis are most tangible with respect to the negative shock in demand. And this shock is of critical importance to the labour markets. However, changes in employment, and also unemployment, depend not only on the scope of the negative shock, but also on the character of the adjustment processes occurring in the economy in response to the shock. Here we examine this aspect in more detail.

Negative demand shock calls forth adjustment processes in various segments of the economy and in various markets, including, among others, the markets for goods and labour. These processes are of particular interest to us in terms of our research aim. These processes have been widely examined on the

basis of two fundamental theoretical constructs, i.e. neoclassical and Keynesian economic theory.[3]

In accordance with neoclassical theory, which emphasizes price and wage elasticity, negative shock to demand brings forth above all price and wage adjustments, which relatively quickly eliminate the imbalances created by the shock. This theory implies that, as a result of these adjustments, no significant decline in output occurs, and the imbalances in the labour market are quickly eliminated by the real wage adjustments.

The adjustment process looks different in Keynesian theory. On the basis of this theory, and in particular in new Keynesian economics, a range of concepts have been developed to justify the maintenance of rigid wages and prices (among others the theories of menu costs, implicit contracts, efficiency wage, and insider-outsider). These concepts emphasize that adjustment processes are based above all on quantitative adjustments, which in the case of negative shocks are expressed in declines in output and employment.

It is no easy task to decide which of these two economic concepts better describes the actual processes of adjustment which take place in an economy. Important factors in choosing which concept better applies are: the time horizon taken into account, actual structures of the analyzed markets, and the position of the two sides in the labour market, i.e. employers and employees, as well as the character of the existing institutions. The most likely hypothesis is that both theoretical concepts have their significance in practice, although neither of them exhaust the rich range of possible explanations for adaptation processes.

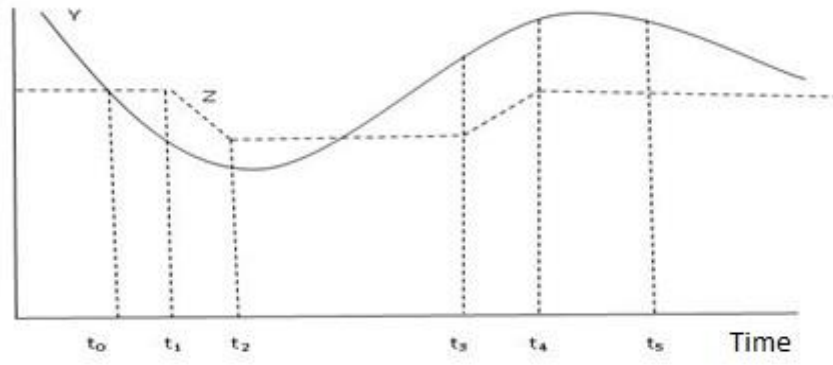
A negative shock to demand can bring about a trend toward price decreases in the goods market, especially in those sectors characterized by the absence of monopolistic structures, but this adjustments most certainly do not exhaust the whole range of adjustment processes. A decline in demand can also result in adjustments with respect to the changes in times of delivering goods or changes in product inventories, and if the decline in demand is sufficiently deep and long-term, output declines are almost inevitable. As a result of considerations presented above, one may assert that the scale of the decline in output depends not only on the depth of the drop in demand which results from the negative shock, but also on the range of the above-mentioned adjustment processes used, i.e. price declines, changes in delivery schedules, or changes in product inventories. The greater the scale and scope of the adjustment processes used, the lesser the likelihood of quantitative adjustments in the form of output declines.

[3] See Tsoulfidis, 2010, pp. 363-380.

Negative shocks to demand which do lead to declines in output bring about adjustment processes in labour markets. Their appearance results from the disproportion between the previously existing demand for production factors (including the demand for labour), and the reduced demand which results from the lowered production. Viewing this question from the point of view of entrepreneurs, one may state that the reduced cash income of companies associated with limited production (as well as price declines) require adjustments aimed at reducing the costs of production, including the cost of labour. These adjustments may take various forms. Firstly, they bring about a tendency to lower wages, which is strongly espoused in the theories based on the neoclassical traditions. It should be noted however that in the modern world, in which labour unions operate, collective bargaining agreements are in place, as well as minimum wage regulations, and a number of contracts is of a relatively long-term nature, this type of adjustment has a limited scope of application. Secondly, entrepreneurs may attempt to reduce operational costs by reducing the work hours of employees, assuming such a reduction is connected with lower labour costs. Such an approach is characterized not only by a decline in productivity per employee, but may also bring about a decline in productivity per hour of work, if the reduction in work hours is less than the decline in output brought about by reduced demand. In such instances the phenomena of labour hoarding may occur, which may be tolerated by employers for reasons of profitability.[4] Thirdly, adjustments may take the form of reductions in the number of employees, which is strongly espoused in Keynesian economic theory. However, the experiences of many economies demonstrate that adjustments of employment to the changes in output do not usually occur simultaneously, but rather take place as a delayed reaction, as is shown in Illustration 1 below. Such cyclical employment trends can be explained by the appearance on the labour market of other adjustment mechanisms. Even more, based on such observations one may posit that there is an element of interchangeability between the various types of adjustment mechanisms, i.e. quantitative adjustments in the labour market in the form of employment changes are less pronounced in the event of stronger application of wage adjustments and adjustments to work schedules.

[4] This phenomenon is extensively described in the Polish literature by P. Strzelecki, R. Wyszyński, K. Saczuk (2009, s. 77-104).

Illustration 1. Changes in production (Y) and employment (Z) in business cycles



Source: Smith, 2003, p. 50.

Based on the above it may be postulated that the scale of changes in employment during a crisis period depends to a significant extent on the role played by specific types of adjustment processes on the labour market. If wage reductions and shortening of work time are used, the scale of changes in overall employment is lessened. The question of what type of adjustments are dominant in a given labour market depends above all on the institutions existing in given economy, in particular on legal regulations with respect to compensation (especially minimum wage), work hours, dismissals, and the possibilities with respect to hiring workers on fixed-term or indefinite-term contracts, as well as on the degree of influence and interdependence of the adjustment mechanisms used to reduce costs. With respect to all the above-mentioned factors, a critical role is played by two institutions: the EPL and the availability (or not) of fixed-term contracts of employment.

The EPL is comprised of a collection of binding norms and restrictions concerning employment dismissals, notice requirements for terminations, and requirements concerning severance pay (Cahuc, Zylberberg 2004, p. 734 as well asBoeri, van Ours 2011, p. 255).[5] The fundamental aim of legal norms governing employment protection is to increase the stability of employment for workers and the security of their remuneration. When the regulations concerning protection of employment are more stringent, employers incur greater costs in connection with the termination of employment relationships, and so they only use these types of adjustments and adaptations when necessary. In other words, increases in the costs of employment termination discourage employers from performing quantitative adjustments of employment in favour of adjustments of

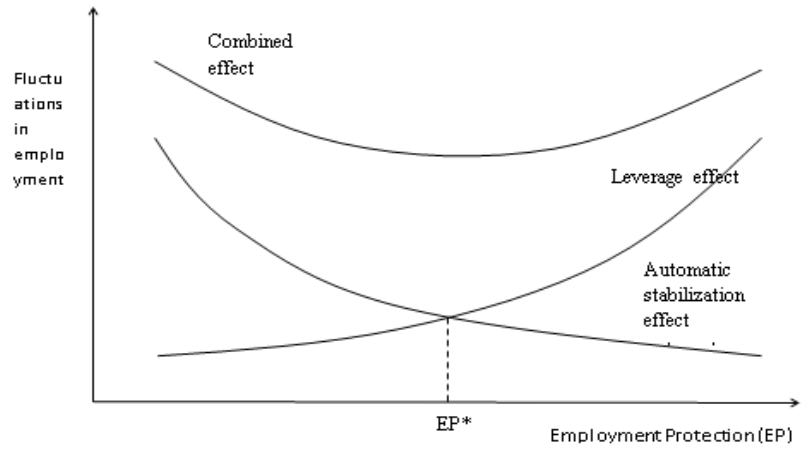
[5] For more on the topic of employment protection legislation, see Kwiatkowski, Włodarczyk, 2012.

wages and work time. One may thus conclude that highly restrictive regulations protecting employment stabilize the fluctuations in employment/unemployment.

However, the practical experience of numerous countries, as well as the theoretical analyses undertaken in the literature, indicate the impact of EPL on the labour market is much more complex phenomenon. According to E. P. Lazear (Lazear 1990), the introduction of stringent employment protection regulations under the assumption of wage and work elasticity has a neutral influence on employment, because the increased costs associated with employment termination are taken into consideration in wage negotiations with employees (i.e., the wages are established at a lower level), and as a result the adjustments made in time of crisis are focused on reducing wages and work hours, and not on reductions in overall employment.

The situation looks different however in the case of rigid wages. In cases of weak employment protection, negative shocks produce strong quantitative adjustments, which result in reduction in employment. An increase in the stringency of such regulations brings about either a stabilization, or even weakening of fluctuations in employment/unemployment (Blanchard, Summers, 1986). But the consequences do not end there. Restrictive regulations impede, if not make impossible, the rational allocation of the workforce, worsening the profit/loss sheets of companies, which negatively affects labour demand (Greenwald, Stiglitz 1995).

Illustration 2. Employment protection and fluctuations in employment



Source: Malul, Rosenboim, Tal, 2011.

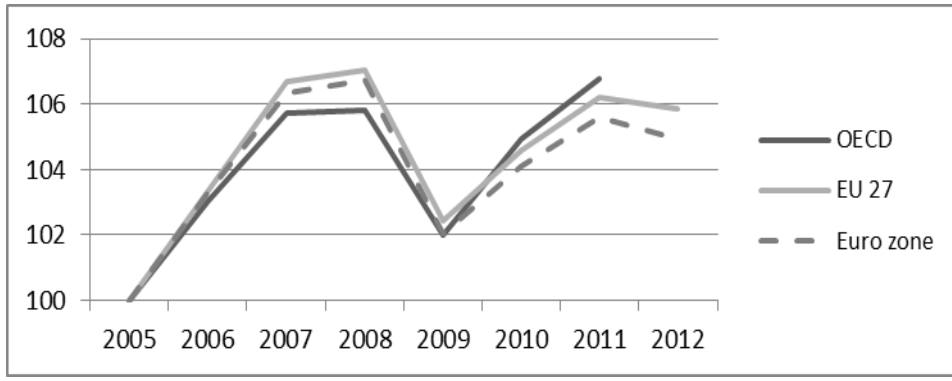
These two opposite effects are emphasized in the work of M. Malul, M. Rosenboim and S. Tal (2011), who distinguish between the automatic stabilization effect and the leverage effect (increasing fluctuations in employment/unemployment as a result of lower profits), as shown in Illustration 2 above. Taking into consideration both effects the authors came to the conclusion that the combined effect of the influence of EPL may take the shape of the letter U. This suggests that moderately restrictive regulations may be the optimal solution.

Another factor influencing employment fluctuations during the global crisis is popularity of fixed-term employment contracts. This can be measured by the share of employees working on the basis of fixed-term contracts in the overall number of employees. Several arguments can be put forth to suggest that the influence of the increase in the number of fixed-term employment contracts on employment fluctuations also takes the shape of the letter U, although it is more flattened out at low indicator levels. This is connected with the fact that employment protection is usually greater in the case of contracts for an indefinite periodthan in the case of fixed-term contracts. In cases where the share of employees working on fixed-term contracts is very minimal (i.e. the basic form of employment is the contract for an indefinite period, which implies a high degree of employment protection), the effect may be a strongly irrational allocation of resources, leading in the end to increased employment fluctuations. An increase in the number of workers on fixed term contracts may initially reduce fluctuations in employment as a result of the more rational allocation of resources, but further increases in the share of fixed-term contracts can lead to increases in employment fluctuations due to the ease of terminating employment.

4. The determinants of changes in employment in the OECD countries – stylized facts

Based on the theoretical analyses presented in part three above, it can be seen that in terms of occurrence of negative economic shock – GDP, real wages, the stringency of employment protection regulations as well as the role of various types of employment contracts play a crucial role in determining the situation on a given labour market. In this section we will more closely examine the dynamics and trends visible in those factors in the OECD countries during the years 2005-2012. Our analysis is based on annual data from the OECD internet database for 31 OECD countries for the years 2005-2012.

Chart 3. Dynamics of GDP changes in groups of countries during the years 2005-2012 (2005=100)



Source: OECD internet database.

One of the fundamental factors influencing the level and scope of reduction of employment in time of crisis is the size of output created in an economy, measured by Gross Domestic Product (GDP). Chart 3 presents the dynamics of changes in the size of GDP in the analyzed groups of countries for the years 2005-2012. As can be seen, all the analyzed countries experienced a growth in production during the period 2005-2008, albeit the growth in 2008 was decidedly weaker than in previous years. The greatest decline in GDP was noted in 2009. Beginning in 2010 we can observe a return to growth tendencies, although in the case of the EU countries this growth rate was significantly slowed in 2012, which was the result primarily of the fiscal crisis which struck several Eurozone countries, such as Greece, Spain, Portugal and Italy.

Table 2 below presents a summary of changes in GDP in the OECD countries in the years 2005-2012. It can be seen that during this period most of the countries suffered from an economic downturn, which resulted in limited production. In the case of twelve countries the decline in GDP began in 2007, while for fifteen countries the first decline was noted in 2008. In nineteen countries the crisis ended in 2009, and in two countries in 2010. In Greece, Spain, Portugal, Italy and Hungary successive declines in GDP lasted until 2012, which was mainly connected with the growing fiscal crisis and the need for significant cuts in the budgetary expenses of these countries. Only three countries – Israel, South Korea, and Poland – did not record an absolute decline in GDP during the period analyzed.

The greatest declines in GDP during the crisis took place in: Greece (21.9 p.p. over five years). Estonia (20.9p.p. over two years), Iceland (11.7p.p. over two years), Finland (9.4p.p. in one year), Slovenia (9.2p.p. in one year), Ireland (9.1p.p. over three years), and Italy (7.2p.p. over five years). The smallest declines in GDP took place in: Chile (1.2p.p.), Norway (1.7p.p.), New Zealand

(1.9p.p.), Canada (2.9p.p.), and Belgium (3p.p.). In these countries declines in GDP were recorded for a single year only.

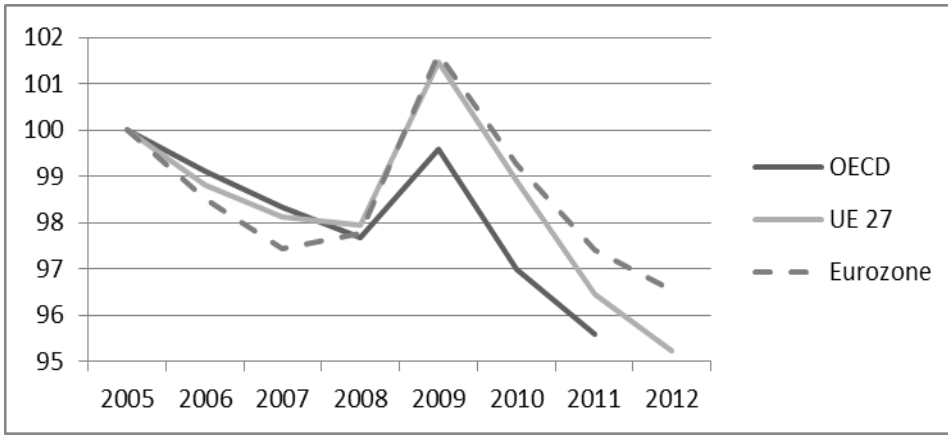
Table 2. Changes in GDP in the OECD countries during 2005-2012

Country	Upper turning point of the business cycle		Lower turning point of the business cycle		Changes in GDP (in p.p.)
	Maximum (Index of changes in GDP2005=100)	Year	Minimum (Index of changes in GDP 2005=100)	Year	
Greece	109.2	2007	87.3	2012	21.9
Estonia	118.3	2007	97.5	2009	20.9
Iceland	112.3	2008	100.6	2010	11.7
Finland	110.3	2008	100.9	2009	9.4
Slovenia	117.0	2008	107.9	2009	9.2
Ireland	111.1	2007	102.1	2010	9.1
Italy	103.9	2007	96.8	2012	7.2
Japan	103.9	2007	97.2	2009	6.8
Denmark	105.0	2007	98.3	2009	6.7
Mexico	109.9	2008	103.3	2009	6.6
Slovakia	126.6	2008	120.4	2009	6.2
Portugal	103.8	2007	97.9	2012	6.0
Sweden	107.8	2007	101.7	2009	6.0
Hungary	104.9	2008	99.0	2012	5.9
Spain	108.7	2008	103.2	2012	5.5
Germany	108.3	2008	102.7	2009	5.5
Czech	116.7	2008	111.4	2009	5.3
Great Britain	106.3	2007	101.1	2009	5.2
Austria	109.1	2008	104.9	2009	4.2
Australia	118.3	2011	114.2	2012	4.1
Holland	109.4	2008	105.4	2009	4.0
USA	104.6	2007	101.0	2009	3.6
France	104.8	2007	101.4	2009	3.4
Belgium	106.7	2008	103.7	2009	3.0
Canada	105.8	2008	102.9	2009	2.9
New Zealand	105.3	2007	103.4	2008	1.9
Norway	105.1	2008	103.4	2009	1.7
Chile	114.8	2008	113.6	2009	1.2
SouthKorea	127.6	2012	-	-	-
Israel	133.6	2012	-	-	-
Poland	134.0	2012	-	-	-

Source: own calculations.

Real wages constitute the next factor which exercises an influence on employment changes in an economy. Changes in the level of wages in response to an economic slump enable economic entities to limit the scope of quantitative adjustments in employment. As can be seen in Chart 4, during the period analyzed real wages underwent a slight declining trend in 2005-2006, followed by a relatively dynamic growth in the years 2007-2009, and then a declining trend after 2010. This indicates that real wages in the OECD countries had a delayed reaction to the negative economic shock.

Chart 4. Dynamics of changes in real wages in groups of countries during the years 2005-2012 (2005=100)



Source: OECD internet data base.

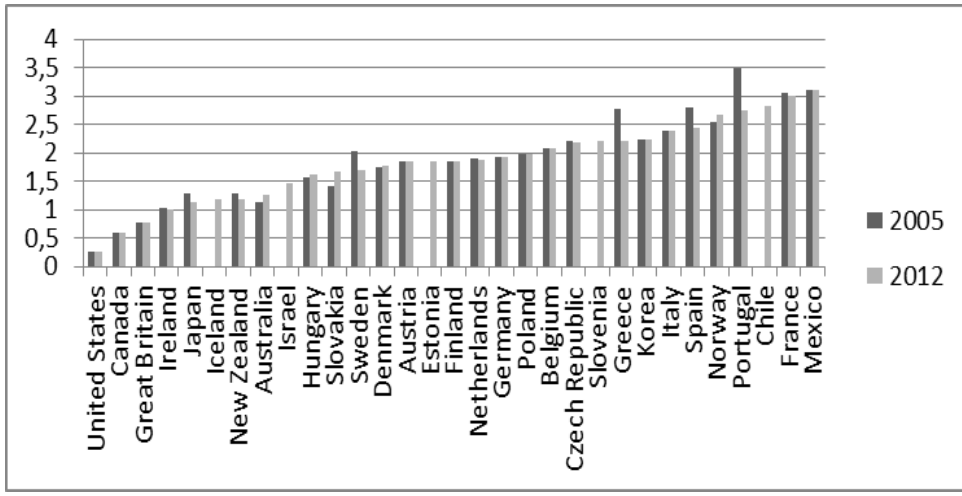
Analysis of the detailed data concerning real wages dynamics allows for the assertion that although a decline in real wages took place in most of the OECD countries during the economic crisis, the decline was relatively moderate, usually not exceeding 2% per year. A rather strong downward wage adjustment is visible in South Korea, Denmark, Ireland and Estonia, and the largest decline was recorded in Iceland, reaching 11% annually.

Factors of an institutional nature also have an influence on the scope of quantitative adjustments to employment in times of a negative economic shock. These factors include the degree of stringency of employment protection regulations as well as the share of fixed-term employment contracts in overall employment.

In order to assess the degree of restrictiveness of employment protection regulations we used the EPL (Employment Protection Legislation) index, a standard measure used in research and elaborated and calculated by the OECD. This summary index is the weighted average of 21 elements used to describe the degree of stringency of legislation adopted in various countries aimed at the

protection of employment. The index is based on values of 0 (least stringent) to 6 (most stringent).[6]

Chart 5. Summary index of restrictiveness of employment protection legislation(EPL) in the OECD countries for the years 2005 and 2012 (0 – least stringent; 6 –most stringent)



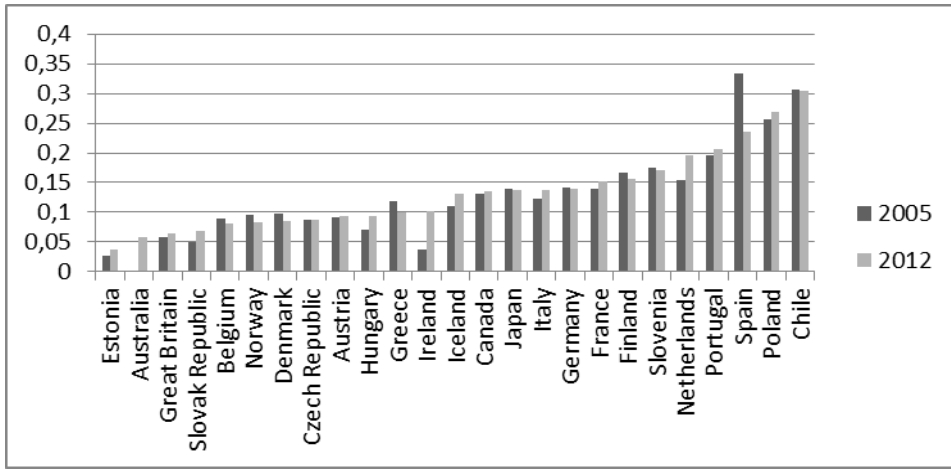
Source: OECD internet data base.

Chart 5 shows the levels of the EPL index for OECD countries, with the least stringent overall being on the left side of the chart and the most stringent overall on the right side. In 2005 the most stringent employment protection regulations were in place in Portugal, Mexico, France, Spain, Greece and Norway. In 2012 however countries with the most stringent employment protection regulations were Mexico, France, Chile, Portugal, Norway and Spain. The least stringent EPL index values, both in 2005 and 2012 were noted in the Anglo-Saxon countries: United States, Canada, Great Britain, Ireland, New Zealand, Australia, as well as in Japan.

Changes in the EPL index between 2005 and 2012 occurred rather slowly and to a great degree were associated with the deregulation of labour markets. Decreases in the stringency of employment protection regulations were noted in ten countries, with the greatest declines in restrictiveness occurring in Portugal, Greece, Sweden and Japan. Changes increasing the degree of stringency were implemented in five countries: Slovakia, Norway, Australia, Hungary and Denmark. In absolute terms, the EPL index declined overall, reflecting a loosening of the restrictiveness of employment protection regulations.

[6] The methods for measuring employment protection legislation and the methods for establishing EPL index values are extensively described in: Kwiatkowski, Włodarczyk, 2012, pp. 3-5.

Chart 6. Changes in the share of persons working on fixed-term contracts in the overall number of persons employed in the OECD countries for the years 2005 and 2012



Source: OECD internet data base.

The second factor of an institutional nature which is analyzed herein is the share of fixed-term employment contracts in the overall number of work contracts. Chart 6 shows the shape of that share in the OECD countries for the years 2005 and 2012. In 2005 the largest share of fixed-term contracts was noted in Spain, Chile, South Korea, Poland, and Portugal, and the lowest share of fixed-term contracts was observed in Estonia, Ireland, Slovakia, Great Britain and Hungary. In 2012 the share of fixed-term contracts in overall employment was highest in Chile, Poland, Spain, Portugal, and the Netherlands, and lowest in Estonia, Australia, Great Britain and Slovakia.

It should be noted that, similar to the situation concerning the stringency of legal regulations, the absolute difference in the scope of the use of fixed-term employment contracts is not very large, and overall there is an increase in the use of such contracts. Increases could have been observed in fourteen countries, with the largest percentage increase taking place in Ireland (6.5p.p.), the Netherlands (4p.p.), Hungary (2.4p.p.) and Iceland (2.1p.p.). A decrease in the use of fixed-term employment contracts was noted in only ten countries, with the largest decrease by far taking place in Spain (9.7p.p.), followed by Greece (1.9p.p.) and Norway (1p.p.).

5. Econometric analysis

The hypotheses described in the previous sections of this paper relating to the effect of GDP, real wages and institutional factors on employment patterns in conditions of negative economic shock were subjected to econometric verification using econometric methods for panel data.

The econometric model used was based on traditional function of demand for labour, which took into consideration both neoclassical and Keynesian determinants of employment, i.e. production and real wages. This model can be expressed using the following equation:

$$ln(Z_{i,t}) = \beta_1 ln(PKB_{i,t}) + \beta_2 \ln(RWage_{i,t}), \quad (1)$$

where: $Z_{i,t}$ – the number of workers, according toLFSin*i*-th countryin period *t*,

$PKB_{i,t}$ – the level of GDP in *i*-th country in period *t*,

$RWage_{i,t}$ – real wages in *i*-th country in period *t*.

In order to verify the hypotheses concerning the influence of factors of an institutional nature on the size and scope of employment adjustments, we added to our model interactive variables describing the influence of the degree of stringency of employment protection regulations (using the EPL index) as well as the share of fixed-term employment contracts in the total number of employment contracts on the relationship between employment and GDP. The nonlinear character of this relationship was taken into consideration.

The model used in our empirical research thus took the form:[7]

$$ln(Z_{i,t}) = \beta_1 ln(PKB_{i,t}) + \beta_2 \ln(RWage_{i,t}) + \gamma_1 \ln(PKB_{i,t}) \cdot EPL_{i,t} + \gamma_2 \ln(PKB_{i,t}) \cdot EPL_{i,t}^2 + \gamma_3 \ln(PKB_{i,t}) \cdot Uokr_{i,t} + \gamma_4 \ln(PKB_{i,t}) \cdot Uokr_{i,t}^2, \quad (2)$$

where: $EPL_{i,t}$ – level of the EPL index in *i*-th country in period *t*,

$Uokr_{i,t}$ – share of persons employed on fixed-term contracts in the total number of persons employed in *i*-th country in period *t*.

With the aim of avoiding non-stationarity of the variables used in our model, which could result in the appearance of so-called ‘spurious regression’,[8] our

[7] This model is based on the model used in: Kwiatkowski, Włodarczyk, 2012.

model was transformed into a form based on first differences. Taking into account this functional form of the model we did our estimations in a version without a constant term:

$$\begin{aligned}\Delta ln(Z_{i,t}) = {} & \beta_1 \Delta ln(PKB_{i,t}) + \beta_2 \Delta \ln(RWage_{i,t}) \\ & + \gamma_1 [\Delta \ln(PKB_{i,t}) \cdot EPL_{i,t} + \ln(PKB_{i,t}) \cdot \Delta EPL_{i,t}] \\ & + \gamma_2 [\Delta \ln(PKB_{i,t}) \cdot EPL_{i,t}^2 + \ln(PKB_{i,t}) \cdot 2EPL_{i,t} \\ & \cdot \Delta EPL_{i,t}] \\ & + \gamma_3 [\Delta \ln(PKB_{i,t}) \cdot Uokr_{i,t} + \ln(PKB_{i,t}) \cdot \Delta Uokr_{i,t}] \\ & + \gamma_4 [\Delta \ln(PKB_{i,t}) \cdot Uokr_{i,t}^2 + \ln(PKB_{i,t}) \cdot 2Uokr_{i,t} \\ & + \Delta Uokr_{i,t}]\end{aligned} \qquad 3)$$

Lagged explanatory variables were introduced to the model. We obtained statistically significant estimations of the parameters for real wages lagged by one or two periods, as well as interactive variables describing the strength of the impact of stringency of employment protection legislation on the elasticity of employment to changes in GDP, lagged by two periods.

In this model parameters $\beta_1$and $\beta_2$take on an elasticity interpretation and inform us by how many percentage points employment is reduced/increased if the GDP/real wages increase/decrease by one percentage point. The parameters γ_1, γ_2, γ_3 and γ_4 are of an interactive nature. Parameters γ_1 and $\gamma_2$show us by how many percentage points elasticity of employment to GDP changes if the EPL index increases or decreases by 1. These parameters need to be interpreted together. The parameters γ_3 and γ_4 on the other hand tell us by how many percentage points elasticity of employment to GDP increases if the overall number of persons employed increases or decreases by 1. Like the previous parameters, these need to be interpreted together.

Basing on the theoretical considerations presented in part three of this work, we can formulate the following expectations concerning the desired sign of the model's parameters' estimates:

- in accordance with Keynesian theory one should expect the existence of positive relationship between employment and the size of aggregate demand and production. The value of parameter β_1 should thus be positive,

[8] For more on the topic of non-stationarity of time series see: Charemza, Deadman, 1997, pp. 108-113. With respect to non-stationarity in panel data, see: Baltagi, 2005, pp. 237-238; 250-252.

- neoclassical theory indicates the existence of a negative relationship between employment and real wages, which should lead to a negative value of parameter β_2,
- the hypothesis concerning the nonlinear influence of the level of stringency of employment protection legislation on the elasticity of employment with respect to GDP would be confirmed if a negative value is attained for parameter γ_1 and a positive value is attained for parameter γ_2,
- on the other hand, confirmation of the hypothesis concerning the nonlinear relationship between the share of fixed-term contracts and the elasticity of employment with respect to GDP would occur in the case of obtaining negative values for parameter γ_3 and positive values for parameter γ_4.

The model was estimated using the Panel EGLS method.[9] Annual statistical data from the OECD data base (http://stats.oecd.org) was employed. This data concerned 26 OECD member states. Owing to the lack of available information in some data categories and/or the lack of a sufficiently long sample the model does not take into account Chile, Israel, Luxemburg, Mexico, New Zealand, Switzerland, Turkey and the United States. The effective sample period is 2005-2012.

The estimation results are presented in Table 3. The model results cover the entire period of 2005-2012, as well as the sub-period of the global crisis, i.e. years 2008-2012. All of the estimated values of parameters are in accordance with the theoretical expectations formulated above.

The values obtained for the parameters of equation (3) indicate that both throughout the entire period as well as during the crisis period, GDP and real wages were statistically significant determinants of employment in the OECD countries. The fact that the elasticity of employment was lower than that of real wages during the crisis may reflect the fact that, in times of negative economic shock, employment inertia is increased. This suggests that the adjustment mechanisms described in section three of this work acted in that period, resulting in occurrence of the phenomenon of labour hoarding.

The hypothesis that employment protection legislation influences the elasticity of employment to GDP was confirmed, both for the entire period studied as well as for the years 2008-2012. It should be noted that the effect of changes in the level of employment protection legislation are visible only after two periods. This may be connected with the fact that changes in employment protection regulations are taken into account only upon the signing of new employment contracts with workers. The hypothesis that the share of persons employed on fixed-term contracts in the total number of persons employed

[9] Compare: Chen, Lin, Reed, 2005, p. 22; Ciżkowicz, Rzońca, Wojciechowski, 2012, p. 73.

influenced employment elasticity was confirmed only with respect to the period of the global economic crisis. This indicates the critical role played by this factor in the employment adjustment processes in the times of crisis.

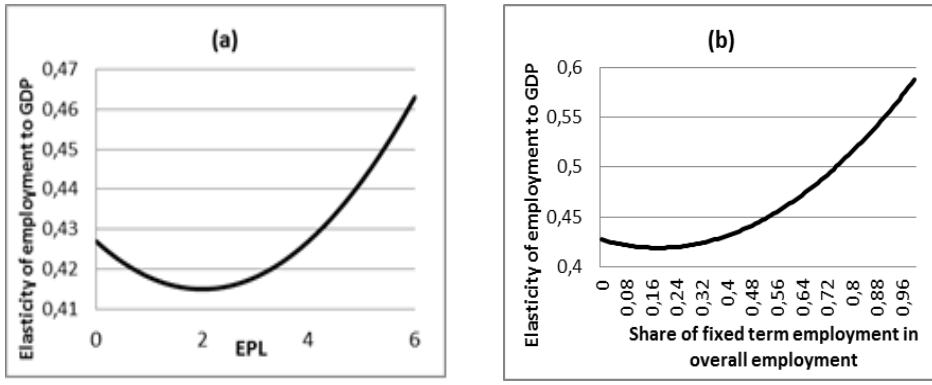
Table 3. Results of the estimation of parameters of the model for 26 OECD countries for the years 2005-2012 and 2008-2012

Sample period	**2005-2012**		**Sample period**	**2008-2012**	
Number of countries	26		Number of countries	26	
Number of observations	185		Number of observations	116	
Explained variable	Δln(Z)		Explained variable	Δln(Z)	
Explanatory variables:	Param.	t statistic	Explanatory variables:	Param.	t statistic
Δln(PKB)	0,427***	14,912	Δln(PKB)	0,427***	11,482
Δln(RWage(-2))	-0,125***	-3,512	Δln(RWage(-1))	-0,068*	-1,758
Δln(PKB)*EPL(-2)	-0,005**	-2,372	Δln(PKB)*EPL(-2)	-0,012***	-2,949
Δln(PKB)*EPL^2(-2)	0,001**	2,152	Δln(PKB)*EPL^2(-2)	0,003***	3,413
Δln(PKB)*Uo	-0,020	-0,759	Δln(PKB)*Uo	-0,091***	-2,947
Δln(PKB)*Uo^2	0,077	1,270	Δln(PKB)*Uo^2	0,252***	3,276
R^2	0.547		R^2	0,578	
Adjusted R^2	0.534		Adjusted R^2	0,559	
DW	1.495		DW	1,646	

Rejection of the null hypothesis of significance of estimates at the level: *** p<0,01, ** p<0,05, * p<0,1.

Source: Own calculations.

Chart 7. Elasticity of employment to GDP in relation to the level of EPL (a), and the share of fixed-term employment in overall employment (b) for the years 2008-2012



Source: Own calculations.

Chart 7 shows the values of elasticity of employment to changes in GDP for different levels of observed EPL index (part (a)) and different shares of fixed-term contracts in the overall number of work contracts (part (b)). The results of the estimation of the proposed model show that in the case of EPL there is a minimum value of employment elasticity for the EPL index equal to 2, while in the case of the share of fixed term employment to overall employment a minimum employment elasticity value is reached when the share is about 18%.

Based on our conducted analysis it can be concluded that during times of crisis a greater elasticity of employment relative to GDP can be observed in countries with a relatively low, as well as countries with a relatively high EPL index (i.e. level of employment protection). The same phenomenon applies to the share of employees working on fixed-term contracts. Thus in these countries we can expect bigger decreases in employment during economic slumps.

6. Conclusions

Based on our conducted analysis it can be concluded that the global crisis affected the labour market situation in the OECD countries, causing declines in employment and increases in unemployment. Changes in the levels of employment were, however, differentiated in particular countries. The largest declines in employment were observed in Greece, Estonia, Ireland, Spain, Iceland, Portugal and Japan, and the lowest declines took place in Austria, Belgium, the Netherlands, Canada, Mexico, Norway, New Zealand, and Poland. Three countries did not experience any decline in employment: Israel, Chile, and Australia.

Economic theory indicates that in situations in which a negative economic shock occurs, one should expect the appearance of quantitative adjustments in the stricken economies, which are reflected in decreased production and employment. The scale of these adjustments depends, however, not only on the depth of the shock to demand and production, but also on the nature and scale of the adjustments in terms of wages, working hours, and work productivity. One may thus speak about an interchangeability between the types of adjustments described. The larger are the adjustments in terms of wages and hours, the lesser will be the quantitative adjustment. In addition to the adjustments described factors of an institutional nature also impinge on the scope of quantitative adjustments. These include the degree of stringency of employment protection legislation and the share of fixed-term contracts in use. Also not without significance in restricting the depth of the economic shock on production and employment are the macro-economic policies employed in reaction thereto.

The statistical analysis we conducted demonstrated that a decline in production occurred in the majority of OECD countries, which was particularly deep in the years 2008-2009. The largest declines occurred in Greece, Estonia, Iceland, Finland, Slovenia, Ireland, and Italy. During the time period considered in our research, a decline in real wages also occurred in many countries, which may indicate that wages and work hours were among the adjustment mechanisms employed, leading to the occurrence of the phenomenon of labour hoarding. These mechanisms were not sufficient however to avoid the application of quantitative adjustments.

In the years 2005-2012 relatively small changes took place with respect to the institutional factors. Both as regards the stringency of employment protection legislation as well as the use of fixed-term contracts no major changes in policies or practices occurred during the time of crisis.

Econometric verification of the hypotheses presented in the theoretical part of our study demonstrated that the level of GDP and real wages were essential factors in determining employment size during the entire analyzed period of 2005-2012. The decline in elasticity of employment to changes in real wages during the crisis suggests that to a certain extent wages and work hours were used as adjustment mechanisms during the crisis period. Our hypothesis about the existence of a non-linear (U-shaped) relationship between elasticity of employment to GDP and the stringency of EPL as well as the share of fixed-term contracts in overall employment also was confirmed by our econometric analyses. The results demonstrate that the lowest declines in employment can be expected in countries where the EPL index hovers around 2 and the share of fixed term employment contracts relative to the overall number of employment contracts is about 18%.

References

Baltagi B.H. (2005), *Econometric Analysis of Panel Data*, John Wiley & Sons, Chichester, England

Blanchard O., Summers L. (1986), *Hysteresis and the European Unemployment Problem*, NBER Macroeconomics Annual, No. 1, MIT Press, Cambridge, MA

Boeri T., van Ours J. (2011), *Ekonomia niedoskonałych rynków pracy (Economics of Imperfect Labour markets)*, Wolters Kluwer Polska Sp. z o.o., Warszawa

Cahuc P., Zylberberg A. (2004), *Labour Economics*, The MIT Press, Cambridge, Massachusetts, London

Charemza W.W., Deadman D.F. (1997), *Nowa ekonometria (New Econometrics)*, PWE, Warszawa

Chen X., Lin S., Reed W.R. (2006), *Another Look at What To Do With Time-Series Cross-Section Data*, Working Papers, Department of Economics, University of Canterbury

Ciżkowicz P., Rzońca A., Wojciechowski W. (2012), *Determinanty regionalnych różnic w dynamice liczby pracujących w Polsce w latach 1999-2008 (Determinants of regional differences in the dynamics of Polish employment in the years 1999-2008)*, Gospodarka Narodowa, Vol. LXXX/XXI, Nr 11-12, ss. 59-77

Greenwald B. C., Stiglitz J. E. (1995), *Labour Market Adjustments and the Persistence of Unemployment*, AEA Papers and Proceedings

Kwiatkowski E., Włodarczyk P. (2012), *Wpływ prawnej ochrony zatrudnienia na rynek pracy w warunkach negatywnego szoku ekonomicznego (The influence of employment protection legislation on labour markets in conditions of negative economic shock)*, 'Gospodarka Narodowa', Szkoła Główna Handlowa, Vol. LXXX/XXI, Nr 11-12, ss. 1-23

Lazear E. P. (1990), *Job security provisions and unemployment*, 'Quarterly Journal of Economics', Oxford Journals, No. 3, ss. 699-726

Malul M., Rosenboim M., Tal S. (2011), *The Role of Employment Protection During An Exogenous Shock to An Economy*, a conference paper

Smith S. (2003), *Labour Economics*, Routledge, London – New York

Strzelecki P., Wyszyński R., Saczuk K. (2009), *Zjawisko chomikowania pracy w polskich przedsiębiorstwach po okresie transformacji (The appearance of labour hoarding workforces in Polish enterprises following the transformation period)*, 'Bank iKredyt',Narodowy Bank Polski, Vol. 40, Nr 6, ss. 77-104

Tsoulfidis L. (2010), *Competing Schools of Economic Thought*, Springer-Verlag, Berlin – Heidelberg

Streszczenie

WPŁYW OCHRONY ZATRUDNIENIA I RODZAJU UMÓW O PRACĘ NA ELASTYCZNOŚĆ ZATRUDNIENIA WZGLĘDEM PKB W KRAJACH OECD

Przedmiotem artykułu są skutki globalnego kryzysu dla zatrudnienia w krajach OECD, a w szczególności próba objaśnienia przyczyn ich zróżnicowanych rozmiarów w poszczególnych krajach. Szczególną uwagę w tym objaśnieniu zwrócono na pytanie,

jaką rolę odgrywają tutaj instytucje rynku pracy, a w szczególności prawna ochrona zatrudnienia i umowy o pracę na czas określony.

Globalny kryzys gospodarczy przekładał się na sytuację panującą na rynkach pracy krajów OECD powodując spadki zatrudnienia i wzrosty bezrobocia. Zmiany rozmiarów zatrudnienia w poszczególnych krajach były zróżnicowane. W latach 2007-2012 w większości krajów OECD wystąpiły spadki rozmiarów produkcji. Obserwowano w nich również spadki rozmiarów płac realnych. Stosunkowo niewielkim zmianom w latach 2005-2012 podlegały natomiast czynniki o charakterze instytucjonalnym. Zarówno w przypadku restrykcyjności prawnej ochrony zatrudnienia, jak i w przypadku udziału zatrudnienia na czas określony nie wystąpiły wyraźne tendencje zmian tych wartości w okresie trwania kryzysu gospodarczego.

Weryfikacja ekonometryczna wysuniętych hipotez teoretycznych została przeprowadzona w oparciu o dane roczne z lat 2005-2012 dla 26 krajów OECD i wykazała, że PKB i płace realne były istotnymi czynnikami determinującymi rozmiary zatrudnienia w analizowanym okresie. Potwierdzono również hipotezę o istnieniu nieliniowej (U-kształtnej) zależności pomiędzy elastycznością zatrudnienia względem PKB a stopniem restrykcyjności prawnej ochrony zatrudnienia oraz udziałem zatrudnienia na czas określony. Uzyskane wyniki wskazują, iż najmniejszych spadków zatrudnienia w okresie kryzysu możemy się spodziewać w krajach, w których poziom EPL jest bliski 2, a udział umów o pracę na czas określony w liczbie umów ogółem jest bliski 18%.

***Słowa kluczowe**: zatrudnienie, instytucje rynku pracy, elastyczność zatrudnienia, prawna ochrona zatrudnienia, zatrudnienie na czas określony*

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ŁUKASZ PIĘTAK*

Review Of Theories And Models Of Economic Growth

Abstract

The subject of this article is a review of the theories and models of economic growth. In the first section, the author analyzes the theories of economic growth, such as Schumpeter's, Lewis's and Rostow's theory. In the second part there is a review of the models of economic growth. In this part the author divides models into two groups: exogenus models and endogenus models. The article finishes with conclusions concerning the issues discussed. The method used in writing the article is an analysis of the English and Polish literature on the subject.

Keywords: *economic growth, theories of economic growth, models of economic growth, balanced growth*

1. Introduction

Economic growth is one of the most important notions in the global economy. Despite the criticism that the level and rate of growth does not always reflect the real level of a population's living standards, it remains the primary measure of prosperity. However, as a measure describing the dynamics of economic processes in the country it has some drawbacks. First, it does not record the volume of production obtained from the informal market, known as the "*black market*", which means that not all economic transactions are included in the total volume of generated output. In addition, economic growth does not

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take into account changes in the amount of time spent on work, which obviously affects the welfare of society. Also the measure of economic growth does not include the negative processes associated with economic activities, such as environmental pollution, its progressive degradation, or noise pollution. However, despite all these drawbacks economic growth remains the primary measure of the socio-economic conditions of the citizens of a country.

2. Economic growth in the historical perspective

In terms of sustainable development, a turning point took place in the late 1980's, when for first time a definition for it was given, emphasizing that development had to meet present needs without the risk that future generations will not be able to meet their needs. In 1992, at the United Nations Conference on "*Environment and Development*" in Rio de Janeiro, representatives from 176 countries signed Agenda 21, which determined the principles of sustainable development and laid out a strategy for its achievement (Bokajło 2008).

In the economic literature one can find also the notion of harmonious growth. According to Adam Smith, there are natural harmonies in economic life. Smith describes them as the force of the invisible hand, which stabilizes the market (Smith 1954, p. 46). On the other hand according to Frederic Bastiat, in spite of the conflicts of interest, God created a harmony in the world, which the intellect can not discover (Bastiat 1850). Pierre Proudhon points to the economic contradictions that may contribute to the destruction of production or cause tension in the process of its formation (Proudhon 1846).

The problem of economic growth raises the question of the driving forces that determine growth and economic development. If economic growth is a dynamic process, will the same factors in the same proportions determine its strength in the future? Classic economists saw the determinants of economic growth in investments and improving productive capacity. In the first half of the twentieth century neoclassical economics identified three factors of economic growth: land, capital and labor. This was enough to explain the causes of economic growth in capitalist countries. The more these factors were utilized, the greater was the economic growth.

In 1957, Robert M. Solow demonstrated, in his article, the insignificant share of land, capital and labor in the economic growth of the United States, and pointed to the technical progress as a source of growth in the U.S. economy (Solow 1957). On the other hand, professor Xavier Sala-i-Martín distinguished the following elements that determine the economic growth (Sala-i-Martin 2001):

1. accumulation of physical capital, human capital and education,
2. diversity of institutions favorable to the economy,
3. free movement of capital, technology, ideas, foreign investment and the free flow of information.

Thus, based on the above opinions regarding the factors of economic growth reflect, disagreement can be observed. X. Sala-i-Martin pointed to several factors, while Solow narrowed the problem to technical development.

The main works on economic growth are from the twentieth century. In the era of bullionism and mercantilism the problem was unexplored; the wealth of a nation was identified with ores and the volume of them owned (Cameron 2004, pp. 144-151). After mercantilism came the physiocrats. They glorified agriculture as the sector of the economy which gave the "*pure*" product. The physiocrat Quesnay created an economic table that described socio-economic relations, and it showed the essence of the pure product. (Quesnay 1928, p. 303). The words "*laissez faire, laissez passer*" (let me work, let me go ahead), spoken at one of the meetings of Physiocrats, gave birth to economic liberalism, represented by Adam Smith, David Ricardo, Thomas Malthus and Karl Marx (Smith 1954; Ricardo 1957; Malthus 1925; Marks 1951). Common views on economic growth can be extracted from among the classics. For example, Smith and Ricardo determined economic growth by production, sharing the "*Law of markets*" developed by Jean-Baptiste Say (Say 1960, p. 211). According to Smith, an increase of production will affect the size of the market, more specifically its enlargement (Smith 1954, p. 304). On the other hand, Ricardo considered money as merely a medium of exchange used in the process of buying and selling goods and services (Ricardo 1957, pp. 335-336).

Identical views on the role of supply in the process of economic growth were presented by Marx, who recognized its crucial role in an economy. However, in contrast to Smith and Ricardo, he did not agree with Say's "*Law of markets*". According to Marx, if the capitalist economy is experiencing regular crises of overproduction, the conviction that supply would supposedly generate demand had no logical justification (Marks 1951).

Different views on the determinants of economic growth were presented by Malthus, who made dependent it on effective demand. Therefore, he shared the views of Keynes (Stankiewicz 2000, pp. 176-177).

In addition, the classics had different views on the productivity of production factors. For example, Smith differed from Ricardo and Malthus. He was optimistic and assumed increasing returns of private inputs (Bronfenbrenner, Sichel 1987, p. 63). Malthus and Ricardo were pessimists (Czuma 2007, p. 168). They assumed decreasing returns of the factors involved in the production

process. A similar opinion was presented by Marx, who saw the process of increasing capital's organic composition as a cause of decline profit rates.

However, Smith's assumption of increasing productivity of inputs is not consistent with the rules of a competitive market. Conditions of perfect competition require equality between the price level and marginal cost. Alfred Marshall attempted to explain the incompatibility proposed by Smith. He introduced the differentiation between internal economies and external economies. According to Marshall, reduction of production costs is the result of both extending the size of the company itself, as well as the overall development of the industry. Thus, the presence of external economies allows for the reconciliation of perfect competition with the increasing productivity of production factors. (Marshall 1925, pp. 312-321).

The problem of the presence of external economies was undertaken by other economists. R. Nurkse examined the impact of industry's development on other sectors of the economy (Nurkse 1962, pp. 27-33). Niels Hansen linked the opportunity of private entrepreneurs with the presence of external economies (Hansen 1968, p. 8). On the other hand, in the opinion of Mauricce Dobb a primary analysis of static equilibrium showed a tendency to treat the external economies as benefits accruing to some companies that work in a determined industry (Dobb 1963, pp. 14-15).

The name of Adam Smith is associated with the concept of division of labor as the main factor of economic growth. According to Smith, the division of labor is a result of capital accumulation and gradual expansion of the market (Smith 1957, p. 304). Moreover, Smith appreciates the role of technological innovation in the process of economic growth. However, as noted by Brewer, technical progress in Smith's concept is not independent and only passively follows the accumulation of capital (Brewer 1991). On the other hand, according to Lionel Robbins, it is owing to Smith that, for the first time in the history of economic thought, product *per capita* and not the total production volume was considered as a criterion of welfare (Robbins 1969, p. 28).

Smith also recognized the negative consequences of division of labour. He pointed to the psychological and human costs associated with production (Smith 1957, T. 2, p. 782). J.S. Mill spoke in a similar vein. According to him, dealing with only one thing has a bad effect on intelligence, and the real losses caused by that situation outweigh the gains (Mill 1909, p. 133). One hundred years later, a different opinion on the division of labor was presented by Alfred Marshall. In his opinion, performing the same work does not have a negative impact on the mental development of the employee, and the damages caused by the mechanical performance of work are neutralized by the social atmosphere at the workplace (Marshall 1935, p. 255).

While the classical thought on economic growth was linked with supply, Keynes considered demand to be the most important. The experience of the Great Crisis of 1929 did not confirm the existence of an autonomous strength that helped an economy to achieve a stable state. The Great Depression of the 1930s led to a dramatic economic collapse in world. John Steinbeck, in his book "*The Grapes of Wrath*" described the situation in the United States, ruined by the crisis of 1929 (Steinbeck 1971, pp. 43, 194-195, 291, 285, 348-349). The biggest collapse took place there, where industrial production decreased by 44.7% and gross domestic product decreased by 28%. The countries affected by the deep recession also included Austria, Germany, Italy, Czechoslovakia and Poland. The crisis least affected countries such as The Netherlands, Romania, United Kingdom and Scandinavian countries (Snowdon 1998, p. 16)

The experience of the Great Depression influenced Keynes. He said that capitalism by its nature tended to imbalance. In his work he openly criticized classical economics (Keynes 1985, pp. 42-43). Keynes did not accept Say's "*law of markets*", comparing such reasoning to the natural economy of Robinson Crusoe (Keynes 1985, p. 46). In addition, he considered classical economy's assumption that an economy achieved a steady state in the long run as unrealistic. According to Keynes, the economic mechanism by its nature tends towards imbalances and unemployment (Keynes 1985, p. 60).

Keynes, in contrast to the classics, was convinced of the unbalanced nature of economic growth. In his short-run model the main factor of growth is investments. However, the model developed by Keynes does not take into account the passage of time. His successors, in the persons of Harrod and Domar, tried to dynamise the so-called keynesian model, seeking a balance in the long run.

3. Theories of economic growth

Analysis of the theory of economic growth begins with the name Joseph Schumpeter. Contrary to the classics, Schumpeter did not consider the accumulation of capital as the main driving force of economic growth. He assigned great importance to the concept of the entrepreneur-innovator, calling him a "*hero of development*". In his opinion, the innovation and creativity of entrepreneurs determined economic development. Schumpeter was convinced of the unbalanced nature of economic growth. and he attributed that process to the nature of the 'jump'. (Schumpeter 1934, p. 65). Following the introduction of an innovation an entrepreneur receives great profits, but over time the competition copies the invention and the profits begin to decline.

The theory of economic growth proposed by Schumeter is based on the assumptions of private property, a competitive market. and the efficiency of financial markets that could support the production of new inventions. However, in countries lacking a democratic system, these conditions frequently are not fulfilled. Thus, Schumpeter's theory is addressed to the democratic and economically developed countries.

Another theory of economic growth was developed by Arthur Lewis. In his work he dealt with the problem of poor countries, but with a rich labor force (Lewis 1954, p. 3). Lewis shared the overall vision of classical economists, but did not always agree with their diagnoses and methods. The model proposed by Lewis assumes maintaining a low level of life in the short run. The savings thus obtained will increase the stock of capital, which in the long run will lead to the appearance of income growth. Thus, Lewis's model implies enlargement of the differences between countries in the short run as a condition for equalization of income levels in the long run (Lewis 1956, pp. 7-22).

Simon Kuznets developed a theoretical support for the Lewis's theory called "*Kuznets's curve*" (Kuznets 1955, pp. 1-28). Empirical studies confirmed the existence of economic disparities in the early stages of growth. Initially, when labor begin to abandon agriculture for industry, the differences were the greatest. However, as the concentration of factors of production took place in industrial centers, the differences tended to disappear. In addition, Kuznets noticed a positive association between the dynamics of economic growth and the increasing share of urban population in the total population (Kuznets 1976, p. 32).

Nonetheless Lewis's theory contains assumptions which are difficult to accept. The problem of poverty can not be postponed until an unspecified future. After all, the increased accumulation of capital would be achieved by reducing consumption, and this would most affect the poorest people.

A few years later, Walt Rostow created another theory of economic growth. Rostow, like Lewis, made economic development dependent on the accumulation of capital, and distinguished five stages of development (Rostow 1960, pp. 4-16). According to Rostow, the biggest problem for poor countries is to achieve the third stage, called "*take off*". Poor countries have a problem with the interruption of the "*vicious circle*" established through the years. Rostow proposed to break it by accumulating capital. However he realized that in cases where there was an absence of opportunities to increase internal accumulation, external support would be necessary. Also, according to Rostow, reconstruction of the economy from agricultural to industrial would allow for the diffusion of economic growth over the entire country. In 1971 Rostow added a sixth stage of economic development, called "*quality*" - characterized by the continuous improvement in the quality of goods and services (Rostow 1971).

4. Models of economic growth

Since the process of economic growth is based on great variety of factors that change over time, models of economic growth necessarily apply some simplifications. These simplifications consist in classification and aggregation of the causes of economic growth. Mostly, in models of economic growth a depreciation rate for capital and growth of population are exogenous. In the case of the savings rate, the models can be divided into two groups. In the first group, the savings rate is exogenous, for example in the Harrod and Domar model, models that use the production function AK, and the neoclassical models of Solow and Uzawa.

The second group includes models with an endogenous savings rate, like the neoclassical model of Ramsey and the models of Kaldor and Pasinetti, which are based on the scientific achievements of Keynes. Models can be also divided according to the capital ratio. The Models of Harrod–Domar and the AK models assume its constant value. In turn, the ratio of capital/production in neoclassical models can change over time.

Models of economic growth also can be divided according to the criterion of time. Long-term models are primarily used to determine the path of sustainable growth. They characterize a pattern according to which the economy should grow (Woźniak 2008, pp. 145-146).

Short-term models refer to the scientific achievements of Keynes. Their main purpose is to identify the possibility of having the level of actual production approach the level of potential output (Woźniak 2008, pp. 145-146).

Roy Harrod and Evsey Domar developed a model that sought the possibility for sustainable growth. They extended the short-term Keynesian model, that assumes the instability of the capitalist economy (Harrod 1939; Domar 1946).

In the model of Harrod-Domar growth is sustainable if three growth rates are equal: the actual growth rate, guaranteed growth rate, and natural growth rate. Harrod called such a situation the "*golden age*", whereby the achieved macroeconomic balance ensures the full use of capital and labor. However, equilibrium requires equalization of savings, which are dependent on households and investments that are in the hands of the capitalists. Hence, that is difficult to fulfill. The savings rate is exogenous, i.e. established outside the model, and the same applies to growth of population, dependent on its natural dynamics. In addition, the model assumes a constant ratio of capital to labor, implying no possibility of substitution of factors of production. Thus, there is no mechanism to balance the three growth rates. Hence, the model of Harrod -

Domar reveals two problems. Firstly, the growth of a capitalist economy at the guaranteed rate of growth with full employment is not possible. The process of economic growth is always accompanied by involuntary unemployment. Second, in a capitalist economy there is no convergence towards equilibrium. Thus, Harrod and Domar, by perversely seeking a dynamic equilibrium path, proved the unsustainable character of economic growth.

The economists grouped around Cambridge school of Economics tried to remedy the pessimistic vision flowing from model of Harrod - Domar. N. Kaldor and L. Passinetti introduced the functional distribution of income between profits and wages into their models, and they proved the possibility of economic growth with full employment of labor. They maintained the assumption of a constant ratio of capital, but at the same time they abandoned the assumption of a constant savings rate. In addition, Kaldor and Pasinetti introduced different levels of the saving rate, which characterized every social group. The savings of the capitalists was greater than the savings realized by employees. The endogenous nature of the savings rate allowed for finding the path of sustainable development, which they found did not run on a "*knife-edge*". In Kaldor's model, if the savings rate of the employees is zero, the national economic growth depends on the profit rate of the capitalists (Kaldor 1963).

In 1962, Italian economist Luigi Pasinetti further developed Kaldor's model. According to Pasinetti, if savings appear in the economy, their possession is associated with the rate of profit. This means that savings of employees generate interest, which is their income. In Pasinetti's model, as in the case of Kaldor's model, the economic growth depends on the profit reached by the capitalists. However, while Kaldor obtained this by introducing an assumption of zero savings of workers, Pasinetti did not have to make that assumption (Pasinetti 1962).

A good summary of the reflections on the models of Kaldor and Pasinetti can be found in Kaldor's statement that 'capitalists earn what they spend, and employees spend what they earn' (Kaldor 1955-1956).

In turn, in Kalecki's model the major role in the growth process is played by investments, not the level of realized savings. This is why Kalecki's model is called "*investment*", because according to him investments decide on economic growth in the long run (Kalecki 1956).

Analysis of the neoclassical models of economic growth begins with the model of Solow - Swan. Robert Solow proposed a long term economic growth model in response to the unsatisfactory results derived from the model of the Harrod - Domar (Solow 1956). In the same year, American economist Trevor Swan presented a similar model (Swan 1956), which is why the discussed model is called the Solow – Swan model. Its main aim was to show that in the long

run, an economy achieved sustainable growth. Then, the growth rate of income *per capita* was equal to rate of population growth. The two problems identified by the Harrod – Domar model - instability of the economy and the impossibility of full use of the labor – were solved in the Solow – Swan model by introducing the assumption of substitution of factors of production, which in turn removed the assumption of a constant ratio of capital/production.

In the early 1960s Japanese economist Hirofumi Uzawa presented a model of economy composed of two sectors (Uzawa 1963). The first sector produces consumer goods, and the other capital goods. The model is stable when the ratio of capital/labor in the branch producing consumer goods is higher than in the branches producing capital goods.

Another neo-classical growth model is based on the work of Frank Ramsey, which concerned the problem of the optimal level of savings (Ramsey 1928). This was later developed by Cass and Koopmans and therefore is often called the Ramsey - Cass – Koopmans model (Cass 1965; Koopmans 1965). In the Ramsey model, the savings rate is endogenous and depends on the decisions of consumers. In addition, Ramsey does not refer to the economy of "*Robinson Crusoe*", where households are both producers and consumers of production. In the Ramsey - Cass – Koopmans model the results on steady steate growth rate are the same as these in the Solow-Swan model.

In another neoclassical model, Diamond introduced analysis of the finite horizons. The life of households is divided into two periods. In the first period households receive wages. They spend them on current consumption and savings. In the second period, households do not earn. Current consumption is financed by accumulated savings from the first period. In the long run an economy reaches a stable state like in the Solow – Swan model (Diamond 1965).

Neoclassical models assume that the economy achieves equilibrium in the long run. In addition, they confirm the existence of convergence, which means faster development of poor countries in comparison with rich ones. The convergence hypothesis says that countries differ from each other only in their of capital/labor ratio, and they have the same steady state. Hence, the economy with a lower level of income *per capita* will obtain a higher rate of growth.

There are a lot of studies and publications on the convergence process between countries. Some of them confirmed the existence of absolute convergence between the selected group of countries, while others confirmed the conditional convergence between countries characterized by similar parameters. The following Table cites the results of selected studies with their various conclusions about convergence.

Table 1. The existence of the convergence according to selected research

Author of the study	The scope of research	Absolute convergence	Conditional convergence
Sala-i-Martin (1996)	110 countries	no	yes
Barro (1991)	98 countries	no	yes
Mankiw, Romer, Weill (1992)	98 countries	no	yes
Barro, X. Sala-i-Martin (1992)	48 states of USA	yes	yes
Mankiw, Romer, Weill (1992)	22 countries of OECD	yes	yes

Source: own elaboration.

The opposite of exogenous growth models are models of endogenous growth. They set themselves the objective of explaining phenomena observed in the global economy. First, models of endogenous growth try to answer the question: why do the economies of individual countries produce much larger quantities of goods than they did it a hundred years ago? For example, according to P. Romer, this situation is the result of the increasing return on labor (Romer 1990). Secondly, models of endogenous growth try to explain the role of human capital in economic growth. Thirdly, they try to indicate the reasons for the deepening divergence between countries.

In endogenus models, the main determinants of economic growth are formed inside the model. The technical level of the economy is the result of investment decisions. Returns to factors of production are at least constant. Endogenous models use the AK production function, which is a linear function of technology (Rebelo 1991). In the simple AK model *per capita* variables grow at a fixed rate, regardless of the level of capital. Therefore there is no steady state and the phenomenon of convergence between the economies doesn't exist.

The first models of endogenous growth were developed by Marvin Frankel and Kenneth Arrow. Frankel, in his model, tried to reconcile the neoclassical production function with the AK production function. According to Frankel, the neoclassical production function applies to individual companies. However, the macro economy develops according to the AK function. This assumption is based on the introduction - to the production function - of the factor of externalities that reflect the level of economic development of the country (Frankel 1962).

On the other hand, Kenneth Arrow questioned the results derived from neoclassical models. According to him, conditioning the economic growth on exogenous variables is not very satisfying. Arrow assumes that the obtained knowledge is the result of a process defined as "*learning by doing*". Although, as Sala-i-Martin noted, Arrow's process would have better been called

"learning by investments" (Sala-i-Martin 2000). However, despite the use of the production function with increasing returns to scale, Arrow's model does not make long-term growth dependent on the level of savings (Arrow 1962). Similar to the Solow – Swan model, economic growth in a steady state is determined by exogenus variables.

Arrow's views on the importance of human capital in the process of economic growth was shared by T.W. Schultz. In his article, Schultz criticized those economists that reject the problem of investment in human capital as a topic of economic analysis. Moreover, according to Schultz the costs for education, health and professional development are investments in human capital (Schultz 1961).

Another model of endogenous growth was presented by Paul Romer. He introduced capital externalities into the neoclassical production function. Thanks to this operation the production function is characterized by increasing returns to scale of all factors of production and constant returns to scale of capital, and this assumption lays the foundation for the existence of endogenous growth. However, in Romer's model the growth of the economy according to the AK production function requires the fulfillment of certain conditions. First, the size of externalities must be significant, otherwise the economy grows according to the Cobb – Douglas function. Moreover, Romer's model foresees the existence of the "*scale effect*", which is not confirmed by the data flowing from the individual economies (Romer 1986). On the other hand, Lucas defined the value of the "*scale effect*" as capital *per capita*. Therefore, in contrast to Romer, Lucas did not have to make assumptions about the zero increase of labor (Lucas 1988).

Robert Lucas proposed a model of endogenous growth according to which there are two sectors. According to Lucas, there are two types of capital too - physical capital used in the production process and human capital that affects the growth in productivity of both labor and physical capital. Thus, a certain person with human capital equal *h* produces two times more goods than a person with human capital *h/2* and two times less than a person with human capital *2h*. Lucas also takes into account the existence of increasing returns to scale, and like Romer refers to Arrow's concept of "*learning by doing*". However, in the case of Romer's model, the source of externalities was the accumulation of physical capital, while in Lucas's model the existence of externalities was based on the accumulation of human capital (Barro, Sala-i Martin 2004). Lucas's model explains the differences in economic development between countries. Countries characterized by a low level of human capital grow more slowly than countries with considerable resources in this respect.

In a further group of endogenous growth models, economic growth is achieved by the endogenisation of technical progress, which is the result of

a functioning R&D sector. Endogenous technological progress can manifest itself in two ways. Firstly, it can be expressed by increasing the number of goods used in the production process. Second, endogenous technical progress is reflected by improving the quality of existing goods.

Paul Romer presented the model according to which technical progress, the main determinant of economic growth, is reflected in the increasing supply of intermediate goods. In Romer's model, economic growth is dependent on the level of human capital. Countries rich in human capital can develop very quickly, while the shortage of human capital can lead to economic stagnation. Thus, the model does not confirm the phenomenon of convergence between economies (Romer 1990).

In the model of Aghion - Howitt technical progress is reflected in improvements in the quality of existing goods on the market. In contrast to Romer's model, the appearance of improved goods automatically replaces the "*old*" goods. Another innovation comes with a certain probability. Also, a country with more resources of educated people will grow faster than a country with a lower level of human capital (Aghion, Howitt 1992).

The further work of Becker, Murphy and Tamura tried to determine the correlations between investments in human capital and population growth. They argued that countries which are poor in human capital are characterized by the presence of large families (Becker, Murphy, Tamura, 1990). Mark Rosenzweig presented similar conclusions in his work. According to him, countries with high income *per capita* are characterized by a low birth rate and a high level of human capital (Rosenzweig 1990).

5. Conclusions

1. The analized theroies of economic growth are based on two convictions. In the case of Schumpeter's theory, the conviction is that economic growth is unbalanced and depends on innovations, which can appear with certain probability. On the other hand, the models of Lewis and Rostow predict balanced growth in long run, even if it's unbalanced in short run.
2. Growth models can be divided in many ways. Firstly, we can classify them by extracting one common assumption. For example it could be a constant saving rate. You can also divide the model into two groups: exogenous models and endogenous models. Exogenus models use the neoclassical production function, with decreasing productivity of factors of production.

On the other hand, in endogenous models the productivity of factors of production is at least constant.

3. Neoclassical models predict convergence between countries. The poorer economies grow faster than richer ones. Unlike the neoclassical models, endogenus models do not predict convergence. For example, countries with a large stock of human capital will develope faster in long run than countries with a deficiency in this respect.
4. Sometimes, the results derived from the models are not supported by empirical data concerning the global economy. For example, the "*scale effect*" of Romer's model (1986) is not confirmed by the examples of individual countries.

References

Aghion P., Howitt P. (1992, march), *A Model of Growth through Creative Destruction*, 'Econometrica', 60 (2)

Arrow K. (1962, June), *The Economic Implications of Learning by Doing*, 'Review of Economic Studies', 29

Barro R.J. (1991, May), *Economic Growth in a Cross Section of Countries*, 'The Quarterly Journal of Economics', 106 (2)

Barro R., Sala-i-Martin X. (1992, April), Convergence, 'Journal of Political Economy', 100

Barro R.J., Sala-i-Martin X. (2004), *Economic Growth. Second Edition*, The MIT Press, Cambridge, Massachusetts

Bastiat F. (1850), *Les Harmonies économiques*, Guillaumin et cie, Paris

Becker G.S., Murphy K.M., Tamura R., (1990), *Human Capital, Fertility, and Economic Growth*, 'Journal of Political Economy', 98 (5)

Bokajło J. (2008), *Idea rozwoju zrównoważonego jako immanentna cecha społecznej gospodarki rynkowej*, Educator, Częstochowa. [in:] E. Halavach(red.), *Wdrażanie rozwoju zrównoważonego: strategie i instrumenty*

Brewer A. (1991), *Economic Growth and Technical Change: John Rae's Critique of Adam Smith*, 'History of Political Economy', 23 (1)

Bronfenbrenner M., Sichel W., Gardner W. (1987), *Economics. Second Edition*, Houghton Mifflin Company, Boston

Cameron R., Neal L. (2004), *Historia gospodarcza świata*, Książka i Wiedza, Warszawa

Cass D. (1965, july), *Optimum Growth in a Aggregative Model of Capital Accumulation*, 'Review of Economic Studies', 32

Czuma Ł. (2007), *Ekonomia między socjalizmem a liberalizmem*, Wschód, Lublin

Diamond P. (1965, december), *National Debt in a Neoclassical Growth Model*, 'American Economic Review', 55

Dobb M. (1963), *Szkice z teorii wzrostu i planowania*, (tłum. Paweł Czartoryski), Warszawa, oryginalna wersja: *An Essay on Economic Growth and Planning*, London 1960

Domar E.D. (1946, april), *Capital Expansion, Rate of Growth, and Employment*, 'Econometrica', 14

Frankel M. (1962, December), *The Production Function in Allocation and Growth: A Synthesis*, 'American Economic Review', 52

Hansen N.M., (1968), *French regional planning*, Indiana University Press

Harrod R.F. (1939, june), *An Essay in Dynamic Theory*, 'Economic Journal', 49

Kaldor N. (1955-19560, *Alternative theories of distribution*,'Review of Economic Studies', 23 (2)

Kaldor N. (1963), *Capital accumulation and economic growth*, [in:] Lutz i Hauge(eds.), *The Theory of Capital*, 'International Economic Associations', Macmillan, Londyn

Kalecki M. (1956), *Theory of Economic Dynamics: An essay on cyclical and long- run changes in capitalist economy*, Routledge Library Editions

Keynes J.M. (1985), *Ogólna teoria zatrudnienia, procentu i pieniądza*, Warszawa, original version: *The General Theory of Employment, Interest and Money*, London 1946

Koompans T.C. (1965), *On the Concept of Optimal Economic Growth*, [in:] *The Econometric Approach to Development Planning*, Amsterdam, North Holland

Kuznets S. (1976), *Wzrost gospodarczy narodów, produkt i struktura produkcji*, Warszawa, original version: *Economic Growth of Nations. Total Output and Production Structure*, Cambridge Mass 1971

Lewis A. (1954, may), *Economic Development with Unlimited Supplies of Labour*, Manchester School, 22 (2)

Lewis A., (1956), *The Theory of Economic Growth*, George Allen & Unwin Ltd, Great Britain

Lucas R.E. Jr. (1988, july), *On the Mechanics of Development Planning*, 'Journal of Monetary Economics', 22 (1)

Malthus T.R., (1925), *Prawo ludności*, Warszawa. Original version, T.R. Malthus, *An Essay on the Principle of Population*, London, 1798

Mankiw N.G., Romer D., Weil D.N., (1992, may), *A Contribution to the Empirics of Economic Growth*, 'Quarterly Journal of Economics', 107 (3)

Marks K. (1951), *Kapitał*, Książka i Wiedza, Warszawa. Original version, K. Marx, *Capital. A Critique of Political Economy*, Hamburg, 1867

Marshall A. (1925), *Zasady ekonomiki*, (translated by Czesław Znamierowski), Wydawnictwo M. Arcta, Warszawa, original version: *Principle of Economics*, London 1890

Mill J.M. (1909), *Principles of Political Economic*, London

Nurkse R. (1962), *Problemy tworzenia kapitału w krajach gospodarczo słabo rozwiniętych*, PWN, Warszawa

Pasinetti L. (1962, october), *Rate of Profit and Income Distribution in Relation to the Rate of Economic Growth*, 'Review of Economic Studies',29 (4)

Proudhon P.J. (1846), *Systèm des contradictions économiques, ou, Philospohie de le misère*, Guillaumin et cie, Paris

Quesnay F. (1928), *Pisma wybrane* (translated by B. Pietkiewiczówna), Warszawa

Ramsey F. (1928, December), *A Mathematical Theory of Saving*, 'Economic Journal', 38

Rebelo S. (1991, June), *Long-Run Policy Analysis and Long-Run Growth*, 'Journal of Political Econom', 99

Ricardo D. (1957), Z*sady ekonomii politycznej i opodatkowania*, PWN, Warszawa. Original version: D. Ricardo, *On the Principles of Political Economy and Taxation*, London 1817

Robbins L. (1969), *The Theory of Economic Development in the History of Economic Though*, Mc Millan, Londyn

Romer P.M. (1986, October), *Increasing Returns and Long-Run Growth*, 'Journal of Political Economy', 94 (5)

Romer P.M. (1990, october), *Endogenous Technological Change*, 'Journal of Political Economy', 98 (5), part II

Rostow W. (19600, *The Stages of Economic Growth: A Non – communist Manifesto*, Chapter II, Cambridge University Press 1960

Rostow W., (1971), *Politics and the Stages of Growth*, University Press, Cambridge, Mass

Rosenzweig M.R., (1990), *Population Growth and Human Capital Investments: Theory and Evidence*, 'Journal of Political Economy', 98 (5)

Sala-i-Martin X. (1996), *Regional Cohesion: Evidence and Theories of Regional Growth and Convergence*, 'European Economic Review', 40

Sala-i-Martin X. (2000), *Apuntes de crecimiento económico. Segunda edición*, Antoni Bosch editor, Barcelona

Sala-i-Martin X. (2001, august), *La apertura y la flexibilidad son ingredientes importantes del crecimiento económico*, 'Boletín del FMI', 20

Say J.B. (1960), *Traktat o ekonomii politycznej*, PWN, Warszawa. Oryginal version, J.B. Say, *A treatise on political economy*, Philadelphia, 1880

Schulz T.W. (1961), *Investment in Human Capital*, 'The American Economic Review', LI (1)

Schumpeter J.A. (1934), *The Theory of Economic Development*, Cambridge, MA, Harvard University Press

Scitowsky T. (1954, April), *Two Concepts of External Economies*, 'Journal of Political Economy', 62 (2)

Smith A. (1954), *Badania nad naturą i przyczynami bogactwa narodów*, PWN, Warszawa. Original version: A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations*, London 1776

Snowdon B., Vane H., Wynarczyk P. (1998), *Współczesne nurty teorii makroekonomii*, PWN, Warszawa

Solow R.M. (1956, February), *A Contribution to the Theory of Economic Growth*, 'Quarterly Journal of Economics', 70 (1)

Solow R.M. (1957, August), *Technical Change and the Aggregate Production Function*, 'Review of Economics and Statistics', 39 (3)

Stankiewicz W. (2000), *Historia myśli ekonomicznej*, Polskie Wydawnictwo Ekonomiczne, Warszawa

Steinbeck J. (1971), *Grona gniewu*, (translated by Alfred Liebfeld), Państwowy Instytut Wydawniczy, Warszawa, original version: *The Grapes of Wrath*, USA 1939

Swan T.W. (1956, November), *Economic Growth and Capital Accumulation*, 'Economic Record', 32

Uzawa H. (1963), *On a two sector model of economic growth II*, 'Review of Economic Studies', 30 (2)

Woźniak M.G. (2000), *Wzrost gospodarczy. Podstawy teoretyczne*, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków

Streszczenie

PRZEGLĄD TEORII I MODELI WZROSTU GOSPODARCZEGO

Celem artykułu jest przegląd teorii oraz modeli wzrostu gospodarzcego. W pierwszej części autor dokonuje analizy teorii wzrostu gospodarczego autorstwa: Schummpetera, Lewisa oraz Rostowa. W drugiej części opracowania zawarty jest przegląd modeli wzrostu gospodarczego. Autor analizowane modele dzieli na dwie grupy; modele egzogeniczne oraz modele endogeniczne. Artykuł kończy lista wniosków dotyczących przeprowadzonych analiz. Autor przygotowując artykuł wykorzystał metodę analizy literatury angielskiej i polskiej.

***Słowa kluczowe**: wzrost gospodarczy, teorie wzrostu gospodarczego, modele wzrostu gospodarczego, zrównoważony wzrost gospodarczy*

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Comparison Of Nominal And Real Rigidities: Fiscal Policy Perspective

Abstract

This paper examines the impact of nominal and real rigidities in the economy on the effects of fiscal policy. The study confirmed the hypothesis that both nominal and real rigidities enhance the impact of fiscal policy on the Polish economy. In the case of nominal price rigidity it was found that the impact of government spending on GDP depends on the conduct of monetary policy. On the other hand, under conditions of wage rigidity, the strength of fiscal multipliers depends on the slope of the labour supply curve. The study also examined two types of real rigidities - lack of access to the credit market, and consumer habits. Analyses show that the above rigidities result primarily in a strong positive relationship between government spending and the level of consumption.

Keywords: *fiscal policy, nominal rigidities, real rigidities*

1. Introduction

In the short term, fiscal policy affects the economy mainly through its impact on aggregate demand. Changes in aggregate demand, in turn, translate into the formation of GDP as a result of the occurrence of rigidities in the economy. The nature of rigidities in the economy therefore decisively affects the impact power of fiscal policy.

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The two main categories of rigidity in the economy include nominal and real rigidities. This study examined their impact on the nature of government spending effects. The study verified the hypothesis that the presence of both nominal and real rigidities increases the impact of government spending on the Polish economy.

First, the impact of fiscal policy in the case of nominal rigidities in prices was shown. Then, the effects of fiscal policy on conditions of wage contracts were examined. Subsequently, the impact of fiscal policy in the case of real rigidities was examined. The real rigidities included the presence of households with no access to the credit market, and inertia in consumption, i,e,, consumer habits.

2. Nominal rigidities

Within the nominal rigidities one can identify wage rigidity and price rigidity. They were empirically verified by numerous studies at the microeconomic level. On one hand, the presence of price rigidity was confirmed, inter alia, by the works of Kashyap (1995); Taylor (1999); Bils, Klenow (2004); and Dhyne et al. (2006). On the other hand, the occurrence of wage rigidity was empirically verified by Bewley (1999) and Dickens et al. (2006).

Nominal price rigidities are explained mainly on the basis of menu cost models. There is an emphasis in these models on the transaction costs or a situation in which the increase in profit due to changes in prices would be low, which means that companies do not have sufficient incentives to adjust the price (see Akerlof, Yellen 1985; Mankiw 1985). On the other hand, the presence of nominal wage rigidities is explained mainly on the basis of models of wage contracts (see Phelps, Taylor 1977).

The most popular type of price rigidity is based on the assumption that the constant share of the companies changes the price within a given period of time (see Calvo 1983). Occurrence of this mechanism triggers a positive relationship between inflation and the level of economic activity. Other types of price rigidities include:

- Scheme, in which the duration of price adjustment depends on the macroeconomic situation and, connected with this, pressure to change the price (cf. Golosov, Lucas 2003);
- Pricing scheme in which the duration of maintaining prices at the same level is established deterministically (cf. Taylor 1980; Chari, Kehoe, McGrattan 2000).

Generally, in the case of monopolistic competition, the price of the final product is given by the following formula:

$$P_t = \left(\int_0^1 {p_{i,t}}^{1-\varepsilon} di \right)^{(1-\varepsilon)^{-1}} \tag{1}$$

where:

P_t – Price of the final product,

$p_{i,t}$ – Price of the intermediate good,

ε – Elasticity of substitution of intermediate goods used in the manufacture of the final product,

$\varepsilon > 1$.

Firms that adjust their prices in a given period will face the same problem of optimization, thus one can obtain:

$$\int_0^1 {p_{i,t}}^{1-\varepsilon} di = \left(P_t^*\right)^{1-\varepsilon} , \tag{2}$$

where:

P_t^* – Price set by firms.

In the case of Calvo (1983) price adjustments, a fixed percentage of companies do not change prices in a given period. Thus we obtain the following formula:

$$P_t = \left(\alpha \int_0^1 {p_{i,t-1}}^{1-\varepsilon} di + (1-\alpha) \int_0^1 {p_{i,t}}^{1-\varepsilon} di \right)^{(1-\varepsilon)^{-1}} , \tag{3}$$

where:

α – Probability that in a given period the company will not change its price level, $\alpha \in (0,1)$.

Taking into account equation (2), the equation determining the price level of the final product can be converted to the form:

$$\left(P_t\right)^{1-\varepsilon} = \alpha \int_0^1 {p_{i,t-1}}^{1-\varepsilon} di + (1-\alpha)\left(P_t^*\right)^{1-\varepsilon} . \tag{4}$$

The result is:

$$P_t = \left(\alpha {P_{t-1}}^{1-\varepsilon} (1-\alpha)\left(P_t^*\right)^{1-\varepsilon} \right)^{(1-\varepsilon)^{-1}} . \tag{5}$$

In the case of nominal price rigidities the nature of the monetary policy is important. If the growth rate of the money supply is constant, that is given by the equation:

$$\frac{M_{t+1}}{M_t} = \phi \ , \tag{6}$$

where:

M_t – Money supply,

then the shock of increasing government spending leads to an increase in GDP and employment. In the case of such a monetary policy, an expansionary fiscal policy causes a reduction in the level of consumption. The decline in private consumption is due to the fact that the increase in government spending produces a negative wealth effect (for more on this subject, see Krajewski 2011). The increase in government expenditure, through the impact of the negative wealth effect on labour supply and production, will also reduce the rate of wages and inflation.

At the same time, as a result of increased government spending aggregate demand is also growing, because the increase in government spending is higher than the reduction of private consumption. This change in demand, in turn, adds to the upward pressure on prices. The increase in aggregate demand, however, is lower than the increase in aggregate supply resulting from increased labour supply, and thus inflation is reduced. At the same time, due to the presence of nominal rigidities, only some companies will adjust their price level. Other firms choose output adjustments. They reduce the production at a given price level, which leads to a decrease in the demand for labour and consequently to a reduction in nominal wages (see Linnemann, Schabert 2003).

Other conclusions are obtained if the monetary authorities set the interest rate according to the Taylor (1993) rule. The basic version of the Taylor rule takes the following form:

$$R_t = r^n + r_y \tilde{y}_t + r_\pi (\pi_t - \pi^*) \ , \tag{7}$$

where:

R_t - Nominal interest rate,

r^n - Natural interest rate,

$\tilde{y}_t$ – Output gap,

π_t – Inflation,

π^* - Target level of inflation,

$r_y, r_\pi > 0$.

Thus, the central bank raises interest rates when inflation is above the target level or the actual output exceeds the potential level. Equation (7) is the basic version of the Taylor rule. A description of Taylor rule extensions is presented in the works of Baranowski (2008) and (2011).

Assuming the occurrence of the Taylor rule as in the above case, an increase in government spending will result in a rise in the the level of employment and output. The impact of an expansionary fiscal policy on inflation and the prices of factors of production may, in this case however, be different than in the case of steady growth of the money supply. In a situation where the central bank sets the interest rate in response to higher aggregate demand, the supply of money increases and companies begin to raise prices. Because of nominal rigidities, not all companies can immediately change the price level. Instead, some companies adjust the level of output.

As a result, due to the presence of nominal rigidities, an increase in government spending increases the production grows much faster than would result from the wealth effect alone. Higher production resulting from an increase in the demand for labour adds to an upward pressure on the rate of wages. For low values of the parameter concerning the output gap in the Taylor rule, the increase in labour demand more strongly affects the wage rate than the increase in labour supply. Consequently wages increase. This is due to the fact that at low values of this parameter, in response to the growth of GDP the real interest rate increases slightly and does not significantly affect the level of aggregate demand (cf. Linnemann and Schabert 2003).

Thus, if there are nominal price rigidities the increase in government spending leads to an increase in GDP. However, the level of fiscal multipliers depends on monetary policy. According to the Taylor rule, the impact of fiscal policy on GDP is stronger than in the case of a constant growth rate of the money supply. Moreover, if the Taylor rule is applied an increase in government spending will lead to higher inflation, while if the money supply does not depend on interest rates an output gap expansionary fiscal policy will decrease inflation.

The lack of perfect wage flexibility is the second type of nominal rigidity. The effects of fiscal policy in the presence of nominal wage rigidities are examined by Cardia (1995). She assumes that every year some employees sign contracts for nominal wages. In this case, the level of wage contract is given by the following formula:

$$W_t^{CONTR} = \sum_{n=0}^{\infty} (\beta)^n (1-\beta) E\left(W_{t+n} + \lambda L_{t+n}^{IND}\right), \tag{8}$$

where:

W_t^{CONTR} - Wage contract,

W_t – Nominal wage,

β – Probability that the wage contract will last,

L_t^{IND} – Measure of disequilibrium on the labour market,

$\lambda > 0$.

Thus, we obtain:

$$T_W = \frac{1}{(1-\beta)} \ , \tag{9}$$

$$S_N = (1-\beta)(\beta)^N \ , \tag{10}$$

where:

T_W - Average duration of the wage contract,

S_N - Share of contracts that last for at least *N* periods.

The wage contract depends on the development of current and future wages and on the development of the current and future disequilibrium on the labour market. The current level of nominal wage is a weighted sum of all wage contracts in force, that is:

$$W_t = \sum_{n=0}^{\infty} (\beta)^n (1-\beta) W_{t-n}^{CONTR}. \tag{11}$$

Thus:

$$W_t = \beta W_{t-1} + (1-\beta) W_t^{CONTR} \ , \tag{12}$$

$$W_t^{CONTR} = \frac{1}{\beta} W_{t-1}^{CONTR} - \frac{1-\beta}{\beta}\left(W_{t-1} + \lambda L_{t-1}^{IND}\right). \tag{13}$$

In this case the impact of a permanent increase in government spending on the economy depends on the wage elasticity of the labour supply. If the labour

supply depends on the wage rate, then, as a result of a permanent increase in government spending, production grows. Then, the decline in household assets leads to a decline in consumption and leisure time, and to the increase in the labour supply. Along with the increase in the labour supply the marginal product of capital increases, which leads to an increase in investment. The less responsive wage contracts are to the situation in the labour market, the stronger is the short-term impact of government spending on output. In the case where the labour supply is rigid, an increase in government spending causes a corresponding reduction in private consumption, and therefore in the long-term output remains at an unchanged level.[1]

It should be stressed however, that in the presence of wage contracts, the increase in government spending even with a rigid labour supply has a short-term impact on production.[2] In the period of adjustment, before wage contracts adjust to a new equilibrium level, an increase in government spending causes a reduction in the real wage rate and, consequently, an increase in the demand for labour and output.

It follows from the foregoing that the power of government spending in Poland is dependent on:

- the occurrence of rigidity of prices and wages;
- monetary policy;
- the slope of the labour supply curve.

The presence of nominal rigidities in prices and wages in the Polish economy and the absence of a rigid labour supply has been shown by the empirical results of dynamic stochastic general equilibrium models (see, e.g., Krajewski 2013).[3] The analyses of Poland's conduct of monetary policy indicates that it is pursued according to the Taylor rule (see, e.g., Baranowski 2011). These factors increase the impact of government spending on the Polish economy (cf. Table 1).

[1] It should also be noted that in the case of a rigid labour supply, employment and production are not affected by tax changes. As empirical studies have shown, such a situation does not occur in the Polish economy, and changes in taxation affect the level of employment (see Krajewski, Mackiewicz 2006; Góra et al. 2008; Krajewski 2012).

[2] While in the absence of wage contracts adjustment of the households' behaviour is immediate and production remains unchanged in the short term as well.

[3] It is worth noting that the first dynamic stochastic general equilibrium models, such as the models of Kydland, Prescott (1982) and Hansen (1985) (for more details about this model see Kuchta, Piłat 2010) did not assume the presence of nominal rigidities. Nominal rigidities were introduced to the dynamic stochastic general equilibrium models in the 1990s. (cf. Mankiw, Romer 1991).

As a result, nominal rigidities, both concerning prices and wages, significantly reinforce the effects of government spending in the Polish economy.

Table 1. The presence of nominal rigidities in the Polish economy and the impact of fiscal policy on GDP

Type of rigidity	The impact of government spending on GDP	Presence in Poland
Nominal price rigidity according to the Taylor rule	Strong positive	Yes
Nominal price rigidity in case of constant growth rate of the money supply	Weak positive	No
Nominal wage rigidity with flexible labour supply	Strong positive	Yes
Nominal wage rigidity with rigid labour supply	Weak positive	No

Source: Author's own compilation.

3. Real rigidities

The presence of real rigidities may also affect the impact of fiscal policy on the economy. In terms of fiscal policy, the two most important types of real rigidities are: households without access to credit markets, and consumer habits.

If households have access to perfect financial markets, the current income does not limit the consumption of households that make consumption decisions based on optimization with the constraint in the form of intertemporal budget constraints. It follows, however, from empirical studies that the current income has a significant impact on the current consumption of households (see Johnson, Parker and Souleles 2004). This is due to the fact that some households do not make decisions based on intertemporal budget constraints, because of the lack of access to credit markets. Such consumers are referred to as rule of thumb consumers.

Households with access to the credit market take into account not only the current utility, but also the future discounted utility of credit. Because only these households invest and benefit from the credit market, they therefore have all the capital stock and bonds.

Consumers that do not have access to the credit market take into account only the current period. In addition, households that do not have access to the credit market consume their entire income in each period. In their case the budget constraint becomes:

$$C_t^{ROT} = w_t L_t^{ROT} \ , \tag{14}$$

where:

C_t^{ROT} - Consumption of households which do not have access to the credit market (rule of thumb consumers),

L_t^{ROT} - Labour supply of households which do not have access to the credit market.

Households with access to the credit market (optimizing consumers) face the following budget constraint:

$$C_t^{OPT} + I_t + \frac{B_{t+1}}{(1+R_t)} = (1+r)K_t + w_t L_t^{OPT} + B_t, \tag{15}$$

where:

C_t^{OPT} – Consumption of households with access to the credit market,

L_t^{OPT} - Labour supply of households with access to the credit market,

I_t – Investments,

K_t – Capital,

r – Return on capital,

B_t – Bonds.

The effects of fiscal policy in the case of the occurrence of both households which behave according to intertemporal budget constraints and households which base their decisions on current income, are demonstrated by the model of Galí, López-Salido and Vallés (2007). This model shows that the impact of government spending on the economy is significantly affected by the share of households without access to the credit market. Along with an increase in the share of such households the strength of the positive impact of government spending on production increases.

The analysed type of real rigidities also affects the response of private consumption to increases of government spending. When the households which don't have access to the credit market constitute the majority of the population, then based on the model we obtain a positive correlation between government

spending and private consumption, i.e., the dependence consistent with the empirical data.

Consumer habits are the second type of real rigidities examined in this paper. The assumption about consumer habits submitted by Abel (1990) means that households have certain habits which cause their consumption behaviours to be characterized by inertia. Thus, the utility of the consumption depends not only on the level of current consumption, but also on its level in the previous period. The assumption that the consumption decisions of households are dependent on their previous behaviour regarding the level of consumption has been empirically confirmed by, among others, the work of Chintagunta, Kyriazidou and Perktold (2001).

When households purchase particular goods on the basis of persistent habits, then companies, while setting the price, must take into account that the future demand will depend on the current sales volume. Higher consumption of a given good at present means that the household will also be willing to buy more of that good in the future.

While analysing consumer habits it is convenient to assume that households consume a variety of goods provided by the companies operating under monopolistic competition, and then aggregate these goods in accordance with the Dixit and Stiglitz (1977) index. This index, in its general form, is as follows:

$$C_t^j = \left(\int_0^1 c_{i,t}^{j\ \frac{\varphi-1}{\varphi}} di \right)^{\frac{\varphi}{\varphi-1}}, \tag{16}$$

where:

C_t^j - Index of consumption of the *j*-th household,

$c_{i,t}^j$ – The *i*-th good in the basket of goods,

φ – Elasticity of substitution of consumer goods that make up the basket of goods consumed by a household,

$\varphi > 1$.

In the case of consumption habits the following formula is obtained for the index of consumption:

$$C_t^j = \left(\int_0^1 \left(c_{i,t}^j - \mu v_{i,t-1} \right)^{\frac{\varphi-1}{\varphi}} di \right)^{\frac{\varphi}{\varphi-1}}, \tag{17}$$

where:

μ – Parameter which determines the importance of consumption habits in decision-making by households,

$v_{i,t}$ – Measure determining the consumption habits for the whole economy,

$\mu, \in (0,1)$.

In the model showing the impact of fiscal policy on the presence of consumption habits developed by Ravn, Schmitt-Grohe and Uribe (2006), the measure which specifies consumption habits is given by:

$$v_{i,t} = \chi(v_{i,t-1} - c_{i,t}) + c_{i,t}, \tag{18}$$

where:

$c_{i,t}$ - The average level of consumption of good *i* for the whole economy,

$\chi \in (0,1)$.

The average level of consumption for the whole economy is given by the formula:

$$c_{i,t} = \int_0^1 c_{i,t}^j dj. \tag{19}$$

The level of consumption by a household depends on the previous average levels of consumption of this good in the economy, which a household takes as predetermined.

As a result we have:

$$c_{i,t}^j = \left(p_{i,t}{}^{-\varphi} \left(\int_0^1 p_{i,t}{}^{1-\varphi} di \right)^{(\varphi-1)^{-1}} \right) C_t^j + \mu v_{i,t-1}, \tag{20}$$

When aggregating individual households' consumption, we find that the aggregate consumer demand for good *i* is given by the formula:

$$c_{i,t} = p_{i,t}{}^{-\varphi} P_t^{\varphi} C_t + \mu v_{i,t-1}. \tag{21}$$

The analysed model assumes that the objective of fiscal policy is to maximize the government spending index defined by the equation:

$$G_t = \left(\int_0^1 \left(g_{i,t} - \mu v_{i,t-1}^g \right)^{\frac{\varphi-1}{\varphi}} di \right)^{\frac{\varphi}{\varphi-1}}, \tag{22}$$

where:

G_t - Government spending index,

$g_{i,t}$ – Government spending on the purchase of an good *i*,

$v_{i,t}^g$ – Measure determining the consumption habits of public consumption.

The adoption of this index of government spending means that households form habits not only based on private consumption, but also on public consumption. The model for determining the consumption habits of public consumption is the following:

$$v_{i,t}^g = \chi(v_{i,t-1}^g - g_{i,t}) + g_{i,t}. \tag{23}$$

Consumption habits have a significant influence on the direction of the impact of government spending on private consumption. If there are no consumer habits, an increase in government spending leads to a decline in private consumption, which results from the emergence of a negative wealth effect. However, where consumption habits exist, in addition to the wealth effect there is also a strong substitution effect. As a result of the growth in the rate of real wages, households substitute leisure for consumption. According to the simulation conducted by Ravn, Schmitt-Grohe, and Uribe, the income effect in this case is weaker than the substitution effect. Consequently, an increase in government spending also results in increased private consumption.[4]

It follows from the above analyses that the real rigidities affect primarily the nature of the impact of government spending on private consumption. The results of stochastic general equilibrium models (see Krajewski 2013) indicate that consumer habits are present in the Polish economy. In addition, the credit market in Poland in comparison with most countries of the European Union is relatively underdeveloped, which may translate into a large share of households without access to the credit market. As can be seen from the analyses, these

[4] Moreover, consumption habits influence the relationship between government spending and wages. According to the simulation carried out by the above-mentioned authors, with respect to consumer habits the government spending impact is stronger on demand for labour than its impact on labour supply. As a result, an increase in government spending leads to an increase in real wages.

factors affect the occurrence of a strong positive relationship between the level of government spending and the development of private consumption (see Table 2).

Table 2. The presence of real rigidities in the Polish economy and the impact of fiscal policy on consumption

Type of rigidity	Direction of the relationship between government spending and consumption	Presence in Poland
Share of households with no access to the credit markets	Positive	Yes
The presence of consumption habits	Positive	Yes

Source: Author's own compilation.

4. Conclusions

The presence of rigidities has a key influence on the functioning of an economy. This study examined the effects of nominal and real rigidities on the impact of fiscal policy on an economy.

In the case of nominal price rigidity, the impact of government spending on GDP is dependent on the conduct of monetary policy. Fiscal multipliers are higher when the central bank changes the interest rate, and lower for a fixed rate of growth of the money supply. In the case of wage rigidity fiscal multipliers are dependent on the slope of the labour supply curve. The greater the impact of wages on labour supply, the stronger the impact of fiscal policy.

Taking into account the conduct of monetary policy in Poland and wage elasticity of labour, based on the analyses the hypothesis was confirmed that nominal rigidities significantly enhance the impact of fiscal policy on the Polish economy.

Based on the analyses, the hypothesis was also confirmed that real rigidities increase the impact of government spending on GDP. In this study, two types of real rigidities were examined - lack of access to the credit market and the presence of consumer habits. The larger the shares of households that do not have access to the credit market, the greater the impact of fiscal policy on GDP. Furthermore, both the lack of access to the credit market and the existence of consumer habits lead to a positive relationship between the government spending and private consumption.

References

Abel A.B. (1990), *Asset Prices under Habit Formation and Catching Up with the Joneses*, 'The American Economic Review Papers and Proceedings', vol. 80

Akerlof G.A, J.L. Yellen (1985), *A Near-Rational Model of the Business Cycle, with Wage and Price Inertia,* 'Quarterly Journal of Economics', vol. 100

Baranowski P. (2008), *Reguła Taylora i jej rozszerzenia*, 'Gospodarka Narodowa', no. 7–8

Baranowski P., (2011), *Reguła polityki pieniężnej dla polski – porównanie wyników różnych specyfikacji*, 'Oeconomia Copernicana', no. 3

Bewley T.F., (1999), *Why Wages Don't Fall during a Recession?*, Harvard University Press, Cambridge, Mass.

Bils M., P.J. Klenow (2004), *Some Evidence on the Importance of Sticky Prices*, 'Journal of Political Economy', vol. 112 (5)

Calvo G., (1983), *Staggered Prices in a Utility-Maximizing Framework*, 'Journal of Monetary Economics', no. 12

Cardia E., (1995), *The effects of fiscal policies in a general equilibrium model with nominal wage contracts*, 'Economic Letters', no. 49

Chari V.V., P.J. Kehoe, E.R. McGrattan (2000), *Sticky Price Models of the Business Cycle: Can the Contract Multiplier Solve the Persistence Problem?*, 'Econometrica', vol. 68, no. 5

Chintagunta P., E. Kyriazidou, J. Perktold (2001), *Panel Data Analysis of Household Brand Choices*, 'Journal of Econometrics', vol. 103

Dhyne E., L.J. Àlvarez, H. le Bihan, G. Veronese, D. Dias, J. Homann, N. Jonker, P. Lunnemann, F. Rumler, J. Vilmunen (2006*), Price Changes in the Euro Area and the United States: Some Facts from Individual Consumer Price Data*, 'Journal of Economic Perspectives', vol. 20, no. 2

Dickens W.T., L. Goette, E.L. Groshen, S. Holden, J. Messina, M.E. Schweitzer, J. Turunen, M.E. Ward (2006), How Wages Change: Micro Evidence from the International Wage Flexibility Project, European Central Bank Working Paper, no. 697

Dixit A., J.E. Stiglitz (1977), *Monopolistic Competition and Optimum Product Diversity*, 'American Economic Review', vol. 67

Galí J., J.D. López-Salido, J. Vallés (2007), *Understanding the Effects of Government Spending on Consumption*, 'Journal of the European Economic Association', vol. 5(1)

Golosov M., R.E. Lucas (2003), *Menu Costs and Phillips Curves*, NBER Working Paper, 10187

Góra M., O. Rohozynsky, I. Sinitsina, M. Walewski (2008), *Social Security Driven Tax Wedge and its Effects on Employment and Shadow Employment*, ESCIRRU Working Paper, no. 08

Hansen G.D., (1985), *Indivisible Labor and the Business Cycle*, 'Journal of Monetary Economics', vol. 16 (3)

Johnson D.S., J. Parker, N. Souleles (2004), *Household Expenditure and the Income Tax Rebates of 2001*, NBER Working Paper 10784, September

Kashyap A.K. (1995), *Sticky Prices: New Evidence from Retail Catalogues*, 'Quarterly Journal of Economics', vol. 110

Krajewski P. (2011), *Podażowe efekty polityki fiskalnej w świetle modelu realnego cyklu koniunkturalnego i wnioski dla gospodarki polskiej*, 'Ekonomista', no. 4

Krajewski P. (2012), *Tax Rates Impact on GDP in Poland*, 'Equilibrium', no. 3

Krajewski P. (2013), *Oddziaływanie wydatków rządowych na rynek pracy*, 'Wiadomości Statystyczne', no. 1

Krajewski P., M. Mackiewicz (2006), *Długookresowy wpływ polityki fiskalnej na kształtowanie się zatrudnienia – analiza panelowa*, 'Gospodarka w Praktyce i Teorii', no. 2

Kuchta Z., K. Piłat (2010), *Zastosowanie modelu realnego cyklu koniunkturalnego Hansena dla gospodarki Polski*, 'Gospodarka Narodowa', no. 11–12

Kydland F.E, E.C. Prescott (1977), *Rules Rather Than Discretion: The Inconsistency of Optimal Plans*, 'Journal of Political Economy', vol. 85

Linnemann L., A. Schabert (2003), *Fiscal Policy In the New Neoclassical Synthesis*, 'Journal of Money, Credit and Banking', vol. 35

Mankiw N.G. (1985*), Small Menu Costs and Large Business Cycles: A Macroeconomic Model of Monopoly*, 'Quarterly Journal of Economics', May

Mankiw N.G., D. Romer (eds.) (1991), *New Keynesian Economics*, MIT Press, Cambridge Mass

Phelps E.S., Taylor J.B. (1977), *Stabilizing Powers of Monetary Policy under Rational Expectations*, 'Journal of Political Economy', February

Ravn M., S. Schmitt-Grohe, M. Uribe (2006), *Deep Habits*, 'Review of Economic Studies', vol. 73

Taylor J.B. (1980), *Aggregate Dynamics and Staggered Contracts*, 'Journal of Political Economy', February

Taylor J.B. (1993), *Discretion versus Policy Rules in Practice*, 'Carnegie-Rochester Conference Series on Public Policy', vol. 39

Taylor J. B. (1999), *Staggered Price and Wage Setting in Macroeconomics*, [in:] J.B. Taylor, M. Woodford (ed.*), Handbook of Macroeconomics*, Elsevier, New York

Streszczenie

ANALIZA PORÓWNAWCZA ODDZIAŁYWANIA SZTYWNOŚCI NOMINALNYCH I REALNYCH NA EFEKTYWNOŚĆ POLITYKI FISKALNEJ

W pracy zbadano wpływ występowania sztywności nominalnych i realnych w gospodarce na charakter oddziaływania polityki fiskalnej. Potwierdzono hipotezę, że zarówno sztywności nominalne, jak i realne zwiększają siłę wpływu polityki fiskalnej na gospodarkę polską. W przypadku sztywności nominalnej cen uzyskano, że siła oddziaływania wydatków rządowych na PKB uzależniona jest od prowadzonej polityki pieniężnej. Natomiast w warunkach sztywności płac wysokość mnożników fiskalnych zależy od nachylenia krzywej podaży pracy. W pracy zbadano również dwa rodzaje sztywności realnych – brak dostępu do rynku kredytowego i występowanie przyzwyczajeń konsumpcyjnych. Z przeprowadzonych analiz wynika, że ww. sztywności skutkują przede wszystkim silną dodatnią zależnością pomiędzy wydatkami rządowymi a poziomem konsumpcji.

***Słowa kluczowe**: polityka fiskalna, sztywności nominalne, sztywności realne*

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Support For Economic Activity Of People Aged 50+ In Poland: The Best Solutions Of The Government's Programme *Solidarity Of Generations*

Abstract

The article aims to assess some selected solutions of the Polish government's programme "Solidarity of generations" [SG] designed to support economic activity among people aged 50+. It presents the results of a national survey conducted in the first half of 2012, mainly the outcomes of questionnaire interviews carried out with representative samples of people aged 45+ and employers. Studies under the name 'Diagnosis of the current situation of females and males 50+ on the labour market in Poland [D50+]' were conducted within the project "Equal Opportunities in the Labour Market for People Aged 50+". In addition to standard methods of descriptive analysis and the assessment of relations, factor analysis is also used to identify the main types of activities advancing opportunities for people aged 45+. Some solutions of the government's programme, such as the protection of employees from dismissal during the last four years before their retirement, were sometimes evaluated very differently by employers and people aged 45+. At the same time, both employers and people aged 45+ were favourable about free training and public subsidies to set up jobs for an unemployed persons aged 50+. According to the factor analysis results, the most important activities for people aged 45+ to have equal opportunities in the labour market are those activities that directly improve their qualifications. Although this finding is endorsed by both

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employers and people aged 45+, the insufficient systemic support for life-long learning limits the number of opportunities they could use to increase their employment activity. The variety of evaluations presented by the beneficiaries of the government programme should be taken into account in planning its modification.

Keywords: *ageing of population, economic activity, older workers, state intervention for employment of people aged 50+, lifelong learning*

1. Introduction

The demographic aging processes require a change in the approach to building careers which would encompass changes caused by units (individuals) and socio-economic processes. Although a unit seeks employability throughout his life, this fact becomes particularly important in the later stages of life, when the aging process make it increasingly difficult to stay in the labour market (Arnold 1997). In a world of deteriorating economic condition in countries where aging populations face increasing barriers related with staying on the labour market, job insecurity, and the consequent uncertainty as far as their pensions are concerned (Phillipson 2013; Moulaert, Biggs 2013), more and more attention is paid to intervention actions aimed at improving employment opportunities for people who are older than 50 years of age. At a meeting of the EPSCO Council in December 2012 which summarized the achievements of the 'European Year 2012 for active aging and solidarity between generations', the importance was stressed of promoting participation in the labour market through measures favourable for the involvement of older and younger people together in training and life-long learning, thus facilitating the transfer of knowledge between generations (Council of the European Union 2012, p. 4.) These measures are important in the context of extending and, at the same time, levelling the retirement age for men and women not older than 67 (acts raising the retirement age were adopted on 11 May 2012), which, in turn, is expected to bring an increase in GDP in 2060 of about 6.5% as compared with the situation if the pension reform was not carried out (The convergence program, updated in 2013). Measures aimed at extending economic activity and ensuring the effective functioning of older people were included in the specific objectives of the national Human Capital Development Strategy 2020 (ibidem, pp. 36-38, 60-61). It was assumed that the economic activity rate among people aged 55-69 is expected to increase to 35.8% in 2020 (of women - 26.7% and of men - 48.0%),

and the effective retirement age to 64.3 years of age (ibidem,p. 65). The European Commission encourages Member States to develop programs to support the elderly in the labour market. A variety of approaches at the national have been developed, which use varied mechanisms for impacting the attitudes and practices of key stakeholders in the labour market, ranging from prescriptive measures, fortified with sanctions, i.e. in France, to recommendations of measures deemed as good practices, for example in the UK (Kryńska, Szukalski 2013).

In Poland, great importance is attached to the preparation of institutional solutions aimed at supporting people aged 50+ in the labour market. This article aims to assess some selected solutions of the Polish government's program "Solidarity of generations" [hereafter SG], designed to support economic activity among people aged 50+. First of all it presents the results of a national survey conducted in the second quarter of 2012 entitled *Diagnosis of the current situation of females and males 50+in the labour market in Poland* [hereafter D50+].This diagnosis was conducted within the project *Equal Opportunities in the Labour Market for People Aged 50+*, conducted by the Human Resource Development Centre partnered by the University of Lodz, co-financed by the European Union within the European Social Fund, and initiated by the Ministry of Labour and Social Policy (Poland).

2. Data and methods

In this paper two main sources of data were used: the Eurostat database and the results of D50+,[1] which encompasses large-scale representative quantitative researches, i.e. CAPI survey of people aged 45-69 (n = 3200) and CATI survey of employers (n = 1011) and quality researches: IDI study of poviat (district) job centres, employment agencies, training institutions and non-government organizations as well as casual interviews with representatives of social assistance units (for each of the groups n = 50), and a panel of experts. The sampling rules of people aged 45+ take into account grouping by age groups, as follows: 45-49 years of age; 50-59/64 years of age; 60/65-69 years of age. They also provide controlling sample distributions by voivodeship (Province) and size of town/city in which the surveyed subjects dwelled. The studies of employers included, in turn, groups distinguished by type of ownership (public sector and private employers) and the size of the organization

[1] Full details of this research are presented in: Kryńska E., Krzyszkowski J., Urbaniak B., Wiktorowicz J. (2013), *Diagnosis of the current situation of women and men 50+ on the labour market in Poland. Final Report*, The University of Lodz, Lodz.

according to the level of employment (micro, small, medium and large companies). In this paper, we refer to the partial results regarding the evaluation of the activities carried out in Poland as part of active labour market policies for people aged 50+, and among those we refer mainly to the outcomes of interview questionnaires carried out with people aged 45+ and employers.

The analysis was conducted with the application of basic descriptive statistics, as well as the chi-squared test and factor analysis. On the basis of a factor analysis a group of the most important instruments of equalization of opportunities for persons aged 50+ in the labour market was distinguished (playing in this study the role of the hidden variable, latent). The factor analysis was preceded by: (i) the assessment of the significance of reported correlations between all indicators of Bartlett's test of sphericity, and (ii) the assessment of the adequacy of the data for factor analysis with the use of the Kaiser-Meyer-Olkin (KMO) criterion. The resources of common variability were estimated using the main components method, and at the stage of determining the number of factors the Kaiser criterion and the Cattell criterion were applied (scree plot). The rotation of factors, as a result of which a list of variables was obtained which constitute the main factors of the analysed phenomenon, was made with the use of the Quartimax method with Kaiser normalization (Rószkiewicz 2011, pp.34-51).

3. The demographic situation in Poland

The situation on the labour market in Poland, as in other countries of the European Union, is increasingly determined by the deepening processes of population aging. This unfavourable demographic situation will result in a decline in the number of working age population and an increase in its median age. Currently, Poland is a relatively young EU Member State in demographic terms - the age median and the economic dependency ratio (total, and by people at retirement age) is below the EU average, similarly the share of people aged 65+ in the total population is among the lowest, but the share of people at an immobile economic activity age in the general population aged 15-64 is higher than the EU average by 1.3 percentage points (Table 1.)

Table 1. Current and projected demographic situation in Poland as compared with the EU-27 - basic characteristics

Variables	Year	Poland	EU-27		
			average	min	max
Median age of population (in years)	2012	38.4	41.5	35.0 (Ireland)	45.0 (Germany)
Life expectancy (less than 1 year)	2011	76.9	80.4	73.8 (Lithuania)	82.8 (Italy)
Life expectancy in health at birth - females (in years)	2011	63.3	62.2	52.3 (Slovakia)	70.7 (Malta)
Life expectancy in health at birth - males (in years)	2011	59.1	61.8	52.1 (Slovakia)	71.1 (Sweden)
Change in the total population (in%)	2012/1970	18.0	X	-13.4 (Bulgaria)	55.7 (Ireland)
Changing the number of working-age population (15-64 years) (in%)	2012/1970	29.7	X	-13.2 (Bulgaria)	79.6 (Ireland)
The share of people aged 65+ in the population (%)	2012	13.8	17.8	11.9 (Ireland)	20.6 (Italy)
The share of people aged 65+ in the population (%)	2060 (P)	35.4	32.9	25.4 (Ireland)	38.0 (Spain)
The share of older workers in the productive age population (%)	2012	38.9	40.5	34.5 (Ireland)	44.4 (Germany)
	2060 (P)	44.6	43.3	39.8 (Sweden)	47.6 (Portugal)
Age dependency ratio	2012	40.6	50.2	39.3 (Slovakia)	55.8 (France)
	2060 (P)	89.4	65.9	73.9 (Ireland)	96.5 (Spain)
Old dependency ratio	2012	19.4	26.8	17.8 (Slovakia)	31.6 (Italy)
	2060 (P)	67.0	61.1	44.3 (Ireland)	74.8 (Spain)

P - prognosis (non-immigrant variant)

Source: Own calculations based on Eurostat data [demo_pjanind, demo_mlexpec,demo_pjangroup, demo_pjanbroad, proj_10c2150zmp], the state of the plot06/03/2013.

The trends which are expected in the coming decades are not optimistic. Poland will painfully collide with the problem of an aging population and, according to Eurostat forecasts, all the major indicators characterizing the demographic situation in the country will be at a level deviating from the average in the EU-27, illustrating a much worse situation in terms of an aging population than the EU average. This implies the need to take actions aimed at mitigating the negative effects of this situation. Currently, Poland is characterized by low economic activity and a low level of employment of people approaching the retirement age (50+), which in the perspective of the further shrinking of the

labour force due to demographic reasons can lead to a lack of manpower necessary to meet labour demand. Certain measures aimed at mitigating this tendency have already been taken. The government's program *Solidarity of generations*[SG] is one such measure.

4. The situation of people over 50 years of age in the labour market in Poland

The low economic activity of people over 50 years of age is mainly the result of institutional conditions, which allowed for mass departures for early retirement of women over 55 years of age and men over 60 years of age. In light of the Eurostat data (Table 2), the economic activity of individuals aged 50-64 in Poland is much lower than the EU average and about 34% lower than in Sweden - a country with the highest level of economic activity of people aged 50+ in the EU. It should be noted that over the last 12 years, Poland's position has improved - the economic activity rate of persons aged 55-64 increased from 31.3% in 2000 (its lowest level was recorded in 2002 - 29.1%) to 41.8% in 2012, due to the fact that the possibility of early retirement became less possible and due to the increase in the effective retirement age. Nevertheless, the economic activity rate in the age group 55-64 is still among the lowest in Europe. There is a significant difference as compared with other EU countries, where the percentage of the economically active aged 55-64 is on average 53% (i.e. 11 percentage points higher than in Poland), and where there seems to be a slight increase in the economic activity in this age category despite the difficulties caused by the economic crisis (European Commission 2012a, p. 3). This gap in the level of economic activity between Poland and the EU average is mainly caused by the low labour market participation of women in the age group 55-64 (45% as compared with the EU average of 55.7%).

The improvement in the economic activity of people aged 50-64 is more and more due to an increase in employment, which rather should be attributed to their ability to maintain occupied jobs. In 2012, one Pole in two aged 50-64 was employed, including three in five men and slightly more than two in five women. Again, the scale of women's employment is not high, although still twice as high as in Malta, but almost twice lower than in Sweden. The career expectancy of Poles is a little over 30 years. In this respect, however, significant differences in relation to other EU countries cannot be noted. The unemployment rate of people over 50 years of age in Poland is not significantly different from that of the EU average (7.7% as compared with 7.4% in the EU-27 in 2012).

Table 2. Basic characteristics of economic activity of people aged 50-64 in Poland as compared with the EU-27 in 2012

Variables	Population 50-64	Poland	EU-27		
			total	Min	max
Economic activity rate (%)	total	53.5	63.3	44.4 (Malta)	81.3 (Sweden)
	males	63.0	71.2	57.5 (Slovenia)	84.6 (Sweden)
	females	45.0	55.7	22.7 (Malta)	77.9 (Sweden)
Employment rate (%)	total	49.4	58.4	42.1 (Malta)	77.2 (Sweden)
	males	57.9	65.5	53.4 (Hungary)	79.8 (Sweden)
	females	41.7	51.7	21.2 (Malta)	74.5 (Sweden)
Duration of working life[and /](career - years)	total	31.8	34.7	29.7 (Hungary, Italy)	40.4 (Sweden)
	males	34.3	37.4	31.8 (Hungary)	41.7 (Sweden)
	females	29.2	31.9	22.3 (Malta)	39.0 (Sweden)

a/2011

Source: own elaborations on the basis Eurostat data [lfsi_act_a, lfsi_emp_a, lfsa_argan, lfsa_ergan, lfsi_dwl_a], the state of the plot 22.02.2013.

In the light of Diagnosis D50+ most people aged 50-59/64 are employed under a contract of employment (mostly for an indefinite period). One person in ten is unemployed. As many as 37% of women and 36% of men aged 50-59/64 are economically inactive. The statutory retirement age determines the turning point of employment for the majority of Poles – about 86% of women and 95% of men aged 60/65-69 and approximately 12% of women and 15% of men aged 50-59/64 are retired. Retired people aged 50-69 have taken advantage of this privilege at an average age of 56.9, while the average is only slightly lower for women (56.3 years) than for men (57.9 years). The effective retirement age in Poland is therefore lower than the statutory retirement age, which is not only specific for Poland - in all Member States the trend is similar. This is one of the reasons why measures aimed at prolonging the period of economic activity are being undertaken in Poland, including the SG programme (*Adoption of the Act amending the Act on pensions and disability pensions from the Social Insurance Fund and Certain other acts*), which provide for gradual equalization and postponing the retirement age for men and women to 67 (incremental postponement to reach the target in 2020 for men and in 2040 for women) (*National Reform Programme Europe 2020*, p. 50).

5. Characteristics of the government program aimed at supporting the economic activity of people aged 50+ - "Solidarity of generations"

The *Solidarity of generations. Actions for professional activation of people in the 50+ age group50+* (SG) program is the first comprehensive approach to equalization of opportunities for persons aged 50+ in the labour market in Poland. The SG program, adopted in 2008 and updated in 2013, is a package of measures aimed at (1) supporting lifelong learning of people aged 50+; (2) support for the employed aged 50+; (3) measures for social integration of people aged 50+; (4) stimulation of labour force participation of people aged 50+, including the disabled; (5) promotion of entrepreneurship among people aged 45 and over; and (6) postponing the effective retirement age (*National Reform Programme Europe 2020*, p. 11). Incentives aimed at increasing exit ages from the labour market are focused on the supply and demand side of the labour market. They most have the character of direct actions aimed directly at increasing employment opportunities for people aged 50+. The intervention measures targeted at people aged 50+ comprise those directed at (1) the unemployed, which are included in ALMP; and (2) at the employed, in order to enhance their chances of staying in employment. Support for the unemployed aged 50+ includes, for example, extending the period of employment to four years within the framework of intervention works and employment in public works. On the other hand, protective measures against dismissal from work during the four years preceding retirement are aimed at the employed at the age of 50+. Regardless of the status of a person aged 50+ in the labour market (unemployed, employed), he/she may benefit from extensive support for various educational efforts by obtaining: (i) referrals for free trainings or obtaining an interest-free loan from public funds for this purpose; (ii) referral for an internship or vocational training for adults, during which the individual is entitled to a scholarship from public funds; (iii) refunding the costs of public exams and licensing. To encourage employers to employ people aged 50+, the following are planned in the SG program: (i) reducing the period in which the employers pay for sick leave of their employees from the generally applicable 33 days to a period of 14 days; (ii) exemption from contributions to the Labour Fund and Employee Benefits Guarantee Fund for newly hired people in this age group; (iii) the possibility of co-financing of equipment intended for the workplace of an unemployed person from public funds, up to six times the average salary. The indirect measures which positively impact the growth of employment of people aged 50+ include: (i) limiting entitlements to the so-called ‘bridging pensions’; (ii) limiting the possibility to combine work with a full pension until the termination of employment with the employer; (iii) defining acceptable limits of labour income achieved by pensioners who have

not reached the common retirement age; (iv) not limiting the amount of income of pensioners from labour after they reach the common retirement age; (v) facilitating the establishment of nurseries, children's clubs, subsidizing childcare programs for employees, daily caregivers and nannies, (vi) the possibility of financing company kindergartens by employers within the framework of the Social Fund. The latter two facilities are designed to relieve people aged 50+ from caregiver responsibilities in the family and at the same time create new opportunities to pursue careers as day caregivers and nannies.

The government SG program is monitored and improved. Further government action aimed at supplementing the support for people aged 50+ in the labour market - to be implemented in 2014 - includes: co-financing, up to the level of 30% of the minimum work remuneration, of the remuneration of a long-term unemployed 50+ person, and support covered by National Training Fund (NTF) for trainings to adapt the competences of older employees (45+) to economic and social changes (*National Reform Programme Europe 2020*, p. 78).

6. Evaluation of the tools of state intervention for employment of people aged 50+

The support instruments included in SG have been evaluated by participants of the Diagnosis D50+ study.[2] The first conclusion which can be drawn from the study is the lack of knowledge of the solutions contained in the SG programme, both by people aged 45/50+ as well as by other stakeholders. Only employees of poviat job centres (quite obviously) and employers demonstrated a good knowledge in this field. Differences in assessments involving a more focused approach on the various offered solutions are noticeable. Specific differences concern the four-year period of protection of older employees before reaching the common retirement age (the employer cannot dismiss an employee).This solution was very poorly assessed by employers, who claimed even that it hinders them and does not promote equal opportunities for older workers in the labour market. Representatives of employment agencies, training institutions, and also the job centres were of a similar opinion. However, people

[2] The methodology of analysis in this regard was the same in both quantitative studies (people aged 45+ and employers). In the qualitative research (labour market institutions, social welfare units, non-governmental organizations), respondents were given freedom of expression, first by asking general questions about their knowledge of any instrument contained in the legislation and having any actual impact on the situation of people aged 45/50+ in the labour market. In the event of difficulty in obtaining answers, respondent cards were used, on which were solutions that were asked about in detail in quantitative surveys.

aged 45/50+ had an extremely different opinion on this subject, as they considered it to be a good instrument supporting their work. In Polish conditions it is a solution which on the one hand protects the interests of employees, but on the other hand constitutes a barrier when it comes to employing those who have lost their jobs or are trying to find themselves in the labour market after a period of inactivity. Representatives of institutions involved in work mediation (poviat labour offices, employment agencies) and training institutions express a negative opinion in this regard - in practice, people who are close to the protected age are dismissed, following which it is very difficult for them to enter the open labour market.

Employers prefer solutions that allow them to reduce costs (reducing the period in which the employer pays the employee's salary when on sick leave from 33 to 14 days, exemption from compulsory contributions to the Labour Fund and the Guaranteed Employee Benefits, subsidizing workplace equipment). In their opinion, this instrument is very important for the potential increase in employment among persons aged 50+ and at the same time an increase in these allowances is postulated. Solutions concerning subsidized employment are also considered to be beneficial.

In the light of the factor analysis,[3] the main factor of equalization of opportunities for older workers in the labour market encompasses those solutions of the SG program which are directly related to expanding the qualifications of persons belonging to this group (Table 3). What's important, the same instruments were identified as crucial for the equalization of opportunities for persons aged 45/50+ in the labour market by both the intended beneficiaries as well as their employers.

The factor analysis shows that the key direction for further actions under the SG program should be aimed at enriching the human capital of people aged 45/50 and older. This is reflected in the expected changes in the SG programme, which are aimed at increasing access to trainings for unemployed people aged 45+ within the framework of the National Training Fund (NTF). Initial assumptions predict that in the first period the NTF will be financed from the national Labour Fund and by the European Social Fund. Employers are to

[3] The adequacy of data for factor analysis measured with the KMO is high (KMO = 0.878 in the study of people aged 45+, and KMO = 0.819 in the study of employers), and Bartlett's test of sphericity confirmed the significance of the correlation matrix (p in the test is close to 0 for both populations). In the study of people aged 45+ the main factor explains 34% of the variances of the latent variable, i.e. the impact on the equalization of opportunities for persons aged 45/50+ in the labour market; in the survey of employers the percent of explained variance reaches 29%. In the first module five factors were extracted, encompassing the variables explaining the latent variable, which varies to a lesser extent, while in the employers study there were six of these factors.

determine the field in which the unemployed aged 45+ should raise their qualifications, and access to resources from this Fund should be first granted to micro and small entities (Kryńska et al. 2013, p. 357).

Table 3. The most important instruments of equalization of opportunities for persons aged 45/50+ in the labour market in the light of the factor analysis

Instrument of equalization of opportunities for persons aged 45/50+ in the labour market	Factor loadings	
	survey of people 45+	survey of employers
Sending persons 50+ to adult vocational preparation, during which the individual is entitled to a scholarship from public funds	0.831	0.821
Sending persons 50+ for an internship, during which they are entitled to a scholarship financed from public funds	0.818	0.801
Sending persons 50+ to free trainings financed from public funds	0.780	0.748
Interest-free loans from public funds to cover the costs of training of persons 50+	0.775	0.716
Public financing of costs of post-graduate studies of people aged 50+	0.744	0.671
Funding from public funds for workplace equipment of an unemployed person of 50+, up to six times the average salary	0.526	0.556

Source: own calculations on the basis of unpublished materials from *Diagnosis of current situation of females and males 45+ on the labour market in Poland* (survey of people 45+ and employers).

7. The reality of the involvement of Poles aged 45/50+ in lifelong learning

The conclusions presented above are very important in the context of the low level of involvement of elderly Poles in lifelong learning. For people aged 55-64 the *lifelong learning* rate for 2011 in Poland reaches only 0.8% (compared to the EU-27 rate of 4.3%), and for those aged 45-54 only 2.2% (EU-27 – 7.1%), whereas for those younger than 45 years of age it is 5.7% (EU-27 – 10.2%) [Eurostat, trng_lfs_01, 2012]. The D50+ research shows that an educational effort was undertaken only by 6% of those aged 45/50+, and that more often these were women (7.4%) than men (4.4%).[4] In the case of the employed, twice as many undertook the educational effort (11.2%). The survey responses showed that every third person whose career is still in progress does not think about retraining or deepening his or her skills, while another 30% allow for only a slight broadening or deepening of skills (if the need arises).

[4] While these figures are higher than in the cited EU studies, the examined period is different. In *Diagnosis* people were asked about their educational activity in the past two years, and in the LFS research *(Labour Force Survey)* - during the four weeks preceding the survey.

Among the various forms of education, most people participated in the past two years in various types of trainings - professional, IT, general (i.e. in the field of psychological support), and language courses. E-learning is also becoming increasingly popular. Participation in these activities is financed mainly by employers (46%), especially in the case of men, but also in large part from the own resources of the respondents (40%). Almost exclusively women (15%) took advantage of EU support.

When assessing the interest of people aged 45/50+ in further professional development, it should be emphasized that as many as half of the employers have never encountered reluctance on the part of older workers to participate in training, and about 60% of the employed are satisfied with the existing opportunities to participate in trainings offered by the employer. However, there is a small group of people who are not interested in raising their qualifications, as pointed out by employers (one in five employers often has troubles getting older workers to accept trainings).This is confirmed by older workers, since 14% of the employed aged 45/50+ are not satisfied with the fact that they must participate in trainings. As a result, every fourth employer believes that employees aged 45+ either do not want to participate in trainings or do so reluctantly. What's important, one in ten employers points that the improvement of the skills of this group is an important action that would increase the employment of older employees. They rank this condition in third place among the desired directions of support for employment of people over 50 years of age - behind improvement of the economic situation in the country and more funding from public funds for the employment of this category of people (14% of responses).

Lifelong education for people aged 45/50+ should take into account three important issues: individualized educational paths and programs, promoting the idea of lifelong learning, combined with the increasing awareness of the basic principles of a market economy. Support for these activities is available in Poland thanks to the European Social Fund. The situation will be similar in the next financial perspective 2014-2020. State support now involves a partial refund of the cost of training from the Labour Fund, which supplements the funding of trainings from the company training fund [*The Act on Promotion of Employment* ... 2004, Art. 69 section 1], the establishment of which by the employer is voluntary. Continuing support of lifelong learning from public funds in Poland is particularly important in view of the fact that almost every third employer does not organize any trainings in addition to the mandatory health and safety training. This applies mainly to SME's, which perceive training expenses as unnecessary labour costs and which the first to be subject to reduction during an economic crisis.

8. Conclusions

Poland is currently a country which is still relatively young as far as its demography is concerned. This situation will, however, change dramatically and the country will soon feel a shortage of labour force due to demographic aging. The increase of economic activity of the population in its pre-retirement age, i.e. people of more than 50 years of age, can help overcome this barrier to economic development. Unfortunately, this group of people has encountered outstanding difficulties in the labour market, which have led to state intervention in the form of economic activity support programmes for people aged 50+. Deferring the age of withdrawal from the labour market is desirable, despite the rising problem of youth unemployment. First of all, public expenditures related to the financing of pensions should be reduced and the prolonged independence of people aged 50+ should be achieved by participation in social, economic, and civic life. Therefore, in EU Member States support programs are being developed for people aged 50+ in the labour market (in Poland the program *Solidarity between generations* is the response to these needs). The effect of these programs should be an increase in the employment of this group of people. National measures included in the Polish government's SG program are aimed, on the one hand, at creating the conditions for the older generation to achieve greater independence through participation in social, economic and civic life, while on the other hand they allow the use of the human capital of people aged 50+ in the labour market, and through this achieve an improvement in the economic performance of the country. Thus, the older generations will be able to self-manage their own lives by keeping their economic activity potential as long as possible.

The analysis of the intervention tools of the state aimed at boosting employment among people aged 45/50+ shows that the most important tools are encompassed in the broadly understood policy of educational support of people in pre-retirement age. Great importance is attached to them, both by employers and older people themselves. This is very important information, as the Polish society has so far shown only a very modest degree of participation in lifelong learning - only 0.8% of those aged 55-64 (EU-27 – 4.3%). There is a still not enough appreciation of the benefits of attending training courses organized by employers, hence the educational effort among workers over 50 years of age is currently unsatisfactory. Hopes for improvement are associated with the introduction in 2014 (as part of the intervention a package *Solidarity of Generations*) of support covered by the National Training Fund (NTF) for trainings to adapt the competences of older employees (45+) to economic and social changes. Studies conducted within the framework of the *Diagnosis of the current situation of women and men aged 50+ on the labour market in Poland*

confirmed the important role lifelong learning in maintaining employability as the population ages, and the need for institutional and promotional programs aimed at increasing awareness among people aged 50+ on the need for continuous development of competencies in order to be able to stay on the labour market.

The systemic solutions which have been developed under the "*Solidarity of Generations*" programme to support active aging express the Polish state's policy of stimulating the occupational activity of people aged 50+. Similar initiatives have been implemented in other EU countries, too, at the national, mezzo and micro levels (by local governments, enterprises, NGOs). As it seems, the least risky option for Poland would be to take over legal, organisational and financial solutions applied in the labour markets to people aged 45/50+ from countries the institutional apparatus of which is the most similar to that in Poland (Kryńska, Szukalski 2013, p.97). These countries can be found in Central and Eastern Europe. Three of them, the Czech Republic, Romania and Bulgaria, differ from the others in their group in that they have the most favourable indicators of the situation of older people, particularly in the labour market. However, the labour market measures the countries address to this age group are either fairly modest or, as is the case of Romania, practically non-existent. A recommended tool that might prove useful in the Polish circumstances is Czech job clubs for older employees and older job-seekers.

References

Act of April 20th, 2004 on Promotion of Employment and Labour Market Institutions, Dziennik Ustaw of 2004 No. 99, item 1001 as amended

Arnold J. (1997*), Managing careers into the 21 century*, Paul Chapman Publishing, London

European Commission (2012a), Annex. Draft Joint Employment Report to the Communication from the Commission. Annual Growth Survey 2013, Brussels, 28.11.2012 COM(2012) 750 Final

European Commission(2012b), Employment and Social Developments in Europe 2011, Bruksela

Eurostat, trng_lfs_01, lfsi_act_a, lfsi_emp_a, lfsa_argan, lfsa_ergan, lfsi_dwl_a (15.06.2013)

Kryńska E., P. Szukalski (2013), *Rozwiązania sprzyjające aktywnemu starzeniu się w wybranych krajach Unii Europejskiej. Raport końcowy*, The University of Lodz, Lodz

Kryńska E., Krzyszkowski J., Urbaniak B., Wiktorowicz J. (2013*), Diagnosis of the current situation of women and men aged 50+ in the labour market in Poland. Final Report*, The University of Lodz, Lodz

Krzewińska A., Wiktorowicz J., *Aneks metodologiczny Diagnozy obecnej sytuacji kobiet i imężczyzn 50+ na rynku pracy w Polsce*, [in:] *Diagnosis of the current situation of women and men aged 50+ in the labour market in Poland. Final Report*, The University of Lodz, Lodz

Ministerstwo Pracy i Polityki Społecznej, Strategia Rozwoju Kapitału Ludzkiego 2020 (projekt), Warszawa, czerwiec 2013, http://www.mpips.gov.pl/praca/strategie-i-dokumenty-programowe/strategia-rozwoju-kapitalu-ludzkiego-srkl---projekt-z-31072012-r/ (17.07.2013)

Moulaert T., Biggs S. (2013), *International and European policy on work and retirement: reinventing critical perspectives on active ageing and mature subjectivity*, "Human Relations", 66(1) http://hum.sagepub.com/content/66/1/23 (9.01.2013)

National Reform Programme Europe 2020, 2013/2014 update, adopted by the Council of Ministers on 30 April 2012, http://ec.europa.eu/europe2020/pdf/nd/nrp2013_poland_en.pdf

Phillipson C.(2013), *Commentary: The future of work and retirement*, 'Human Relations', 66(1): 143-153(online) http://hum.sagepub.com/content/66/1/143 (10.01.2013)

Ministry of Labour and Social Policy (2008), Solidarity of Generations. Measures to increase professional activity of persons aged 50+, Warsaw

Rada Unii Europejskiej, Nota Rady (EPSCO) z dnia 7 grudnia 2012, doc. 17468/12, http://register.consilium.europa.eu/pdf/pl/12/st17/st17468.pl12.pdf (16.07.2013)

Rószkiewicz, M.(2011), *Analiza klienta*, SPSS, Kraków

Rzeczpospolita Polska (2013), Program konwergencji, aktualizacja 2013, Warszawa, http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/ index_en.htm (10.06.2013)

Unpublished materials of Diagnosis of the current situation of women and men aged 50+ on the labour market in Poland, The University of Lodz, Lodz

Ustawa z dnia 11 maja 2012 r. o zmianie ustawy o emeryturach i rentach z Funduszu Ubezpieczeń Społecznych oraz niektórych innych ustaw, Dz.U. of 2012**,** nr 0 item 637

Streszczenie

WSPARCIE AKTYWNOŚCI ZAWODOWEJ OSÓB W WIEKU 50+ W POLSCE: NAJLEPSZE ROZWIĄZANIA RZĄDOWEGO PROGRAMU SOLIDARNOŚĆ POKOLEŃ

Celem artykułu jest ocena skuteczności wybranych rozwiązań zaproponowanych w rządowym programie Solidarność pokoleń [SG] dedykowanym wsparciu aktywności zawodowej osób 50+. W artykule zaprezentowano wyniki ogólnokrajowych badań przeprowadzonych w I poł. 2012 r., w tym przede wszystkim badań kwestionariuszowych przeprowadzonych na reprezentatywnych próbach osób w wieku 45+ oraz pracodawców. Badania pt. Diagnoza obecnej sytuacji kobiet i mężczyzn 50+ na rynku pracy w Polsce [D50+] zostały zrealizowane w ramach projektu Wyrównywanie szans na rynku pracy dla osób 50+. Poza standardowymi metodami analizy deskryptywnej i oceny współzależności, zastosowano analizę czynnikową celem wskazania głównych kierunków działań sprzyjających wyrównywaniu szans osób w wieku 45/50+ na rynku pracy w Polsce. Rozwiązania ujęte w programie rządowym, jak np. wprowadzenie okresów ochronnych przez zwolnieniem z pracy pracowników na 4 lata przed nabyciem praw do emerytury, spotykały się niekiedy z krańcowo różną oceną przez pracodawców i osoby 50+. Zarówno pracodawcy, jak i osoby w wieku 45+ wysoko oceniają bezpłatne szkolenia czy dofinansowanie ze środków publicznych wyposażenia miejsca pracy dla bezrobotnego 50+. W świetle analizy czynnikowej, dla wyrównywania szans osób w wieku 45/50+ na rynku pracy zasadnicze znaczenie odgrywają te działania, które bezpośrednio przyczyniają się do zwiększenia kwalifikacji osób w wieku 45/50+. Pracodawcy i osoby w niemobilnym wieku produkcyjnym są zgodni w tym zakresie, lecz niedostatek systemowego wsparcia edukacji ustawicznej dla osób w wieku 50+ osłabia możliwości wzrostu ich aktywności zawodowej. Zróżnicowane oceny mogą być wzięte pod uwagę przy modyfikacji programów wsparcia aktywności zawodowej 50+.

Słowa kluczowe: *starzenie się ludności, aktywność ekonomiczna, starsi pracownicy, interwencja państwa na rzecz zatrudnienia osób w wieku 50+, kształcenie ustawiczne*

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ZOFIA WYSOKIŃSKA*

Active Ageing –The EU's Response To The Demographic Challenge

Abstract

Europe's demographic problem (an ageing population) is well-known and has been the object of a number of research projects in the EU. As an example of the scale of the problem, the percentage of persons 55 or older in the overall population of the EU was 30% in 2010, and is expected to rise to 37% in 2030. Raising the retirement age – the response implemented in a number of EU Member States in recent years – cannot be considered as a comprehensive solution to the problem. Older persons encounter more difficulties finding employment, even though they possess knowledge and experience which could be valuable in the conduct of economic activities. Recent years have witnessed a growth in the trend toward "active ageing", which is considered to be 'a process of optimization of the chances for good health, active participation, and security, in order to improve the quality of life over the passage of time', a concept closely correlated with the idea of entrepreneurship among the elderly.It can be noted that there is no comprehensive policy supporting entrepreneurship of elderly people in the age of the Ageing Society in Europe. The aim of the paper is to present the foreseen benefits of the development of enterpreneurship of elderly people supporting policy in the EU and in Poland.

Keywords: *demographic challenge, active ageing, enterpreneurship of elderly people*

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1. Introduction

Europe's demographic problem (an ageing population) is well-known and has been the object of a number of research projects in the EU. As an example of the scale of the problem, the percentage of persons 55 or older in the overall population of the EU was 30% in 2010, and is expected to rise to 37% in 2030.[1] Raising the retirement age – the response implemented in a number of EU Member States in recent years – cannot be considered as a comprehensive solution to the problem. Older persons encounter more difficulties finding employment, even though they possess knowledge and experience which could be valuable in the conduct of economic activities. Recent years have witnessed a growth in the trend toward "active ageing", which is considered to be 'a process of optimization of the chances for good health, active participation, and security, in order to improve the quality of life over the passage of time',[2] a concept closely correlated with the idea of entrepreneurship among the elderly.

The scale and tempo of ageing in the general population depends on a number of factors, such as: the mortality rate (usually measured using a negative average indicator, comparing average and actual lifespans, i.e. projecting the number of years a newborn can be expected to live based on particular co-efficients against the actual data with respect to the death rate); the birth rate (i.e., the mean number of births per woman of child-bearing age); and the actual number of births and deaths occurring in a given period. It is expected that the average life-span of EU male citizens will increase from 76.7 years (in 2010), to 84.6 years in 2060, and in the case of women from 82.5 to 89.1 years. The mean birth rate in the EU is expected to rise slightly, from the current 1.59 children per woman of child-bearing age to 1.71 in 2060. The overall rise in population (births over deaths) is expected to be approximately 60 million in 2060,[3] mainly as a result of the accumulation of those factors favoring a longer life.

In the upcoming decades the EU Member States are expected to experience a dramatic rise in the percentage of the actively engaged older population, together with a significant decline in the percentage of actively engaged youth as well as persons in their productive years. Although the increase in the average life span of EU citizens is an important accomplishment, it is accompanied by significant challenges to the functioning of the economy and systems of health

[1] 'Policy Brief on Senior Entrepreneurship, Entrepreneurial Activities in Europe', OECD/ European Union, 2012.

[2] http://ec.europa.eu/news/economy/120515 pl.htm

[3] As above: http://ec.europa.eu/news/economy/120515 pl.htm

and social care. The change in the overall demographics of the EU is thus considered to be one of the major challenges facing the EU.[4]

Older employees constitute an important part of the contemporary workforce, and their number will grow in upcoming decades. These employees differ from the younger generation in terms of their skills and competences. Their absence in the workforce would signify a failure to make use of available professional and structural potential, as well as a waste of their network of contacts. Older employees also play an important role in the transfer of knowledge and accumulated experience to younger generations. The optimal use of competences in the workplace would be the right combination of the relative strengths of the different generations.

Unfortunately, the statistical indicators for the employment of older workers (55-64 years of age) in the EU-27 are currently below 50%. In the world there are only 15 developed countries where older workers are employed at a rate higher than 50%. For a variety of reasons, more than one-half of older workers resign from the workforce prior to reaching the fixed retirement age. In order to finance and support the projected longer life-spans of EU citizens, an urgent need thus arises to provide opportunities for better and longer professional careers.[5]

Persons older than 60 may still have many years of life ahead of them, and society is coming to better appreciate what they have to offer. This is the core principle behind the concept of 'active ageing' – to make use of the possibilities arising from longer life-spans, whether in the workplace, the home, or in local society. Active ageing involves not only a higher quality of life for the senior citizens themselves, but also offers advantages to society as a whole.[6]

The prospect of better health and a longer life offers, to older workers, the possibility of strengthening the binds that create a society more friendly to its senior citizens. Central to this is the creation of conditions offering a high quality professional life to older workers and, at the same time, assuring that society as a whole will benefit from their accumulated knowledge, skills, and experience. In this way older workers can actively participate in the creation of a balanced and attentive society, characterized by inter-generational solidarity, based on the premise that an active and productive professional life is an integral part of active ageing. Satisfying work can lead to the avoidance of illnesses and strengthening

[4] http://ec.europa.eu/economy_finance/structural_reforms/ageing/index_pl.htm (22/5/2009).

[5] J. Ilmarinen, Support for Active Ageing in the Workplace, J. Ilmarinen, JIC Ltd, Centre for Gerontological Studies, University of Jyväskylä, Finnish Institute of Work Medicine (1970–2008), European Agency for Safety and Health at Work, http://osha.europa.eu/pl/publications/articles/promoting-active-ageing-in-the-workplace; p. 1 (*Titles are translated from Polish*)

[6] http://europa.eu/ey2012/ey2012.jsp?langId=pl

of the overall physical and mental condition of senior citizens, which in turn produces positive attitudes and beneficial social participation. The quality of professional life of one segment of employees (e.g, the older ones) has a far-reaching influence on *all* employees. The results of studies into ageing show that functioning at a high level up until retirement is a predicator to independent functioning in the everyday life of retired persons aged 73-85. The greater is one's ability to function in the workplace until a later retirement, the higher is his/her quality of life following retirement.[7]

Examples of good practices with respect to the length of employment and level of professional activity of older workers demonstrate that the advantages arising from investments into the professional activities of older workers far outweigh the costs. Employees have the opportunity to continue to work and contribute to society, improve the atmosphere in the workplace, and reduce the social problems associated with ageing. A cost/benefit analysis in monetary terms shows that money invested into active ageing yields a high return, with each euro invested returning 3-5 euros after a few years. The returns are associated with the lower levels in later years of illnesses and physical and mental handicaps suffered by actively engaged older workers, as well as their higher productivity.[8]

2. Active ageing in light of sustainable development and the European Employment Strategy

The sustainable development of a country – and/or integrated group or region – demands that social issues be taken into account in socio-economic policy and that the solutions chosen will not only alleviate social problems but also lead to economic growth. These social issues, or problems, concern above all unemployment, poverty, social exclusion, limited access to education, and various social conflicts. Every society has its own methods for combating social problems, using more or less expansive social policies, and applying mechanisms and instruments which have evolved over decades of practice. At the national level, the aim of social policy is to secure an accepted and approved minimum standard of living for a country's citizens (Jovanović 2005).

Social policy generally goes beyond employment *senso stricto* and encompasses areas such as: wages, unemployment security, social programs, pension and disability systems, health care, workplace hygiene and safety,

[7] As above, pp. 7-8.

[8] J. Ilmarinen, op. cit. p. 6.

education, geographical mobility of the workforce,[9] and more recently (as can be observed in the EU program documents, which we will examine shortly), active ageing.[10]

In 1999 the European Commission issued a communiqué entitled "Towards a Europe for all ages".[11] The active ageing concept contained in this document was considered to be a paradigm for a European-wide policy to deal with the ageing of society. At the same time however, the concept of 'active ageing' itself was not defined. It was written only that the policy was to serve to provide a better life for the elderly. In principle, active ageing was the EU's practical response to the UN's 1993 Declared Principle to "add life to the years that have been added to life." The EU's communiqué sets forth a number of goals: longer professional careers, engagement in local societies, outside learning, and volunteer work. It may be said that the EU's communiqué took a very narrow view of the concept of active ageing, linking it primarily to the issue of extended professional careers and productive activities.

In its next issued document on the topic, a Commission Staff Working Paper, the European Commission affirmed in 2001 that "the Member States should elaborate an active ageing policy by creating instruments making it possible to maintain the competencies of older employees, introduce flexible work conditions, and develop the awareness of employers with respect to the potential of older employees. Older employees should be given access to education and training, and the tax and social security systems should be revised to permit limited work schedules which would enable older employees to remain active on the labour market".[12] This document suggests that the EU policy of active ageing consists primarily of encouraging older employees to remain on the labour market as long as possible, while alleviating or limiting the determining factors which account for the low professional engagement of persons of pre-retirement age, and expanding outside education programs, i.e. providing incentives for life-long learning.[13]

The clearest indication of the EU's approach to implementation of an active ageing strategy is reflected in the European Employment Strategy, which sets forth a series of activities and principles applicable to older employees, including,

[9] As above.

[10] http://ec.europa.eu/economy_finance/structural_reforms/ageing/index_pl.htm (22/5/2009).

[11] European Commission, Towards a Europe for All Ages, Brussels, 1999.

[12] European Commission: Commission Staff Working Paper, 2001 (translation from Polish version).

[13] See also: The Input of the EU into promotion of active ageing and solidarity between generations, European Commission, Directorate General for Employment, Social Affairs, and Inclusion,Chapter D3.2012; p. 19.

inter alia, actions aimed at encouraging and supporting older employees in their efforts to continue working, including also discouraging them from taking early retirement. The European Union has introduced a series of initiatives and programs within the framework of its active ageing policy aimed at directly or indirectly assisting older persons in their everyday life, as well as increasing their opportunities to establish SMEs. The EU also declared the year 2012 to be "The European Year for Active Ageing and Solidarity between Generations." Its aim was to increase public awareness, identify, distribute, and multiply good practices, and to encourage business decision-makers and partners to support the activities of older persons and promote inter-generational solidarity. The introduction of the 'European Year' initiative was also connected with the appearance of supporting documents, for example *Active Ageing* (14 November 2012), in which the EU promoted programs aimed at assisting older persons to remain active in the social affairs of their local communities.

3. The effects of society's ageing on public finances

DG ECFIN, the EC Directorate General for Employment, Social Affairs, and Inclusion, is responsible for carrying out economic analyses and assessments, both at the micro- and macro-economic levels, including determining the real and potential effects of the demographic changes, as well as securing political advice with respect to the various possible reactions and alternatives to the ongoing changes. Within the framework of its activities it monitors and analyzes the functioning of existing European systems of social care, concentrating especially on analysis and prognosis concerning the effects of societal ageing on economies and budgets.

DG ECFIN envisions that the demographic changes will have serious consequences for public finances throughout the EU. Assuming the continuation of current policies, it estimates that public expenditures directly associated with age (retirement benefits, health care, and other long term costs) will rise by 4.1% of GDP by 2060 (as compared to 2010), i.e. from 25% to 29% of GDP. Expenditures on retirement/pension benefits alone are expected to rise from 11.3% of GDP to 13% by the year 2060. However, its report also demonstrates that there are large differences between the policies of particular Member States, mostly associated with the degree of progress made by a particular country in enacting pension reform.

The prognoses associated with an ageing population concern higher expenditures on pension/retirement benefits, long term health care, and unemployment and education programs for older workers. All these issues are

subjected to various political debates at different levels of the EU. In particular, they appear in the annual assessments of the stability of various Member States' public finances, carried out within the framework of the EU's Growth and Stability Pact; in the context of transparent methods for coordinating retirement, health care, and social integration programs; as well as in various analyses of the influence of the ageing population on the labour market and on potential economic growth, which affect assumptions contained in the Lisbon Strategy as well as general economic principles.[14] There exist a large number of programs and initiatives throughout the entire EU aimed at assisting older workers, in their transition to retirement, to maintain active participation in social life. Thanks to such initiatives local communities are able to take advantage of the knowledge and skills which their senior citizens have accumulated throughout their active working lives.[15]

As an expression of the European Commission's interest in supporting the activities of the older population in various fields, a competition was announced in 2012 to select the best European initiatives in this area. Among the best initiatives selected by the European Commission are the following:

- **'Gravitational racer'** – from the Huolin Koulu school, in Finland. Twelve-year-olds from the Huolin Koulu school, together with the grandfather of one of them, Hannu Gustafsson, constructed a gravitational racing vehicle.
- **'Generation gap'** – from JP/Politiken Hus, Denmark. Four journalists from the Danish newspaper *Politiken* wrote an article describing how members of the younger and older generations can cooperate together.
- **'Seniors at work'** – from Cult fiction Oy, Finland. An eighteen-part reality show, emitted on public television station Yle TV1, showed how selected older citizens were able, despite their advanced years, to put off retirement.
- **'Two generations under one roof'** – from Typhaine de Penfentenyo, France.

[14] As above; see also: Giuseppe Carone, Declan Costello, Nuria Diez Guardia, Gilles Mourre, Bartosz Przywara, Aino Salomäki, The economic impact of ageing populations in the EU25 Member States; http://ec.europa.eu/economy_finance/publications/publication562_en.pdf; European Economy, Working Papers, Number 236 December 2005.; see also: Policies concerning ageing populations and government as caretaker, http://ec.europa.eu/economy_finance/structural_reforms /ageing/index_pl.htm

[15] Fiscal Sustainability Report; European Economy 8|2012, Economic and Financial Affairs, European Commission 2012; European Union, 2012 Joint EU employers' project on active ageing - Age management policies in enterprises in Europe, http://europa.eu/ey2012/ey2012main. jsp?catId=975&langId=en&mode=initDetail &initiativeId=222&initLangId=en; Adults mentoring: Comparative analysis - Bulgaria, Poland, Slovenia and the UK, 2008,www.adults-mentoring.eu; I.Kołodziejczyk-Olczak, Career 50+. Raport z badania, w ramach projektu Career Plan 50+ (Research report, within the framework of the Career Plan 50+ Project, March 2010.

Thanks to an association - Ensemble2générations – the founder of which is Typhaine de Penfentenyo, selected students live with elderly persons in their homes, paying only a symbolic sum and/or offering their services and companionship in exchange for housing.[16]

- **'Active to the end'** – from Fredericia, Denmark. Local social care bureaus help the elderly lead independent lives by offering daily rehabilitation programs.
- **'Managing people of different ages'** – from Helsingin Kaupunki, Finland. This program is aimed at propagating the idea of dividing work into a common enterprise according to age specializations, by engaging representatives of various generations in common activities at places such as recreation centres, health care institutions, or workplaces.

In addition, Bruno Põder of Estonia received an individual distinction for his continuing effort to contribute to society at the age of 80, continuing to work as a surgeon.[17]

4. Policies concerning the ageing population – The European Innovation Partnership on Active and Healthy Ageing

While the ageing of society presents a special challenge to European systems of health and social care, it also presents an opportunity to reform these systems to meet the interests of both patients and health and social care professionals, as well as the needs and demands of the innovation sector. One manifestation of taking purposeful advantage of these opportunities is The European Innovation Partnership on Active and Healthy Ageing. Within the framework of this partnership a strategic implementation plan was elaborated in November 2011, defining both priority areas and specific activities which must be undertaken by public authorities, enterprises, and civil society.[18] The areas encompass:

- Innovative ways of allowing patients to follow their prescriptions, including common actions in at least 30 European regions;

[16] http://www.ensemble2generations.fr/

[17] http://ec.europa.eu/news/employment/121114_2_pl.htm

[18] European Innovation Partnership agrees on actions to turn ageing into an opportunity; http://europa.eu/rapid/press-release_IP-11-1309_en.htm?locale=en; See also: EU wants to steer innovation on Active and Healthy Ageing; http://europa.eu/rapid/press-release_IP-11-519_en.htm?locale=en.

- Innovative solutions for avoiding falls and assisting older patients in obtaining early diagnoses of their illnesses;
- Collaboration in efforts to assure that patients avoid malnourishment, which may make them prone to physical weakness or collapse;
- Promotion of effective and innovative integrated models of care for patients with chronic illnesses, for example by long-distance monitoring. Actions in this priority area are recommended on a regional basis for many EU regions;
- Improving the ability of older patients to use the latest developments in information and communication technology (ICT) to help them maintain independence, mobility and an active lifestyle.[19]

The European Commission has confirmed its obligation to support realization of the strategic implementation plan elaborated by The European Innovation Partnership on Active and Healthy Ageing, in particular by:

- calling on all interested parties to engage in concrete activities related to innovations conducive to active and healthy ageing;
- introducing, from April 2012, an innovative ideas market, aimed at assisting interested parties in finding partners, exchanging good practices, and distributing and multiplying proven and tested innovations;
- providing for the application and efficient use of EU financial instruments, such as the Competitiveness and Innovation Framework Programme (CIP), or the Seventh Framework Program for Research, as well as the Second Programme of Community Action in the Field of Health;
- providing solutions to questions related to regulations and norms, for example by supporting the creation of a new EU framework for testing interoperability, and providing for quality certification of e-health mechanisms;

John Dalli, the European Commissioner for Health and Consumer Policy, has emphasized that: *Active and healthy ageing is of fundamental importance for both our citizens and the vitality of health care systems, and also constitutes an industrial potential. The Commission decidedly supports the rapid implementation of the priority areas outlined by the Partnership in 2011. We aim to achieve measurable results within the next two years.*[20]

Vice-chairman Neelie Kroes reiterated that: *The European Innovation Partnership on Active and Healthy Ageing enables us to improve the health and quality of life of our older citizens and guarantees the sustainable character of*

[19] European Commission - Press release, European Innovation Partnership agrees on actions to turn ageing into an opportunity, http://europa.eu/rapid/press-release_IP-11-1309_en.htm?locale=en

[20] http://europa.eu/rapid/press-release_IP-12-196_pl.htm (translation from Polish version).

our health care systems over the long term perspective. We call on all interested parties to join us in our efforts and help us face up to the challenges posed by the demographic transformation.[21]

5. EU Policies with respect to older citizens' entrepreneurship

An important element of the policy of active ageing is its support of entrepreneurship and self-employment for older workers. While at present there is not yet, at the EU level, a single comprehensive policy supporting entrepreneurship among older persons, one may find numerous examples of initiatives and projects undertaken within the framework of the EU at the regional and local levels in support thereof. Below we examine a few of these.

FIFTI – support for the professional development of persons over 45 years of age (financed from ESF)[22]

This is an internet system in the French language, supplying instruments which are designed to help optimize the careers of persons over 45. They provide precise information, together with tips, advice and support, both for employers and employees over 45, on schooling/training, preparing for retirement, motivation, threats at the workplace, and the need for dialogue between employers and employees. The project is aimed at helping persons prepare, at their workplaces, for the onset of old age by combating the fears and negative stereotypes of both themselves and co-workers, as well as opening up new solutions and approaches to the continued employment of older employees.

AWARE: Older Workers and Active Retirement (financed from the joint program AAL)[23]

This project is aimed at formulating and elaborating an internet site with social services for older workers as well as retired persons, containing the possibilities of communication, both in conversation and writing, blogging, etc. It is meant to be supplemented with specific services oriented toward the needs of older employees and persons enjoying an active retirement. The project aims to keep up with and deal with the structural changes which accompany an ageing workforce by including modules in the site devoted to the adaptation of work places to older workers, the sharing of knowledge and expertise, as well as ICT schooling/training programs for older workers.

[21] As above, Reference: IP/12/196 Event Date: 29/02/2012 (translation from Polish version).

[22] www.fifti-opcalia.com

[23] http://aware.ibv.org

ePAL– extending the working age (financed by FP7)[24]

This project is aimed at supplying a strategic road map for technological research and development into innovative solutions for extending active professional careers and securing the best conditions for taking retirement. It seeks ways to supply older workers the assistance they need to enhance their talents and expertise in such a way that would improve the quality of their lives while at the same time creating value for the European economy. The driving vision behind the e-PAL project is to make Europe into a global leader in the promotion of active ageing.

ESF6 CIA – extension of the work age via appreciation of older workers (financed by Interreg IVC)[25]

This interregional cooperation project is based on a determination that many good practices relating to the management of an ageing workforce have been elaborated in pilot projects financed from EFS. Hence the next step should be the 'capitalization' and transfer of these good practices to other regions. Thus this network project is aimed at filling the above-outlined need by the distribution and application of the devised solutions via activities' plans in eleven partnership regions comprising eight European Member States.

"Best elders" –workers in contemporary society: economics, education, and creativity (financed by Interreg IVB) (a Baltic Sea Region Program)[26]

This project attempts to harness the great potential possessed by workers over 55 years of age in the cause of supporting innovation and developing skills, as well as contributing to the development of a firm. The project is aimed at demonstrating the advantages of having workers over 55 remain employed in a firm rather than take early retirement. It shows how to improve their skills and implement their ideas in a competitive business. It is also aimed at creating an inter-generational innovative environment, where the 'best elders' will work with fellow employees of all age groups, sharing their experience and generating new ideas. Nineteen partners from eight member states take part in the project.

ActiveAge – solutions for an ageing population (financed by URBACT II)[27]

This is a thematic network consisting of nine cities, focused on aspects of supply and demand in the employment of older workers, encompassing: the maintenance of quality; employability; ability to make adjustments and re-enter the labour market; development of firms.

[24] www.epal.eu.com

[25] www.esf6cia.eu

[26] www.best-agers-project.eu

[27] www.activeage.org

The member-cities have engaged in an exchange of ideas, knowledge, and experiences concerning the various themes, including particular strategies for retaining older employees at their workplaces in Rome and avoiding the taking of early retirement for health reasons in Maribor (Slovenia).

It is also worth noting other examples, set forth below, based on policies implemented to support the creation of firms by older persons, i.e. senior entrepreneurship:[28]

Policy example nr 1: *Best Agers* (many countries)

The main aim of this project is to research the various ways to create entrepreneurship and enhance business mentoring activities in the 55+ age group. This initiative establishes collaboration and cooperation with various age groups in fields such as business development, talent for generating new ideas, and the sharing of experiences and professional expertise.

Policy example nr 2: *The female scheme* (many countries)

This is aimed at helping women enhance their skills and confidence in the workplace, enabling them to develop their business concepts and ideas and attain success as entrepreneurs (including women in the 50+ age bracket).

Policy example nr 3: *Biiugi* (Germany)

This internet platform assists older entrepreneurs develop their business networks and expand their business relations, as well as develop new business projects. The platform links experienced older entrepreneurs with less other less-experienced and less-promising colleagues of the same age group.

Policy example nr 4: PRIME – *The Prince's Initiative for Mature Enterprise* (Great Britain)

The major policy aim of PRIME is to reduce unemployment, and in particular to assist the older unemployed workers in the creation and conduct of their own businesses. Other aims of PRIME include promoting the engagement of older persons in important activities aimed at reducing or eliminating social exclusion.

In addition to the above, the European Commission, in reliance on its digital agenda and its flagship initiatives in industrial policy, will assist entrepreneurs and SMEs to realize their full potential using ICT tools, both in terms of introducing new products on the market using digital technology as well as fulfilling their business needs (demands) through the intelligent use of the new technologies. This can enhance the entrepreneurship of persons both old and young by, on the one hand, encouraging the employment of young persons in firms run by older entrepreneurs, which allows for making use of their ICT

[28] Information from: 'Policy Brief on Senior Entrepreneurship, Entrepreneurial Activities in Europe'.

knowledge and skills, while on the other hand giving young persons the opportunity to obtain and make use of the knowledge flowing from the experience of older entrepreneurs.[29]

6. Summary

The 'active ageing' model has recently come to occupy an important place and play an important role in the strategies and policies of the European Union. Strategies in support of active ageing now form a part of all leading program documents of the EU. The challenge is not only to motivate older citizens to remain active as workers, but also to encourage them to engage in entrepreneurial activities, inasmuch as many older employees possess a treasure chest of experience in this area and can share their experiences, particularly with younger workers, thus giving them a chance for employment, as well as offering older colleagues who wish to work the opportunity to do so. This policy is also of particular importance to women who – having a longer life expectancy than men – are looking for meaningful activities in various associations or on internet fora or social portals.

The construction of a 'Silver Economy', based on the model of active aging and the engagement of older persons, will reduce the pressures on public finances, both for the EU as well as the national budgets of the Member States. It constitutes a new standard to be incorporated into governmental social policies, as well as a leading challenge for both the near future and later future generations.

It can be noted that there is no comprehensive policy supporting entrepreneurship of elderly people in the age of the Ageing Society in Europe. There is also no such kind of policy also in selected EU Member States. I would like to stress that this policy supporting the erderly enterpreneurs is very important for the future in Ageing Europe.

[29] http://ec.europa.eu/enterprise/policies/sme/public-consultation/files/report-pub-cons-entr 2020-ap_en.pdf

References

Ilmarinen J., *Support for Active Ageing in the Workplace*, J. Ilmarinen, *JIC Ltd, Centre for Gerontological Studies*, University of Jyväskylä, Finnish Institute of Work Medicine (1970–2008), European Agency for Safety and Health at Work, http://osha.europa.eu/pl/publications/articles/promoting-active-ageing-in-the-workplace; p. 1 (*Titles are translated from Polish*)

Carone G., Costello D., Diez Guardia N., Mourre G., Przywara B., Salomäki A., *The economic impact of ageing populations in the EU25 Member States*; http://ec.europa.eu/economy_finance/publications/publication562_en.pdf

Jovanović M. N. (2005), *The Economics of European Integration. Limits and Prospects*, E. Elgar, Cheltenham, UK, Northampton, MA, USA, p. 771

Kołodziejczyk-Olczak I. (2010), *Career 50+. Raport z badania, w ramach projektu Career Plan 50+* (Research report, within the framework of the Career Plan 50+ Project, March 2010

Adults mentoring: Comparative analysis - Bulgaria, Poland, Slovenia and the UK, 2008, www.adults-mentoring.eu

EU wants to steer innovation on Active and Healthy Ageing; http://europa.eu/rapid/press-release_IP-11-519_en.htm?locale=en

European Commission: Commission Staff Working Paper, 2001 (translation from Polish version)

European Commission - Press release, European Innovation Partnership agrees on actions to turn ageing into an opportunity, http://europa.eu/rapid/press-release_IP-11-1309_en.htm?locale=en

European Commission, Towards a Europe for All Ages, Brussels, 1999

European Economy, Working Papers, Number 236 December 2005

European Innovation Partnership agrees on actions to turn ageing into an opportunity; http://europa.eu/rapid/press-release_IP-11-1309_en.htm?locale=en

Fiscal Sustainability Report; European Economy 8|2012, Economic and Financial Affairs, European Commission 2012; European Union, 2012

Joint EU employers' project on active ageing - Age management policies in enterprises in Europe, http://europa.eu/ey2012/ey2012main.jsp?catId=975&langId=en&mode=initDetail&initiativeId=222&initLangId=en

Policy Brief on Senior Entrepreneurship, Entrepreneurial Activities in Europe', OECD/European Union, 2012

Policies concerning ageing populations and government as caretaker, http://ec.europa.eu/economy_finance/structural_reforms/ageing/index_pl.htm

The Input of the EU into promotion of active ageing and solidarity between generations, European Commission, Directorate General for Employment, Social Affairs, and Inclusion,Chapter D3.2012; p. 19

http://aware.ibv.org

http://ec.europa.eu/news/economy/120515 pl.htm

http://ec.europa.eu/enterprise/policies/sme/public-consultation/files/report-pub-cons-entr2020-ap_en.pdf

http://ec.europa.eu/economy_finance/structural_reforms/ageing/index_pl.htm (22/5/2009)

http://europa.eu/ey2012/ey2012.jsp?langId=pl

http://ec.europa.eu/economy_finance/structural_reforms/ageing/index_pl.htm (22/5/2009)

http://ec.europa.eu/news/employment/121114_2_pl.htm

http://europa.eu/rapid/press-release_IP-12-196_pl.htm (translation from Polish version)

http://www.ensemble2generations.fr/

www.activeage.org

www.best-agers-project.eu

www.epal.eu.com

www.esf6cia.eu

www.fifti-opcalia.com

Streszczenie

AKTYWNE STARZENIE SIĘ- ODPOWIEDŹ UE NA WYZWANIA DEMOGRAFICZNE

Demograficzny problem Europy (starzenie się społeczeństwa) jest ewidentny i wykazany przez wiele badań prowadzonych w UE. Dla przykładu, procent osób w wieku powyżej 55 lat wynosił 30% w roku 2010, a w roku 2030 ma wzrosnąć do 37%. Jednak podnoszenie wieku emerytalnego nie powinno być jedynym sposobem na walkę z tymi problemami, jako że starszym osobom jest znacznie trudniej znaleźć pracę, choć z drugiej strony posiadają oni wiedzę, umiejętności i doświadczenie, które mogłyby zostać spożytkowane w działalności gospodarczej. Na świecie nasila się także tzw. trend „aktywnego starzenia", który oznacza „proces optymalizacji szans dla zdrowia, uczestnictwa i bezpieczeństwa, aby poprawić jakość życia wraz z upływem lat", który również zawiera koncept przedsiębiorczości osób starszych.

Jednak należy zauważyć, że nie ma całościowej polityki wspierającej przedsiębiorczość osób starszych w epoce Starzejącego się Społeczeństwa w Europie. Celem artykułu jest wskazanie przewidywanych korzyści z rozwoju koncepcji przedsiębiorczości ludzi starszych w UE i w Polsce.

Słowa kluczowe: *wyzwania demograficzne, aktywne starzenie się, przedsiębiorczość ludzi starszych*

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IWONA ŚWIECZEWSKA*

Domestic Final Demand As A Determinant Of R&D Activity In Selected Central And Eastern European Countries

Abstract

This article presents the results of an empirical study conducted based on selected countries in Central and Eastern Europe. The study focused on the impact of domestic final demand for products manufactured by individual industries on the R&D activity in the country. The main research tools are the Leontief model and R&D multipliers. The application of the input-output methods allows domestic R&D expenditures to be broken down into institutional sectors to establish what part of the expenditures is embodied in products manufactured to meet final household demand, in exports, etc.

Keywords: *R&D in CEE countries, R&D multipliers, input-output model*

1. Introduction

The development of contemporary economies is mainly driven by knowledge and innovations. This is because innovations, treated as a product of knowledge, determine an economy's capacity to create and commercialise new, competitive products. They are also the main factor behind the systematic rise in economies' efficiency, meant as their ability to generate output involving less production factors than before.

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One indication of an economy's innovativeness is research and development (R&D) activity. While modern concepts of innovativeness tend to depart further and further away from the linear model of innovation, R&D activity, particularly that stimulated by companies, is still considered to be crucial to creating and commercializing knowledge. In the present period of globalization, the possibility of absorbing knowledge from external sources also needs to be taken into account, as it can significantly facilitate economic development when one's own resources of knowledge are scarce. The absorption of knowledge from external sources depends on many factors, one of which is the availability of human capital. The results of many empirical studies (Frantzen 2003; Guellec, van Pottelsberghe de la Potterie 2004; Cameron, Proudman, Reeding 2005; Coe, Helpman, Hoffmaister 2009; Vogel 2012) point out that only open economies that have appropriate resources of human capital are capable of fully utilising the external sources of knowledge.

The rapid socio-economic transition that countries in Central-Eastern Europe (CEE) launched in the first half of 1990s almost immediately forced them to become competitive in global markets, particularly given the fact that the transition coincided with changes in the world economy. The changes especially affected the relations between key growth factors, giving more prominence to knowledge creation and absorption. It was clear that one of the main factors that led to the disintegration of central-command economies, i.e. their inability to absorb modern production technologies, had to be eliminated as fast as possible. Consequently, the process of transition in the CEE countries involved an accelerated absorption of foreign technologies (Kubielas 2009, pp. 167-168).

However, the awareness of the CEE countries that the sphere of science and technology was also in need of transformation did not, in and of itself, make its implementation any faster (Tiis, Kattel, Kalvetand Tamm 2008, p. 74) indicate that:

„While the changes in industry and services (…) were very rapid and often disruptive, education and R&D systems were left to their own devices in most CEE and NIS[1] *countries and with no significant structural change or resources of upgrading".*

The CEE countries continued to follow the so-called 'technology push linear model', built around domestic R&D activity carrying the main responsibility for innovation-creation. At the same time, the limited market demand for domestic science and technology competence resulted in the inability of the public R&D sector to cooperate and commercialize research results and cater to the needs of private enterprises (Tiis, Kattel, Kalvetand Tamm 2008, p. 76). The transformation processes in the CEE countries failed to fully rebuild

[1] NIS – newly independent states (countries of former USSR).

their scientific and technical spheres, which were still less developed than in Western European countries. As the CEE countries have became part of EU structures the situation somewhat improved, but their R&D activity remains fairly limited and the structure of its sources of funding is quite unpromising (the enterprise sector still accounts for a fairly low proportion of allocations to R&D). These circumstances make it particularly important to indicate which economic activities in these countries are central to the expansion of the domestic R&D sphere.

The analysis presented below investigates the relationship between domestic final demand for products manufactured by individual industries and the intensity of R&D activity in the country. In other words, the analysis focuses on the demand side and primarily seeks to determine the degree to which final demand for domestic products from particular institutional sectors influences domestic R&D. Its research tools are the Leontief model and R&D multipliers. The R&D multipliers are instrumental in identifying which industries in the economy manufacture products that "embody" (directly and indirectly) the largest amounts of domestic R&D expenditures. The application of input-output methods allows domestic R&D expenditures to be broken down into institutional sectors to establish what part of the expenditures is embodied in products manufactured to meet final household demand, in exports, etc.

The study covers six CEE countries at different levels of economic development: Slovenia and the Czech Republic (which are recognised as economically the most developed in the CEE region), Poland, Hungary and Slovakia (representing an average level of economic development), and Romania. There is a special reason why 1995, 2000, 2005 and 2009 were selected for analysis.[2] The underlying intention was to find out whether, and how, the economic transition in the selected countries and their later becoming EU member states brought about any changes in their R&D spheres.

The article is organised as follows. Section two briefly characterises the R&D spheres in the countries under consideration. Section three explains the construction and application of the R&D multipliers. Section four presents the sources of data utilised in the research. Section five shows research findings and major conclusions. Section six sums up the discussion.

[2] Because the 2009 statistics on Romania were not available, the 2008 data were used instead.

2. R&D activity in CEE countries

As has already been mentioned in the introduction to this article, economic transition in the CEE countries only slightly modified their R&D spheres, which can be partly explained by the countries' technological closeness to developed countries in Western Europe from which they absorbed technologies basically from the onset of the transition process (owing to an increasing volume of trade and FDI inflows). The Eurostat data show that between 1995 and 2012 the R&D expenditures of 12 CEE countries[3] (henceforth referred to as EU-12) accounted for 4%-6.7% of that made in EU-27, rising slightly from 2002. In the same period, the R&D expenditures in the six analysed CEE countries (listed above) constituted more than 92% of that in EU-12, distinctly increasing after 2004. The most important were Poland (a share of around 30%), the Czech Republic (over 20%), Hungary (over 11%), and also in the early period Romania.

Table. 1. R&D expenditures in selected EU-12 countries (as % of total expenditure in EU-12)

Country	*1995*	*2000*	*2005*	*2010*	*2012*
Czech	20.6	24.8	25.6	23.5	25.3
Hungary	12.1	13.4	15.5	13.4	11.8
Poland	30.4	34.6	28.6	32.9	34.0
Romania	15.2*	6.7	8.0	7.2	5.4
Slovenia	6.7	6.5	6.5	7.3	7.6
Slovakia	7.4	5.3	4.2	4.7	5.1

* - estimated by the author

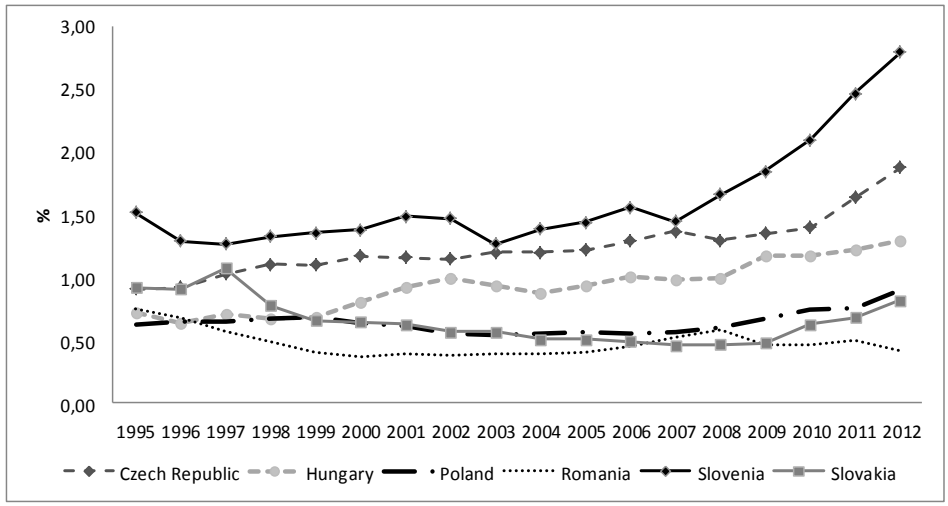
Source: developed by the author based on Eurostat data.

Because the amount of R&D expenditures in the economy is largely determined by its size, the structure of the expenditures shown in Table 1 above is not surprising. However, when the countries' R&D expenditures are shown in relation to their GDP (the so-called GERD indicator), their rankings change significantly. Between 1995 and 2012 Slovenia has the highest GERD value (Fig. 1). After 2007 its value rises rapidly from 1.45% to 2.8%, placing the country at a level comparable with that of Belgium, France and the UK. In 1995 the Czech Republic and Slovakia have similar GERD values of around 0.9%, but the Czech GERD steadily rises in the analysed period to 1.88% in 2012. In Slovakia, the trend is completely reverse. The Slovak GERD, having initially risen to 1.08% (in 1997), systematically declines in the following years to 0.48% in 2007, the lowest value among all analysed countries. In the following years the situation slightly

[3] CEE countries that became EU members before 2012.

improves and in 2010 the Slovak GERD is estimated at 0.82%. The same pattern can be observed in Poland too; in the analysed period (1995-2012) Poland's R&D expenditures rank highest in 2012 with a GERD value of 0.9%. Romania fared the worst in this respect, as its GERD did not exceed 0.5% throughout the analysed years.

Figure 1. R&D expenditures as % of GDP in selected CEE countries between 1995 and 2012



Source: developed by the author based on the Eurostat data.

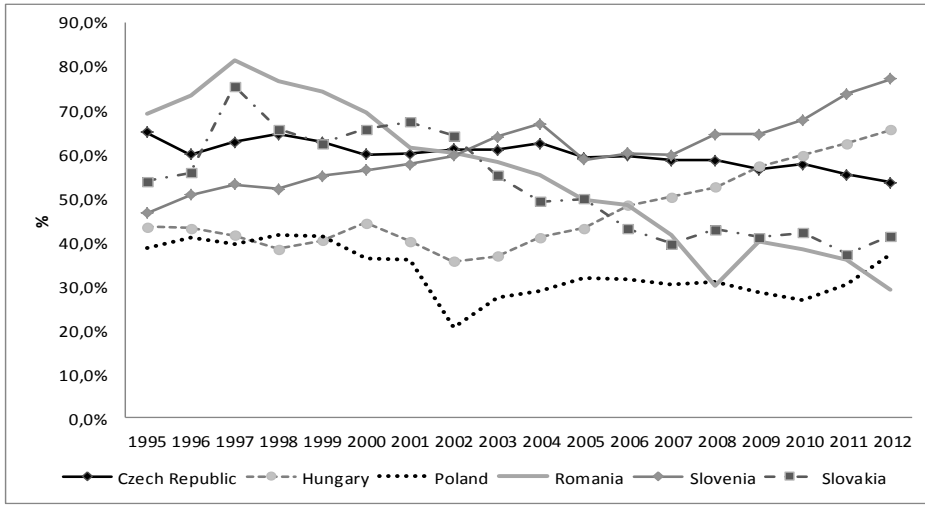
Where R&D funding originates from determines how effective the activity will be.[4] Most CEE countries finance R&D activities through the state budget, like the former Eastern bloc countries all did to handle their science and technology systems.[5] In 1995, in most EU-12 countries the enterprise sector contributed less than 50% of R&D funding. The exceptions were the Czech Republic and Romania (according to the Eurostat data, the enterprise sectors in each of these countries contributed over 60%). In Romania the percentage decreased dramatically to 30% by 2012 (while the state budget's financial contribution to R&D rose from 23% to 47.6% in 2012). In Slovakia and Poland

[4] The main providers of R&D funding are the government sector, the enterprise sector, the tertiary education sector, the non-profit sector, and foreign sources. The tertiary education sector ranks third in the amount of R&D expenditures; in the period under consideration its contribution rose systematically in most of the studied countries (excluding Slovenia and Hungary). In 2012, it ranged from 10% (Slovenia) to 34% (Poland and Slovakia).

[5] A detailed analysis of the differences between Western countries and the so-called Eastern bloc countries regarding their science and technology systems is provided in the study by Radosevic (1999).

the situation was similarly unfavourable, because in the later years of the 1995-2012 period enterprises accounted for around 40% of R&D funding. Slovenia and Hungary were the only two countries where the enterprise sector increased its financial allocations to R&D.

Figure 2. R&D expenditures of the enterprise sector as a percentage of all R&D expenditures in the selected CEE countries between 1995 and 2012



Source: developed by the author based on the Eurostat data.

The sectoral structure of R&D expenditures in the investigated countries shows manufacturing companies as the major provider of this funding.[6] Slovakia seems to be an exception here, because according to the OECD data the proportion of R&D funding provided by its manufacturing industry was comparable to that coming from the service providers, or even smaller (excluding the year 2009). In most countries in the analysis, the manufacturing industry's share is diminishing while the services sector is increasing its allocations (with the already mentioned exceptions of Slovakia and Slovenia). In all selected countries, among manufacturing industries making the

[6] The data on R&D expenditures by type of activity was derived from the OECD database – ANBERD database (the Analytical Business Enterprise Research and Development database). This database has been developed to provide analysts with comprehensive and internationally comparable data on industrial R&D expenditures. It presents industrial expenditure data broken down into 60 manufacturing and services sectors for OECD countries and selected non-member states (www.stats.oecd.org).

largest payments to R&D activity the medium- and high-tech sectors prevail, such as the manufacture of transport equipment (particularly in the Czech Republic and Poland, although in Hungary and Romania its share increased too), the manufacture of chemicals and chemical products (these have the largest shares in Hungary and Slovenia), the manufacture of electrical and optical equipment (this category encompasses the manufacture of electrical machinery and apparatus, office, accounting and computing machinery, RTV and communications equipment, the manufacture of medical, precision and optical instruments) and of machinery and equipment.

Table 2. R&D expenditures (in %) in selected CEE countries by sector of economic activity

Activity sectors	1995	2000	2005	2009
Czech Republic				
Agriculture, hunting, forestry and fishing	0.2	0.4	1.1	0.4
Mining and quarrying	1.4	0.3	0.5	0.2
Manufacturing	75.6	66.7	67.4	65.8
Electricity, gas and water supply	0.1	0.0	0.8	0.2
Construction	0.7	1.2	1.3	1.2
Services	22.0	31.4	28.9	32.2
Hungry				
Agriculture, hunting, forestry and fishing	16.3	1.2	1.4	1.9
Mining and quarrying	0.2	0.0	0.0	0.0
Manufacturing	76.3	79.0	79.0	68.1
Electricity, gas and water supply	2.2	0.9	0.4	0.2
Construction	0.5	0.1	0.2	0.7
Services	4.5	18.9	19.0	29.1
Poland				
Agriculture, hunting, forestry and fishing	2.0	2.3	2.9	0.8
Mining and quarrying	4.8	4.3	4.6	3.1
Manufacturing	73.9	68.5	62.7	63.9
Electricity, gas and water supply	1.0	1.8	2.0	1.1
Construction	3.0	3.9	2.1	1.5
Services	15.9	19.2	25.7	29.6

Activity sectors	1995	2000	2005	2009
Romania				
Agriculture, hunting, forestry and fishing	12.5	11.4	14.6	14.0
Mining and quarrying	5.7	9.2	3.2	2.3
Manufacturing	58.7	66.8	60.5	43.6
Electricity, gas and water supply	11.2	8.7	7.9	9.7
Construction	2.4	1.3	2.6	2.8
Services	9.4	2.6	11.2	27.6
Slovenia				
Agriculture, hunting, forestry and fishing	0.7	0.1	0.0	0.1
Mining and quarrying	2.3	3.9	1.7	1.3
Manufacturing	76.7	76.7	90.0	83.1
Electricity, gas and water supply	0.0	0.0	0.1	0.3
Construction	1.1	0.0	0.0	0.1
Services	19.3	19.3	8.2	15.2
Slovakia				
Agriculture, hunting, forestry and fishing	0.0	1.3	2.4	1.2
Mining and quarrying	0.0	0.0	0.0	0.0
Manufacturing	51.6	41.9	42.1	61.2
Electricity, gas and water supply	0.0	0.0	0.0	0.0
Construction	0.6	0.3	0.3	0.2
Services	47.7	56.6	55.2	37.3

Source: calculated by the author based on the OECD data (ANBERD Database).

3. R&D multipliers – calculation and interpretation

The input-output multipliers are one of the basic tools used as part of the input-output methods applied to perform economic analyses at the industry level. The multipliers allow for determining how final demand affects specific and explicitly interpretable economic values (for more than that, see Miller, Blair 2009, pp. 243-259 and ff; Lenzen 2001, pp.65-92; Przybyliński 2012, pp. 86-88). They are constructed based on the standard input-output model and

the production multipliers obtained from it. The standard input-output model can be written as:

$$\mathbf{x} = \mathbf{A}\mathbf{x} + \mathbf{y} \tag{1}$$

where:

$\mathbf{x} = \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix}$ and $\mathbf{y} = \begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_n \end{bmatrix}$ are the vectors of, respectively, the gross output of each of the n industries and final demand for the products of each of the n industries in the economy, and $A = [a_{ij}]_{n \times n}$ is a matrix of direct input coefficients defined as $a_{ij} = \frac{x_{ij}}{X_j}$. The value of a_{ij} represents the value of inputs (raw materials, intermediate inputs and services) of industry i that are necessary for industry j to create a unit of gross output.

By solving the above model for gross output **x** we obtain:

$$\mathbf{x} = \mathbf{(I - A)^{-1}y} \tag{2}$$

The $(\mathbf{I} - \mathbf{A})^{-1} = [l_{ij}]$ matrix is known as the Leontief inverse or the total requirements matrix (Miller, Blair 2009, p. 21). Its element l_{ij} shows the amount by which the gross output of industry i will increase when final demand for industry j's products grows by a unit. It represents the so-called total effects of an increase in the i-th industry's gross output, i.e. both direct and indirect effects observable in that industry (an increase in gross output because of intermediate linkages between industries). The sum of the elements in the j-th column of the Leontief inverse matrix ($M_j = \sum_{i=1}^{n} l_{ij}$) is known as the simple input-output (I-O)

multipliers (Miller, Blair 2009, p. 245). A simple I-O multiplier for the *j*-th industry shows how much the gross output in the economy will expand because of a unit increase in final demand for the products of the *j*-th industry.

Models (1) and (2) can also be written in terms of domestic output, i.e.:

$$\mathbf{x}^k = \mathbf{A}^k \mathbf{x}^k + \mathbf{y}^k \tag{3}$$

and

$$\mathbf{x}^k = (\mathbf{I} - \mathbf{A}^k)^{-1} \mathbf{y}^k \tag{4}$$

In this case, vectors $\mathbf{x}^k$ and $\mathbf{y}^k$ denote, respectively, gross domestic output and final demand for domestic goods, and the elements of matrix $\mathbf{A}^k = [a_{ij}^k]_{n \times n}$ defined as $a_{ij}^k = \frac{x_{ij}^k}{X_k^k}$ indicate the amount of domestic inputs of industry *i* that are necessary for industry *j* to create a unit of domestic gross output (Przybyliński, 2012, pp. 25-26; 81-83). The matrix $(\mathbf{I} - \mathbf{A}^k)^{-1} = [l_{ij}^k]_{n \times n}$ is the total requirement matrix for domestic goods. The element l_{ij}^k stands for the amount of industry *i*'s gross output that is necessary to meet a unit of domestic final demand for industry *j*'s products or, in marginal terms, it is an increase in the gross domestic output of industry *i* resulting from a unit increase in final demand for domestic goods supplied by industry *j*. Similarly, a simple I-O multiplier can be interpreted as an increase in gross domestic output caused by a unit increase in final domestic demand.

To assign the multiplier effects to other economic categories, including R&D expenditures, the direct input coefficients must be defined for each industry. The coefficients show the amount of factor input in industry *i* per unit of its gross output. With information on the *i*-th industry's expenditures on R&D (RD_i) the industry's coefficient of direct R&D expenditure can be defined as:

$$r_i = \frac{RD_i}{X_i^k} \tag{5}$$

The value of the coefficient indicates the amount of domestic R&D expenditures in industry *i* per unit of its gross domestic output.

Based on relations (5) and (4), the total R&D expenditure in the economy can be written as:

$$RD = \sum_i RD_i = \begin{bmatrix} r_1 & r_2 & \dots & r_n \end{bmatrix} \begin{bmatrix} X_1^k \\ X_2^k \\ \vdots \\ X_n^k \end{bmatrix} = \mathbf{r}^T \mathbf{x}^k = \mathbf{r}^T (\mathbf{I} - \mathbf{A}^k)^{-1} \mathbf{y}^k = \tag{6}$$

$$= \begin{bmatrix} \rho_1 & \rho_2 & \dots & \rho_n \end{bmatrix} \begin{bmatrix} y_1^k \\ y_2^k \\ \vdots \\ y_n^k \end{bmatrix} = \boldsymbol{\rho}^T \mathbf{y}^k = \rho_1 y_1 + \rho_2 y_2 + \dots + \rho_n y_n$$

The element *j* of vector $\boldsymbol{\rho}$, i.e. ρ_j, is the amount of domestic R&D expenditures per unit of final demand for the domestic product of industry *j* or, in marginal terms, an increase in domestic R&D expenditures brought about by a unit increase in final demand for the domestic product of industry *j*. Accordingly, the element can be called an R&D multiplier for industry *j* (Dietzenbacher, Los 2000, 2002; Belergi-Roboli, Michaelides 2005; Gurgul 2007).

Final demand consists of the following components: consumption (of households, non-profit institutions serving households and the government), gross accumulation and export. Relation (6) allows the domestic R&D expenditures to be broken down in accordance with these components. In this way, additional information such as the amount of domestic R&D expenditures embodied in domestic products manufactured for export etc. can be obtained.

4. Sources of statistical data

For the R&D multipliers to be calculated, R&D expenditures by industry and the symmetric input-output tables must be known. For the purpose of this study, the data on R&D expenditures were derived from the OECD's database ANBERD (The Analytical Business Enterprise Research and Development Database) where information (by currency and also for fixed prices) is available for 60 manufacturing and services sectors. In the case of most CEE countries, the

information goes back as far as1995.[7] The symmetric input-output tables used to analyse the selected countries were obtained from the WIOD (World Input-Output Database, www.wiod.org).[8] The tables have been constructed for a system of 35 industries by 35 industries, and they account for the flows of domestic goods and imports in US$ million.[9] Considering that the first quarters of the tables contain zero rows (for all selected countries), the original system was reduced to 28 industries by 28 industries. The aggregation procedure involved in the first place certain branches in the services sector (mostly transportation and non-market services).

5. Empirical results

An analysis of multipliers calculated for individual industries in the selected CEE countries shows them to be the highest for industries where the intensity of domestic R&D expenditures measured by the direct input coefficient is the greatest (5). These are mainly the medium and high-tech sectors of the manufacturing industry and knowledge-intensive services (IT and R&D). In most countries in this study, the values of the multipliers fell between 2005 and 2009 (see Figs. 3a-3f) for most of the analysed activities. The decline in 2005 may have been caused by the countries' entry into the European Union (this, naturally, does not apply to Romania). Easier access to West European technologies may have been a reason for the countries to scale down their domestic R&D activity. The unfavourable changes in 2009 may have been brought about by the economic crisis that decreased also the intensity of R&D expenditures in most branches in the analysed countries.

The only country to resist the trends to some extent was Slovenia (Fig. 3f), where multipliers' values increased in 2009, particularly for the chemical industry (manufacture of chemicals and chemical products, category 9), the electrical and optical equipment industry (14) and the transport equipment industry (15). In Slovenia, the manufacturing branches have much higher values of the multipliers

[7] For most countries, the most recent data available on R&D expenditures by industry came from the year 2009, the only exception being Romania where the last year is 2008.

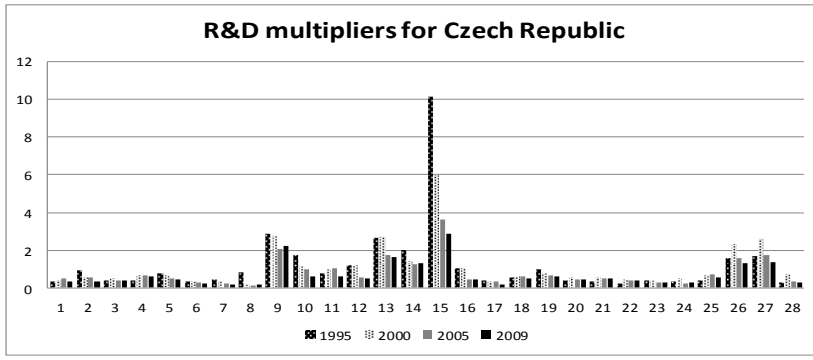
[8] The World Input-Output Database provides time series of world input-output tables for forty countries worldwide and a model for the rest-of-the-world, covering period from 1995 to 2011 (www.wiod.org).

[9] The database contains tables presenting current prices and previous year's prices. In this study, the first type of table was used. The values of the coefficient of direct R&D expenditures were determined with data on R&D expenditures expressed also in current prices in million USD.

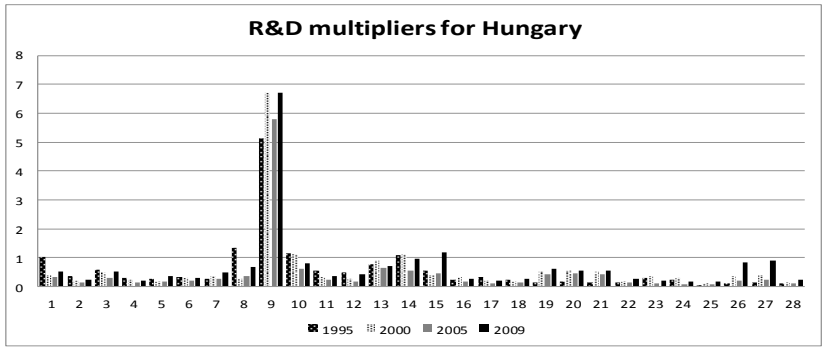
than services do, one reason for which was the weak R&D activity of the services sector (see Section 2 of the article).

Figure 3. R&D multipliers[10] in the selected CEE countries, years 1995, 2000, 2005 and 2009[11]

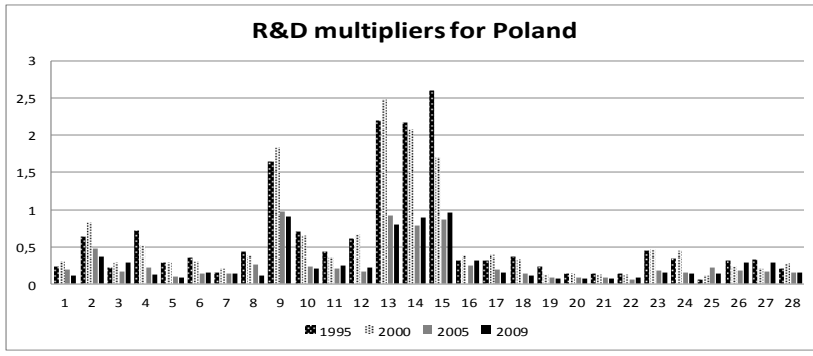
3a)



3b)



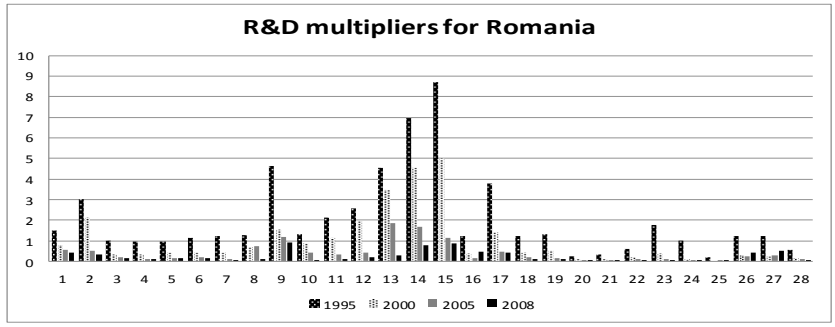
3c)



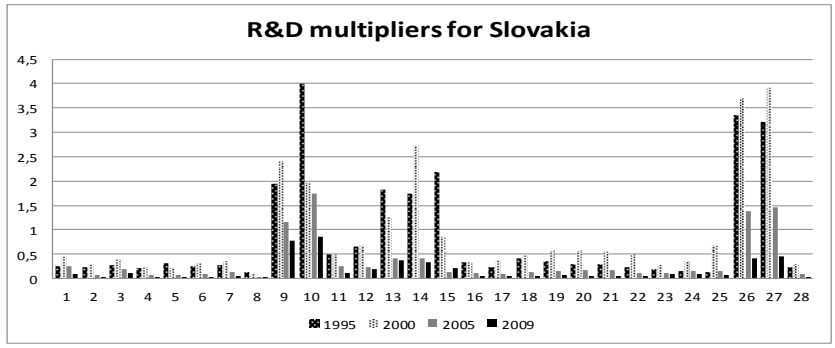
[10] They have been multiplied by 100.

[11] 2008 in the case of Romania.

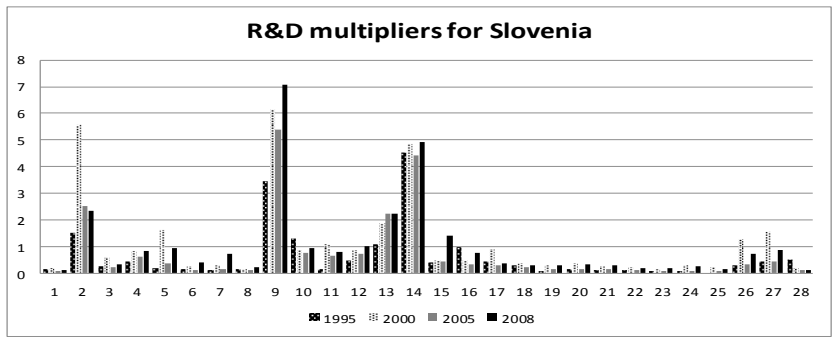
3d)



3e)



3f)



Categories: 1 – agriculture, hunting, forestry and fishing; 2 – mining and quarrying, 3 – manufacture of food products, beverages and tobacco; 4 – manufacture of textiles and textile products; 5 – manufacture of leather and leather products; 6 – manufacture of wood and products of wood and cork; 7 – manufacture of pulp, paper and paper products, publishing and printing; 8 – manufacture of coke, refined petroleum products and nuclear fuel; 9 – manufacture of chemicals and chemical products; 10 – manufacture of rubber and plastic products; 11 – manufacture of other non-metallic and mineral products; 12 – manufacture of basic metals and fabricated metal products; 13 – manufacture of machinery and equipment n.e.c.; 14 – manufacture of electrical and optical equipment; 15 – manufacture of transport equipment; 16 – manufacturing n.e.c., recycling; 17 – electricity, gas and water supply; 18 – construction; 19 - sale, maintenance and repair of motor vehicles and motorcycles; retail sale of fuel; 20 - wholesale trade and commission trade, except for motor vehicles and motorcycles; 21 - retail trade, except of motor vehicles and motorcycles; repair of household goods; 22 – hotels and restaurants; 23 – transport and storage; 24 – post and telecommunication; 25 – financial intermediation; 26 – real estate activities; 27 – renting and business activities; 28 – other services.

Source: calculations by the author.

The situation in Hungary was similar to that in Slovenia. The main engine of Hungarian R&D was manufacture of chemicals and chemical products. Increasing final demand for these products contributed the most to the rise in R&D expenditures, but the transport equipment industry (category 15) and the electrical and optical equipment industry also played an important role (particularly in the last year of analysis).

As far as the Czech Republic is concerned, the most disadvantageous changes can be observed in the transport equipment industry. The increase in the demand for its products had a much weaker effect on the growth of domestic R&D expenditures than in the mid-1990s.It is difficult to establish which activity in the Czech economy deserves the title of the main stimulator of R&D activity in the last analysed year.

The conclusions about Poland are similar. In the second half of 1990s the demand for domestic products delivered by the transport equipment industry (category 15), the electrical and optical equipment industry (14), the machinery and equipment industry (13) and the chemicals and chemical products industry was the key factor behind the increase in R&D expenditures in the economy. In 2000 and 2005 the role of these industries considerably diminished, even though in 2009 they had the greatest multipliers.

The situation in Slovakia and Romania was fairly unpromising. A considerable proportion of R&D expenditures in the first country came from the services sector. This had an effect on the multipliers' values, which were high for real estate services (category 26) and business services (27). The latter activity encompasses IT and R&D services that fall under the category of knowledge-intensive services. Among the manufacturing activities, manufacture of rubber and plastic products (category 10), of chemicals and chemical products (9), of electrical and optical equipment (14) and of transport equipment (15) deserve special attention, because demand for these products was the main factor stimulating R&D activity in Slovakia. It must be noted, though, that these observations actually apply only to the years 1995 and 2000, because the values of the R&D multipliers clearly declined in 2005 and 2009, particularly those for the aforementioned types of services. The highest multipliers in 2009 were calculated for the manufacture of chemicals and chemical products and of rubber and plastic products.

In Romania, the multipliers were the highest in 1995 and 2000, mainly for products manufactured by medium and high-tech industries (categories 9, 13, 14, and 15). Relatively high multipliers were also obtained for electricity, gas and water supply (17) and mining and quarrying (2), but this situation was not maintained in the following years. In 2005 and 2008 the Romanian R&D multipliers considerably declined, particularly in services and low-tech industries

(categories 3, 4, 5, 6 and 7). This situation was caused by particular economic sectors making major cuts in their R&D expenditures, which considerably reduced the intensity as well of the multipliers.

In the study, the R&D multipliers were also used to divide R&D expenditures into demand categories. This procedure was aimed at determining what part of domestic R&D expenditures was embodied in products purchased by households and government institutions, etc., and what part was embodied in exports (see Table 3). In most countries in the sample, the distinct majority of domestic R&D expenditures were embodied in the country's exports, with a steadily increasing role of export as a booster for domestic R&D activity. The leader was Slovenia, where exports accounted for more than 80% of domestic R&D expenditures. In the other countries the rate was somewhat smaller, varying between 50% and 70%. In Romania, in the period under consideration most R&D expenditures were embodied in products purchased by households (over 40%; an exception was the year 2000 where export was more important), preceding export in the ranking. In the Czech Republic, Poland and Romania, intermediate goods accounted for a considerable proportion of R&D expenditures, particularly in the early investigated years.

Table 3. R&D expenditures in the selected CEE countries by final demand category (in %)

Categories of final demand	1995	2000	2005	2009
Czech Republic				
Consumption expenditure by households	23.3	21.2	18.1	18.9
Consumption expenditure by non-profit institutions	0.1	0.2	0.2	0.2
Consumption expenditure by government	5.3	7.4	5.7	5.7
Gross capital formation	17.2	12.7	11.0	10.7
Exports	54.1	58.4	65.0	64.5
Hungary				
Consumption expenditure by households	34.2	19.6	18.4	18.3
Consumption expenditure by non-profit institutions	0.2	0.2	0.3	0.3
Consumption expenditure by government	9.1	5.4	7.3	5.8
Gross capital formation	8.7	12.7	6.2	4.6
Exports	47.7	62.1	67.7	70.8

Categories of final demand	1995	2000	2005	2009
Poland				
Consumption expenditure by households	33.8	30.1	30.5	28.2
Consumption expenditure by non-profit institutions	0.4	0.5	0.4	0.4
Consumption expenditure by government	8.8	9.1	9.0	9.0
Gross capital formation	17.8	17.1	8.3	8.2
Exports	39.2	43.2	51.8	54.2
Romania				
Consumption expenditure by households	44.5	34.1	40.2	41.3
Consumption expenditure by non-profit institutions	0.1	0.2	0.3	0.2
Consumption expenditure by government	5.4	4.8	5.5	5.1
Gross capital formation	22.7	17.2	13.2	18.3
Exports	27.3	43.7	40.8	34.6
Slovenia				
Consumption expenditure by households	19.0	20.2	8.6	11.3
Consumption expenditure by non-profit institutions	0.7	0.1	0.1	0.1
Consumption expenditure by government	12.0	3.8	2.1	2.4
Gross capital formation	10.6	10.4	7.6	4.6
Exports	57.7	65.5	81.6	81.6
Slovakia				
Consumption expenditure by households	34.2	30.1	28.8	21.9
Consumption expenditure by non-profit institutions	0.2	0.5	0.3	0.5
Consumption expenditure by government	7.3	6.6	4.6	4.1
Gross capital formation	9.6	10.0	12.5	5.2
Exports	48.7	52.8	53.8	68.3

Source: calculations by the author.

6. Conclusions

The purpose of this analysis was to establish the effect of final demand realised by individual institutional sectors on R&D activity in selected countries of Central and Eastern Europe. The period of transition that the countries entered into in the first half of 1990s transformed many areas (changing the ownership structure, market organization, financial systems and enterprise organization, as well as liberalising foreign trade), but its impact on their R&D spheres was fairly weak. R&D expenditures still represent a small percentage of these countries' GDP, and the enterprise sector's financial contribution to R&D activity continues to be limited. Even so, the CEE countries' structure of R&D expenditures by industry is similar to that in highly developed countries, where high-tech and medium industries and knowledge-intensive services are the major contributors. This means that the demand for their products is a crucial factor in the expansion of domestic R&D. This finding has been confirmed by the results of the multiplier analysis.

The research results also show, however, that final demand for domestic goods is exerting an ever weaker influence on R&D intensity in economies (as proven by the declining values of the multipliers in the successive years of analysis), a phenomenon that is quite worrying. In fact, these negative changes can be seen in most of the studied countries. The only exception is Slovenia, which resembles Western European countries regarding its R&D expenditures (in relation to GDP), the structure of funding sources (the major contributors to R&D are enterprises) and the positive evolution of the multiplier effects.

A large part of domestic R&D expenditures was found to be embodied in countries' exports. Moreover, this phenomenon was systematically expanding in the successive years of analysis in all countries except Romania. Household consumption and demand for investment goods were also established as important factors stimulating the growth of R&D activity in a country.

References

Belergi-Roboli A., Michaelides P.G. (2005), *Measurement of R&D Multipliers: The Case of Greece*, 'Journal of Technology Transfer', vol. 30, pp. 327-332

Cameron G. Proudman J., Redding S. (2005), *Technological Convergence, R&D, Trade and Productivity Growth*, 'European Economic Review', vol. 49(3), pp. 775-807

Dietzenbacher E., Los B. (2000*), Analyzing R&D Multipliers*, 13th International Conference on Input-Output Techniques, Macerata

Dietzenbacher E., Los B. (2002), *Externalities of R&D Expenditures*, 'Economic Systems Research', vol. 14, pp. 407-425

Frantzen D. (2003), *The Causality between R&D and Productivity in Manufacturing: An International Disaggregate Panel Data Study*, 'International Review of Applied Economics', vol. 17(2), pp.125-146

Guellec D., van Pottelsberghe de la Potterie B. (2004), *From R&D to Productivity Growth: Do the Institutional Settings and the Source of Funds of R&D Matter*? 'Oxford Bulletin of Economics and Statistics', vol. 66 (3), pp.353-378

Gurgul H., (2007), *Product-Embodied Diffusion of Innovations in Poland: R&D Multiplier Analysis*, 'Ekonomia Menadżerska', nr 1, pp.101-120

Kubielas S. (2009), *Innowacje i luka technologiczna w gospodarce globalnej opartej na wiedzy. Strukturalne i makroekonomiczne uwarunkowania*, Wydawnictwo Uniwersytetu Warszawskiego, Warszawa

Lenzen M. (2001), *A Generalized Input-Output Multiplier Calculus for Australia*, 'Economic Systems Research', vol. 13 (1), pp. 65-92

Miller R.E., Blair P.D., (2009), *Input-Output Analysis: Foundations and Extensions*, Cambridge University Press

Przybyliński M., (2012), *Metody i tablice przepływów międzygałęziowych w analizach handlu zagranicznego Polski*, Wydawnictwo Uniwersytetu Łódzkiego, Łódź

Radosevic S. (1999), *Divergence or convergence in research and development and innovation between 'East' and 'West'*, [in:] Fritsch M., Brezinski H., *Innovation and Technological Change in Eastern Europe. Pathways to Industrial Recovery*, Edward Elgar

Tiits M., Kattel R., Kalvet T., Tamm D. (2008), *Catching up, forging ahead or falling behind? Central and Eastern Europe Development in 1990-2005*, Innovation: 'The European Journal of Social Science Research', vol. 21 (1), pp.65-85

Vogel J. (2012), *The Two Faces of R&D and Human Capital: Evidence from Western European Regions*, University of Oxford, Department of Economics, Discussion Paper Series, No. 599, April

Streszczenie

POPYT FINALNY NA PRODUKTY KRAJOWE A DZIAŁALNOŚĆ SEKTORA B+R W WYBRANYCH KRAJACH EUROPY ŚRODKOWO-WSCHODNIEJ

W artykule przedstawiono wyniki badań empirycznych przeprowadzonych dla wybranych krajów Europy Środkowo-Wschodniej. Badania te dotyczyły zależności między popytem finalnym na produkty określonych gałęzi gospodarki, które są wytwarzane

w kraju a aktywnością krajowej sfery badawczo-rozwojowej. Głównym narzędziem badawczym jest model Leontiefa oraz mnożniki nakładów na B+R. Zastosowane metody pozwalają także na dekompozycję krajowych nakładów na B+R według sektorów instytucjonalnych, czyli np. określenie jaka część krajowych nakładów na B+R zostaje ucieleśniona w produktach wytwarzanych na zaspokojenie popytu finalnego gospodarstw domowych, czy w produktach przeznaczonych na eksport.

***Słowa kluczowe**: B+R w krajach Europy Środkowo-Wschodniej, mnożniki B+R, model input-output*

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DARIUSZ BERNACKI[*]

Labour Market Developments In The Maritime Industry Of The South Baltic Region[1]

Abstract

There are two aims of this study. The first is to outline the developments in the maritime economy and employment in the South Baltic Region, and the second to identify the emerging activities in the maritime industry and to reveal the prospects and potential for labour market development, taking into account the demand for labour, required professions, qualifications of the labour force, and feasible cross-border mobility. This comparative study refers to four EU Baltic coast regions, namely the Mecklenburg-Vorpommern (D), Zachodniopomorskie (PL), Pomorskie (PL) and Klaipeda (LT) regions. Prospects for the economic development and employment potential specified for each region and selected segments of the maritime economy are consequently elaborated. The analysis of the maritime economy in the South Baltic Region reveals some crucial differences in terms of strategic maritime activities and employment potential and prospects for each of the regions. The phenomenon of the diverse demand for labour force through the various segments of the maritime economy and by region has been identified and is presented in the form of a comprehensive matrix of the projected demand for labour.

Keywords: *labour markets comparative study, maritime industry, South Baltic Region*

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[1] This paper presents the results of comparative research conducted by the author within Labour Market Dynamics and Attractive Environments in the South Baltic Region, South Baltic Professionals Project Part-Financed by the European Union (European Regional Development Fund).

1. Introduction

The two aims of this study are, first, to present current developments in the maritime economy and employment in the South Baltic Region, and second to identify the emerging activities in the maritime industry and to analyse the potential and prospects for labour market development in the context of the future demand for labour, required professions, qualifications of the labour force, and feasible cross-border mobility.

The area of the study refers to four EU Baltic coast regions, namely the Mecklenburg-Vorpommern (Germany), Zachodniopomorskie (Poland), Pomorskie (Poland) and Klaipeda (Lithuania) regions. In this report all these regions taken together are referred to as the South Baltic Region (SBR). The study begins with an updated and in-depth analysis of the maritime economy's situation, relevant employment patterns in the specified segments, and activities carried out in each of the examined regions of the South Baltic. Prospects for economic development and employment potential, both for the regions and individual segments of the maritime economy, are consequently elaborated in the second part of the study. Inter-regional employment prospects in the maritime economy by professions and feasible labour cross-border mobility are examined in the final part of the study. The phenomenon of a diverse labour force demand throughout the segments of maritime economy and by region has been identified and presented in the form of a comprehensive matrix of the projected demand for labour.

The maritime (industry) economy is a complex industry and encompasses diverse activities, both in scope and scale, and therefore there are no clearly defined general terms for the phenomenon. In keeping with the above-stated aims of this study, despite its internal diversity analysis was carried out for the core maritime activities, as follows:

- shipbuilding and ship repair and renovation, steel and marine constructions, including yacht and boat manufacturing,
- offshore wind energy and offshore supplies and equipment,
- seaport and related services, including port handling and storage, activities of maritime transport agencies like customs, shipping agencies, ship brokering and forwarding, inspections and supervising, as well as port governance and other activities supporting maritime transport, encompassing port navigation services such as pilotage, towage and mooring, dredging works within port basins, and other unspecified port and maritime services,
- fisheries, consisting of Baltic sea fish catches, fish processing, and the distribuiton products distribution (wholesale and retail sales),

- maritime and costal tourism, encompassing several activities including yachting and recreational boating, with supporting services and supplies, cruise shipping, water sport activities and other maritime sport and recreation services, beach and coastal tourism, and restaurant and gastronomy branches, supplemented by other unspecified maritime activities.

2. Intra-regional study of the maritime economy and employment

Current developments in the economic development and employment in the maritime industry in the Mecklenburg-Vorpommern region, as specified in Table 1 below, may be characterized as follows:

Table 1. The maritime economy and employment in the Mecklenburg-Vorpommern region in 2011

Sectors of the maritime economy	No. of companies	Employment	%	Sales revenue (in million EUR)	%
Total, including:	4,660	49,300	**100**	3,740	**100**
Seaports and related activities	80	5,600	**12**	900	**24**
Shipbuilding and repair	220	5,500	**11**	1,000	**28**
Fisheries	160	2,000	**4**	270	**7**
Maritime and coastal tourism (boat tourism and hotels & restaurants)	3,900	32,000	**65**	870	**23**
Offshore wind energy and offshore supply	200	3,200	**6**	640	**17**
Maritime research and technical infrastructure	100	1,000	**2**	60	**1**

Source: own elaborations, based on C. Peron, Mecklenburg-Vorpommern: a regional profile, CoesioNet, European Cohesion and Territories Research Network 2011.

- in economic terms (measured by weighted sales revenue) the most important maritime sectors relate to shipbuilding & repair, seaport services, maritime tourism, and offshore wind energy,
- in terms of employment, the maritime economy is dominated by maritime tourism, followed by seaport industry, shipbuilding & repair and offshore activities,
- the most labour-intensive sectors, with economic potential for development, are maritime tourism and offshore industry.

At present the maritime economy in the Zachodniopomorskie region, as outlined in Table 2 below, is characterized in terms of economics and employment by the following:

Table 2. The maritime economy and employment in Zachodniopomorskie region in 2011

Sectors of the maritime economy	No. of companies	Employment	%	Sales revenue (Mio EUR)	%
Total, including:	3,552	35,208	**100**	2,337	**100**
Seaports and related activities	324	3,642	**10**	413	**18**
Shipbuilding and repair	1,200	6,200	**18**	604	**26**
Waterborne transport	93	808	**2**	104	**4**
Fisheries	1,007	8,185	**23**	1,110	**47**
Research & Development, Maritime education	31	990	**3**	11	**1**
Maritime and costal tourism (only hotels & restaurants)	666	13,855	**40**	95	**4**
Other maritime activities	231	1,528	**4**	x	x
Share in the Zachodniopomorskie region's economy (%)	1.3	4.4		x	x

Source: own elaborations based on the Statistical Yearbook of the Maritime Economy, Central Statistical Office and Statistical Office in Szczecin, Warsaw-Szczecin, 2012.

- in economic terms the most important maritime sectors relate to fisheries, which constitute the revenue base for the region´s maritime economy, followed by shipbuilding & repair and seaports,
- in terms of employment, the maritime economy is dominated by maritime tourism, followed by the fisheries and shipbuilding & repair industries,
- the most labour-intensive sectors with economic potential for development are maritime tourism and fisheries.

The maritime economy of Pomorskie region, exemplified in Table 3 below, is presently distinguished by the following:

- in economic terms, the most important maritime sectors relate to shipbuilding & repair, supported by the almost equally important sectors of fisheries and seaports,
- in terms of employment, the maritime industry is more dispersed in comparison to other regions and the most important sectors are shipbuilding & repair, maritime tourism, and fisheries,
- the most labour-intensive sectors with economic potential for development are shipbuilding & repair, followed by maritime tourism, seaports and fisheries.

Table 3. The maritime economy and employment in the Pomorskie region in 2011

Sectors of the maritime economy	No. of companies	Employment	%	Sales revenue (Mio EUR)	%
Total, including:	5,245	47,846	**100**	3,539	**100**
Seaports and related activities	558	6,161	**13**	883	**25**
Shipbuilding and repair	3,322	15,800	**32**	1,400	**39**
Waterborne transport	113	2,650	**6**	126	**4**
Fisheries	1,051	7,934	**17**	1,034	**29**
Research & Development, Maritime education	65	2,438	**5**	24	**1**
Maritime and costal tourism (only hotels & restaurants)	413	9,460	**20**	72	**2**
Other maritime activities	774	3,403	**7**	x	x
Share in the Pomorskie region's economy (%)	2.2	5.2	x	x	x

Source: own elaborations based on the Statistical Yearbook of Maritime Economy, Central Statistical Office and Statistical Office in Szczecin, Warsaw-Szczecin 2012.

The developments in the Klaipeda region's maritime industry, in terms of economics and employment, elaborated in Table 4 below, present the following features:

Table 4. The maritime economy and employment in the Klaipeda region in 2010

Sectors of the maritime economy	No. of companies	Employment	%	Sales revenue (Mio EUR)	%
Total, including:	866	17,081	**100**	1,170	**100**
Shipping and ports	309	6,307	**37**	727	**62**
Shipbuilding and repair	114	5,213	**31**	246	**21**
Fisheries	49	1,431	**8**	90	**8**
Energy	13	356	**2**	55	**5**
Marine recreation and tourism	381	3,774	**22**	52	**4**
Share in the Klaipeda region's economy (%)	x	17.47	**x**	18.55	**x**

Source: Foresight study (Lithuania) GenerationBalt 2012, R. Viederyte, Maritime sector impact on the economy of Lithuania, Economics and management 2012, nr 17 (1).

- in economic terms, the maritime economy is dominated by the shipping & ports sector, followed by shipbuilding & repair,
- employment in the Lithuanian maritime economy is rather evenly distributed among shipping & ports, shipbuilding & repair and maritime tourism,

- the most labour-intensive sectors with (moderate) economic potential for development are ship repairs & supplies, fish processing, and maritime tourism.

3. Cross-regional developments of maritime segments and their employment potential

In terms of the future demand for labour, the maritime economy of Mecklenburg-Vorpommern is to a great extent polarized. High growth rates for employment are expected in segments of offshore wind energy and maritime and coastal tourism. Other segments are not expected to generate new jobs, owing to technological changes which do not induce worker demand (port and related services), barriers hindering further development (shipbuilding and repair), and competitive issues (fish processing). The offshore energy sector has already absorbed the redundant workforce from shipbuilding and it is foreseen that further development of the sector will convert demand towards a new labour force (ECOTEC Research&Consulting 2006a). The forecasted demand for labour by maritime segments of the region is outlined in Table 5 below.

Table 5. Projected demand for labour in the Mecklenburg-Vorpommern maritime economy

Maritime segments	Projected demand for labour				
	high (annual growth rate>10%)	moderate (annual growth rate 5%-9%)	low (annual growth rate<5%)	no change	negative
Shipbuilding & repair				✓	
Offshore wind energy	✓				
Coastal fishing					✓
Fish processing				✓	
Maritime & coastal tourism	✓				
Port & related services				✓	

Source: own elaboration.

The situation of the maritime economy in the Zachodniopomorskie region is a complex one, which translates into future prospects for employment. The traditionally strong and main sector – shipbuilding - is, following the bankruptcy of the Szczecin Shipyard in 2009, undergoing deep restructuring and this process is not yet completed. The ship repair sector is slowly moving towards recovery.

It is however aimed at utilizing existing capacities and employees formerly involved in shipbuilding sector. There are some slight signs of development in steel constructions, but not enough yet to be expressed in a noticeable rise of employment. Positive trends in the labour force engaged in port and related services are conditional and much dependent on large investments aimed at improvement of seagoing vessels' access to the port of Szczecin (Bernacki 2012). The region´s flag maritime segments, like fish processing and maritime and recreational tourism, are expected to develop and, even if growth rates will most probably be lower, owing to the labour-intensive nature of both industries a noticeable rise in the number of overall employees is expected. The projected demand for labour in each segment of the Zachodniopomorskie maritime economy segments is depicted in Table 6 below.

Table 6. Projected demand for labour in the maritime economy of the Zachodniopomorskie region

Maritime segments	Projected demand for labour				
	high (annual growth rate>10%)	moderate (annual growth rate 5%-9%)	low (annual growth rate<5%)	no change	negative
Ship repairs & steel constructions			✓		
Port & related services		✓ if induced by investments		✓	
Coastal fishing				✓	
Fish processing		✓			
Maritime & coastal tourism	✓				

Source: own elaboration.

The Pomorskie region generally exhibits developmental trends, both as to the scale and scope of its maritime economy. The restructuring of the shipbuilding and ship repair industry, currently in progress, is expected to translate into an increase in demand for labour, especially as regards sophisticated offshore vessels and constructions. What distinguishes Pomorskie from the other analysed regions is the anticipated rise in demand for labour in the port and related services industry segment, geared by developments in port logistics services. Maritime and coastal tourism is also regarded as important segment inducing demand for labour, additionally supported by positive trends in cruising and the development of water sports and other forms of sea-related

tourism. The projected demand for labour in the maritime economy of the Pomorskie region has been elaborated in Table 7 below.

Table 7. Projected demand for labour in the maritime economy of the Pomorskie region

Maritime segments	Projected demand for labour				
	high (annual growth rate>10%)	moderate (annual growth rate 5%-9%)	low (annual growth rate<5%)	no change	negative
Shipbuilding, repair & offshore supplies		✓			
Port & related services	✓				
Coastal fishing				✓	
Fish processing			✓		
Maritime & coastal tourism		✓			

Source: own elaboration.

In the Klaipeda region the most promising maritime segments in terms of generating labour force demand are ship repair and supplies, port services, fish processing, and maritime and costal tourism (ECOTEC Research&Consulting 2006b), however the rise in employment is expected to be moderate and of a variable nature. In comparison with other regions, feasible developments are more dispersed. They cover a wide range of activities, however expected growth rates for employment are at moderate and low levels, and thereafter the number of new jobs generated in the future are expected to be limited in number. The projected demand for labour in the maritime industry of the Klaipeda region is depicted in Table 8 below.

Table 8. Projected demand for labour in the maritime economy of the Klaipeda region

Maritime segments	Projected demand for labour				
	high (annual growth rate>10%)	moderate (annual growth rate 5%-9%)	low (annual growth rate<5%)	no change	negative
Ship repair & supplies		✓			
Port & related services			✓		
Coastal fishing				✓	
Fish processing		✓			
Maritime & coastal tourism		✓			

Source: own elaboration.

4. Inter-regional employment prospects in the maritime economy

An inter-regional comparison of the maritime economy in terms of employment in the South Baltic Region is depicted in Table 9 below.

Table 9. Cross-regional forecasted demand for labour, by maritime economy segments, in the South Baltic Region

Maritime segments	High and moderate demand for labour by maritime economy segments and regions			
	Mecklenburg-Vorpommern	Zachodniopomorskie Region	Pomorskie Region	Klaipeda Region
Shipbuilding & repair				✓
Offshore wind energy	✓			
Offshore supplies			✓	
Port & logistics services		✓ conditional only	✓	
Fish processing		✓		✓
Maritime & coastal tourism	✓	✓	✓	✓

Source: own elaboration.

When analyzing some segments of the maritime economy, one should distinguish economic developments from the employment effects they induce. Due to technological advances and improvements, port and related services is clearly the segment with the lowest potential for generating a demand for labour. Both containers and roll on-roll off traffic are labour-saving, characterized by increased efficiency, which in turn makes the labour elasticity very low and does not induce a noticeable number of jobs. There are, however, exceptions, as in the case of Pomorskie region, where the port container throughput allows for and creates incentives for the development of port-related logistics services. Logistics, especially value added services, is a labour intensive sector if developed in the environment of dynamic progress in container throughput, which should induce a high demand for labour. Pomorskie is also a leading region in shipbuilding and ship repair, and the sector has already undergone a transition which has enabled it to not only sustain output level in volume and in value, but has also established grounds for development in the area of advanced offshore supplies activities. This restructuring creates good prospects for labour demand in the emerging offshore activity, whereas in the sector of new buildings and ship repair it allows it to maintain its existing level of employment. Some positive and moderate trends in workforce demand also relate to the Lithuanian ship repair industry, which for the most part has its roots in the cost efficiency of the industry (Foresight study 2012). The traditionally labour-intensive and well developed sector of fish processing is an important activity in terms of demand for labour in the Zachodniopomorskie and Klaipeda regions. Increased demand for labour is expected in the maritime and costal tourism sector, and this phenomenon applies to all the analysed South Baltic regions. Having in mind the already attained level of sector development and its maturity, one may assume that overall the highest employment growth rate in maritime tourism will take place in Zachodniopomorskie, followed by Mecklenburg-Vorpommern and the Pomorskie region, and then by the Klaipeda region. In the offshore wind energy sector, Mecklenburg-Vorpommern is the leading region, both in terms of economic development and employment potential. There is a high demand for skilled labour in this branch is based on long term experience and know-how, and in the existence of a whole value production chain involving several sophisticated manufacturers, clustering developments, and finally in the competitive advantages of the activity.

Table 10. Cross-regional analysis of the demand for labour by profession in the maritime economy segments in the South Baltic Region

Maritime segments	High and moderate demand for labour, by profession			
	Mecklenburg-Vorpommern	Zachodniopomorskie	Pomorskie	Klaipeda
Shipbuilding & repair			technicians and marine engineers	technicians and marine engineers
Offshore wind energy	technicians and marine engineers, environmental engineering and logistics engineering			
Offshore supplies			technicians and marine engineers, logistics engineering	
Port & logistics services		maritime logistics & logistics engineering (conditional only)	maritime logistics & logistics engineering	
Fish processing		lower qualified		lower qualified
Maritime & coastal tourism	managers and entrepreneurs, environmental engineers			

Source: own elaboration.

An upward trend for professions obviously will relate to engineering and technicians specialized in the vast area of marine constructions, machinery, and electrical power supplemented by environmental engineering. The demand for these kinds of professions will be especially visible in the segments of shipbuilding & ship repair, offshore wind energy, and offshore supplies, and therefore in the regions of Mecklenburg-Vorpommern, Pomorskie and Klaipeda. A labour force with maritime logistics (economists, managers, lawyers) and logistics engineering will be most required in the port and logistics services segment, especially in the Pomorskie region. If properly induced by investments into the improvement of maritime transport access to the port, this upward trend may also be visible in the Zachodniopomorskie region. There will be a demand for low qualified staff in the fish processing sector, which is projected to develop further in the Zachodniopomorskie and Klaipeda regions. Some moderate growth is expected in the demand for production and environmental engineers, especially in the Zachodniopomorskie region. All the analysed regions are

expected to experience an upward trend in the demand for labour in maritime and coastal tourism. Generally, the managerial and entrepreneurship professions will be most desired, however the demand for specific professions will differentiate depending on the already attained level of development and expected growth in various segments of maritime and coastal tourism. In all regions there is projected to be a rising demand for catering and gastronomy staff, both qualified and nonqualified (seasonal employment), as well as hotel service. Workers engaged in servicing yachting and boating, chartering, supplies of water crafts equipment, and marina service personnel and water sports and leisure activities personnel will be most in demand in the Zachodniopomorskie and Pomorskie regions. In the Klaipeda region, at the utmost general tourism services and activities staff will be required, while in Mecklenburg-Vorpommern there will be a demand for qualified personnel tailored for further developments in the quality of services rendered in maritime and costal tourism.

These above-described trends in the demand for labour by qualifications and professions have been confirmed to a great extent by the expert opinions (Foresight 2012). In this survey, the experts in maritime-related activities indicated engineering as the leading area of qualifications needed in the maritime economy. Also, there will be cross-cutting among specific segments with respect to the demand for environmental engineers and lawyers and for staff with maritime logistics skills (management, economy, and law), as well as logistics engineering. This should be supplemented by the high demand generated by maritime and coastal tourism for employees of various specific qualifications. On the other hand, it is foreseen that there will be a rise in demand for lower skilled staff in the well-developed sector of fish processing.

With respect to the maritime economy of the South Baltic region as a whole, the potential for cross-border mobility, i.e. streams of workers commuting among the relevant regions for work, are impeded by the phenomenon of synchronic labour markets in the eligible regions. In short, this means that what is in oversupply, or in demand, in terms of the work force and its qualifications in one region will usually be the same for the other regions (Cross-border 2012). Therefore, in general there is a weak potential for cross-border labour force mobility.

However, such mobility could come about either as a result of foreign direct investments in relevant regions and business and trade cooperation, or in the form of seasonal work. As examples one may point out German investments in the port and related services segment in the Zachodniopomorskie Region. A few highly qualified Germans are involved in the administration and management of stevedoring companies. On the other side, the main Polish logistics company with a site in Szczecin has recently taken over a German

inland transport company, which resulted in the substantial development of transport and logistics services and consequently induced cross-border mobility of Polish qualified staff engaged in cross-trade transport and logistics. In the Klaipeda Region there is one company with Polish origins involved in bunkering vessels and other watercrafts, but it is characterized by low labour force mobility, because almost the entire employee staff comes from the local Lithuanian market.

Business and trade cooperation is above all connected with maritime works, maritime engineering, and the modernization or construction of port infrastructure. This induces labour force mobility among the staff involved in business administration, sales, and firm representatives. The German firm Bilfinger Berger is an example of such a company, It has been involved in the renovation of the Szczecin and Świnoujście port infrastructure, and recently has expanded its engagement into a joint project for setting up a large manufacturer of offshore constructions in Szczecin. The factory is to produce substructures for marine wind turbines, and will occupy twenty hectares of land. With an investment worth 75 million EUR and employing 450 people, an output of 80 trusses per annum at the beginning of production is expected to be attained as early as 2014. The investor is the KSO company, specifically set up for this purpose. It consists of the German Bilfinger Berger, which specializes in constructions and maintenance services for industry and energy, CRIST SA, a shipyard specializing in shipbuilding and marine structures, and the MARS Investment Fund.

Seasonally, at the coastal area of Mecklenburg-Vorpommern, and especially at Usedom Island, some 500 jobs in the coastal tourism and restaurant branches are available for young Polish workers each year between the months of June-August.

5. Conclusions

All regions will exhibit either high or moderate demand for employment in maritime tourism. Fish processing will generate moderate but stable demand for employment, particularly in the Zachodniopomorskie and Klaipeda regions. Labour will be in demand the shipbuilding & repair sector mostly in the Pomorskie and Klaipeda regions. Port industry will generate demand for labour in the Pomorskie region only, unless the fairway is deepened to the port of Szczecin, in which case labour demand in the industry may also appear in the Zachodniopomorskie Region. In Mecklenburg-Vorpommern, besides maritime

tourism a rise in the demand for labour force is expected in the offshore wind energy sector.

The most demanded professions in the maritime economy of the South Baltic Region include:

- marine technicians and marine engineers, maritime logistics and logistics engineers (in offshore wind energy and offshore supplies, shipbuilding and repair, seaports),
- managers and entrepreneurs, environmental engineers (in maritime tourism),
- lower qualified workers (in fish processing).

So far the cross-border exchange of workers within the maritime economy is limited, but if operational it can induce a weekly/monthly mobility of highly skilled workers and create significant added value. In the future however, specialized development of maritime segments might create a broad base for workforce mobility as a result of the de-synchronization of the local labour markets. Then cross-border mobility might be an effective tool for covering the gaps between demand and available qualified labour in each of the analysed regions.

References

Bernacki D. (2012), *The effectiveness of investment and socio-economic effects of the deepening of the Szczecin-Świnoujście fairway to 12.5 m*, Szczecin

Cross-border labour mobility between Poland-Lithuania, South Baltic Professional Project (2012), Maritime Institute in Gdańsk, Gdańsk

ECOTEC Research&Consulting (2006a), An exhaustive analysis of employment trends in all sectors related to the sea or using sea resources. Country report-Germany

ECOTEC Research&Consulting, together with Dagne Eitutyte (2006b), An exhaustive analysis of employment trends in all sectors related to sea or using sea resources. Country report-Lithuania

Foresight on the South Baltic Maritime Labour Market 2017 (2012),Generation Balt Report

Foresight study Lithuania (2012), Generation Balt Report

Peron C. (2011), *Mecklenburg-Vorpommern: a regional profile*, CoesioNet, European Cohesion and Territories Research Network

Viederyte R. (2012), *Maritime sector impact on the economy of Lithuania*, 'Economics and management', nr 17 (1)

Streszczenie

ROZWÓJ RYNKÓW PRACY W GOSPODARCE MORSKIEJ REJONU POŁUDNIOWEGO BAŁTYKU

Dwa główne cele badań, to analiza stanu gospodarki morskiej i zatrudnienia w Rejonie Południowego Bałtyku oraz zidentyfikowanie sektorów gospodarki morskiej wykazujących potencjał dla rozwoju i określenie wpływu, jaki będzie to miało na zatrudnienie i wymagane kwalifikacje zawodowe, a także na możliwości wymiany międzyregionalnej pracowników. Badania porównawcze przeprowadzono dla czterech nadmorskich regionów UE, a mianowicie Meklemburgii-Przedpomorza Przedniego(D), województw: Zachodniopomorskiego i Pomorskiego (PL) oraz Regionu Kłajpedy (LT). Wskazano na perspektywy rozwoju gospodarczego poszczególnych segmentów gospodarki morskiej i ustalono związany z tym wpływ na rynki pracy w poszczególnych regionach. Analiza porównawcza poszczególnych segmentów gospodarki morskiej Rejonu Południowego Bałtyku umożliwiła zidentyfikowanie różnic w możliwościach ich rozwoju i w efektach popytu na pracę i na kwalifikacje zawodowe dla każdego z regionów. Zjawisko zróżnicowanego potencjału rozwoju rynków pracy w wyróżnionych segmentach gospodarki morskiej w ujęciu międzyregionalnym przedstawiono w formie wielokryterialnych macierzy prognoz popytu na pracę.

***Słowa kluczowe**: badania porównawcze rynków pracy, gospodarka morska, Rejon Południowego Bałtyku*

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Directions In The Development Of Commercial Insurance In Poland And Lithuania

Abstract

This article analyses trends in the development of the commercial insurance market in Poland and in Lithuania over the last decade. The insurance market changed in the 2002-2011 period. Those changes can be seen in various fields of commercial insurance. Data on the number of insurers, total premiums written, and the trends in claim payments and claim ratios were used to perform a market trend analysis.

It should be emphasized that Poland experienced the results of the financial crisis in the insurance market later than Lithuania, which is visible in specific ratios under analysis. In Lithuania, in terms of insurance expenditures, non-life insurance products are definitely more popular, while in Poland life insurance plays the most important role. Poles buy most life insurance from group 1, and Lithuanians from group 3. In the case of non-life insurance, motor vehicle insurance (third-party liability insurance and casco (collision/personal liability insurance)) and property insurance are the leading forms of insurance purchased by both Poles and Lithuanians, as well as other Europeans.

Keywords: *commercial insurance market, gross premiums written, level of claims, life insurance, non-life insurance, claims ratio*

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1. Introduction

Commercial insurance plays a significant role in everyone's life. Its dynamic growth in recent years has been influenced by, e.g., the number of insurance products offered, their availability (use of various distribution channels for insurance services) and also by the increasing multitude of risks to life, health and property. Undoubtedly, the importance of insurance, in both business activity and in private life, has increased. Insurers compete in terms of their offers of insurance services to acquire the largest possible group of customers.

In recent years, large changes in the macroeconomic trends of the global economy have been observed. The results of the global crisis have also been felt in the insurance market. Decreases in economic ratios have been observed, depending on world regions and the level of development.[1]

Risk accompanies the activity of every legal and natural person, and insurance is one of the major methods of risk management. The following questions emerge: How to manage this risk? What insurance to buy? How to reduce the risk? Risk affects the organisation of an activity and its functioning, and it generates costs. In a situation of uncertainty, we cannot completely foresee what will happen (Williams, Smith, Young 2002, p. 41). An insurance premium is a cost for the insurance holder, who acquires insurance protection. For the insurance company, payment of the premium is income (Hadyniak 2010, p. 55). On the other hand, claims are costs for an insurer, while for the customer, they are compensation for a loss incurred.

Commercial insurance in Poland is governed primarily by articles 805-834 of the Civil Code,[2] and the Act of 22 May 2003 on insurance activities,[3] on compulsory insurance, the Insurance Guarantee Fund and the Polish Motor Vehicle Insurers' Bureau,[4] on insurance and pension funds supervision and the Insurance Ombudsman,[5] and on insurance mediation;[6] and the Act of 21 July 2006 on supervision of the financial market.[7]

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[1] Ubezpieczenia 2009, Polska Izba Ubezpieczeń, p. 13, http://www.piu.org.pl/public/upload/ibrowser/analizy%20i%20raporty/ubezpieczenia2009_na-cd.pdf (13.11.2013).

[2] Act of April 23, 1964 - *Civil Code* (Dz.U. 1964, No. 16, item 93).

[3] Act of 22 May 2003 on insurance activities(Dz.U. 2003, No. 124, item 1151).

[4] Act of 22 May 2003 oncompulsory insurance, Insurance Guarantee Fund and the Polish Motor Insurers' Bureau(Dz.U. 2003, No. 124, item 1152).

[5] Act of 22 May 2003 on insurance and pension funds supervision and the Insurance Ombudsman (Dz.U. 2003, No. 124, item 1153).

[6] Act of 22 May 2003 on insurance mediation (Dz.U. 2003, No. 124, item 1154).

[7] Act of 21 July 2006 on supervision of the financial market (Dz.U. 2006, No. 157, item 1119).

In Lithuania, provisions concerning commercial insurance are set forth in: the Civil Code,[8] the Act of September 2003 Republic of Lithuania Law on insurance,[9] the Act of March 2004 Republic of Lithuania Insurance Law on motor vehicle third party liability,[10] the Act of December 2002 Republic of Lithuania Law on pension reform,[11] the Act of July 2003 Republic of Lithuania Law on pension accumulation,[12] the Act of July 2003 Additional Republic of Lithuania Law on autonomous pension accumulation,[13] and the Act of November 1996 Republic of Lithuania Law on health insurance.[14]

In an insurance agreement, according to art. 805 § 1 of the Polish Civil Code, the insurer agrees, within the scope of its business activity, to deliver specific compensation in case an event specified in the agreement takes place, and the insurance holder agrees to pay an insurance premium. Therefore, a basic obligation of the insurance company is to pay claims for losses occurring as a result of random events provided for in the insurance agreement. On the other hand, the task of the insurance holder is to pay the premium.

The essence of commercial insurance is an agreement between two subjects – one party transfers the risk and pays a specified price for it, while the other party assumes this risk. The party assuming the risk is usually a private insurance company operating on the basis of legal regulations (Kwiecien 2010, p. 114) and the transferring party is the customer. Commercial insurance is divided into property and personal insurance (Kowalewski 2002, p. 21).

The object of property insurance can be any property interest which is not illegal and which can be evaluated in monetary terms.[15] On the other hand, personal insurance can concern – in the case of the life insurance – the death of the insured person, or survival until a specified age; and for personal accident insurance – bodily injury, health disorders, or death as the result of an accident.[16]

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[8] Act of July 2000 - Civil Code (Valstybėsžinios Nr. 74-2262).

[9] Act of September 2003 - Republic of Lithuania Law on insurance (Valstybėsžinios Nr. 94-4246).

[10] Act of March 2004 – Republic of Lithuania Insurance Law on motor third party liability (Valstybėsžinios Nr. 46-1498).

[11] Act of December 2002 - Republic of Lithuania Law on pension reform (Valstybėsžinios Nr. 123-5511).

[12] Act of July 2003 -Republic of Lithuania Law on pension accumulation (Valstybėsžinios Nr. 75-3472).

[13] Act of July 2003 - Additional Republic of Lithuania Law on autonomous pension accumulation (Valstybėsžinios Nr. 75-3473).

[14] Act of November 1996 - Republic of Lithuania Law on health insurance(Valstybėsžinios Nr. 55-1287).

[15] Act of 23 April 1964 - *Civil Code* (Dz.U. 1964, No. 16, item 93), Art. 821.

[16] Ibidem, Art. 829 §1.

Commercial insurance is divided into two groups: division I – life insurance; and division II – non-life insurance. Life insurance include five groups of insurance:

1. Life insurance.
2. Marriage insurance, birth insurance.
3. Life insurance linked to insurance capital funds.
4. Annuity insurance.
5. Accident and sickness insurance.

Non-life insurance comprises as many as 18 groups of insurance:

1. Accident.
2. Sickness.
3. Casco insurance of land motor vehicles.
4. Casco insurance of railway rolling stock.
5. Casco insurance of aircraft.
6. Vessels in sea and inland navigation.
7. Goods-in-transit.
8. Fire and natural forces.
9. Other damage and property loss.
10. Motor vehicle liability arising out of the possession of land vehicles.
11. Aircraft liability arising out of the possession of aircraft.
12. Liability for ships in sea and inland navigation.
13. General liability.
14. Credit.
15. Suretyship.
16. Various financial risks.
17. Legal protection.
18. Assistance.

In Poland, the Financial Supervisory Authority (Komisja Nadzoru Finansowego), and previously the Insurance and Pension Funds Supervisory Commission (Komisja Nadzoru Ubezpieczeńi Funduszy Emerytalnych), currently control the insurance market in Poland. In Lithuania, supervision until

the end of 2011 was held by the Commission of Insurance Supervision in Lithuania (Lietuvos Respublikos Draudimo Prie¸iūros Komisja),[17] and after 01.01.2012 it was held by the National Bank of Lithuania (Lietuvos Bankas).[18]

2. Number of insurers

At the end of 2011 there were 61 insurance companies in Poland (Figure 1). On the other hand, the total number of foreign companies registered in Poland under the Freedom of Service Act, or running their business activity through a branch at the end of the fourth quarter 2011 amounted to 577 (including 19 branches of insurance companies).[19] The largest number of insurers in Poland in the period under analysis was recorded in 2003, while in 2011 this number was the lowest. A decrease, at the mean level of 23%, was recorded both in life and non-life insurance.

In Lithuania, in the corresponding period, the number of insurance companies grew by 3%. The lowest number of insurers was recorded in 2005 (27) and the highest was in 2011 (32 companies). Under the Freedom of Insurance Service Act, 443 companies conducted insurance activity in Lithuania.[20]

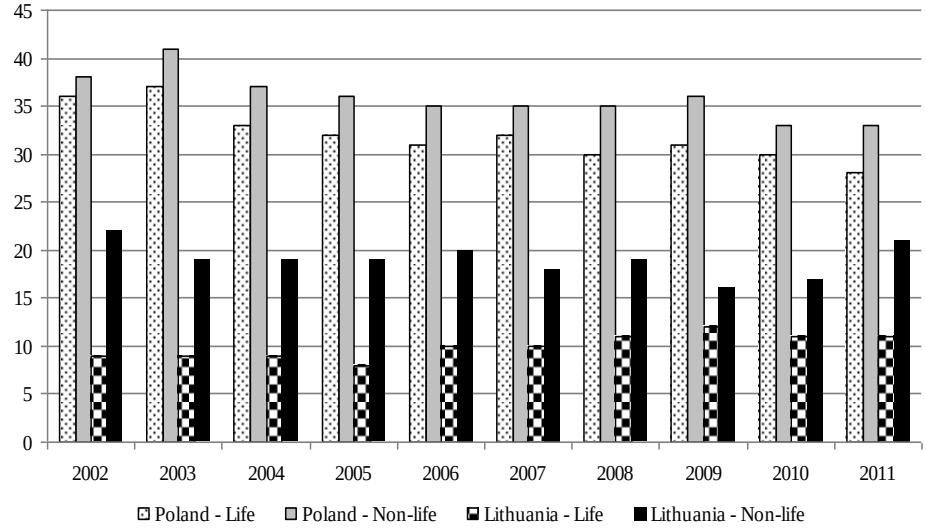
[17] http://www.dpk.lt/ (05.10.2013).

[18] http://www.lb.lt/prieziura (05.10.2013).

[19] *Raport o stanie sektora ubezpieczeń po IV kwartałach 2011 roku*, Urząd Komisji Nadzoru Finansowego 2012, p. 8, http://www.knf.gov.pl/Images/sektor_ubezpieczen _IVkw2011_tcm75-30582.pdf (18.10.2013).

[20] http://www.dpk.lt/en/es_draudikai_beta.php (04.10.2013).

Figure 1. Number of insurance companies in Poland and Lithuania in 2002-2011



Source: Own computations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/.

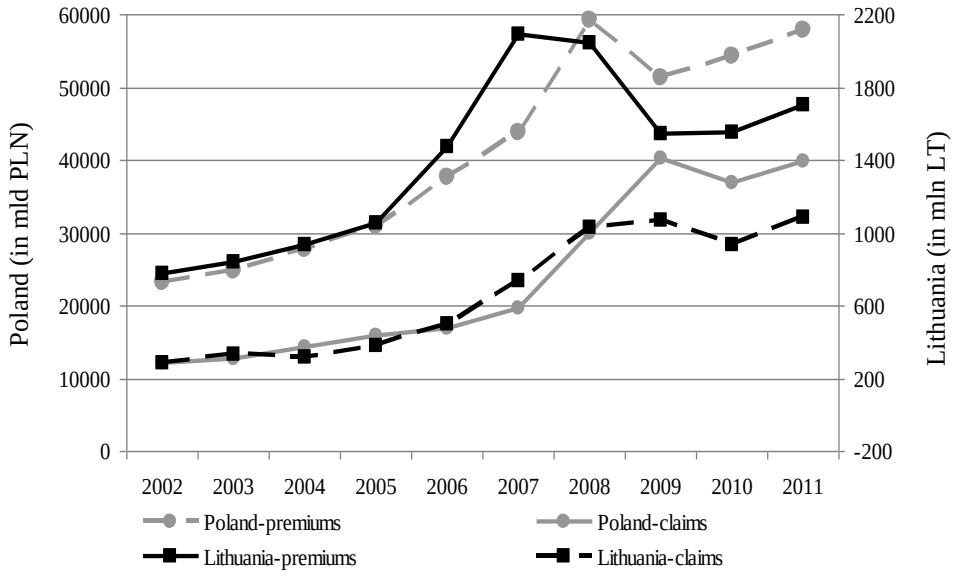
3. Level of gross written premiums, level of claims

Gross written premiums in Poland systematically grew until 2008, reaching the level of PLN 59.3 billion, after which, as a result of deterioration of the economic situation, it decreased to PLN 51.3 billion in 2009, which was followed by a 13% increase in 2011. In Lithuania, the economic crisis was observed earlier in the commercial insurance market – already in 2008 and 2009. Written premiums in 2009 decreased by 26%, in comparison to 2007. In Poland, as in Lithuania in 2008-2009, the level of claims paid increased. However, in Poland the value of claims grew by more than 100% in 2007 compared to 2009, while in Lithuania they grew by more than 45%. Generally, the reactions of both the Polish and Lithuanian markets were very similar, although Poland was one of few states which felt the economic effects later.

The mean annual rate of increased premium payments in Poland was more than 9%. If such a rate is maintained in future, the Polish insurance market will

be among the European leaders in about 20 years.[21] In turn, it is estimated that the gross premiums written will reach LTL 2.37 billion in the Lithuanian market in 2017 (Ulbinaite, Kucinskiene, Moullec 2013, p.144).

Figure 2. The level of gross premiums written and claims in Poland and in Lithuania in 2002-2011



Source: Own computation on the basis of data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/

In Poland, in the life insurance segment in the periods 2002-2005 and 2008-2011, the most significant role in gross written premiums was played by life insurance from group 1 (whole life insurance, term insurance and pure endowments), and in 2006-2007 – from group 3 (life insurance linked to insurance capital funds) (Table 1). I can be observed that the demand for insurance with an additional form of savings, i.e. within group 3, increases when the economic situation of the country is better and stabilised. In 2008, as a result of the global crisis in Europe,[22] Polish citizens were less interested in investing their savings in insurance products, while in 2009, this group of products again became popular. The third most popular category, in terms of the amount of written premiums in the Polish market, is occupied by group 5 (accident and sickness insurance), as they supplement groups 1-4 of life insurance. In the years under analysis, the share of this group ranged from 10.5% to 18.3%. In turn,

[21] *Ubezpieczenia 2010*, Polska Izba Ubezpieczeń, pp. 12, 42, www.piu.org.pl/public/upload /ibrowser/.../ Ubezpieczenia%202010.pdf (22.10.2013).

[22] *Insurance In Figures*, CEA Statistics No. 36, CEA 2008, p. 21.

group 2 (marriage and birth insurance) and group 4 (annuity insurance) had small shares in the Polish commercial insurance market.

Table 1. Structure of gross written premiums in life insurance, categorized by insurance group, in Poland in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1.	48.13	48.19	48.75	45.42	38.56	38.69	72.88	63.60	59.85	52.94
2.	0.96	1.34	1.16	0.99	0.69	0.58	0.34	0.42	0.38	0.38
3.	32.26	32.00	31.81	36.86	46.08	46.93	16.15	21.37	25.90	32.41
4.	0.69	0.18	0.19	0.19	0.17	0.18	0.16	0.24	0.27	0.31
5.	17.96	18.30	18.08	16.54	14.5	13.62	10.48	14.37	13.61	13.96

Source: Own calculations on the basis of data of the Financial Supervision Authority in Poland: www.knf.gov.pl

In life insurance, insurance companies pay claims to claimants. In 2002-2011, the most benefits were received by the insured persons or beneficiaries within group 1 (Table 2). The largest increase in the benefit level was recorded in 2009 (an increase of 47% in comparison to 2002). In 2007, in life insurance group 3 insurers paid over PLN 3.7 billion, and in 2008, more than PLN 6.7 billion in benefits.

Table 2. Structure of gross claims paid in life insurance, categorized by insurance group, in Poland in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1.	53.31	52.16	52.79	58.44	57.81	51.04	57.99	78.43	71.34	70.72
2.	2.56	2.48	2.14	1.92	2.00	1.71	0.92	0.60	0.67	0.49
3.	25.19	26.84	28.44	25.74	27.33	35.99	34.64	15.81	20.7	22.02
4.	1.13	1.01	0.94	0.76	0.70	0.68	0.29	4.94	0.27	0.25
5.	17.82	17.51	15.69	13.14	12.16	10.58	6.17	0.56	7.03	6.52

Source: Own calculations on the basis of data of the Financial Supervision Authority in Poland: www.knf.gov.pl

On the other hand, in life insurance in the Lithuanian market, after 2005 the supervisory authority reports showed only three groups: 1, 2 and 3. Annuity insurance is classified as group 1, and as in Poland is of minimum importance. On the other hand, data concerning group 5 in Poland (accident and sickness insurance) is classified as either group 1 or 2 of non-life insurance. The situation with respect to life insurance in Lithuania is distinctly different than in Poland.

First of all, in recent years (2006-2011), written premiums for life insurance in Poland were higher (the mean for six years was 58.6%) than written premiums for property insurance. In Lithuania, the mean share of written premiums for the last six years in life insurance amounted to 32.3%. By 2007, the share of group 1 decreased, while the share of group 3 increased. Group 2 played a much more significant role in Lithuania. Although its importance has decreased in recent years, the percentage share of this group is still higher than in Poland.

Table 3. Structure of gross written premiums in life insurance, categorized by insurance group, in Lithuania in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1.	63.10	56.37	53.97	49.00	33.88	19.94	29.29	29.54	27.27	28.04
2.	17.31	10.87	8.80	6.34	3.57	1.82	2.34	2.19	1.70	1.35
3.	19.59	32.76	37.23	44.67	62.55	78.24	68.37	68.27	71.02	70.60

Source: Own calculations on the basis of data of the Financial Supervision Authority in Lithuania: http://www.dpk.lt/

As a result of the economic crisis in Lithuania in 2007, and particularly in 2008, a large share of claims was recorded concerning life insurance linked to insurance capital funds, which was a response by the insured to the turbulence in the financial market (Table 4). Subsequent years however show a large interest among the Lithuanian population in such a form of savings.

Table 4. Structure of gross claims paid in life insurance, categorized by insurance group, in Lithuania in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1.	64.94	39.04	32.48	34.42	38.56	31.56	25.52	44.53	37.71	28.40
2.	34.26	55.87	59.17	55.92	36.86	13.57	7.27	8.47	8.83	6.29
3.	0.80	5.10	8.35	9.66	24.58	54.87	67.21	47.00	53.46	65.31

Source: Own calculations on the basis of data of the Financial Supervision Authority in Lithuania: http://www.dpk.lt/

In the non-life insurance sector, motor vehicle insurance definitely constituted the largest share in terms of earned gross premiums in Poland (group 3 – casco insurance – and group 10 – third-party liability insurance for owners of motor vehicles) – about 58% in 2011. Within the ten-year period under analysis, the average share of group 3 insurance amounted to 26.8%, while for group 10 it was 35.1%. The next group in terms of market share was property insurance

against various hazards and random events (groups 8 and 9), which constituted with over 19% of non-life insurance in 2011. Accident and sickness insurance constituted the third largest group of non-life insurance. Their share in the last ten years ranged from 5.6% to 7.7%. Financial insurance (groups 14, 15 and 16) are another important area in division II. Their share ranged from 3.5% to 7.5%. Other forms of liability insurance (group 13) have become increasingly important since 2006 for the development of the Polish insurance market. Their highest share was recorded in 2011(5.8%).

Table 5. Structure of gross written premiums in non-life insurance, categorized by insurance group, in Poland in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1+2	5.79	5.81	5.62	5.79	6.11	6.42	7.68	7.22	7.26	6.78
3.	29.08	30.31	30.40	28.46	26.33	26.62	26.23	23.71	23.65	23.24
4.	0.02	0.01	0.02	0.04	0.05	0.05	0.06	0.08	0.07	0.14
5.	0.11	0.10	0.11	0.09	0.09	0.07	0.09	0.10	0.14	0.12
6.	0.57	0.58	0.54	0.67	0.73	0.69	0.51	0.52	0.40	0.39
7.	0.84	0.79	0.82	0.80	0.75	0.62	0.57	0.45	0.43	0.43
8+9	18.72	19.22	18.87	18.03	18.02	17.08	16.81	18.04	18.71	19.41
10.	36.86	34.37	33.94	35.99	35.97	35.32	35.31	34.60	33.85	34.67
11.	0.18	0.28	0.14	0.19	0.15	0.12	0.11	0.12	0.11	0.11
12.	0.24	0.15	0.13	0.11	0.11	0.10	0.08	0.13	0.09	0.08
13.	3.45	3.88	1.28	4.60	5.12	4.97	4.90	5.40	5.59	5.81
14.	1.34	1.54	1.79	2.06	2.72	3.21	2.48	2.23	2.09	2.20
15.	0.88	0.85	0.81	0.89	0.94	1.02	1.08	1.34	1.43	1.22
16.	1.22	1.41	1.80	1.58	1.83	2.48	2.74	4.22	3.54	3.08
17.	0.03	0.05	0.06	0.08	0.11	0.19	0.37	0.47	1.08	0.68
18.	0.67	0.65	0.65	0.62	0.97	1.04	1.06	1.39	1.56	1.64

Source: Own calculations on the basis of data of the Financial Supervision Authority in Poland: www.knf.gov.pl

When looking at the Polish commercial insurance market in terms of its structure of claims paid, the situation observed is very similar to the written premium structure. The most claims were paid out for motor vehicle insurance (in 2011 their share amounted to 72.3%). On account of casco insurance claims, insurance companies paid about PLN 3.8 billion, while for third-party liability insurance claims – over PLN 6.1 billion. Unfortunately, in terms of the amount of claims under third-party liability insurance, 2011 was the most costly year for

insurers. This last year of the period studied was also disadvantageous with respect to claims from insurance groups 13 and 18. Insurance companies paid other third-party liability insurance claims over PLN 890 million and PLN 262 million for assistance insurance to persons who encountered difficulties during travel. In case of property insurance, the highest level of claim compensation was recorded in 2010 – about PLN 3.1 billion (Table 6).

Table 6. Structure of gross claims paid in non-life insurance, categorized by insurance group, in Poland in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1+2	4.11	4.42	4.10	3.65	3.38	3.22	3.14	3.08	2.87	3.61
3.	38.97	39.92	39.21	38.35	35.39	32.48	31.16	30.72	27.64	27.63
4.	0.01	0.00	0.01	0.01	0.02	0.05	0.08	0.07	0.04	0.04
5.	0.06	0.03	0.08	0.05	0.09	0.11	0.12	0.10	0.16	0.02
6.	0.60	0.61	0.89	0.83	0.92	1.15	1.07	1.06	0.76	0.46
7.	0.52	0.39	0.33	0.33	0.38	0.45	0.50	0.38	0.37	0.41
8+9	14.18	11.21	12.01	11.74	11.86	14.19	14.26	14.49	21.74	13.19
10.	36.64	38.17	39.09	39.74	41.80	42.90	43.87	42.30	37.84	44.71
11.	0.01	0.01	0.01	0.02	0.01	0.01	0.02	0.01	0.03	0.04
12.	0.20	0.10	0.09	0.10	0.12	0.04	0.07	0.06	0.05	0.06
13.	1.60	2.48	2.16	2.32	3.25	3.16	3.36	4.13	4.21	6.49
14.	0.77	1.32	0.50	0.92	0.80	0.60	0.87	1.70	1.91	0.63
15.	1.35	0.50	0.38	0.60	0.69	0.20	0.21	0.48	0.36	0.15
16.	0.30	0.26	0.45	0.65	0.41	0.56	0.40	0.48	0.64	0.59
17.	0.20	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.05
18.	0.48	0.55	0.66	0.66	0.84	0.84	0.81	0.89	1.32	1.91

Source: own calculations based on data of the Financial Supervision Authority in Poland: www.knf.gov.pl

As regards the structure of non-life insurance in the Lithuanian market, the situation is similar to the Polish market (Table 7). In the last year under analysis, the share of motor vehicle insurance in Lithuania was only 1% lower than in the Polish market. However, in terms of amounts, we can observe significant differences. Under casco insurance in 2011, insurance companies operating in the Lithuanian market earned LTL 256 million and LTL almost 390 million under third-party liability insurance. The next in terms of market share was property insurance against fire and other hazards and random events (LTL 243 million), and insurance classified into groups 1 and 2 – accident and sickness –

LTL 104 million). Insurance included in group 13 is also of significant importance (LTL 67 million).

Table 7. Structure of gross written premiums in non-life insurance, categorized by insurance group, in Lithuania in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1+2	6.30	6.72	6.45	7.27	6.76	6.78	7.87	7.67	8.58	9.15
3.	19.67	23.93	27.09	31.36	29.78	31.73	26.82	23.26	22.13	22.50
4.	0.00	0.01	0.03	0.03	0.03	0.01	0.16	0.26	0.25	0.23
5.	0.09	0.19	0.20	0.14	0.06	0.05	0.03	0.04	0.04	0.04
6.	0.33	1.57	0.76	0.37	0.33	0.15	0.16	0.19	0.17	0.14
7.	0.95	1.17	1.11	1.17	1.07	0.84	0.76	0.67	0.64	0.68
8+9	15.77	16.89	15.50	16.28	16.33	16.83	22.96	21.08	20.59	21.36
10.	40.16	33.01	35.08	31.42	36.22	34.62	31.98	35.58	37.13	34.24
11.	1.48	0.19	0.18	0.08	0.07	0.05	0.04	0.06	0.06	0.03
12.	0.42	0.42	0.31	0.01	0.02	0.02	0.03	0.03	0.03	0.01
13.	3.75	4.34	4.15	5.77	3.58	3.96	3.92	4.82	4.77	5.89
14.	2.70	2.89	2.93	1.97	2.06	1.81	2.36	2.39	1.09	1.33
15.	7.03	7.29	5.56	3.63	3.18	2.65	2.37	3.16	3.74	3.55
16.	1.33	1.32	0.59	0.41	0.42	0.43	0.44	0.68	0.68	0.73
17.	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18.	0.01	0.04	0.06	0.08	0.08	0.07	0.09	0.11	0.11	0.11

Source: Own calculations based on data of the Financial Supervision Authority in Lithuania: http://www.dpk.lt/

The structure of claims for motor vehicle insurance is also high, but definitely lower than in Poland. In 2011, the share of collision coverage and liability insurance was 60.1%, i.e. insurers paid out almost LTL 447 million for these types of insurance claims. A very high level of claims was recorded in property insurance – LTL 170 million. In analysing the data collected from the last ten years, a very high share (18.5%) was also observed in 2009 for claims for credit insurance policies (group 14).

Table 8. Structure of gross claims paid in non-life insurance, categorized by insurance group, in Lithuania in 2002-2011 (in %)

Group of insurance	Year									
	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1+2	4.68	4.47	5.13	4.31	4.53	4.07	6.45	5.76	5.08	6.00
3.	37.07	30.58	37.89	40.30	35.96	35.13	34.29	27.02	29.06	28.52
4.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.14	0.12
5.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6.	4.76	0.21	1.87	1.37	0.01	0.01	0.13	0.02	0.15	0.06
7.	0.91	0.72	1.19	0.84	0.92	0.67	0.25	0.18	0.32	0.56
8+9	16.79	29.00	13.33	11.86	10.94	16.95	16.64	14.70	16.65	22.92
10.	22.80	24.14	30.80	34.14	41.17	39.87	35.43	30.71	31.87	31.59
11.	0.06	0.08	0.03	0.00	0.01	0.22	0.06	0.00	0.02	0.02
12.	0.00	0.00	0.00	0.02	0.00	0.01	0.00	0.00	0.00	0.00
13.	3.14	1.94	3.22	2.64	1.59	0.68	1.11	0.73	1.06	1.58
14.	3.40	3.24	3.38	2.34	2.29	1.56	3.64	18.49	14.09	7.10
15.	6.34	3.35	2.26	2.06	2.53	0.76	0.70	0.77	0.85	0.72
16.	0.03	2.27	0.88	0.10	0.02	0.04	1.28	1.42	0.68	0.77
17.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18.	0.01	0.00	0.01	0.03	0.03	0.03	0.03	0.03	0.04	0.04

Source: Own calculations based on data of the Financial Supervision Authority in Lithuania: http://www.dpk.lt/

When comparing the situation in the non-life insurance market in Poland and Lithuania and in Europe, it can be observed that the structure of written premiums, both in the Polish and Lithuanian markets, differs from the average value for states belonging to Insurance Europe.[23] However, the Lithuanian market is more comparable to the European than the Polish market in this regard.

[23] Insurance Europe is the European insurance federation. Currently, it has 34 members, http://www.insuranceeurope.eu/ (07.10.2013).

Table 9. Structure of gross written premiums in non-life insurance, categorized by insurance group, in Poland, Lithuania, and Europe in 2002-2011 (in %)

Insurance	Poland	Lithuania	Europe
Motor	58	57	40
Property	19	21	26
General liability	6	6	10
Accident	7	9	10
Other	10	7	14

Source: Own calculations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/; *European Insurance — Key Facts*, August 2012, p. 11, http://www.insuranceeurope.eu (30.10.2013).

4. Dynamics of written premiums, claims paid, and claims ratio

Within the activity efficiency ratios providing information on changes in the insurance sector, the trend in gross written premiums is a significant indicator. This ratio is calculated according to the following formula:

Dynamics in gross written premiums = (Gross written premiums as of the end of the reporting period / gross written premiums as of the beginning of the reporting period) x 100%.

An analysis of ratios shown in Table 10 for Poland, both in life and non-life insurance, demonstrates that the insurance market developed quite systematically up to and including 2008. The insurers experienced the results of the economic crisis in 2009, which affected the situation in the life insurance market to a much greater extent. In examining the different groups in life insurance separately, the following trends can be observed: By 2008, the premiums trends increased in group 1 – life insurance; group 4 – annuity insurance; and group 5 – accident and sickness insurance. In comparing 2007 to 2008, an almost three-fold increase in premiums was recorded in the first group. On the other hand, in group 2 (marriage and birth insurance) and group 3 (life insurance linked to insurance capital funds), a decrease in premiums written (by 2% and 61% respectively) was observed in 2008. In turn, slight changes in the premiums written and their trends occurred in non-life insurance. In 2009, negative dynamics were recorded in groups 1, 2, 3, 7 and 14. A significant change was visible in the last year covered by the analysis (2011) for group 4, where a more than twofold increase in premiums was recorded.

The situation is quite different in Lithuania. The Lithuanian non-life and life insurance markets responded differently to turbulence in the global markets. The first signals of decline in the premiums written were visible in the case of life insurance in 2004 and in non-life insurance already in 2003. After this period, life insurance premiums increased systematically for four years up to and including 2007 and then in 2008 they decreased by more than LTL 250 million, and in 2009 by another LTL 50 million. The category of life insurance linked to insurance capital funds should be noted. Within this group, a large difference was recorded in 2006-2007. At that time, an increase in premiums by over LTL 330 million was observed, followed by a decrease by more than LTL 250 million in 2008. In turn, the Lithuanian non-life insurance market responded similarly to the Polish market, with negative dynamics in 2009. In the last year under analysis (2011), groups 13 and 14 of non-life insurance stood out with their clearly positive dynamics.

Table 10. Dynamics of premiums in Poland and Lithuania in 2002-2011

Specification		Year									
		2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Poland	**Life**	107.0	112.8	114.1	120.4	137.6	120.9	152.8	77.7	103.8	101.3
	Non-life	100.9	102.7	109.6	105.1	105.2	110.8	111.4	103.7	108.0	114.6
	Total	103.4	107.0	111.6	112.1	121.2	116.5	135.5	86.6	105.5	106.9
Lithuania	**Life**	149.7	153.6	110.1	122.9	158.3	173.1	67.9	90.6	111.6	103.3
	Non-Life	165.2	97.6	111.9	109.8	132.5	128.6	115.7	70.4	95.3	112.9
	Total	162.2	107.7	111.4	113.1	139.6	142.5	97.6	75.7	100.4	109.5

Source: Own calculations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/

The claims-paid ratio is another very important indicator. The following formula was used for its calculation: Dynamics in gross claims paid = (Gross claims paid as of the end of the reporting period / gross claims paid as of the beginning of the reporting period) x 100%.

The analysis of the dynamics for gross claims paid in 2002-2011 (Table 11), when compared with the dynamics of written premiums, revealed a consistency in both trends. Such a balance is a desirable feature of the insurance sector. Very high claims were paid out in Poland in division I in 2008 – almost PLN 19.5 billion and in 2009 – PLN 27.8 billion, in which group 1 had the largest share – 78.5%. In Lithuania, very high claims were paid in 2007, reaching LTL 133.4 million (an increase of 182% in comparison to the previous year), LTL 270.8 million in 2008 and LTL 337 million in 2011. In the last year under examination, the share of group 3 accounted for over 65% of claims paid.

On the other hand, the situation in non-life insurance was more stable in both Poland and Lithuania. The highest levels of claims in Poland were paid in 2010 (PLN 14.2 billion) and in Lithuania in 2009 (LTL 834.5 million). In 2011, groups 7 and 13 were distinguished by their very strong trends in non-life insurance in Lithuania, while in Poland groups 13 and 18 showed such trends.

Table 11. Claim trends in Poland and Lithuania in 2002-2011

Specification		Year									
		2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Poland	**Life**	127.4	119.6	119.4	122.8	112.1	123.3	186.2	142.7	81.5	115.4
	Non-life	99.6	98.0	107.2	101.5	101.4	109.5	114.8	118.0	113.6	97.0
	Total	108.0	105.7	112.1	110.6	106.5	116.4	152.7	134.0	91.4	108.3
Lithuania	**Life**	123.0	69.0	102.1	102.0	156.9	283.2	201.0	85.0	88.6	164.9
	Non-Life	163.8	124.1	93.2	122.9	131.0	132.1	126.6	110.1	87.5	101.9
	Total	156.2	115.9	94.0	120.9	133.1	146.5	140.3	103.5	87.7	115.7

Source: own calculations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/

The claims ratio provides information on the share of claims paid out on the written premiums. For the purposes of this study a simplified form of this ratio was assumed:

Claims ratio = (Gross claims paid / gross written premiums) x 100%

The claims ratio (Table 12) in life insurance in Poland peaked in 2009 and in Lithuania in 2011. In 2003-2007, this ratio in the Lithuanian market was very low. The low initial interest in group 3 insurance in Lithuanian society resulted in low written premiums and low claims paid out for this type of insurance. In 2007, Lithuanians spent LTL 615.5 million on this form of investment, and one year later insurers operating in Lithuania paid high claims (LTL 182 million). On the other hand, the value of the claims ratio in non-life insurance was quite stable. In Poland, its highest value was recorded in 2010 and in Lithuania it peaked one year earlier, in 2009. In Lithuania, in the last three years of the period under analysis, the highest claims were generated by credit insurance (group 14), while in Poland in 2007-2010 the highest claims were generated by group 6.

Table 12. Claims ratios in Poland and Lithuania in 2002-2011

Specification		Year									
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Poland	Life	43.5	46.1	48.3	49.2	40.1	40.9	49.8	91.5	71.9	81.9
	Non-life	58.7	56.0	54.8	53.0	51.1	50.5	52.1	59.2	62.3	52.7
	Total	52.2	51.6	51.8	51.1	44.9	44.9	50.6	78.3	67.9	68.8
Lithuania	Life	30.5	13.7	12.7	10.5	10.4	17.1	50.6	47.4	37.7	60.1
	Non-Life	38.3	48.6	40.5	45.3	44.8	46.0	50.4	78.8	72.3	65.3
	Total	36.9	39.7	33.5	35.8	34.1	35.1	50.4	68.9	60.2	63.6

Source:Own calculations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/

To summarize the data gathered, the mean dynamics of gross written premiums, claims, and the mean claims ratio are presented in Table 13. The indicators for written premiums and claims paid are higher in Lithuania than in Poland. On the other hand, the claim ratios in Poland are higher than in Lithuania, particularly in the life insurance sector.

Table 13. The mean dynamics of gross written premiums, claims, and mean claims ratios in 2002-2011

Country	Dynamics of premium		Dynamics of claims		Claims ratio	
	Life	Non-life	Life	Non-life	Life	Non-life
Poland	114.8	107.2	125.0	106.0	56.3	55.0
Lithuania	124.1	114.0	137.6	119.3	29.1	53.0

Source:Own calculations based on data of the Financial Supervision Authority in Poland and in Lithuania: www.knf.gov.pl; http://www.dpk.lt/

5. Planned trends in the development of insurance market

Based on analysis of data from the Polish and Lithuanian insurance markets for the last ten years it can be assumed that market trends will be preserved. Looking at the experience of other countries, the insurance markets in Poland and in Lithuania coped well with the effects of the financial crisis.

Forecasts for the next few years concerning the number of insurers indicate that Poland will be characterised by stabilization of the number of insurance companies, with a slight decreasing trend. This will be due to mergers among insurers, thus forming strong capital groups to ensure the safety of their

customers. In turn, major changes are not expected in Lithuania. The number of insurance companies there will oscillate at around 30.

When analyzing the written premiums in an unwavering, global financial market, it is believed that in Poland the premium income will increase by an average of about 4.5-5.0 billion PLN per year, and in Lithuania at about 100-150 million LTL It is believed that paid compensation from the insurance business in the Polish and Lithuanian markets should remain at around 40 billion PLN in Poland and 1100 million LTL in Lithuania, with a gradual increase.

In a stable economic situation it is expected that the Poles should spend greater part of their free financial resources spend on life insurance linked to insurance capital funds, like in Lithuania and in Poland in 2007.

The most popular product in non-life insurance, in both countries will remain motor vehicle insurance. This is due to an increasing growth in the number of motor vehicles. Growing premium income from general liability insurance (group 13) in Poland and in Lithuania is also a factor which confirms the predicted development of the insurance market.

Regarding to the loss ratio of life insurance in Poland it will maintained at about 65% with a slight downward trend, while in non-life insurance situation will be reversed. The level of this indicator will be fluctuated around 55% of a slightly increasing trend. In Lithuania, the rate in life insurance will be around 40%, non-life 65% with small growth tendencies.

6. Conclusions

The analysis of the data collected shows many similarities and some differences in the individual ratios defining directions and trends in the development of the Polish and Lithuanian insurance markets. In terms of the number of insurers, the situation in both countries appears stable. On a per capita basis, Lithuania comes out better in this regard. After opening its markets as a result of joining the European Union, a free market of information, capital and workforce was established. There is no indication that in the upcoming years the situation will change drastically.

The next issue concerned the level of the premiums written and claims paid. Poland felt the results of the financial crisis on the insurance market later than Lithuania. On average, in the analysed ten-year period (2002-2011) the structure of gross written premiums in life insurance in Poland was 52%, and in non-life insurance 48%. In Lithuania, unfortunately, in all the years under analysis insurance products from non-life insurance were definitely more

popular. The means for the 2002-2011 period were 28% for life insurance and 72% for non-life insurance. On the other hand, the share of claims on the gross written premiums in Poland and in Lithuania was the least favourable for insurance companies in 2009, amounting to as much as 78% in Poland and 69% in Lithuania. In 2011 65% of claims paid in 2011 in Poland originated from life insurance, while in Lithuania 69% originated from non-life insurance. Considering the premium income and the payment of benefits and compensation in subsequent years, it is believed that in Lithuania the situation will change the ratio between expenditure on life insurance and property insurance, in favour of life insurance.

For the life insurance sector in Poland, group 1 enjoyed a higher popularity in the last three years (2009-2011), while in Lithuania group 3 was the most popular, combining insurance with a saving function. In the case of the claims' structure, the trend is exactly the same.

Within non-life insurance, most insurance policies were purchased by Poles and Lithuanians for motor vehicle insurance (third-party liability insurance and casco insurance), followed by property insurance, accident and sickness insurance, as well as financial insurance and other liability insurance. In turn, definitely the highest numbers of claims were for motor vehicle and real property insurance in both countries. In this regard there will be no change.

In analysing the claims ratio in the period of 2002-2010, large differences could be observed between the two examined States, particularly with respect to the claims ratio in life insurance. On the other hand, when taking into account the four years of 2008-2011, the claims ratio in life insurance in Poland amounted to 74% and in Lithuania to 49%, while in non-life insurance it was 57% in Poland and 67% in Lithuania.

Considering various aspects of the Polish and Lithuanian insurance markets, it should be emphasized that the development directions are appropriate. Poles are more interested in life insurance, while Lithuanians are more concerned with non-life insurance.

Economic, political and demographic changes have a significant impact on the situation on the insurance market. If there is no repeat of the situation of 2008-2009. which was associated with the global crisis, the Polish and Lithuanian markets will grow properly. There may be slight changes in the investment of customers' savings in life insurance products.

If risk could be foreseen, insurance would not be needed. This, however, is obviously not possible. The economic recession in recent years affected the entire world, and the insurance market also experienced the effects of this crisis. Despite the best intentions and the experience of many persons, potential risks

were overlooked, which threatened the collapse of the global financial system (Lane, Down 2010, p. 522). After a difficult 2008 and 2009 and a short decline, the Polish and the Lithuanian insurance markets started to grow again.

References

Act of 21 July 2006 on supervision of the financial market (Dz.U. 2006, No. 157, item 1119)

Act of 22 May 2003 on compulsory insurance, Insurance Guarantee Fund and the Polish Motor Insurers' Bureau (Dz.U. 2003, No. 124, item 1152)

Act of 22 May 2003 on insurance activities (Dz.U. 2003. No. 124, item 1151)

Act of 22 May 2003 on insurance and pension funds supervision and the Insurance Ombudsman (Dz.U. 2003, No. 124, item 1153)

Act of 22 May 2003 on insurance mediation (Dz.U. 2003, No. 124, item 1154)

Act of April 23, 1964 - Civil Code (Dz.U. 1964, No. 16, item 93)

Act of December 2002 - Republic of Lithuania Law on pension reform (Valstybėsžinios Nr. 123-5511)

Act of July 2000 - Civil Code (Valstybėsžinios Nr. 74-2262).

Act of July 2003 - Additional Republic of Lithuania Law on autonomous pension accumulation (Valstybėsžinios Nr. 75-3473)

Act of July 2003 - Republic of Lithuania Law on pension accumulation (Valstybėsžinios Nr. 75-3472)

Act of March 2004 – Republic of Lithuania Insurance Law on motor third party liability (Valstybėsžinios Nr. 46-1498)

Act of November 1996 - Republic of Lithuania Law on health insurance (Valstybėsžinios Nr. 55-1287)

Act of September 2003 - Republic of Lithuania Law on insurance (Valstybėsžinios Nr. 94-4246)

Hadyniak B. (2010), *Ubezpieczenie jako urządzenia finansowe*. [in:] Jerzy Handschke. Jan Monkiewicz (ed.) (2010). *Ubezpieczenia podręcznik akademicki*, Wydawnictwo Poltext, Warszawa

http://www.dpk.lt/

http://www.dpk.lt/en/es_draudikai_beta.php

http://www.insuranceeurope.eu/

http://www.lb.lt/prieziura

Insurance In Figures. CEA Statistics Nr 36, CEA 2008

Kowalewski E. (2002), *Prawo ubezpieczeń gospodarczych*. Oficyna Wydawnicza Branta, Bydgosz-Toruń

Kwiecień I. (2010), *Ubezpieczenia w zarządzaniu ryzykiem działalności gospodarczej*, Wydawnictwo C.H. Beck, Warszawa

Lane D.A.. Down M. (2010). *The art of managing for the future: leadership of turbulence*, 'Management Decision', Vol. 48, No. 4

Raport o stanie sektora ubezpieczeń po IV kwartałach 2011 roku. Urząd Komisji Nadzoru finansowego 2012. http://www.knf.gov.pl/Images/sektor_ubezpieczen _IVkw2011_tcm75-30582.pdf

Ubezpieczenia 2010. Polska Izba Ubezpieczeń. p. 12, 42. www.piu.org.pl/public/upload/ibrowser/.../ Ubezpieczenia% 202010.pdf

Ubezpieczenia 2009. Polska Izba Ubezpieczeń. p. 13.http://www.piu.org.pl/public/upload/ ibrowser/analizy%20i%20raporty/ubezpieczenia2009_na-cd.pdf

Ulbinaite A.. Kucinskiene M.. Moullec Y. Le. 2013. *Determinants of Insurance Purchase Decision Making in Lithuania*, 'InzinerineEkonomika-Engineering Economics' No. 24(2)

Williams C.A.. Smith M.L. Young P.C. (2002*), Zarządzanie ryzykiem a ubezpieczenie*, Wydawnictwo Naukowe PWN. Warszawa

Streszczenie

KIERUNKI ROZWOJU UBEZPIECZEŃ GOSPODARCZYCH W POLSCE I NA LITWIE

Celem artykułu jest określenie kierunków rozwoju ubezpieczeń gospodarczych w Polsce i na Litwie w ostatnim dziesięcioleciu. Rynek ubezpieczeniowy w latach 2002-2011 zmienił się. Zmiany te są widoczne w różnych obszarach ubezpieczeń gospodarczych. W nakreśleniu kierunków rozwoju rynku pomocne były informacje na temat liczby ubezpieczycieli przypisu składki i jej dynamiki. wypłaty świadczeń. odszkodowań i ich dynamiki oraz wskaźnika szkodowości.

Podkreślenia wymaga fakt. iż Polska później niż Litwa odczuła skutki kryzysu finansowego na rynku ubezpieczeniowym. co jest widoczne w poszczególnych analizowanych wskaźnikach. Na Litwie pod względem wydatków na ubezpieczenia zdecydowanie większym zainteresowaniem cieszą się produkty ubezpieczeń majątkowych. w Polsce natomiast ubezpieczenia na życie. W ramach ubezpieczeń działu I Polacy kupują najwięcej ubezpieczeń z grupy 1. Litwini z grupy 3. Jeżeli chodzi o dział II. zarówno wśród osób mieszkających w Polsce. jak i na Litwie. a także w całej Europie największym powodzeniem cieszą się ubezpieczenia komunikacyjne (OC i AC) oraz ubezpieczenia nieruchomości.

Słowa kluczowe*: rynek ubezpieczeń gospodarczych, składka przypisana brutto, poziom odszkodowań i świadczeń, dział I, dział II, wskaźnik szkodowości*

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MACIEJ KOZŁOWSKI*

The Relationship Between Workers' Financial Participation In Companies And Economic Results

Abstract

It is known that workers' financial participation, primarily in the form of wider participation of employees in profits and ownership, has been used in enterprises from many years, but in practice the period of implementation of different forms of financial participation has taken place only in the last four decades. Workers' participation in decision-making has a longer tradition, so it is well described in the literature, and its impact on the results achieved by companies are known through the many research projects conducted by researchers around the world and through detailed reports. Financial participation has not been the focus of so many papers, so the knowledge and information from this area is incomplete. This is because of the lack of comprehensive studies on the various forms of participation, their irregularity, the lack of cooperation between states in the exchange of information concerning the number of implemented solutions, etc. Of course, it is not possible to include all of the companies in research and the results cannot be generalized due to the different conditions and selection criteria in particular countries. Also, the ambiguous interpretation of the term "financial participation" by different authors and different institutions does not allow for setting up and developing the output database necessary to conduct the research and carry out comparisons. In the literature, programs of financial participation are treated as an incentive system, without taking into account the wider context and the relationships between these programmes and the results achieved by the company. This contribution aims to give some theoretical and scientific

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examples, which, by virtue of their nature and severity can contribute to the possible diverse research solutions to the problems facing businesses, especially in today's dynamic, global economy. After forty years of empirical research on the benefits of the implementation of various programmes of financial participation, the information provided, in principle, only in the form of reports, is not sufficient to express opinions on the development of forms of participation. At the same time, it is concluded that the programmes of financial participation have had a positive effect on the results achieved by companies, especially in terms of social benefits. Arriving at the above opinion has been additionally impeded by the different attitudes of the social partners to the issue of participation and participatory approaches, the absence of explicit data showing the relationship between implemented financial schemes and financial results, changes in the competitive position of enterprises, etc. The outlined theory concerning how the workers' ownership affects economic performance achieved by a company unfortunately has not changed. This article is not to bring about fundamental changes, but to find new threads or directions of deliberation.

***Keywords**: financial participation, profit sharing, Workers' ownership, workers' attitudes*

1. Introduction

Employee financial participation, known mainly in the form of general participation of employees in profits and ownership of a company, has been applied in enterprises for many years, but focusing on the present day, the implementation of solutions in the field of financial participation covers only the last four decades. Employee participation in the decision-making process has a longer tradition, owing to which it has been depicted in the literature in a more detailed way, and its influence on company results is evident and known due to the many studies conducted by researchers all over the whole world, as well as the number of precise reports. Financial participation has not been given so much space in the literature, therefore the knowledge and information available is incomplete. The reason for this, among other things, is the lack of complex research on particular forms of financial participation, their irregularity, absence of co-operation between states in the field of exchanging information concerning the number of implemented participation schemes etc. Of course it should be kept in mind that the research cannot cover all companies, and generalization of particular results to all companies and states does not seem advisable due to different conditions and different criteria for making a choice.

The ambiguous interpretation of the term "financial participation" by different authors and institutions also does not allow for creating and developing the underlying data base of variables necessary to conduct research and make comparisons. It frequently happens that in the literature financial participation schemes are treated as an element the incentive scheme, without any broader context or investigation of the relationships between these schemes and the results achieved by companies. As a result it appears timely, if not obligatory, to suggest some theoretical and exploratory aspects which, due to their nature and significance, may fill the information gap and contribute to possibly redirecting the search for solutions to the problems faced by entrepreneurs, especially in the era of a dynamic, global economy, which forces companies to be open to new challenges.

After almost forty years of conducting empirical research on the benefits from the implementation of financial participation schemes, the information provided, almost solely by means of reports, is not sufficient to make a uniform assessment concerning the development of forms of financial participation, yet at the same time it is frequently stated that financial participation schemes exert a positive influence on the results achieved by companies, especially the social results. Reaching the above-mentioned conclusion is additionally hindered because of the aforementioned different attitudes of the various social partners toward the problem of participation and participation schemes, the lack of clear-cut data concerning the extent to which the implemented participation schemes contribute to a change of financial results, changes in the competitive position of companies etc. The above-outlined theory concerning the way in which employee ownership influences the economic results achieved by companies should be, unfortunately, altered. This does not mean that it needs to be changed substantially, but that account should be taken of new aspects the direction of consideration altered.

The purpose of this paper is to present selected views on the attitudes toward the mechanisms and relationships between employee participation and company results. Because of the undoubted higher popularity of share ownership schemes, the emphasis has been put on showing the multidimensional relationships between employee ownership and economic results, as well as on proving that the relationship between mechanisms of employee ownership and productivity are by nature complex interactions.

2. The relationship between financial participation schemes and economic results – the theoretical aspect

The idea of encouraging employees to become shareholders in their own company, or to become part of profit sharing and/or purchase option schemes, is becoming more and more popular in many states, as well as in such leading economies such as the United States (Poutsma, Albaraccin, Kalmi, Pendleton, Trébucq and Voss 2006) or even China (Chiu, Hui and Lai 2007, pp. 303-320). Governments and companies may encourage the development of employee share ownership (shareholder structure) and other financial participation schemes, inter alia through tax incentives and the implementation of schemes allowing employees to purchase stock at preferential prices. It seems that these stimuli are rather expensive both for the governments of particular states as well as for the companies themselves (which results from, inter alia, the above-mentioned attitude of the main actors of economic life toward the promotion and implementation of employee financial participation schemes) (Doucouliagos 1995, p. 59; Jones and Kato 1993, p. 359; Trébucq 2004, p. 82). But on the other hand the main reason for accepting and implementing such schemes is a general belief that relating the employee remuneration to the company results produces better and more effective work on the part of employees, and in the same way it has a positive influence on the general economic results achieved by companies (Iqbal and Hamid 2000, p. 27; Jones and Kato 1993, p. 359).

In economic theory these relationships are not so unambiguous, which is pointed out by Jones and Pliskin (Jones and Pliskin 1988, p. 1). It is even possible to find opinions showing that employee financial participation schemes lead to the occurrence of issues concerning the "free rider problem", or to the decrease of management participation in decision-making. Nevertheless, most research shows positive effects of the implementation of participative ownership solutions, as well as employee profit-sharing schemes. An example might be the analysis conducted by Kaarsemaker in 2006, in which he shows that among the 70 papers he studied, 48 of them contain evidence of a positive influence of schemes based on employee participation in ownership on the economic results of companies, but only six raise the issue of negative relationships (Kaarsemaker 2006, p. 44).

Similar conclusions which has been drawn by different authors dealing with this topic, especially solutions based on employee ownership can be found, inter alia, in a summary work by Kruse and Blasi. These researchers claim that there is no automatic, or even direct relationship between employee ownership and economic indicators (e.g. productivity). A great number of research projects point out better, or at least the same, results achieved after the introduction of

participative solutions, however only sporadically can there be found any information in the literature presenting negative relationships between employee participation in financial schemes and economic results (Kruse and Blasi 1997, p. 143). Having studied the literature concerning financial participation solutions, an obvious thing comes to mind, namely that for many years there has been no development of the theory concerning the mechanisms and relationships connecting employee participation schemes based on ownership or profit-sharing with the results achieved by companies. Forty years of research on financial participation has added little in the way of theory to the above mentioned issues (Freeman, Blasi, Kruse and Mackin 2010, pp. 139-165). In many cases the confirmation of this is simply the absence of theory in given articles, or only a brief reference to it at the end or in the conclusions. In most articles the authors focus mainly on analyzing the empirical data (Park and Song 1995, pp. 52-65; Davidson and Worrell 1994, pp. 69-87; Frye 2004, pp. 31-54).

The research does lead to a conclusion that the popularity of implementation of solutions based on employee participation in ownership, profits, and other forms considered to be a type of financial participation, has been systematically increasing. The growth in participation schemes happens due to its financial benefits (value of stocks, dividends, and bonuses) and also due to giving employees the right to making decisions on the basis of possessing shares or stock (Craig and Pencavel 1995, pp. 121-174). In most cases the benefits from the implementation of such schemes are limited to changing the level of productivity or work efficiency. The other resulting variables include, inter alia, sales, profitability, share price, property distribution, employment, investments, income, and social variables (decrease in workers' mobility, identification with the company, better communication etc.). These indicators may be further divided into typical benefit types such as economic, social and market benefits. They may be achieved through the introduction of individual incentives or organizational changes (Ben-Ner and Jones 1995, p. 537). The stimuli and the individual variables mostly refer to the workers' attitude displayed toward their company and to efforts to make work efficient, while organizational variables refer to areas such as passing on information, mutual monitoring of workers, or even improvement of general relations in the company.

In the literature on the subject, one of the basic premises for implementation of financial participation schemes, which explains their influence on the company results, is a change of employees' attitude and change of their behavior in the workplace. These relationships are explained by means of two major theories: the agency theory and the theory of justice. The agency theory suggests that in the case of monitoring (which is costly), financial participation is a solution which guarantees that employees will act according to the requirements of the

owners, in a way which contributes to maximizing their individual benefits and interests (Kruse 1993, p. 23; Welbourne and Gomez-Mejia 1995, p. 883). It is hoped that the financial participation schemes will become an incentive motivating employees to work longer and more efficiently, will encourage co-operation with other workers and the management, and that workers' income will increase as the results of the company improve (Pérotin and Robinson 2003, p. 17). Since these solutions at their core join the welfare of the individual with the welfare of the company, it is also expected that they will have an influence on a broader identification of employees' goals with the goals of the company (Ben-Ner and Jones 1995, p. 538). Alignment of interests, together with a broader access to information, will probably have a positive influence on the quality of decisions to be made (Cin and Smith 2002, p. 272; Robinson and Wilson 2006, p. 33). As is generally known, financial participation schemes are usually based on granting of stocks to employees and on profit sharing, which should be treated as an addition to the salary, thus employees who receive something additional above the ordinary remuneration have a feeling of justice and equality, which in turn leads to a conviction that their overall income is a result of better work and their individual positive attitude toward the realization of company's goals (FitzRoy and Kraft 1992, p. 210; Frohlich, Godard, Oppenheimer and Starke 1998, p. 314). It is also supposed that financial participation reduces the turnover and absenteeism of staff. The feeling that one is a co-owner of the company or receives bonuses because of his more efficient performance increases motivation and satisfaction from work and, strengthens employees' bonds with the workplace, which makes them less frequently take a (sick) leave (Cohen and Quarrey 1986, p. 62; Jones and Pliskin 1988, p. 4). In turn, smaller turnover of staff lowers the costs of training and increases the returns on investments connected with human capital (Estrin and Jones 1992, p. 326; Jones 1987, p. 84; Smith, Cin and Vodopivec 1997, p. 161).

It should be indisputable that long-term workers have more detailed knowledge about the actions undertaken by the company, and longer job seniority as well as long-term co-operation in groups facilitate better communication and relations based on trust, which consequently improves the whole organizational system in the company (Jones 1987, p. 85). Similar arguments are mentioned by Marsh and McAllister, who claim that owing to financial participation workers have a better understanding of tasks assigned by the management, which leads to easier identification with the company's goals (Marsh and McAllister 1981, p. 582). It may also result in a more favorable attitude of trade unions toward implemented financial participation schemes in the company. It is generally believed that as a tool for sharing profits, financial participation attracts better workers in the longer run (FitzRoy and Kraft 1992,

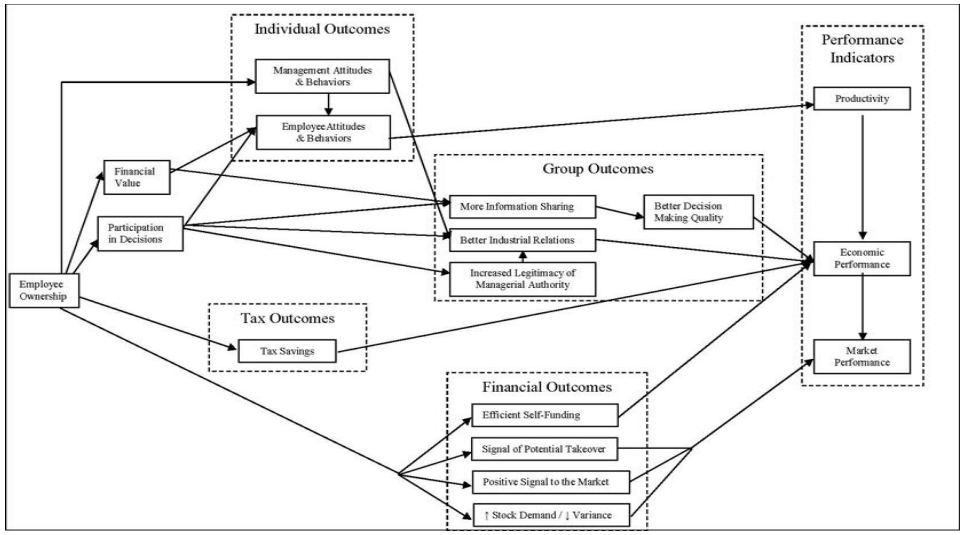
p. 210). And it is further assumed that more efficient workers will more readily participate in remuneration systems dependent on the economic results of the company. However, there are opinions, which seem plausible, that these employees will demand participation in schemes based on individual effects, and worse employees or less efficient ones will also support collective forms of participation (Blasi, Conte and Kruse 1996, p. 62).

One should also keep in mind the indirect relationships between financial participation schemes, especially employee ownership, and company's economic results, namely the aforementioned participation in decision-making on the grounds of stock ownership. According to Jones, participation in decision-making has a positive influence, just like financial participation, on lowering the turnover of the staff (Jones 1987, p. 84). It also exerts an influence on shaping more entrepreneurial attitudes, increased trust in the management, decreased conflicts, etc.[1] Mutually agreed-upon decisions will be implemented by employees with much more enthusiasm than those made unilaterally by management (Craig and Pencavel 1995, p. 124; Lee 2003, p. 481). According to the above mentioned considerations it is sometimes difficult to say what really exerts influence, and with what strength, on the attitudes of the staff, especially when in companies there are specific financial participation schemes, and at the same time workers have a significant role in the decision-making process.

Apart from the individual attitudes of employees, which are the basis of the relationships between financial participation and a company's economic results, it should be also mentioned that these relationships also have their grounds in tax and fiscal regulations. Tax incentives are a less frequent premise for the introduction of participation schemes, which was pointed out by Chang (Chang 1990, p. 48). However, they allow for the creation of more favorable remuneration and insurance packages for employees. In turn, M. Caramelli puts a special emphasis on the relationship between share ownership schemes and company's results (Figure 1).

[1] A greater number of conflicts and weaker trust are typical, according to the authors, in conventional private companies, in which there are no financial participation schemes, and workers have little influence in decision-making; comp. Frohlich, Godard, Oppenheimer and Starke 1998, p. 314.

Figure 1. A Theoretical framework of the effects of employee ownership on three indicators of corporate performance



Source: Caramelli 2010, p. 41.

Increase in effectiveness due to the implementation of financial participation schemes changing only employees' attitudes should not be the major relationship and the key mechanism of interaction in the company. The variables from Figure 1 contradict the commonly accepted idea that only more efficient performance is a result of implementation of these schemes, and changes in workers' attitudes have an influence on better economic results of the company. The links and interactions are more complex and not so direct, which is why the above mentioned opinion seems controversial and unjustified. Moreover, it should be taken into account that some employees try, from the very beginning of their work and not necessarily under influence of participative solutions, to work as efficiently as they can, while at the same time others may be hard to motivate, even when a financial scheme has been implemented. Briefly, even if a scheme has a positive influence on efficiency, this may concern only a small percentage of the workforce. This issue has been stressed by J. Blasi, one of the few authors dealing with issues of financial participation. In his book he states that the overall influence of such schemes on productivity is very small, and the effects gained from implementation of participation schemes, based on the above-mentioned relationship, are exaggerated. He also adds that this results from absence of complex research concerning the compound interactions in the production process (Blasi 1988, p. 238). The influence of attitudes and behaviors on other market or economic indicators is even less credible (comp. Fig. 1), although most authors raise similar arguments as in the case of explaining the

influence of attitudes and behaviors on efficiency (Pugh, Jahera Jr. and Oswald 2005, p.78). Trébucq has a different opinion and suggests that the percentage of capital in hands of employees in listed companies is in many cases insufficient to alter their attitudes and behaviors (Trébucq 2004, p. 83). It also happens that employees' shares in profits are not always motivating enough to radically change their attitude toward work and stimulate increased commitment. Financial participation schemes are too complex as tools and are indeed too distant from everyday activities performed by employees to alter their attitudes in the workplace (Trébucq 2004, p. 90).

According to Blasi, shares or stocks possessed by employees represent only a small amount of workers' income achieved every year, and that additionally in the case of a broad distribution of stocks does not bring about workers' influence on the decisions made in the company (Blasi 1988, pp. 237-238). The author believes that employee ownership schemes applied in American companies do not have a substantial influence on efficiency because their structure and assumptions have little to do with the practical realization of everyday tasks or co-operation between ordinary workers and the management in the decision-making process, both with respect to technological processes as well as the use of human and real capital (Blasi 1988, p. 233). According to him it can be assumed that the arguments explaining the relationship between schemes based on employee participation in ownership and profits and a company's economic results are in most cases not very convincing.

3. Causality and the direction of relationships in the company

It seems that a very important issue is causality and the direction of the relationships between participation schemes and the results achieved by a company. In general, it is worth considering whether better economic results influence the implementation and development of participation schemes or the other way round. The literature and applied methods of research only shows connections between these schemes and economic results, and they are not indicative of causal relationship (i.e. direction of causality), which in turn substantially hinders interpretation of the results. To make matter more complicate, as has been already mentioned there is no simple causal relationship. According to Kruse and Blasi, the relationship between financial participation and a company's results depends on the "circumstances in which the schemes are implemented, background of relations and attitudes between employees and general policy of the company which may strengthen or weaken the effects achieved due to an introduction of participation schemes" (Kruse and Blasi 1997, p. 114).

The authors are of the opinion that in order to improve results in companies with employee participation schemes, there should be a provisional arrangement, prior to the introduction of a proper financial scheme, of a specific package of incentive tools and rights vested to employees with regard to co-making specific decisions, and the working environment should be appropriately modified by reducing the problems resulting from the free rider effect (Kruse, Freeman, Blasi, Buchele, Scharf, Rodgers and Mackin 2004, p. 308).

Of course one should be aware that these provisional arrangements may turn out to be insufficient to achieve satisfactory results. It is expected that it is workers who will bring in creativity, new conceptions and ideas, which is possible only if the management creates a specific structure of incentives and differentiated forms and methods of commitment and broader engagement of employees in fulfilling entrusted tasks in the workplace. It might be supposed that this commitment, without participation based on ownership and profit sharing, may significantly weaken over time. In order to avoid such a situation, it seems necessary to build an appropriate base of specific values, norms and stipulations common for all employees of a particular organization i.e. corporate culture, determining the atmosphere at work including, inter alia, independence in decision-making, mutual relationships between workers etc. Participation based on ownership and profit sharing should be some kind of a remuneration system, joining everything together.

In conclusion, neither the existing theory nor the research conducted so far convincingly explain the relationship between financial participation schemes and results achieved owing to their introduction, which only proves that there is a need to conduct further research in this field. In this case an empirical approach should concentrate on qualitative research and not quantitative, which although broad based, does not identify the above mentioned relationships very precisely. Unfortunately, so far, the quantitative approach has been prevailing, in which there is a stress on the influence of financial participation schemes on workers' attitudes, and consequently – on the results achieved by companies (Holyoake 1906; James, Dennison, Gay, Kendall and Burrit 1926; Lloyd 1898; Williams 1913). It is believed that when employees are owners or when they receive additional remuneration on the grounds of higher profits obtained by the company, they will behave like owners (Pfeffer 1998, pp. 96-124), more strongly identify with the company's goals, and feel more responsible for economic results. Financial participation schemes, such as PS or SAYE, are just one of the possible examples of such positive results achieved by companies (IDS Study 1998; Smith 1993, pp. 149-153; Richardson and Nejad 1986, pp. 233-250). It has also been noted that these schemes are one of more

innovative institutional solutions in human resource management (Dunn, Richardson and Dewe 1991, pp. 1-17).

As has been mentioned, the existing literature on financial participation schemes (FP – Financial Participation) contains different approaches toward the attitude of employees resulting from implemented schemes. One of the reasons of the ambiguous results is the absence, or at least substantial lack of, appropriate tuning of the model concept of how to conduct research and analyses by different research teams (Pierce, Rubenfeld and Morgan 1991, pp. 121-144). The conducted empirical research on FP is very rarely related with the theory which refers to the relationship between FP and the attitudes of employees and their commitment in the workplace. In order to fill this information gap a great number of research teams constructed models which include the above relationships. They tried to highlight the influence of FP on particular variables describing workers' attitudes such as integration, commitment, perceiving pay equity, influence in decision-making, attitude toward participation schemes, satisfaction from participation in them, motivation, general interest in work etc[2]. Analyzing the literature on the above mentioned relationships, among different approaches can be found three most often highlighted models of psychological effects of financial participation. They are based on a common assumption that "satisfaction from taking part in a financial scheme will more strongly bind the worker to the company and motivate him to more efficient work" (Klein 1987, p. 320). Satisfaction will, in turn, create stronger commitment, both in terms of productivity and organization, as well as reduce staff turnover.

The first model is the so-called "internal" one, in which it is assumed that employee ownership increases commitment and satisfaction in the workplace, and the benefits for the employee result from the very fact of being an owner. These conclusions have been drawn according to the research on the relationship between workers' attitudes and the amount of stock possessed (French and Rosenstein 1984, pp. 861-869; Hammer and Stern 1980, pp. 78-100), comparison of attitudes of worker-owners and employees who do not have any ownership (Long 1978a), surveys conducted before and after implementation of ownership schemes (Tucker, Nock and Toscano 1989, pp. 26-42), as well as a comparison between workers' companies and companies managed by individual owners (Greenberg 1980, pp. 551-569; Rayton and Seaton 1999, pp. 259-266; Rhodes and Steers 1981, pp. 1013-1035; Russell, Hochner and Perry 1979, pp. 330-341; Russell and Rus 1991).

[2] One of the first models showing the above relationships was Long's model (comp. Long 1978a), further developed by Florkowski (comp. Florkowski 1989) and finally modified by the international research team composed of: I. Bakan, Y. Suseno, A. Pinnington and A. Money (comp. Bakan, Suseno, Pinnington and Money 2004, pp. 587-616).

The second model is described as the model of "instrumental satisfaction" or "indirect effects". It assumes that employee ownership increases the influence of workers on the actions in the decision-making process and activates their self-control, which in turn has a positive influence on the "attachment" of workers to the company, and on satisfaction and increased commitment. As can be seen, proponents of this model focus on the indirect relationships, claiming that employee ownership exerts a positive influence on workers' attitude toward work, but only when the company guarantees them participation in decision-making (Coyle-Shapiro 2002, pp. 57-77; Hammer and Stern 1980, pp. 78-100; Long 1978b, pp. 29-48; Long 1978c, pp. 753-763; Long 1979, pp. 611-617). The testing method of the "indirect effect" model basically does not differ from the "internal" model – the latter includes the relationships between the number of shares possessed and individual commitment of the employee or it compares workers' with non-workers' companies. What differs in these two models, and what is stressed by the authors, is the indirect chain of relations: ownership, control, decision-making and workers' attitudes (French and Rosenstein 1984, pp. 861-869). The other authors, who analyzed both models (Russell, Hochner and Perry 1979, pp. 330-341), also stress the importance of indirect participation in changing workers' attitude (Buchko 1992, pp. 59-78).

The third model is referred to as the "external" model of employee ownership and it assumes that employee ownership strengthens commitment, especially in organizational matters, only if it is combined with an increase in remuneration. Testing this model in the analysis of remuneration systems confirmed the financial factor as decisive with respect to satisfaction from work (Heneman 1984; Lawler III 1971; Lawler III 1981). Katz and Kahn considered the employee share ownership scheme as a kind of reward system, which may increase workers' participation in organizational activity and lower staff turnover (Katz and Kahn 1978). The other authors, who applied the above model in their studies, also came to a conclusion that combining rewards with employee ownership schemes is a determining factor in workers' attitudes (Rosen, Klein and Young 1986; Klein and Hall 1988, pp. 630-638).

Among the three suggested models, the one which deserves the most attention is the first model, which is most often used to test relationships and attitudes of employees. Considering the long tradition of applying ownership solutions, it enjoys great popularity in Great Britain, especially with regard to the SAYE and EBO schemes (Pendleton, Wilson and Wright 1998, pp. 99-123). In testing the above model and analyzing the influence of an implemented financial scheme on workers' attitudes, many researchers who interviewed workers/shareholders obtained similar results, namely that their attitudes changed radically after the introduction financial participation schemes (Bell and

Hanson 1984; Fogarty and White 1988; Wilkinson, Marchington, Ackers and Goodman 1994, pp. 121-143). However, it seems that studies in the literature using the results achieved by Bell, Hanson and Wilkinson are too one-sided in their estimate. Such a conclusion can be drawn according to the observation that the workers who are asked about the influence of financial schemes on their change of attitude are already participants of these schemes; they support them and take an active part in the functioning of the company. Therefore, it may be assumed that the extent of influence of these schemes on workers' attitude in terms of the above mentioned aspects of work might be exaggerated. Similar opinions are presented by Pendleton, who suggests that the majority of research on financial participation too excessively highlights the complex, at least in theory, relationships between profit sharing as well as share ownership schemes and workers' attitudes; while in practice it turns out that this influence is significantly limited (Pendleton, Wilson and Wright 1998, pp. 99-123). Therefore, in research the "internal" or the "external" model is usually assumed by default, and they suggest a simple and direct relationship between possession of shares and changes in attitudes, and do not allow for the other possible determinants which influence workers' attitudes.

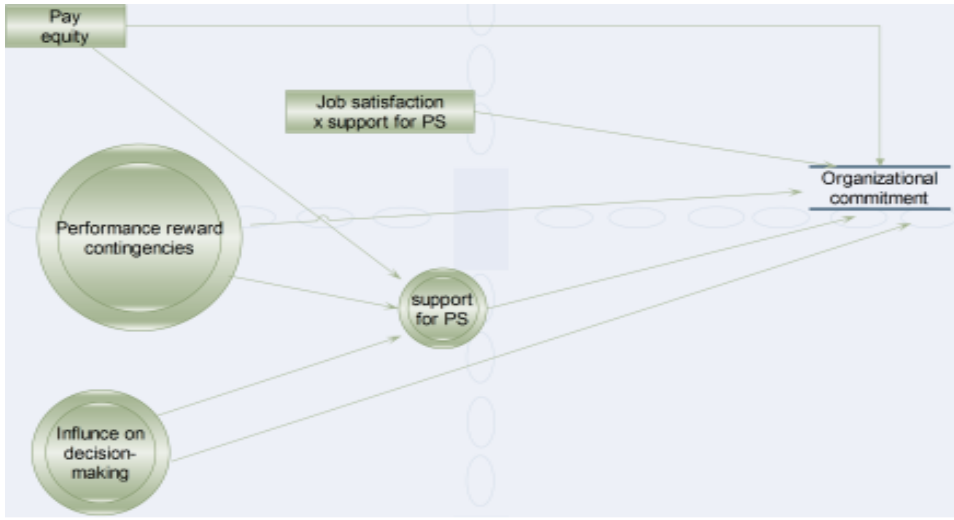
It seems especially crucial in the future research, despite substantial obstacles, to apply a methodology which allows for determining the actual, more complex, network of relationships between financial participation and workers' attitudes. Of course even the pioneering paper by Long tries to display some of these relationships, by concentrating on three areas: integration and common goals of the organization, a sense of belonging to the organization and participation in its activities, and a sense of workers' commitment to the organization and encouraging him to abandon any ideas of leaving the workplace (Bakan, Suseno, Pinnington and Money 2004, pp. 590-592). The aim of integration is to convince workers that good financial and organizational results lead to higher individual remuneration. It has to motivate workers – as individuals and a collective workforce - to more efficient performance. Another purpose of integration is to get workers to identify their goals with the goals of the management and the whole company. The result of this should be higher economic indicators achieved by the company. It is hoped that the second aspect, inducing a sense of belonging, will strengthen the integrative actions and induce pro-collegiate behaviors, increase the will to co-operate, and the final outcome will a general growth of satisfaction from work. Profit sharing and share ownership are both supposed to be such a catalyst, accelerating the induction of the above attitudes in workers.

Special attention is also paid to the psychological aspect of being a shareholder, which strengthens workers' identification with the organization.

This effect may be also obtained by the broader access to information which is available to the worker-shareholder. Finally, an employee's commitment to the workplace should be visible in the form of different attitudes and behaviors supporting the organization, such as: greater willingness to innovate, lower turnover, decrease in absenteeism and in workplace dissatisfaction. It is easy to notice that these three areas complement one another, and also indicate some effects of synergy resulting from the implementation of financial participation schemes.

The second model which is worth mentioning is the one developed by Florkowski. The author tried to identify a few indirect variables between the implemented participation scheme and the commitment of workers.

Figure 2. Florkowski's theoretical framework: proposed model for plan support and organizational commitment



Source: Florkowski 1989, p. 17.

The figure includes the variables indicated in both the "instrumental" as well as in the "external" approach. Florkowski suggests that personal feelings in terms of the meaning of pay equity, the relationships between economic results and bonuses, and the influence on decision-making processes may result in different degrees of support for implemented schemes in a particular company (Florkowski 1989, p. 104). For example, support for an implemented scheme will be lower if workers are not convinced about the influence of the scheme on a constant and equitable distribution of remuneration. It is supposed that support for PS among workers should increase when they have noticed that realization of the organizational goals has an impact on the amount of their salary and

additional bonuses. Consequently, it will increase the intensity of employees' actions which lead to achieving the goals of the company and their commitment (Florkowski and Schuster 1992, pp. 507-523). Similar positive relationships will occur between participation in decision-making and support for PS schemes, as well as commitment.

Research on the indirect relationships and the influence of financial participation schemes on individual workers' attitudes, and at the same time on the results achieved by organization, has been carried out not only by Long and Florkowski. Other authors have also tried to carry out research in order to explain the direction of the relationship between the variables in the model.

They took into account companies having only one form of financial scheme, such as profit sharing (Bell and Hanson 1987; Bradley and Estrin 1987; Freeman and Weitzman 1987, pp. 168-194; Jones and Pliskin 1989, pp. 276-298; Kruse 1987), ESOP (Brooks, Henry and Livingston 1982, pp. 32-40; Hamilton 1983; Livingston and Henry 1980, pp. 491-505; Marsh and McAllister 1981, pp. 551-624; Park and Rosen 1990, pp. 64-68; Rosen and Quarrey 1987, pp. 126-129), or SAYE, as well as companies operating several schemes simultaneously (Poole and Jenkins 1998, pp. 227-247). Until now the results have been ambiguous. Apart from this, on their differentiation in terms of influence is exerted by the fact that e.g. in accepted PS schemes, all entitled workers receive bonuses in form of shares and they are not obliged to bear any expenses for participation in the scheme, while participation in a SAYE scheme is voluntary, but workers have to make some initial payment if they want to participate.

Research on financial participation and its influence on workers' attitudes, as well as on company's results, are multidimensional, and the effects are frequently debatable. Therefore, the authors of different papers introduce new variables to the model, as e.g. size of the company measured by the number of employees, which does not give desired results either. Long, during his research on the effects of PS in 108 Canadian enterprises, stated that the size of the company has a very limited impact on the effects of participation, and that PS schemes may substantially contribute to an increase in economic and social indicators, both in large as well as small companies (Long 2000, pp. 477-505). Poole and Jenkins, in their paper on financial participation in British enterprises, have shown that PS schemes are more prevalent in large companies (Poole and Jenkins 1998, pp. 227-247). Nevertheless, the majority of the available empirical research has been conducted in small enterprises, and frequently it turned out that effectiveness of financial participation schemes was higher just in these companies (Bradley and Smith 1991).

In turn Kruse, who conducted his research in the USA, found out that PS had turned out to be effective in medium-sized companies (Kruse 1993). Therefore, the results with respect to the size of the company are ambiguous, which leads to a conclusion that there is a need to conduct further studies which perhaps will allow for a more unambiguous estimate of the role of financial participation schemes in the development of a company (Keef 1998, pp. 73-82). Bakan and others share this point of view, and they undertake research in large enterprises and verify some of the hypotheses made at the beginning. One of them was a statement that in large organizations, financial participation will have little direct impact on workers' attitudes in relation to the aspects of work such as motivation, commitment and others (Bakan, Suseno, Pinnington and Money 2004, p. 594). Some of the results have been shown in Table 1.

Table 1. Multiple regression: combined and independent effects of PS/SAYE and participation in decision-making on workers' attitudes

	R^2	Beta weights	
		Financial participation	Participation in decision-making
Integration	10,3%***	0,09	0,31***
Involvement	13.6%***	0.11	0.34***
Commitment	4.6%*	$0.18^{\dagger}$	$0.13^{\dagger}$
Satisfaction	8.2%**	$0.21^{\dagger}$	0.22**
Motivation	7.0%**	0.12	0.24**

$^{\dagger}p < 0.10$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$

Source: Bakan, Suseno, Pinnington and Money 2004, p. 595.

As can be seen from Table 1, statistically profit-sharing and share ownership have some influence on loyalty ($p<0.10$) and general satisfaction ($p<0.10$), while they have only a slight influence on integration, commitment and motivation, which confirms the previously tendered hypothesis. It is also possible to read the beta coefficient, which relates to the influence of indirect participation on the dependent variables. The results are way more satisfactory than in the case of financial participation. Of course, it is assumed that the significant influence of participation in decision-making on the dependent variables results from the implemented financial participation scheme in the company, however such indirect relationships require more detailed research. The authors have also tested Florkowski's model with reference to the relationships depicted in Figure 2, formulating the following hypothesis: "the perceived pay equity, the perceived relationship between the financial results of the company and the remuneration, as well as the perceived influence on the decision-making process have impact on the growth of employees' support for

the implemented participative solutions (PS)" (Bakan, Suseno, Pinnington and Money 2004, p. 596). Parallel to this another hypothesis was made, that the above-mentioned support for PS has an influence on the growth of general commitment (compare Figure 2).

Table. 2. Multiple regression results for the attitudinal variables[a]

	Support for profit sharing N=331	Organizational commitment N=331
Perceived pay equity	0.04	0.00
Perceived performance – reward contingencies	0.24**	0.09†
Perceived influence on decision-making	0.12*	0.14***
Perceived support for profit sharing		0.42***
R^2	0.09	0.49
Adjusted R^2	0.08	0.49
F-statistic	10.12***	62.72***

[a] Beta-coefficients are presented as the parameters.

†p < 0.10; *p < 0.05; **p < 0.01; ***p < 0.001.

Source: Bakan, Suseno, Pinnington and Money 2004, p. 597.

4. Summary

The obtained results show the existing positive relationship between employees' support for the implemented financial participation schemes and their general commitment ($r = 0.56$, $p<0.001$; $b=0.42$, $p<0.001$) and confirm the initially made hypothesis. The obtained results, in form of relationships between the organizational outcomes and the remuneration ($r = 0.27$, $p<0.001$; $b=0.24$, $p<0.001$), also influencing the decision-making process ($r = 0.15$, $p<0.001$; $b=0.12$, $p<0.05$) were other determinants of support for PS, while the strength of correlation in the first case was much stronger. The analysis did not confirm the relationship between the perceived pay equity and the support for PS, which was indicated in the analysis made by Florkowski. On these grounds it can be assumed that that hypothesis has not been confirmed.

Similar research has also been conducted by D.C. Jones. In his article he claims that as a rule financial participation schemes have a positive influence on workers' attitudes and company's results. However, usually this relationship is very weak. In addition he states that there might be a negative relationship

between the introduced financial participation scheme and the variables which represent different aspects of work, but these are quite rare instances.[3] The research conducted by Klein was another attempt to show relationships between the introduced ESOP schemes and the increase in workers' commitment. The results confirmed this relationship ($r = 0.87$, $p<0.01$) while, as in the case of the other studies, the strength is highest when workers feel the impact of the introduced scheme in terms of an increase in their remuneration (Klein 1987, pp. 319-332).

Considering the above results and the foreign literature dealing with financial participation, it can be noted that in most cases the dominant view is that there exists a positive influence of financial schemes on workers' attitudes, but the strength of this influence varies a great deal because it depends on the research used into different aspects of work. It commonly accepted that PS schemes and employee share ownership schemes, such as e.g. SAYE, are accepted by employees with satisfaction and a great deal of support, which is reflected in their higher commitment and motivation (Buchko 1993, pp. 633-657; Scholl 1981, pp. 589-599). This means that the mechanism or the method of distribution of financial participation schemes in companies should be well developed in advance, and the scheme itself not introduced *ad hoc*. Prior education and an open and informative process should lead to an increase in workers' awareness, a possible change in their attitude toward the introduced schemes, and a conviction in workers that their remuneration is related to the success of a financial scheme in the company. Whether the final outcomes and achieved financial results will be positive depends on the individual commitment of employees and their attitudes.

Another conclusion that can be drawn is the necessity to conduct further research based on larger samples of companies, taking into account their business specificity and environment. It seems that some other aspects should also be taken into consideration, such as the type of the introduced financial participation scheme inasmuch as this decision may influence the future results. The strength of the correlation can also differ according to the degree of workers' participation in profits and ownership, and then it will require a much more precise model structure and selection of variables. Research should begin a long time before the introduction of a scheme in the company, which would allow for making future comparisons and evaluations of the influence of a given scheme on workers' attitudes.

[3] D. Jones suggested that the possibility of long-lasting influence of financial participation schemes on the economic results of the company is higher when share ownership/profit-sharing is combined with decision-making; comp. Jones 1997, pp. 21-24.

References

Bakan I., Suseno Y., Pinnington A. and Money A. (2004), *The influence of financial participation and participation in decision-making on employee job attitudes*, 'International Journal of Human Resource Management', 15

Bell D.W. and Hanson C.G. (1984), *Profit-Sharing and Employee Shareholding Attitude Survey*, Industrial Participation Association, London

Bell D.W. and Hanson C.G. (1987), *Profit Sharing and Profitability: How Profit Sharing Promotes Business Success?*, Kogan Page, London

Ben-Ner A. and Jones D.C. (1995), *Employee Participation, Ownership and Productivity: A Theoretical Framework*, 'Industrial Relations', 34 (4)

Blasi J.R. (1988), *Employee Ownership: Revolution or Ripoff?*, Ballinger Publishing Company, Cambridge, Mass

Blasi J.R., Conte M. and Kruse D.L. (1996), *Employee Stock Ownership and Corporate Performance among Public Companies*, 'Industrial and Labor Relations Review', 50 (1)

Bradley K. and Estrin S. (1987), *Profit Sharing in the Retail Trade Sector: The Relative Performance of the John Lewis Partnership*, Centre for Labour Economics, London School of Economics, Discussion Paper No. 279, London

Bradley M.D. and Smith S.C. (1991), *Firm Size and Effect of Profit Sharing* (draft), George Washington University, Department of Economics, Washington D.C.

Brooks L.D., Henry J.B. and Livingston D.T. (1982), *How Profitable are Employee Stock Ownership Plans?*, 'Financial Executive', 50

Buchko A.A. (1992), *Effects of Employee Ownership on Employee Attitudes*, 'Work and Occupations', 19

Buchko A.A. (1993), *The Effects of Employee Ownership on Employee Attitudes: An Integrated Causal Model and Path Analysis*, 'Journal of Management Studies', 30

Caramelli M. (2010), *Employee Ownership and Corporate Performance: Towards Unlocking The Black Box*, Paper for the 15th World Congress of the International Association for the Economics of Participation (IAFEP) Université Panthéon-Assas, Paris II, 8 – 10 July

Chang S. (1990), *Employee Stock Ownership Plans and Shareholder Wealth: An Empirical Investigation*, 'Financial Management', 19 (1)

Chiu W.C.K., Hui C.H. and Lai G.W.F. (2007), *Psychological Ownership and Organizational Optimism amid China's Corporate Transformation: Effects of an Employee Ownership Scheme and a Management Dominated Board*, 'International Journal of Human Resource Management', 18 (2)

Cin B-c. and Smith S.C. (2002), *Employee Stock Ownership and Participation in South Korea: Incidence, Productivity Effects and Prospects*, 'Review of Development Economics', 6 (2)

Cohen A. and Quarrey M. (1986), *Performance of Employee-Owned Small Companies: A Preliminary Study*, 'Journal of Small Business Management', 24

Coyle-Shapiro J.A.-M. (2002), *Changing Employee Attitudes: The Independent Effects of TQM and Profit Sharing on Continuous Improvement Orientation*, 'The Journal of Applied Behavioral Science', (38)

Craig B. and Pencavel J. (1995), *Participation and Productivity: A Comparison of Worker Cooperatives and Conventional Firms in the Plywood Industry*, Brookings Papers on Economic Activity, Special Issue on Microeconomics

Davidson W.N.I. and Worrell D.L. (1994), *ESOP's Fables: The Influence of Employee Stock Ownership Plans on Corporate Stock Prices and Subsequent Operating Performance*, 'Human Resource Planning', 17 (4)

Doucouliagos C. (1995), *Worker Participation and Productivity in Labor-Managed and Participatory Capitalist Firms: A Meta-Analysis*, 'Industrial and Labor Relations Review', 49 (1)

Dunn S., Richardson R. and Dewe P. (1991), *The Impact of Employee Share Ownership on Worker Attitudes: A Longitudinal Case Study*, 'Human Resource Management Journal', 1

Estrin S. and Jones D.C. (1992), *The Viability of Employee-Owned Firms: Evidence From France*, 'Industrial and Labor Relations Review', 45 (2)

FitzRoy F.R. and Kraft K. (1992), *Forms of Profit Sharing and Firm Performance*, 'Kyklos', 45 (2)

Florkowski G.W. (1989), *The Organizational Impact of Profit-Sharing*, unpublished doctoral dissertation, Syracuse University

Florkowski G.W. and Schuster M.H. (1992), *Support for Profit Sharing and Organizational Commitment: A Path Analysis*, 'Human Relations', 45

Fogarty M. and White M. (1988), *Share Schemes*, Policy Studies Institute, Bourne Offset, London

Freeman R., Blasi J.R., Kruse D.L. and Mackin C. (2010), *Creating a Bigger Pie? The Effects of Employee Ownership, Profit Sharing, and Stock Options on Workplace Performance*, in: Douglas L. Kruse, Richard B. Freeman, and Joseph R. Blasi (eds.), *Shared Capitalism at Work*, University of Chicago Press, Chicago

Freeman R.B. and Weitzman M.L. (1987), *Bonuses and Employment in Japan*, 'Journal of the Japanese and International Economies', 1

French J.L. and Rosenstein J. (1984), *Employee Ownership, Work Attitudes and Power Relationships*, 'Academy of Management Journal', 27

Frohlich N., Godard J., Oppenheimer J.A. and Starke F.A. (1998), *Employee Versus Conventionally-Owned and Controlled Firms: An Experimental Analysis*, 'Managerial and Decision Economics', 19

Frye M.B. (2004), *Equity-Based Compensation for Employees: Firm Performance and Determinants*, 'Journal of Financial Research', 27 (1)

Greenberg E.S. (1980), *Participation in Industrial Decision-making and Work Satisfaction: The Case of Producer Cooperatives*, 'Social Science Quarterly', 60

Hamilton H. (1983), *The Effects of Employee Stock Ownership Plans on the Financial Performance of the Electrical and Electronic Machinery, Equipment and Supplies Industry*, University Microfilms International, MI: Ann Arbor

Hammer T.H. and Stern R.N. (1980), *Employee Ownership: Implications for the Organizational Distribution of Power*, 'Academy of Management Journal', 23

Heneman R.L. (1984), *Pay for Performance: Exploring the Merit Systems*, Pergamon Press, New York

Holyoake G. (1906), *The History of Co-operation*, Unwin, London

IDS Study (1998), *Profit Sharing and Share Options*, Income Data Services, Study 641, London

Iqbal Z. and Hamid S.A. (2000), *Stock Price and Operating Performance of ESOP Firms: A Time-Series Analysis*, 'Quarterly Journal of Business and Economics', 39 (3)

James G., Dennison H., Gay E., Kendall H. and Burrit A. (1926), *Profit-Sharing and Stock Ownership for Employees*, Harper, New York

Jones D.C. (1987), *The Productivity Effects of Worker Directors and Financial Participation by Employees in the Firm: The Case of British Retail Cooperatives*, 'Industrial and Labor Relations Review', 41 (1)

Jones D.C. (1997), *Employees as Stakeholders*, 'Business Strategy Review', 8

Jones D.C. and Kato T. (1993), *The Scope, Nature and Effects of Employee Stock Ownership Plans in Japan*, 'Industrial and Labor Relations Review', 46 (2)

Jones D.C. and Pliskin J. (1988), *The Effects of Worker Participation, Employee Ownership and Profit Sharing on Economic Performance: A Partial Review*, 'Working Paper', The Jerome Levy Economics Institute, 13

Jones D.C. and Pliskin J. (1989), *British Evidence on the Employment Effects of Profit Sharing*, 'Industrial Relations', 28

Kaarsemaker E. (2006), *Employee Ownership and Human Resource Management: a Theoretical and Empirical Treatise with a Digression on the Dutch Context*, Ph.D. Dissertation, Radboud University, Nijmegen: the Netherlands

Katz D. and Kahn R.L. (1978), *The Social Psychology of Organizations*, Wiley, New York

Keef S.P. (1998), *The Causal Association between Employee Share Ownership and Attitudes: A Study based on the Long Framework*, 'British Journal of Industrial Relations', 36

Klein K.J. (1987), *Employee Stock Ownership and Employee Attitudes: A Test of Three Models*, 'Journal of Applied Psychology Monograph', 72 (2)

Klein K.J. and Hall R.J. (1988), *Correlates of Employee Satisfaction with Stock Ownership: Who Likes an ESOP Most?*, 'Journal of Applied Psychology', 73

Kruse D.L. (1987), *Profit Sharing and Employment Variability: Microeconomic Evidence*, Department of Economics, MA: Harvard University

Kruse D.L. (1993), *Profit-Sharing: does it make a difference? The Productivity and Stability Effects of Employee Profit-Sharing Plans*, MI: Kalamazoo

Kruse D.L. and Blasi J.R. (1997), *Employee Ownership, Employee Attitudes and Firm Performance: A Review of the Evidence*, in: David Lewin, Mitchell, Daniel J.B. and Mahmood A. Zaidi, (eds.), 'The Human Resource Management Handbook', JAI Press, Greenwich

Kruse D.L., Freeman R., Blasi J.R., Buchele A., Scharf L., Rodgers L. and Mackin C. (2004), *Motivating Employee-Owners in ESOP Firms: Human Resource Policies and Company Performance*, [in:] Virginie Pérotin and Andrew M. Robinson (eds.), *Employee Participation, Firm Performance and Survival*, JAI, Amsterdam, vol. 8

Lawler III E.E. (1971), *Pay and Organizational Effectiveness: A Psychological View*, McGraw-Hill, New York

Lawler III E.E. (1981), *Pay and Organization Development*, Addison-Wesley, London

Lee Y-T. (2003), *The Productivity Effects of Employee Stock-Ownership Plans: Evidence From Panel Data of Taiwan Electronic Companies*, 'International Journal of Management', 20 (4)

Livingston D.T. and Henry J.B. (1980), *The Effect of Employee Stock Ownership Plans on Corporate Profits*, 'The Journal of Risk and Insurance', 47

Lloyd H. (1898), *Labor Copartnership*, Harper, New York

Long R.J. (1978a), *The Effects of Employee Ownership on Job Attitudes and Organizational Performance: An Exploratory Study*, unpublished doctoral dissertation, Cornell University

Long R.J. (1978b), *The Effects of Employee Ownership on Organizational Identification, Employee Job Attitudes and Organizational Performance: A Tentative Framework and Empirical Findings*, 'Human Relations', 31

Long R.J. (1978c), *The Relative Effects of Share Ownership vs Control on Job Attitudes in an Employee-Owned Company*, 'Human Relations', 31

Long R.J. (1979), *Desires for and Pattern of Worker Participation in Decision-making after Conversion to Employee Ownership*, 'Academy of Management Journal', 22

Long R.J. (2000), *Employee Profit Sharing: Consequences and Moderators*, 'Industrial Relations', 55

Marsh T.R. and McAllister D.E. (1981), *ESOPs Tables: A Survey of Companies with Employee Stock Ownership Plans*, 'Journal of Corporation Law', 6 (3)

Park C. and Rosen C. (1990), *The Performance Record of Leveraged ESOP Firms*, 'Mergers and Acquisitions', 25

Park S. and Song, M.H. (1995), *Employee Stock Ownership Plans, Firm Performance and Monitoring by Outside Blockholders*, 'Financial Management', 24 (4)

Pendleton A., Wilson N. and Wright M. (1998), *The Perception and Effects of Share Ownership: Empirical Evidence from Employee Buy-Outs*, 'British Journal of Industrial Relations', (36) 1

Pérotin V. and Robinson A.M. (2003), *Employee Participation in Profit and Ownership: A Review of the Issues and Evidence*, 'Working Paper', SOCI 109 EN, European Parliament, 17

Pfeffer J. (1998), *Seven Practices of Successful Organizations*, 'California Management Review', 40

Pierce J.L., Rubenfeld S.A. and Morgan S. (1991), *Employee Ownership: A Conceptual Model of Process and Effects*, 'Academy of Management Review', 16

Poole M. and Jenkins G. (1998), *Human Resource Management and the Theory of Rewards: Evidence from a National Survey*, 'British Journal of Industrial Relations', 36

Poutsma E., Albaraccin D., Kalmi P., Pendleton A., Trébucq S. and Voss E. (2006), *Changing Patterns of Employee Financial Participation in Europe*, Nijmegen School of Management, the Netherlands

Pugh W.N., Jahera J.S. Jr. and Oswald S.L. (2005), *ESOP Adoption and Corporate Performance: Does Motive Really Matter?*, 'Journal of Business and Economic Studies', 11 (1)

Rayton B.A. and Seaton J.S. (1999), *The Size of Employee Stakeholding in Large UK Corporations*, 'Managerial and Decision Economics', 20

Rhodes S.R. and Steers R.M. (1981), *Conventional vs Worker-Owned Organizations*, 'Human Relations', 34

Richardson R. and Nejad A. (1986), *Employee Share Ownership Schemes in the UK – An Evaluation*, 'British Journal of Industrial Relations', 24

Robinson A.M. and Wilson N. (2006), *Employee Financial Participation and Productivity: An Empirical Reappraisal*, 'British Journal of Industrial Relations', 44 (1)

Rosen C. and Quarrey M. (1987), *How Well is Employee Ownership Working?*, 'Harvard Business Review', 65

Rosen C., Klein K.J. and Young K.M. (1986), *Employee Ownership in America: The Equity Solution*, Lexington Books, Lexington

Russell R., Hochner A. and Perry S.E. (1979), *Participation, Influence, and Worker-Ownership*, 'Industrial Relations', (18).

Russell R. and Rus V. (1991), *International Handbook of Participation in Organizations: For the Study of Organizational Democracy, Co-operation and Self-management*, Ownership and Participation, Oxford University Press, Oxford, vol. 2

Scholl R.W. (1981), *Differentiating Organizational Commitment from Expectancy as a Motivating Force*, 'Academy of Management Review', 6

Smith G.R. (1993), *Employee Share Schemes in Britain*, 'Employment Gazette', 101.

Smith S.C., Cin B-c. and Vodopivec M. (1997), *Privatization Incidence, Ownership Forms and Firm Performance: Evidence from Slovenia*, 'Journal of Comparative Economics', 25

Trébucq S. (2004), *The Effects of ESOPs on Performance and Risk: Evidence from France*, 'Corporate Ownership and Control', 1 (4)

Tucker J., Nock S.L. and Toscano D.J. (1989), *Employee Ownership and Perceptions of Work: The Effects of an Employee Stock Ownership Plan*, 'Work and Occupations', 16

Welbourne T.M. and Gomez-Mejia L.R. (1995), *Gainsharing: A Critical Review and a Future Research Agenda*, 'Journal of Management', 21 (3)

Wilkinson A., Marchington M., Ackers P. and Goodman J. (1994), *ESOP's Fables: A Tale of a Machine Tool Company*, 'International Journal of Human Resource Management', 5

Williams A. (1913), *Co-partnership and Profit-Sharing*, Henry Holt, New York

Streszczenie

MECHANIZM ZALEŻNOŚCI MIĘDZY PARTYCYPACJĄ FINANSOWĄ A WYNIKAMI PRZEDSIĘBIORSTW

Partycypacja finansowa pracowników, znana głównie pod postacią szeroko rozumianego udziału pracowników w zyskach oraz własności przedsiębiorstw, jest jak wiadomo, stosowana w przedsiębiorstwach od bardzo wielu lat, jednak koncentrując uwagę na czasach współczesnych, okres wdrażania rozwiązań z zakresu partycypacji finansowej to zaledwie 4 ostatnie dekady. Udział pracowników w podejmowaniu decyzji ma dłuższą tradycję, dzięki czemu został dosyć szczegółowo opisany w literaturze, a jego wpływ na wyniki osiągane przez przedsiębiorstwa nie podlega w zasadzie dyskusji i jest znany dzięki wielu badaniom prowadzonym przez naukowców na całym świecie i szczegółowym raportom. Partycypacja finansowa nie doczekała się tylu opracowań, toteż wiedza i informacja z tego zakresu są niepełne. Przyczyną tego stanu rzeczy jest m.in. brak kompleksowych badań na temat poszczególnych form partycypacji finansowej, ich nieregularność, brak współpracy pomiędzy państwami w zakresie wymiany informacji dotyczącej ilości wdrażanych rozwiązań partycypacyjnych itp. Oczywiście należy zdawać sobie sprawę, że objęcie badaniami wszystkich przedsiębiorstw nie jest możliwe, a uogólnianie wyników na wszystkie przedsiębiorstwa i wszystkie kraje nie wydaje się wskazane z racji odmiennych uwarunkowań i kryteriów doboru.

Niejednoznaczna interpretacja terminu „partycypacja finansowa" przez różnych autorów i różne instytucje również nie pozwala na stworzenie i opracowanie wyjściowej bazy zmiennych, niezbędnej do prowadzenia badań i dokonywania porównań. Niejednokrotnie programy partycypacji finansowej traktowane są w literaturze jako element systemu motywacyjnego bez szerszego kontekstu i zależności pomiędzy tymi programami a rezultatami osiąganymi przez przedsiębiorstwa. Wszystko to powoduje, że

celowe wydaje się zasygnalizowanie pewnych wątków teoretycznych i badawczych, które z racji swojej istoty i ważności mogą uzupełnić lukę informacyjną i przyczynić się do ewentualnej zmiany kierunku poszukiwań rozwiązań problemów stojących przed przedsiębiorstwami, zwłaszcza w dobie dynamicznej, globalnej gospodarki, stawiającej przed firmami nowe wyzwania.

Po około czterdziestu latach prowadzenia badań empirycznych na temat korzyści z tytułu wdrażania programów partycypacji finansowej, informacje dostarczane w zasadzie tylko w formie raportów z badań nie są wystarczające do podjęcia jednoznacznej opinii na temat rozwoju form partycypacji finansowej, chociaż jednocześnie stwierdza się, że programy partycypacji finansowej wywierają pozytywny wpływ na rezultaty osiągane przez przedsiębiorstwa, zwłaszcza, jeżeli chodzi o rezultaty społeczne. Uzyskanie powyższej opinii jest dodatkowo utrudnione ze względu na wspomniany różny stosunek partnerów społecznych do problemu partycypacji i rozwiązań partycypacyjnych, brak jednoznacznych danych, na ile wdrażane programy finansowe przyczyniają się do zmiany wyników finansowych, zmiany pozycji konkurencyjnej przedsiębiorstw itp. Nakreślona teoria dotycząca tego, w jaki sposób własność pracownicza wpływa na wyniki ekonomiczne osiągane przez przedsiębiorstwa niestety nie zmieniła się. Oczywiście nie chodzi o to, aby zmieniła się diametralnie, ale o to, aby doszły nowe wątki lub zmienił się kierunek rozważań.

Celem artykułu jest zaprezentowanie wybranych poglądów na temat postrzegania mechanizmów i zależności pomiędzy pracowniczą partycypacją finansową a wynikami przedsiębiorstw. Z racji, niewątpliwe większej popularności programów udziału we własności, skoncentrowano się na pokazaniu wielopłaszczyznowych zależności pomiędzy własnością pracowniczą, a osiągnięciami ekonomicznymi oraz wykazaniu, że mechanizmy oddziaływań własności pracowniczej na produktywność mają charakter złożonych interakcji.

Słowa klucze: *partycypacja finansowa, udział w zyskach, własność pracownicza, postawy pracowników*

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