Łucja Tomaszewicz, Joanna Trębska "The role of general government in the income redistribution in the Polish economy ", *Journal of International Studies*, Vol. 8, No 2, 2015, pp. 83-100.
DOI: 10.14254/2071-8330.2015/8-2/8

Journal of International Studies

The role of general government in the income redistribution in the Polish economy

Łucja Tomaszewicz
University of Lodz
Poland
e-mail: ltomasz@uni.lodz.pl

Joanna Trębska
University of Social Sciences, Lodz
Poland
e-mail: joannatrebska@o2.pl

Abstract. The paper focuses on the analysis of the revenue and expenditure of general government, and in particular redistributive transactions among this sector and the remaining, institutional sectors in the economy. The scope of these relations defines the role of the state in the income distribution in the economy. The empirical part of the paper provides an analysis of the effects of the redistributive functions of the state, based on the sequence of current and capital accounts for general government in Poland. Moreover, an attempt is made to evaluate the activity of this sector in Poland compared to other EU countries. In general, the scope of state interference in economy, measured by the ratio of public spending to GDP is relatively low in Poland (and in most new EU-member states) compared to the EU average. The analysis of the similarity of structures indicates that in general, the structure of government revenue and expenditure in the EU countries are similar. Much bigger differences between these countries exist in the structure of revenues than expenditures. Differences in the structure of general government's revenue in individual countries result mainly from the regulations of tax systems and social security systems (especially specific in Nordic countries). Thus, the structure of current resources of general government in Poland is the most similar to the structures observed in Eastern European countries. A similar demographic situation in Europe means that the structures of transfer payments (largely dependent on it) are also very similar. The share of consumption in the sum of current expenditures of government (i.e. transfer payments and consumption) is on average twice as high in EU than in Poland. The increase in the participation of government sector in the investments process is clearly visible in Poland. The share of this sector's gross fixed capital formation in investments expenditures is much higher than European average and in 2005-2013 was the highest in Europe.

Received:
April, 2015
1st Revision:
May, 2015
Accepted:
July, 2015

DOI:
10.14254/2071-8330.2015/8-2/8

Keywords: government, national accounts, public finance

JEL Classification: E01, E02, H11, H2, H5, H6

INTRODUCTION

This paper aims at providing an analysis of the revenue and expenditure of general government, and in particular redistributive transactions among this sector and the remaining, institutional sectors (mainly households), distinguished in the national accounts. This analysis permits the evaluation of changes of these transactions over time, as well as to compare the role of general government in Poland and in other European countries.

The System of National Accounts (SNA) as a standard of statistical reporting, is a set of internally consistent information about the economy. At the same time, SNA creates a conceptual and analytical pattern for research of the economy structure from the perspective of the income circulation among the economy entities. In SNA the national economy is described through the activity of institutional units grouped into five institutional sectors: non-financial corporations, households, general government, financial corporations, non-profit institutions. Moreover, rest of the world sector, which includes foreign entities, is distinguished (*System of National Accounts 2008*, 2009).

According to the primary aim of this paper, special attention is paid to the general government sector and its relations with other sectors, mainly with households sector. The scope of these relations defines primarily the role of the state in the income distribution in the economy. We do not put any hypotheses concerning these relations in the article, hoping that the preliminary empirical analysis presented here will origin in formulating them and their verification on the basis of a much broader empirical evidence, both in terms of the period of analysis, as well as its spatial dimension. Based on the available data for the period of 14 years (2000-2013), sometimes referring also to the 90s of the last century, we are looking for answers to the following general questions about the Polish economy, as well as observed trends in other EU countries. What are the key patterns with regard to the structure of revenues and expenditures of the government sector in Poland in the analyzed period, and their main reasons stemming mainly from economic policy? To what extent changes in social policy and fiscal policy are determined by the observed changes in the demographic structure? What are the differences and similarities in the structure of expenditure and revenues in each country? What are the revenues and public expenditure in relation to GDP in individual countries, in particular Poland, to the average for the EU, what are the trends noted?

The empirical analysis conducted in this article sheds additional light on the ongoing discussions on empirical grounds, in the context of economic growth, public debt (Streeck, 2013) and economic policy in the EU in recent years, especially before and after the recent financial crisis (Balcerowicz *et al*, 2014; Alesina, de Rugy, 2013; Warmedinger *et al*, 2015). This is an important analysis in the context of the theories, often extreme on the role of government in the distribution and redistribution of income in relation to deepening of social inequalities in developed countries (Stiglitz, 2000, 2015; Krugman, 2012; Sachs, 2005; Piketty, 2014). In the countries of Central and Eastern Europe, this is a special problem, since the development of a market economy was halted by a long period of centrally planned economy. Catching up with developed market economies requires significant analysis and decisions regarding the direction of development of the economy, which can bear specific economic and social problems. The latter arise largely from demographic conditions: population aging and demographic depressions. The ongoing discussion on social inequality and development of the Polish economy found its expression in the works of Polish economists and researchers (e.g. Winiecki, 2009; Balcerowicz, 2004; Mączyńska, 2015; *Reforma kulturowa 2020-2030-2040*, 2015).

In the traditional sense, arising from the market failure (Wolf, 1993), the role of the state in the economy is referred to three areas: resource allocation, redistribution (distribution) and stability (e.g. Bain, Howells, 1987; Musgrave, 1973; Shleifer, 1998). Inefficiencies of the market mechanism in the optimal allocation of resources are related to, among others, the existence of the so-called public goods and services (e.g.

roads, parks, public lighting, etc.), which are offered to potential users through the state institutions. These goods can be financed and/or managed directly by the state (e.g. public defense). State's interference in the economy in terms of allocation also stems from a lack of competition or structural defects relating to specific branches. In this context, state's spending associated with nationwide or high risk capital-intensive projects (subsidies for mining, metallurgy, agriculture, scientific research) are justified (Chang, 2003).

The role of the state in the sphere of redistribution is to alleviate disparities in living standards of various social groups. The main tools of state's influence on the economy is the tax system, certain forms of budget spending and impact on prices. Thus, in the context of the redistributive functions of the state, public expenses related to meeting the collective needs (financing health care, education) are justified. In addition, the need of collective responsibility for solving social problems through social benefits as government transfer payments to households, deserves special attention. Social issues that are the center of attention of the so-called welfare state are: the risks arising from an aging population, limited mobility of people, traditional jobs deficit, persistent and growing social inequality (e.g. Piketty, 2014; Barr, 2001; Bohum, 1987; Golinowska, 2005). The economic analysis does not lack criticism of the idea of the welfare state, highlighting the high cost of redistribution of income and its negative effects on economic development. An extensive welfare state leads to the destruction of microeconomic incentives to be independent, active and enterprising, as well as to the reduction of propensity to save (Poterba, 1994; Attanasio *et al.,* 2004; Horioka, *et al.*, 2007). The practice of different countries of the world varies in the scope of state's influence on the economy. Measurable effects of government's activities (public expenditure) indicate that most European economies are characterized by a relatively high degree of state interventionism, contrary to the US and Japan. The ratio of social benefits to GDP in Denmark in 2014 was 0.36, in Finland – 0.34, Sweden – 0.33, in France – 0.35, relatively low in Poland – 0.24 and Eastern Europe countries: e.g. in Latvia – 0.16 in 2013 (Eurostat database; Non-financial transactions, update: 30-07-2015); this ratio was equal to 0.27 in Japan and 0.20 in the US in 2013 (OECD Database; Non-financial accounts by sectors, extracted on 01-08-2015).

A stabilizing function of the state in the economy is due to the periodically recurring problems of imbalance between supply and demand in the market. Hence, the role of the state involves interference in the course of the business cycle by affecting the size of the global demand and supply. It was the period of great global economic crisis of 1929 – 1933 that contributed to the increase in the acceptance state interventionism (Keynes, 1936). Also in recent years, i.e. after the 2008-2009 crisis, the issue of the role of the state has gained a special significance in the light of financial crises (e.g. Roubini, Mihm, 2010) and globalization (e.g. Chang, 2003). State's activities concern mainly the tax burden regulation, public expenditure, impeding inflation trends, unemployment reduction.

In the empirical part of this paper the effects of the redistributive functions of the state, presented by the sequence of general government's accounts, are discussed. The analyzed sequence includes the allocation of primary income, redistribution of income (transfers) and the use of disposable income in respect of consumption and accumulation. Particular attention is devoted to the secondary of distribution income.

The statistical research methods such as analysis of the structure of income and expenditure of the general government, similarity index of structures (Johnson, 1976), the Hellwig's development pattern method (Hellwig, 1968) are applied. The observed trends and relationships between certain transactions concerning distribution and redistribution of income are also reported. Statistical analysis is based on the Eurostat database for the period 2000-2013 – latest available time series for the full sequence of Polish national accounts drawn up according to the principles of the *European System of Accounts ESA2010* (2013), data for 2014 is currently published only for certain transactions.

The structure of the paper is the following. The first section defines the institutional units classified as belonging to the general government sector and presents the sequence of accounts in the system of national accounts, with particular emphasis on the revenue and expenditure of general government. The empirical parts of the paper are an attempt to answer the posed above questions by the evaluation of activity of this sector in the last 14 years in Poland compared to other EU countries. The conclusions are contained in a brief summary.

GENERAL GOVERNMENT SECTOR IN SNA

The classification of domestic institutional sectors, based on the economic goal criterion and on the functions regarded as main for their entities in the economy, is presented in *System of National Accounts 2008*, pp.61-86 and *European System of Accounts ESA 2010*, 2013, pp.31-49.

General government sector includes (*System of National Accounts*, pp. 80-82):

- central government including all the ministries and other central institutions whose competence usually refer to the entire country's economic territory, except for the administration of social security funds;
- state government including government units which are separate institutional units, performing the functions of government and local governments at a level below that of central government and above that of the governmental institutional units existing at a local level (this sub-sector is not found in Poland as it relates to countries with a federal structure of government);
- local government containing these bodies of public administration whose competence extends only to the local part of the economic territory of the country, with the exception of local agencies of social security funds;
- social security funds covering all central, regional and local institutional units whose principal activity is to secure social benefits. A detailed list of units included in the general government sector in Poland that meet ESA classification criteria can be found in the publication: *Statystyka sektora instytucji rządowych i samorządowych*, 2010, pp. 124-126).

System of National Accounts distinguishes the sequence of current accounts (production account, generation of income account, allocation of primary income account, secondary distribution of income account, use of disposable income account) and accumulation accounts (capital account, financial transactions account, other changes in the volume of assets account and revaluation account) for each sector. Additionally, there are balance sheets: opening balance, changes in the balance, closing balance (*System of National Accounts 2008*, 2009, pp. 95-125, 131-269).

According to the aim of the paper, attention is focused on allocation of primary income account, secondary distribution of income account, use of disposable income account from the sequence presented above. The forms of factor incomes and current transfers that are resources of individual sub-sectors of the general government, as well as items of expenditure, are presented in Table 1.

Capital account (see Table 2) contains transactions and other changes that cause the differences in the opening and closing balance sheels. The item that closes the entire sequence of non-financial accounts – net lending / net borrowing – shows the difference between total resources (current and capital) and total uses (current and capital), i.e. the surplus or deficit of general government sector. The net lending / net borrowing item for central government subsector corresponds to the state budget deficit, however, net barrowing is not equal to it. The differences firstly relate to the list of transactions that are the revenue and expenditure of the state budget and the transactions listed in the sequence of national accounts. This applies both to financial and non-financial transactions. Secondly, the list of institutional units included in the central government sector by the

SNA is not identical to the list of units which transactions of the budget concern (see *Manual on Government Deficit and Debt*, 2014; *Statystyka sektora instytucji rządowych i samorządowych*, 2010, pp. 259-272).

Table 1

Transactions of general government current account (by sub-sectors and forms of transactions)

<table>
<tr><td colspan="3">Resources (revenue)</td><td colspan="3">Uses (expenditure)</td></tr>
<tr><td>Central government (S1311[a])</td><td>Local government (S1313)</td><td>Social security funds (S1314)</td><td>Central government (S1311)</td><td>Local government (S1313)</td><td>Social security funds (S1314)</td></tr>
<tr><td colspan="6">Allocation of primary income account</td></tr>
<tr><td colspan="2">Operating surplus and mixed income, gross (B2A3G)</td><td colspan="3" rowspan="2"></td></tr>
<tr><td colspan="2">Taxes less subsidies on production and imports (D2_M_D3)</td><td></td></tr>
<tr><td colspan="3">Property income (D4)</td><td colspan="3">Property income (D4)</td></tr>
<tr><td colspan="3"></td><td colspan="3">Primary income, gross[b] (B5G)</td></tr>
<tr><td colspan="6">Secondary distribution of income account</td></tr>
<tr><td colspan="3">Primary income, gross (B5G)</td><td colspan="2"></td><td></td></tr>
<tr><td colspan="2">Current taxes on income and wealth etc. (D5)</td><td></td><td colspan="2">Current taxes on income and wealth etc. (D5)</td><td></td></tr>
<tr><td colspan="2"></td><td>Net social contributions (D61)</td><td colspan="2"></td><td></td></tr>
<tr><td colspan="3" rowspan="2">Social assistance benefits (D622)</td><td colspan="2"></td><td>Social security benefits in cash (D621)</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td colspan="3">Net non-life insurance premiums (D71)</td></tr>
<tr><td colspan="3">Current transfers within general government (D73)</td><td colspan="3">Current transfers within general government (D73)</td></tr>
<tr><td colspan="3">Current international cooperation (D74)</td><td colspan="2">Current international cooperation (D74)</td><td></td></tr>
<tr><td colspan="3">Miscellaneous current transfers (D75)</td><td colspan="3">Miscellaneous current transfers (D75)</td></tr>
<tr><td colspan="3"></td><td colspan="3">VAT and GNI – based EU own resources (D76)</td></tr>
<tr><td colspan="3"></td><td colspan="3">Disposable income, gross (B6G)</td></tr>
<tr><td colspan="6">Use of disposable income account</td></tr>
<tr><td>Disposable income, gross (B6G)</td><td></td><td></td><td colspan="3"></td></tr>
<tr><td></td><td colspan="2">Final consumption expenditures (P3)</td><td></td><td></td></tr>
<tr><td></td><td colspan="2">Saving, gross (B8G)</td><td></td><td></td></tr>
</table>

[a] codes of sub-sectors and transactions used in Eurostat database are shown in brackets
[b] all the balance items are in italic

Source: compiled by the authors on the basis of ESA 2010.

Table 2

Transactions of general government capital account (by sub-sectors and forms of transactions)

<table>
<tr><td colspan="3">Resources</td><td colspan="3">Uses</td></tr>
<tr><td>Central government (S1311[a])</td><td>Local government (S1313)</td><td>Social security funds (S1314)</td><td>Central government (S1311)</td><td>Local government (S1313)</td><td>Social security funds (S1314)</td></tr>
<tr><td colspan="3">Saving, gross (B8G)</td><td colspan="3" rowspan="2"></td></tr>
<tr><td></td><td>Capital taxes (D91)</td><td></td></tr>
<tr><td colspan="2">Investment grants (D92)</td><td></td><td colspan="3">Investment grants (D92)</td></tr>
<tr><td colspan="3">Other capital transfers (D99)</td><td colspan="3">Other capital transfers (D99)</td></tr>
<tr><td colspan="3" rowspan="2"></td><td colspan="3">Gross fixed capital formation (P51G)</td></tr>
<tr><td colspan="2">Changes in inventories and acquisitions less disposals of valuables (P52_P53)</td><td></td></tr>
<tr><td colspan="2">Net borrowing (B9)</td><td></td><td colspan="2"></td><td>Net lending (B9)</td></tr>
</table>

[a] codes of sub-sectors and transactions used in Eurostat Database are shown in brackets

Source: compiled by the authors on the basis of ESA 2010.

In general, relationship between the accounts referred to the above sequence (in Table 1 and 2), can be represented in the form of a matrix (Pyatt, Round, 1979; Tomaszewicz, 2001), where rows contain revenues and columns contain expenditures on individual accounts. The social accounting matrix (SAM) structure may vary depending on the purpose within its empirical basis required and on statistical data availability. The choice of the form of SAM may concern entities executing transactions and their grouping into individual accounts, as well as the level of disaggregation of transactions within the account, for example, the types of financial assets purchased by institutional sector (Tomaszewicz, Trębska, 2013) or forms of current (cf. also Boratyński, Tomaszewicz, 2004) and capital transfers.

Basing on the SNA (see Table 1) it is possible to write down the balance equation for current resources and expenditures of general government (symbols come from Eurostat database):

$$B2G + D2\_M\_D3 + D4(r) + D5 + D61 + D7(r) = P3 + D4(e) + D62 + D7(e) + B8G \quad (1)$$

where: B2G – gross operating surplus, D2_M_D3 – taxes less subsidies on production and imports, D4 – property income, D5 – current taxes on income and wealth etc., D61 – social contributions, D7 – other current transfers, P3 – final consumption, D62 – social benefits other than transfers in kind, B8G – gross saving, (r) – resource, (e) - expenditure.

Disposable income (B6G = P3 + B8G) of general government (the sum of consumption and saving) is therefore equal to:

$$B6G = B2G + D2\_M\_D3 + D4(r) - D4(e) + D5 + D61 - D62 + D7(r) - D7(e). \quad (2)$$

Analogous to equation (1), the balance equation for the capital account can be written basing on Table 2:

$$B8G + D9(r) + B9 = P5 + D9(e) \quad (3)$$

where: D9 – capital transfers, B9 – net borrowing, P5 – gross capital formation.

THE STRUCTURE OF RESOURCES AND EXPENDITURES OF GENERAL GOVERNMENT IN POLAND IN THE YEARS 2000-2013

In the structure of current resources of general government (see Table 1 and Table 3) the largest shares of taxes less subsidies on production and imports, mainly taxes on products (about 34% according to the harmonic mean) and social contributions – about 35%. In the years 2000-2013 taxes on income and wealth were accounted for 17-22% of the revenues of general government. The latter form of revenue is particularly sensitive to the changes in business cycle which influence the level of primary income of institutional sectors. Thus, its growth in 2006-2008 (also 1995-1997 – see Eurostat database; Non-financial transactions (ESA95), update: 02-02-2015) and a decrease in the period of economic slowdown in 2001-2005 were observed.

Table 3

The structure of current resources of general government (in %) in Poland

Year	Taxes less subsidies on production and imports (D2_M_D3)	Operating surplus and mixed income, gross (B2A3G)	Property income (D4)	Current taxes on income and wealth etc. (D5)	Social contributions (D61)	Other current transfers (D7)
2000	33,0	7,2	2,4	19,3	37,7	0,4
2001	32,7	7,2	2,4	17,1	38,5	2,1
2002	34,3	7,0	3,2	17,3	36,6	1,6
2003	34,7	7,1	3,4	16,7	36,5	1,6
2004	34,8	7,0	2,5	17,3	36,2	2,2
2005	34,1	6,6	2,9	17,9	34,4	4,1
2006	34,0	6,3	2,9	18,8	33,3	4,7
2007	34,3	6,0	3,4	20,9	32,3	3,1
2008	34,7	5,9	3,1	21,7	31,5	3,2
2009	33,4	6,4	3,2	20,0	33,6	3,5
2010	35,7	6,4	2,6	18,7	33,0	3,6
2011	35,9	6,1	2,6	18,6	33,5	3,4
2012	33,2	6,1	3,1	19,0	35,3	3,3
2013	33,0	6,2	2,7	18,6	36,2	3,3
Harmonic mean	34,1	6,5	2,8	18,6[1]	34,8	1,9 (2.7 for 2001-2013)

[1] in which taxes paid by households constituted 12.4% on average, 5.2% - taxes paid by non-financial corporations and 0.9% - taxes paid by financial corporations.

Source: calculated by the authors on the basis of Eurostat database: Non-financial transactions (update: 29-07-2015).

The largest part of the revenue from taxes on income and wealth – about 67% (12.4/18.6 from Table 3) in the years 2000-2013 - constituted income taxes and other taxes (including taxes on farms) paid by households. Changes in the share of taxes paid by individual sectors stem from the dynamics of their income and changes in tax rates. In 2000-2004, households submitted to the government about 6% of their primary income (wages, operating surplus and mixed income, net property income) in the form of income tax (see Fig. 1). Then the ratio increased to 7-8% in the coming years as a result of the certain tax reliefs' elimination, but this increase could be greater if the tax rates were not reduced in 2009 (the lowest of 19% to 18%, the highest from 40% to 32%). However, the share of income taxes paid by households in the revenues of general government did not increase significantly. This was a consequence of, among others, decline in the share of households (mainly sub-sector of employers and self-employed) in the creation of operating surplus. According to Polish SNA, households formed 56% of the operating surplus in the economy in 2000 (in 1996, even 62%), while in 2010-2013, this share did not exceed 48%. At the same time the share of non-financial corporations in the creation of the operating surplus increased from 31% in 2000 to 44% in 2013. Despite this, the share of income tax paid by non-financial corporation was rather stable due to the decreasing ratio of the tax burden to primary income (gross operating surplus and net property income), among others, because of the reduction of tax rates on corporate income to 19% (20%) after 2004. In the years 2000-2008 corporations transmit to general government 13-18% of their primary income (average 15%), while in 2010-2013 this ratio fell below 11%, among others in connection with the introduction of new forms of deductions from legal persons' income after 2007.

Approximately 5% of tax revenue of general government constituted income taxes paid by financial corporations. The ratio of the tax burden to the primary income of the sector was characterized by a much greater diversity than in the case of households. In the years 2006, 2010, 2012 negative primary income for this sector is registered (that is why this sector is not shown on Fig.1).

Social contributions are registered on the account of secondary distribution of income as transfer payments from households to general government (social security funds sub-sector). Social contributions include contributions to the pension fund, sickness and accident insurance, labour fund and health insurance. According to the dimension of contributions in 2014, the part of retirement fund constitutes about 45% of the total social contributions (*Ubezpieczenia społeczne w Polsce*, 2014, p. 26). These contributions are fixed by statutory percent of wages of the insured persons (employees). In 2000-2013 the sum of social contributions in relation to the compensation of employees (households' primary income in the form of wages and salaries plus employers' social contributions) ranged between 0.37 and 0.39. In the period 2002-2008, the decline in the share of social contributions in the current revenues of general government is noticed (see Tab. 3). This is due to a decrease in the share of compensation of employees in primary income in the economy from 49% in 2001 to 45-46% in the next years. The observed increase in the share of social contributions in the current revenues of general government in 2011-2013 was a consequence of the reduction of contributions' deduction to Open Pension Funds from 1 May 2011.

The current expenditure of general government consists of consumption, transfer payments and residually determined gross saving (see equation (1)). Since the flows of savings are negative, the current expenditure (and capital) are to some extent financed with debt. During the whole period 2000-2013, consumption expenditures were on average 3 times lower than current transfers, while in most EU countries government consumption is almost equal to the level of current transfers, or even surpasses it (see hereinafter).

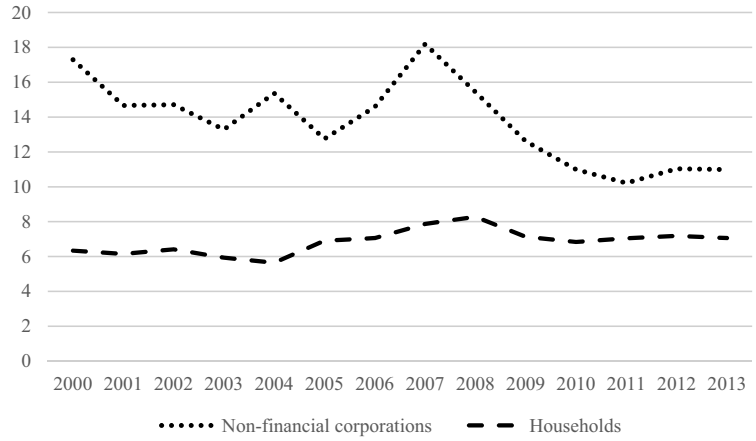


Figure 1. Income tax in relations to primary income (in %)

Source: elaborated by the authors on the basis of Eurostat database: Non-financial transactions (update: 29-07-2015).

Within current transfers (other than social transfers in kind) being the spending of general government, social benefits are the most significant. These include social security benefits paid by sub-sector of social security funds and social assistance benefits paid by central and local government to households (mainly to sub-sector of recipients of retirements and pensions). In 2000-2013, social benefits constituted from 98% to 87% of transfer payments of general government, with a clear downward trend. At the same time the share of other current transfers (Net non-life insurance premiums, VAT and GNI – based EU own resources), increased (see Tab. 4).

Table 4

The structure of current transfer payments of general government in Poland (in %)

Year	Social benefits other than social transfers in kind (D62)	Net non-life insurance premiums (D71)	Current international cooperation (D74)	Miscellaneous current transfers (D75)	VAT and GNI - based EU own resources (D76)
1	2	3	4	5	6
2000	97,9	0,06	0,00	2,1	0,0
2001	98,3	0,06	0,00	1,7	0,0
2002	94,7	0,06	0,00	5,2	0,0
2003	94,5	0,07	0,00	5,4	0,0
2004	93,3	0,07	0,41	2,9	3,3
2005	88,5	0,16	0,33	6,5	4,5
2006	86,7	0,13	0,76	8,3	4,1
2007	85,8	0,16	0,39	9,2	4,4
2008	85,2	0,19	0,37	9,4	4,8
2009	87,5	0,20	0,39	7,0	4,9
2010	88,0	0,20	0,44	6,2	5,1

1	2	3	4	5	6
2011	86,5	0,19	0,36	7,9	5,0
2012	86,5	0,20	0,35	7,6	5,3
2013	86,6	0,20	0,40	7,3	5,5

Source: calculated by the authors on the basis of Eurostat database: Non-financial transactions (update: 30-07-2015).

As was commented on earlier, the social benefits are primarily retirement pays (the product of the average retirement pay and the number of retirees) and pensions (the product of the average pension and the number of pensioners). Thus, the total amount of social benefits depends on the average height of the various types of benefits and the number of beneficiaries.

A significant increase in the number of retirees benefiting from non-agricultural social security system (from 3.6 million in 2000 to 5.3 million in 2010 and 5.2 in 2014) is noticed. Whereas, the significant decrease in the number of persons receiving a pension from an disability to work (from 2.7 million in 2000 to 1.1 million in 2014) and a decrease in the total number of retirees and pensioners insured in Agricultural Social Insurance Fund (from 1.9 million in 2000 to 1.2 in 2014) is visible. The total number of pensioners decreased from 9.4 million in 2000 to 8.9 million in 2014 (see: http://stat.gov.pl/bdl/app/dane_podgrup.display?p_id=999026&p_token=0.16736937372170213#, update 2015-05-23). The ratio of the average retirement pay to the average wage in the economy was equal to approximately 0.56 in the period 2002-2013 (see: http://stat.gov.pl/bdl/app/dane_podgrup.display?p_id=999026&p_token=0.39717711920724874#, update 2015-03-30) but the forecasts for gross replacement rate at retirement point to its decline to a level of 0.2 in Poland in 2050 (*The 2012 Ageing Report*, 2012).

Analyzing the structure of revenues and capital expenditure of general government, a number of key patterns is noticed. Over 80% of capital spending constitute gross capital formation. In addition, the year-on-year the share of investments expenditures of the government sector or expenditures financed by government through investment grants (especially for sub-sector of private domestic corporations) grew up. Simultaneously, since 2004 an increasing proportion of capital resource of this sector are investment grants from EU institutions to general government.

The share of gross fixed capital formation of general government increased from 10% in 2000 to 29% of these expenditures in Poland in 2011 (22% in 2013). This proportion in Poland is much higher than average for EU (15% in 2012-2014).

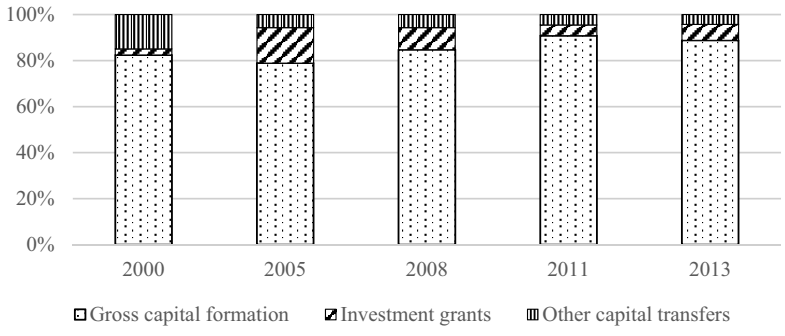


Figure 2. The structure of capital expenditure of general government (in %)

Source: elaborated by the authors on the basis of Eurostat database: Non-financial transactions (update: 30-07-2015).

Capital expenditure of general government are financed by net incurrence of liabilities to the greatest extent, which results in a net borrowing (Fig. 4) and a gradual increase in the public debt in relation to GDP (from 36.5% in 2000 to 55.7% in 2013 and 50.1% w 2014). Relatively low net borrowing is observed for subsectors of local government (4,3% w 2014) and social security funds (2,3% w 2014) - see Fig. 3.

The public debt in Poland is still lower than in most highly developed European countries and lower than the average for the EU28 which was equal to 86.8% in 2014 (e.g. 89.4% in the United Kingdom, 95.0% in France, 74.7% in Germany, and even above 100% GDP in Greece (177.1%), Portugal (130.2%), Italy (132.1%), Ireland (109.7%) and Belgium (106.5%). The relatively low level of public debt in relation to GDP is observed in most new EU-member states (only in Slovakia in 2012 it exceeded 50%).

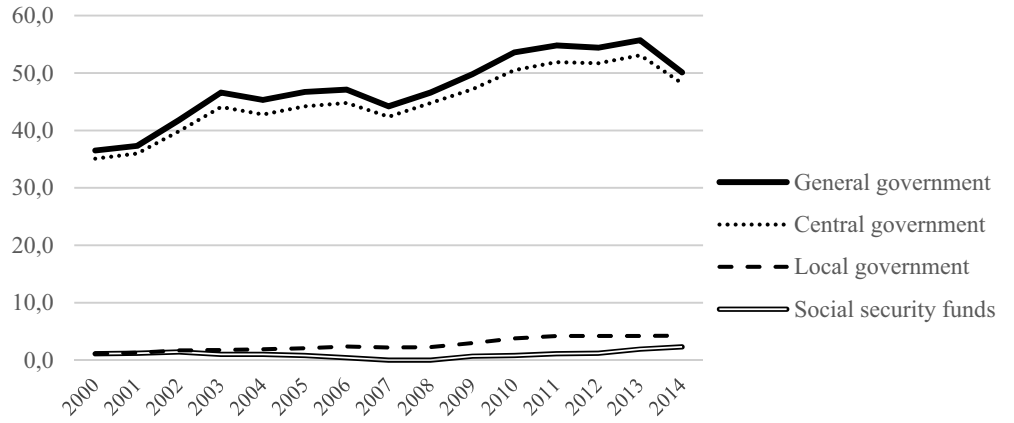


Figure 3. Government consolidated gross debt in Poland (in % of GDP)
Source: elaborated by the authors on the basis of Eurostat database: Government revenue, expenditure and main aggregates (update: 22-07-2015).

THE ROLE OF GENERAL GOVERNMENT IN THE POLISH ECONOMY IN COMPARISON WITH SELECTED EU COUNTRIES

The role of the state in the economy is often measured by the share of public expenditure in GDP, i.e. current and capital expenditure of general government: current expenditure on individual and collective consumption (including social transfers in kind) and transfer payments, including in particular social benefits, capital expenditures and capital transfers, including investment grants for businesses. In Poland, a significant decrease in the expenditure of general government from 51% of GDP in 1996 to 41.1% of GDP in 2000 was observed. A similar trend was observed in most EU countries (in EU27 group this ratio decreased from 52% of GDP in 1995 to 44.7% in 2000 see Eurostat database: National accounts (ESA1995)). After 2000, in Poland, the ratio of public spending to GDP stabilized at the level of 43-45% of GDP (see Fig. 4). During the whole analyzed period this ratio was lower than the EU average. In 2002-2007 in the group of EU28 (EU27 group does not include Croatia, for which data is available since 2002), the average ratio of government expenditure to GDP was about 46% (from Eurostat database: Government revenue, expenditure and main aggregates, update: 24-07-2014).

The fluctuations of the analyzed relation, observed in 2008-2012, were more closely related to fluctuations in GDP growth in the EU due to the economic crisis, than to variations in the total amount of public expenditure.

Recourses of general government in relation to GDP in Poland ranged between 37% and 40%, i.e. below the EU average. Over the whole period, public expenditure exceeded the revenue, thus net borrowing of the general government was observed (with a tendency to a decrease in periods of economic recovery).

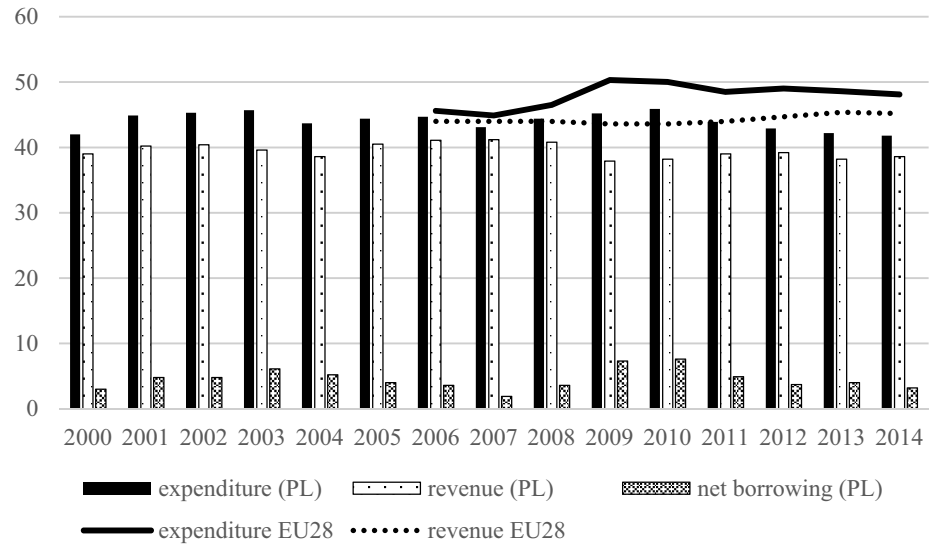


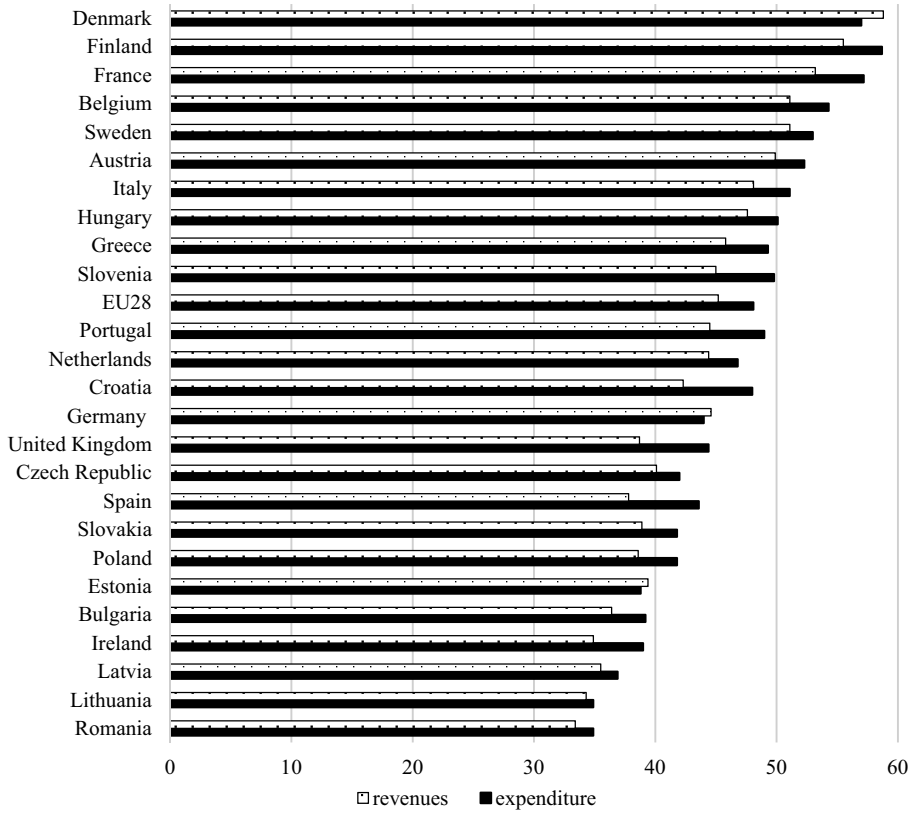
Figure 4. Public expenditures, resources and net borrowing in relation to GDP (in %) in Poland compared to the EU.
Source: elaborated by the authors on the basis of Eurostat database: Government revenue, expenditure and main aggregates (update: 22-07-2015).

Analyzing the year 2014, among the EU countries there are groups of countries with relatively high public expenditure and revenue in relation to GDP (see Figure 5), above the EU average (45.2% of GDP for revenues and 48.1% for expenditure in 2014):

- Nordic countries, i.e. Denmark, Finland, Sweden, in which both public spending and revenues exceeded 51% of GDP in 2014;
- Western European countries: France, Belgium, Austria with public spending over 50% of GDP and slightly lower revenues;
- Southern European countries: Italy and Greece (spending more than 49% of GDP), while in Greece the general government revenue was much lower than expenses.

In turn, in the countries of Eastern Europe - Estonia, Romania, Latvia, Lithuania and Bulgaria, public spending and revenue are less than 40% of GDP.

The same method of ordering countries was applied for the years 2002 and 2012. In general, the above conclusions are also true for those years, noting, however, the relative increase in the state's interference (measured by the expenditure and revenue in relation to GDP) in the group of Mediterranean countries: Spain, Portugal, Italy and Greece and decline of these ratios in Germany and Sweden.



[a] The ranking of countries is due from the Hellwig's development pattern method (Hellwig, 1968) applied for assessing the extent of state interference in the economy. This method allows the simultaneous consideration of several features, i.e. the ratio of expenditure and revenue to GDP in this case.

Figure 5. Public resources and expenditure in relation to GDP (in %) in 2014[a]
Source: elaborated by the authors on the basis of Eurostat database: Government revenue, expenditure and main aggregates (update: 22-07-2015).

Differences in the structure of general government's revenue in individual countries (see Fig. 6) result mainly from the regulations of tax systems and social security systems. Thus, the structures are similar in those countries in which the principles of operation of these systems are congruent. The structure of government revenue in Poland and most of the EU countries are similar (none of the similarity indices based on frequency coefficients calculated according to formula proposed by Johnson (1976, p. 48) was not lower than 0.5 from the range (0-1)). The analysis of the similarity of structures indicates that the structure of current resources of general government in Poland is the most similar to the structure of these resources observed in Estonia, Lithuania, Slovakia, Czech Republic, France (absolute similarity index of structures above 0.91) and least similar to the structures in Denmark, Sweden, Ireland and the UK (index below 0.8). A good example of the impact of the fiscal systems on the structure of current revenues of the general government is the comparison

of Poland and Denmark. In Denmark income tax constituted 58% of current revenues of the general government in 2013 (in Poland 18.6%), of which 90% was the income tax paid by households (in Poland, 67%).

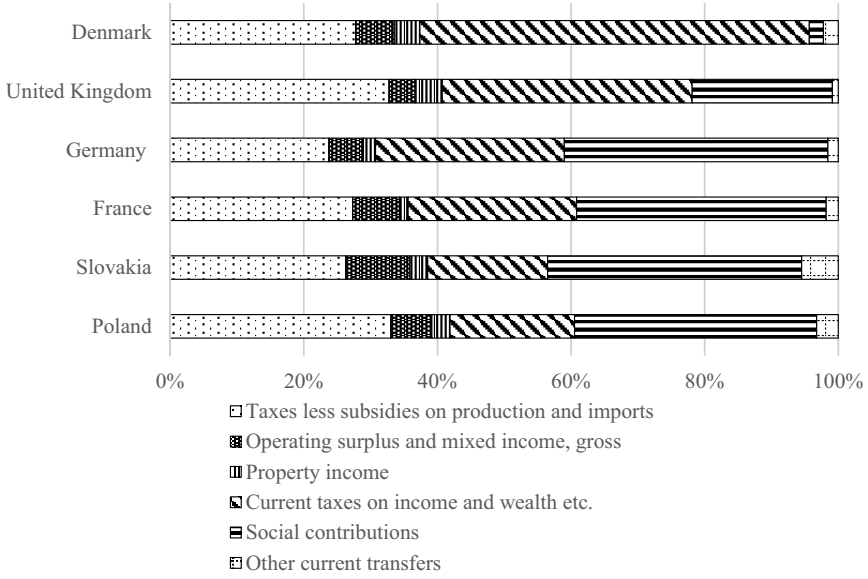


Figure 6. The structure of current recourses of general government in selected EU countries in 2013
Source: elaborated by the authors on the basis of Eurostat database: Non-financial transactions (update: 30-07-2015).

As it was mentioned earlier, due to the occurrence of negative flows of general government's saving (one of its current expenditure items), it was impossible to assess the similarity of the current expenditure structures by frequency coefficients. Therefore, the following analysis is confined to transfers.

In the structure of current transfers that are spending of government, dominate social benefits in all EU countries (see Fig. 7). This form of transfer relates to pensions payments due to old age (retirements pay), disability to work, survivors (family pensions) and unemployment pensions (classification used in Eurostat database for Pensions). Among these forms of social payments retirement pay constitutes the largest part of total pensions, its share in 2012 was equal to 89% in United Kingdom, 86% in Latvia, 81% in France, 77% in Denmark, 71% in Germany, 65% in Greece, and only 63% in Poland. Comparing the data for the years 2005 and 2012 (the only currently available), an increase in the share of retirement pay in total pensions is observed in most European countries. In Poland, a relatively high share of family pensions is noticed (15.5% of total pensions in 2012), this proportion is higher only in Spain (19.6%), Croatia (18.4%), Italy (16.1%), Germany (16.1%) and Belgium (15.8%) – see Eurostat database for Pensions, last update: 03-07-2015.

The ratio between the two components of capital transfers from the government (investment grants and other capital transfers) differs significantly in the EU. For example, in Lithuania the government sector hardly does not provide grants for investments. In contrast, in Latvia and Ireland investments grants are the only form of government capital transfer payments.

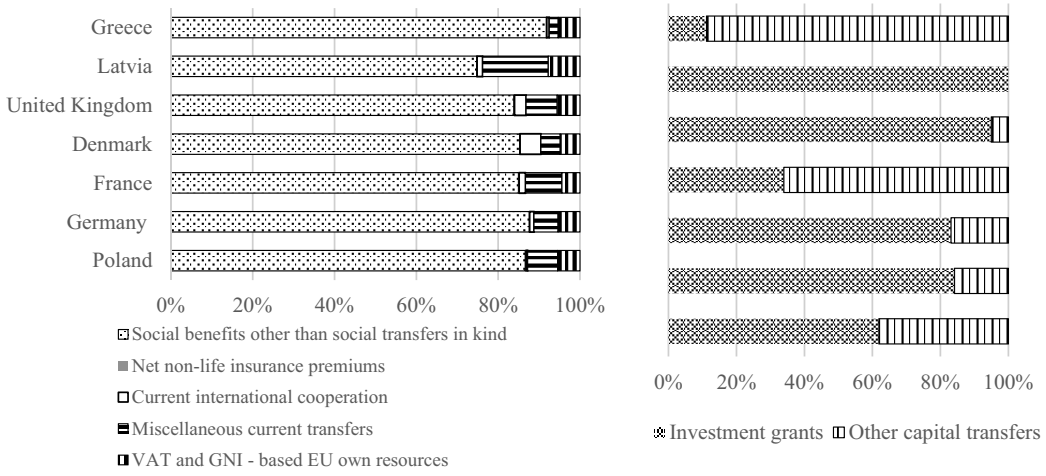


Figure 7. The structure of general government's transfer payments in selected EU countries in 2013
Source: elaborated by the authors on the basis of Eurostat database: Non-financial transactions (update: 30-07-2015).

In assessing the similarity of the structures of transfer payments in 2013 both current and capital transfers were taken into account. In terms of the transfers' structure, European countries are characterized by a high degree of similarity. Poland is the most similar to Germany, Portugal, Finland, Austria, Sweden, France (similarity index above 0.96), while the least similar to that of Greece, Slovenia, Latvia (similarity index below 0.88).

The scope of general government expenditure in Poland in the years 2000-2013 can be presented also by following numbers. The consumption of general government constituted approximately 22% of consumption in the country (the average for the EU28 in analysed period of time was 26-27%). The increase of the share of government sector in the investment process, mainly in infrastructure investment, is clearly visible in Poland. The share of gross fixed capital formation of general government increased from 10% in 2000 to 29% of these expenditures in Poland in 2011 (22% in 2013). This proportion in Poland is much higher than average for EU (15% in 2012-2014) and its average for period 2005-2013 was the highest in Europe. Investments of general government sector were financed largely from investment grants whose level grew by 2011 and similar regularities are observed in other countries of Central and Eastern Europe countries. The decrease in public investment after 2009 is visible for UE28, particularly strong in Greece, Spain, Portugal where fixed capital formation decreased by around 60% in 2013 compared to its highest level in 2008 or 2009 (public investments in Poland decreased by 27% in 2013 compared to 2011).

CONCLUSIONS

In the recent years (i.e. in the period before and after the financial crisis of the end of the first decade of the twenty-first century) discussions about the desirable scope of state interference in the economy and directions of its activities in the context of stabilizing the economy, stimulating economic growth and reducing social inequalities, on one hand, have gained special significance. On the other hand, the problem of rising public debt of most economies is noticed. The proposed remedial actions (for example, for Poland for-

mulated in the aforementioned report *Reforma kulturowa 2020-2030-2040*) mainly concern changes in the structure of income (e.g. tax structure changes leading to the reduction of social inequalities) and changes in the structure of expenditures, limiting the forms of expenditure that do not contribute to economic growth.

Public expenditures in Poland as well in other EU countries are financed primarily from indirect taxes, direct taxes and social contributions. In 2013 each of these three forms of government revenues accounted for around 30% on average in the EU28 group of countries. We can indicate countries which differ substantially from this average: in Sweden over 40% of government revenues were indirect taxes, in other Nordic countries, Belgium, Ireland and the UK share of direct taxes exceeded 35%, while in the Czech Republic, Germany, Slovakia, Poland, France, the share of social contributions were the largest. The share of taxes on products is relatively high in Poland (33% in 2013, 33-36 in the period 2000 to 2013 for no apparent trends) compared with other countries, e.g. in Germany only 24%. The share of income taxes in the revenues of the general government in Poland is characterized by small fluctuations (within 2 percentage points depending on the economic situation). After the outbreak of the financial crisis taxes were not raised (PIT and CIT rates were lowered earlier, some tax credits were abolished). Meanwhile, in most EU countries in recent years (after the financial crisis), this share has increased (substantially in Portugal, Denmark, Greece, Belgium and France) as an expression of actions aimed at improving the situation of public finances.

The observed growth of the share of social contributions in the revenues of the general government in Poland after 2008 resulted mainly from changes in the proportion between transfers to social security funds (general government sub-sector) and open pension funds, temporary increase in revenues through the acquisition of part of the funds accumulated in pension funds (in 2011), introducing the possibility of individual exemption from payment of contributions to pension funds (in 2014). Some of these changes were introduced in other European countries (Hungary, Denmark, Italy, Germany), in the majority of countries the retirement age was raised.

A similar demographic situation in Europe is the cause for the similarity of the structure of transfer payments. Within current transfers of general government, social benefits are the most significant. In EU28 they constituted almost invariably 90% of current transfers during the whole analyzed period. In Poland, in 2000-2013 these benefits constituted from 98% to 87% of transfer payments of general government, with a clear downward trend. Public expenditure in the form of social benefits have been reduced through the implementation of the next steps in pension reform (shifting retirement age, abolition of a part of the privileges concerning the possibility of early retirement) and sealing system of granting disability pensions.

The share of consumption in the sum of current expenditures of government (i.e. transfer payments and consumption) is on average in EU (about 50%) twice higher than in Poland. The share of general government's consumption in total consumption in the Polish economy was significantly lower than the average for EU28. Whereas, the share of gross fixed capital formation of general government in total gross fixed capital formation in Poland is much higher than average for EU and an increase of this share is clearly visible.

In years in which public current expenditure exceeded current revenues (throughout the period considered, with the exception of 2006-2008), general government's stock of saving decreased, which meant an increase in debt and / or sale of assets (e.g. through privatization). Over the whole period, total public expenditure (current and capital) were higher than the revenue, what resulted net borrowing of the general government in (with a tendency to a decrease in periods of economic recovery). There has been a gradual increase in the Polish public debt to a level of 50.1% of GDP in 2014. However, the public debt in Poland (as well as in most new members of EU) is lower than the average for the EU28 which was equal to 86.8% in 2014, the highest in Greece, Portugal, Italy, Ireland and Belgium (above 100% of GDP).

Both public expenditures and resources of general government in relation to GDP in Poland are lower than observed in EU. After a significant decrease in the expenditure from 51% of GDP in 1996 to 41.1% of

GDP in 2000 (a similar trend was observed in most EU countries from 52% of GDP in 1995 to 44.7% in 2000) the ratio of public spending to GDP stabilized at the level of 43-45% of GDP in Poland. Recourses of general government in relation to GDP in Poland ranged between 37% and 40%.

The analysis of the similarity of structures indicates that the structure of government revenue and expenditures in the EU countries are similar. Much bigger differences between these countries exist for the structure of revenues than expenditures. However, the structure of current resources of general government in Poland is the most similar to the structures observed in Eastern European countries. In contrast, Poland is the most similar to the highly developed countries of Western Europe in terms of the structure of general government's transfer payments.

Changes in the level and structure of general government's expenditure and revenue require deeper analysis in the context of the changing demographic structure in Poland and Europe, i.e. population aging (see *The 2012 Ageing Report,* 2012). The projections for the group of countries EU27 indicate a decrease in the working-age population (14% over the period 2010-2060) and an increase in the number of elderly people (75%) which means a significant change in relations between the number of economically active persons and the number of retirees. The increase in the demographic old-age dependency ratio (people aged 65 or above relative to those aged 20-64) from 28% in 2010 to 58% in 2060 in the EU27 is projected. Will general governments manage to balance expenditures and revenues according to the demographic forecasts? What new solutions will have to be found to prevent from public debt increase in the future?

ACKNOWLEDGMENT

This paper was developed under the project financed by Polish Science Center no. DEC-2012/07/B/HS4/02928 „Determinants of the development of the Polish economy in the twenty-first century. Empirical analysis and projections based on system of macroeconomic models."

REFERENCES

Alesina, A., de Rugy, V. (2013), Austerity:the Relative Effects of Tax Increases Versus Spending Cuts, *Mercatus Center Working Paper*, March 7.

Attanasio, O., Banks, J., Wakefield, M., (2004), Effectiveness of Tax Incentives to Boost (Retirement) Saving: Theoretical Motivation and Empirical Evidence, *OECD Economic Studies.*

Bain, K., Howells, P.G.A. (1987), *Government and the Economy*, London, Longman.

Balcerowicz, L., Rzońca, A., Kalina, L., Łaszek, A. (2014), *Economic Growth in the European Union*, Lisbon Council e-book.

Balcerowicz, L. (2004), *W kierunku ograniczonego państwa*, Pruszków, Oficyna Wydawnicza Rewasz.

Barr, N. (2001), *The Welfare State as Piggy Bank. Information, Risk, Uncertainty and the Role of the State*, New York, Oxford University Press.

Bohum, P. (1987), *Social Efficiency; A Concise Introduction to Welfare Economics*, (2nd ed.), London, Macmillan.

Chang, H.-J. (2003), *Globalization, Economic Development and the Role of the State*, London, Zed Books Ltd.

European System of Accounts ESA 1995 (1996), European Commission, Brussels-Luxemburg.

European System of Accounts ESA 2010 (2013), European Commission, Luxemburg.

Eurostat database on-line access: http://ec.europa.eu/eurostat/data/database.

Golinowska, S. (2005), Przyszłość państwa opiekuńczego i systemu zabezpieczenia społecznego, *Polityka Społeczna*, 11-12/2005, pp. 1-9.

Hellwig, Z. (1968), Zastosowanie metody taksonomicznej do typologicznego podziału krajów ze względu na poziom ich rozwoju i strukturę wykwalifikowanych kadr, *Przegląd Statystyczny*, nr 4, pp. 307-327.

Horioka, C.Y., Suzuki, W., Hatta, T. (2007), Aging, savings, and public pensions in Japan, *ISER Discussion Paper*, Institute of Social and Economic Research, Osaka University, No. 692.

Johnson, J.W. (1976), *Similarity Indices I: What Do They Measure?*, Pacific Northwest Laboratories.

Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, London, Macmillan.

Krugman, P. (2012), *End This Depression Now!*, New York, WW Norton & Company.

Manual on Government Deficit and Debt (2014), Luxemburg.

Mączyńska, E. (2015), *Economics for the Future: Fundamenal Issues in Economic Theory and Practice,* (red.), Warszawa, PTE.

Musgrave, R.A. (1973), *The Theory of Public Finance: A Study of Political Economy*, New York.

OECD database on-line access: http://stats.oecd.org/.

Piketty, T. (2014), *Capital in the Twenty-First Century*, London, Harvard University Press.

Poterba J. (red.), 1994, *International Comparisons of Household Saving*, Chicago, National Bureau of Economic Research.

Pyatt, G., Round, I.J. (1979), Accounting and Fixed Price Multipliers in a Social Accounting Matrix Framework, *The Economic Journal* Vol. 89, No. 356 (Dec., 1979), pp. 850-873.

Reforma kulturowa 2020-2030-2040 (2015), Żakowski, J. (red.), The report commissioned by the National Chamber of Commerce.

Roubini, N., Mihm, S. (2010), *Crisis Economics: A Crash Course in the Future of Finance*, New York, Penguin Press.

Sachs, J. (2005), *The End of Poverty: Economic Possibilities for Our Time*, New York, Penguin Press.

Shleifer, A. (1998), *State versus private ownership,* NBER Working Paper No. 6665.

Statystyka sektora instytucji rządowych i samorządowych (2010), GUS, Warszawa.

Stiglitz, J. (2000), Economics of the Public Sector: Third Edition, New York, WW Norton Company.

Stiglitz, J. (2015), *The Great Divide: Unequal Societies and What We Can Do About Them*, New York, WW Norton & Company.

Streeck, W. (2013), The Politics of Public Debt: Neoliberalism, Capitalist Development, and the Restructuring of the State, *MPIfG Discussion Paper*, 13/7.

System of National Accounts 2008 (2009), New York, United Nations Statistical Commission.

The 2012 Ageing Report (2012), *Economic and budgetary projections for the 27 EU Member States (2010-2060)*, European Commission.

Tomaszewicz, Ł. (2001), *Macierz Rachunków Narodowych i jej wykorzystanie w analizach ekonomicznych*, Kraków, Wydaw. Akademii Ekonomicznej.

Tomaszewicz, Ł., Boratyński, J. (2004), *The Use of Social Accounting Matrices in Economic Transition Studies – the Polish Case*, Łódź, Wydawnictwo UŁ.

Tomaszewicz, Ł., Trębska, J. (2013), Flow of Funds in The System of National Accounts, [in:] Bardazzi, R., Ghezzi, L. (eds.), *Macroeconomic modelling for policy analysis*, Firenze, Firenze University Press.

Ubezpieczenia społeczne w Polsce (2014), ZUS, Warszawa.

Warmedinger, T., Checherita-Westphal, C., Hernández de Cos, P. (2015), Fiscal multipliers and beyond, *Occasional Paper Series*, No 162, European Central Bank.

Winiecki, J. (2009), *Kryzys globalny. Początek czy koniec?*, Gdańsk, Regan Press.

Wolf, C. (1993), *Markets or Governments. Choosing between Imperfect Alternatives*, Cambridge, MA: MIT Press.