Nijat Huseynov

The Classification of Public Expenditure in Post-Soviet Union States and OECD Member Countries

Summary: Fiscal policy has been an essential tool for world economies, developing countries in particular, in enhancing economic development. This paper investigates the management of public expenditures in the selected countries, including OECD members and Post-Soviet states. In essence, these countries have encountered similar economic milestones. The primary goal of this research is to characterise the fiscal policies of these countries and draw parallels, including the application of correlation analysis between the expenditure on economic affairs and GDP. Ultimately, the analysis of available data reveals that the distribution and percentage of public expenditure within GDP have been diversified in the various economic sectors due to different dominant economic activities. Based on the main results of the cluster analysis, two groups are distinguished: 6 countries in the first group and 9 in the second group. The expenditure on social affairs has been a priority for both groups. However, the second group of countries have spent more money on social purposes. The correlation analysis shows that there is a positive linear relationship between expenditure on the economic affairs and GDP in the past decade in all of the countries selected.

Keywords: public expenditure, fiscal policy, GDP, OECD, post-Soviet states
JEL Codes: E62, H50, O10, P20

The collapse of the Soviet Union laid the foundation for member states and Central and Eastern European socialist countries to pass into a period of transition. In spite of expectations, the process was burdened with challenges due to the different economic policies. Nevertheless, accession to various organisations and unions, including the Commonwealth of Independent States (CIS), the Eurasian Economic Union, the European Union (EU) and the OECD, has fulfilled the role of strengthening local economies.

E-mail address: nijat.huseynzade@gmail.com

Goryunov, Kotlikoff, and Sinelnikov –Murylev (2015) conclude that in the long-term, increasing expenditure on social affairs and falling tax revenue from the oil and gas sectors lead to a budget deficit and result in unstable fiscal policy for the Russian economy. The authors believe that the Russian government should find additional sources to finance rising public spending. Goryunov et al. (2013) consider public expenditure to be real debt, and feel that oil and gas revenue represent the main source of covering spending for the Russian economy. It has been conclusively shown (Raudla and Kattel, 2011) that after the 2008

global financial crisis, Estonia cut public expenditure and increased tax rates. *Kasperowicz* (2015) mentions that the global financial crisis had a negative impact on the Baltic states' economies and, as the result, these governments have taken consolidation measures. A recent study by *Klyviene* (2014) proves that public spending cuts in Baltic States can positively affect output. *Grigoli* (2012) presents the main feature of fiscal policy in the Slovak Republic after the global financial crisis. In his case study, the author concludes that the government tried spending more on social affairs in comparison with the EU and OECD average. *Setnikar* and *Petkovšek* (2014) highlight the general situation of the fiscal policy in Slovenia. The authors believe that the government should balance public finances in order to meet the requirements of the EU and to ensure sustainable economic development. Transfers from State Oil Fund of the Republic of Azerbaijan to the state budget have ensured immense financial resources to cover public spending. However, this situation creates fundamental challenges for sustainable fiscal policy and economic growth (Aslanli, 2015). Additionally, the Belarusian government has applied several fiscal policy reforms, however, the levels of transparency are still insufficient (Eckardt, Martinez-Vazquez, and Timofeev, 2014). *Mkhatrishvili* and *Zedginidze* (2015) mention that, after the Rose Revolution and the Russian-Georgian War, fiscal consolidation strategy has lead to higher debt and fiscal expansion. *Chironachi* (2015) considers the cooperation between monetary policy and fiscal policy to be the key tool in Moldova to ensure long-term economic stability. *Azhgaliyeva* (2014) investigates the effects of fiscal policy on the National Fund's revenue, reserves and public spending in Kazakhstan. In this case study, the author emphasises the importance of fiscal policy in preventing the high volatility of oil revenue.

Abdullaev and *Konya* (2014) indicate that the transition period in Uzbekistan was the main reason for the deterioration of the budget. However, in this study, the authors also conclude that the government has been successful in implementing economic reforms and recommend that the government reduce the tax burden in order to ensure sustainable development. *Aleksandrova* (2013) is of the opinion that the Ukrainian government was unable to develop efficient and effective fiscal tools. The author believes that fiscal policy should be directed at fostering economic growth. *Kazandziska* (2015) draws attention to the cut in public expenditure in Poland during the economic decline of 2000/2001 and 2012/2013. Another key conclusion of the study is that compared to other EU member states, fiscal policy in Poland was less efficient. According to *Endrit* and *Drini* (2013), fiscal policy in Hungary is connected to political fiscal cycles. *Barro* and *Gordon* (1989) found that government consumption could not ensure sufficient stimulus for investment and growth.

The structure of the study is organised as follows. The section on methodology explains the author's approach to the research. The study then continues with the presentation of the main features of public spending in the selected countries. The next section is devoted to discussing the results of the analysis. Finally, the paper concludes with the summary of the analysis and comments pertaining to the various countries.

METHODOLOGY

The study characterises public expenditure in the selected countries through cluster analysis. The main goal of cluster analysis is to identify which objects in a given set are similar (Romesburg, 2004). The author interprets the

share of public expenditure of GDP in each country in order to understand their respective fiscal policy. Furthermore, total expenditure for each country has been broken down into four variables:

- Expenditure on general public services
- Expenditure on defence, public order, safety, environmental protection
- Expenditure on economic affairs (agriculture, forestry, fishing and hunting, fuel, energy, mining, manufacturing, construction, transport, communication)
- Expenditure on social affairs (housing, community amenities, health, recreation, culture, religion, education, social protection)

In addition, the author has used correlation analysis between expenditure on economic affairs and GDP for each country in order to investigate their potential relationship and efficiency.

SELECTED COUNTRIES AND DATA

The main source of the data is the Government Finance Statistics of the IMF. The author has selected 15 countries (OECD members: Hungary, the Slovak Republic, Slovenia, Poland; Post-Soviet Union states: Latvia, Lithuania, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, the Ukraine, Uzbekistan; Countries that fall into both categories: Estonia). The author has used 2013 data for the cluster analysis in order be able to characterise the countries efficiently based on available data. The main indicator for each of the countries is the percentage of GDP. However, the author has used data from 2000 to 2014 for the correlation analysis.

Table 1 shows public expenditure in each country in 2013. The table reveals that expenditure on social affairs represented a dominant part of public spending for all countries, with the exception of Azerbaijan. Furthermore, the Russian Federation, Hungary and Belarus have spent the highest percentage of total expenditure on general public services. In contrast, Azerbaijan and Georgia have spent the main part of their public expenditure on economic affairs and defence, public order and safety, and environmental protection.

According to *Table 2*, within expenditure on economic affairs, the IMF takes five main activities into account: agriculture, including forestry, fishing and hunting; fuel and energy; mining, manufacturing and construction; transport; and communication. Undoubtedly, the distribution of public spending on economic affairs varies on account of the different economic potentials in each country. Apart from that, the contribution level of economic sectors has also been varied in each county *(see Table 3)*.

RESULTS

Table 4 identifies final cluster centres for the 15 countries. The countries have been divided to two groups with a 6 to 9 ratio *(see Table 5)*. All in all, the expenditure on social affairs has been a priority for both country groups. However, in the cluster 2, this predominance is greater than in cluster 1 with a value of 30.2. The expenditure on economic affairs represents the second direction for the countries.

Lithuania, Azerbaijan, Georgia, Kazakhstan, the Russian Federation, Uzbekistan are in the first cluster, and Estonia, Latvia, the Slovak Republic, Slovenia, Hungary, Poland, Belarus, Moldova, the Ukraine are in the second cluster *(see Table 6)*. In the case of each country, the distance makes it clear how similar they are to each other or in which range they fall into from the centre point of the clus-

Table 1

EXPENDITURE, PERCENTAGE OF TOTAL EXPENDITURE, 2013

Country	Expenditure on general public services	Expenditure on economic affairs	Expenditure on defence, public order, safety, environmental protection	Expenditure on social affairs
Estonia	10.3	12.5	11.3	65.9
Latvia	13.2	13	9.4	64.4
Slovak Republic	8.4	17.6	9.5	72.8
Slovenia	11.3	24.2	6.4	58.1
Hungary	20.9	13.7	7	58.5
Lithuania	14.8	9.8	8.8	66.7
Poland	13.4	9.7	8.7	68.2
Azerbaijan	10.2	43.2	12.4	34.2
Belarus	16.3	11.4	8	64.4
Georgia	10.8	15.9	21.6	51.7
Kazakhstan	11.2	13	14.8	60.8
Moldova	9.7	11.9	8.2	70.1
Russian Federation	22.6	9.4	13.2	54.9
Ukraine	9.3	7.1	8.6	75.3
Uzbekistan	4.6	14.2	13.8	67.5

Source: IMF, Government Finance Statistics, http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9

ter. *Figures 1* and *2* reveal the exact position of the countries in the clusters. In any case, it is more expedient to investigate each cluster member separately.

Public expenditure on social affairs in Lithuania equals 23.6% of GDP and 66.7% of total spending. The remaining part of government spending is made up of public expenditure on general public services (5.3% of GDP and 14.8% of total spending), on economic affairs (3.5% of GDP and 9.8% of total spending), on defence, public order and safety, and environmental protection (3.1% of GDP and 8.8% of total spending).

Public expenditure on economic affairs in Azerbaijan equals 15.6% of GDP (the highest percentage among all 15 countries) and 43.2% of total spending. In comparison with the members of the first cluster, the Azerbaijan government has spent only 34.2% of total spending (12.8% of GDP, which is one of the lowest rates among the 15 countries) on social affairs. The remaining part of government spending is made up of public expenditure on general public services (3.7% of GDP and 10.2% of total spending), on defence, public order and safety, and environmental protection (4.5% of GDP and 12.4% of total spending).

Public expenditure on social affairs in Kazakhstan equals 12.3% of GDP (which is one of the lowest among the 15 countries) and 60.8% of total spending. The remaining part of government spending is made up of public expenditure on defence, public order and safety, and environmental protection

Table 2

STRUCTURE OF EXPENDITURE ON ECONOMIC AFFAIRS, PERCENTAGE OF TOTEL EXPENDITURE, 2013

Country	Agriculture (including forestry, fishing and hunting)	Fuel and energy	Mining, manufacturing, construction	Transport	Communi-cation
Estonia	14.30	0.55	0.77	62.71	0.77
Latvia	9.10	2.85	7.90	60.29	0.18
Slovak Republic	15.28	1.74	0.93	58.14	0.42
Slovenia	4.82	1.05	–	16.73	0.40
Hungary	6.96	1.92	0.49	54.27	–
Lithuania	26.76	18.62	0.69	38.03	3.85
Poland	13.37	–	1.73	75.88	0.49
Azerbaijan	5.49	0.02	90.00	0.94	0.42
Belarus	24.56	7.42	8.59	8.60	0.26
Georgia	13.51	4.64	0.08	64.69	–
Kazakhstan	26.25	13.35	3.56	56.28	0.67
Moldova	30.05	5.47	1.25	57.93	–
Russian Federation	14.82	1.24	–	19.99	3.15
Ukraine	15.65	31.33	1.03	30.71	0.38
Uzbekistan	36.90	0.27	3.85	38.41	0.10

Source: IMF, Government Finance Statistics, http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9

(3% of GDP and 14.8% of total spending), on economic affairs (2.6% of GDP and 13% of total spending), and on general public services (2.2% of GDP and 11.2% of total spending).

Public expenditure on social affairs in the Russian Federation equals 23.2% of GDP and 54.9% of total spending. In comparison with the members of the first cluster, the Russian government has spent only 22.6% of total spending (9.5% of GDP, which is one of the highest rates among the 15 countries) on general public services. The remaining part of government spending is made up of public expenditure on defence, public order and safety, and environmental protection (5.5% of GDP and 13.2% of total spending), and on economic affairs (4% of GDP and 9.4% of total spending).

Public expenditure on social affairs in Uzbekistan equals 20.6% of GDP and 67.5% of total spending. The remaining part of government spending is made up of public expenditure on economic affairs (4.3% of GDP and 14.2% of total spending), and on defence, public order and safety, and environmental protection (4.2% of GDP and 13.8% of total spending). In comparison with the members of the first cluster, the Uzbekistan government has spent only 4.6% of total spending (1.41% of GDP, the lowest rate among the 15 countries) on general public services.

Table 3

VALUE ADDED BY ECONOMIC SECTORS
PERCENTAGE OF GDP, 2014

Country	Agriculture	Manufacturing	Industry	Services, etc.
Estonia	6	5	58	36
Latvia	9	26	42	49
Slovak Republic	3	16	28	68
Slovenia	9	13	24	66
Hungary	4	24	31	64
Lithuania	5	11	36	59
Poland	3	12	23	73
Azerbaijan	3	19	31	66
Belarus	15	14	17	68
Georgia	3	18	33	64
Kazakhstan	4	16	36	60
Moldova	4	21	34	62
Russian Federation	2	23	33	65
Ukraine	12	13	25	63
Uzbekistan	19	12	34	48

Source: World Bank data, http://data.worldbank.org/topic/economy-and-growth

Table 4

FINAL CLUSTER CENTRES

	Cluster	
	1	2
Expenditure on general public servies	4.2	5.8
Expenditure on defence, public order, safety, environment protection	4.4	3.9
Expenditure on economic affairs	5.8	6.3
Expenditure on social affairs	17.8	30.2

Source: author's own analysis based on IMF Government Finance Statistics, http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9

Public expenditure on social affairs in Estonia equals 25.6% of GDP and 65.9% of total spending. The remaining part of government spending is made up of public expenditure on economic affairs (4.9% of GDP and 12.5% of total spending), on defence, public order and safety, and environmental protection (4.4% of GDP and 11.3% of total spending), and on

Table 5

NUMBER OF CASES IN EACH CLUSTER

Cluster	1	6.000
	2	9.000
Valid		15.000
Missing		.000

Source: according to the IMF, Government Finances statistics, author's own analysis, http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9

Table 6

CLUSTER MEMBERSHIP

Case number	Country	Cluster	Distance
1	Estonia	2	5.126
2	Latvia	2	3.185
3	Slovak Republic	1	6.474
4	Slovenia	2	2.571
5	Hungary	2	9.311
6	Lithuania	2	4.767
7	Poland	2	2.505
8	Azerbaijan	1	11.261
9	Belarus	2	3.171
10	Georgia	1	3.819
11	Kazakhstan	1	6.797
12	Moldova	2	4.198
13	Russian Federation	1	7.798
14	Ukraine	2	6.533
15	Uzbekistan	1	4.217

Source: author's own analysis based on IMF Government Finance Statistics and World Bank data; http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

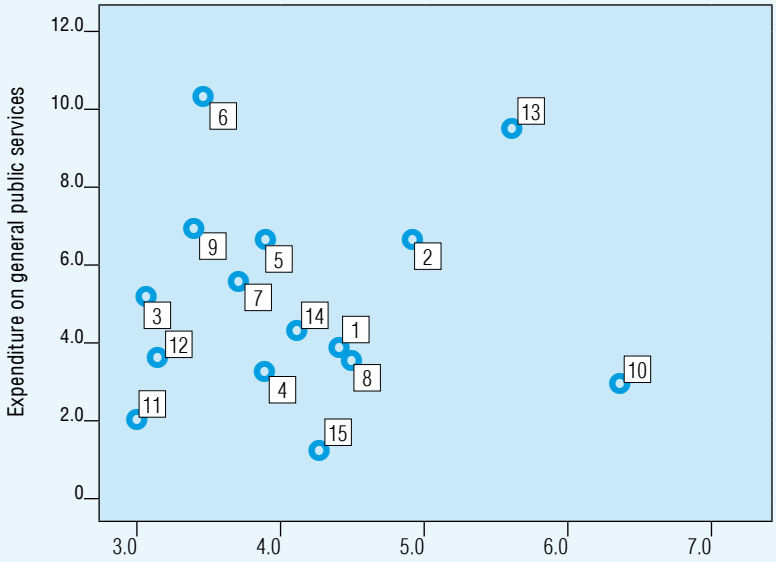
general public services (4% of GDP and 10% of total spending).

In Latvia, another Baltic state, public expenditure on social affairs equals 33% of GDP and 64.4% of total spending. The remaining part of government spending is made up of public expenditure on general public services (6.8% of GDP and 13.2% of total spending), on economic affairs (6.7% of GDP and 13% of total spending), and on defence, public order and safety, and environmental protection (4.9% of GDP and 9.4% of total spending).

Public expenditure on social affairs in the Slovak Republic equals 29.8% of GDP and 72.8% of total spending. The remaining part

Figure 1

THE POSITION OF THE COUNTRIES ACCORDING TO EXPENDITURE ON GENERAL PUBLIC SERVICES AND DEFENCE, PUBLIC ORDER AND SAFETY, ENVIRONMENTAL PROTECTION



Source: according to the IMF, Government Finance statistics and the world Bank data. author's own analysis; http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

of government spending is made up of public expenditure on economic affairs (7.2% of GDP and 17.6% of total spending), on defence, public order and safety, and environmental protection (3.9% of GDP and 9.5% of total spending), and on general public services (3.4% of GDP and 8.4% of total spending).

Public expenditure on social affairs in Slovenia equals 34.7% of GDP (the highest percentage among all 15 countries) and 58.1% of total spending. The remaining part of government spending is made up of public expenditure on economic affairs (14.5% of GDP and 24.2% of the total), on general public services (6.7% of GDP and 11.3% of the total), and on defence, public order and safety, and environmental protection (3.9% of GDP and 6.4% of the total).

Public expenditure on social affairs in Hungary equals 29% of GDP and 58.5% of total spending. It should also be mentioned that the Hungarian government has spent 20.9% of total spending (10.8% of GDP, the highest rate among the 15 countries) on general public services. The remaining part of government spending is made up of public expenditure on economic affairs (6.8% of GDP and 13.7% of total spending), and on defence, public order and safety, and environmental protection (3.5% of GDP and 7% of total spending).

In Poland, public expenditure on social affairs equals 29% of GDP and 68.2% of total spending. The remaining part of government spending is made up of public expenditure on general public services (5.7% of GDP and

Figure 2

THE POSITION OF THE COUNTRIES ACCORDING TO EXPENDITURE ON ECONOMIC AND SOCIAL AFFAIRS

Source: according to the IMF, Government Finance statistics and the world Bank data. author's own analysis, http://data.imf.org/?sk=5804C5E1-0502-4672-BDCD-671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

13.4% of total spending), on economic affairs (4.1% of GDP and 9.7% of total spending), and on defence, public order and safety, and environmental protection (3.7% of GDP and 8.7% of total spending).

Public expenditure on social affairs in Belarus equals 27.7% of GDP and 64.4% of total spending. The remaining part of government spending is made up of public expenditure on general public services (7% of GDP and 16.3% of total spending), on economic affairs (4.9% of GDP and 11.4% of total spending), and on defence, public order and safety, and environmental protection (3.4% of GDP and 8% of total spending).

Public expenditure on social affairs in Moldova equals 27% of GDP and 70.1% of total spending. The remaining part of government spending is made up of public expenditure on economic affairs (4.6% of GDP and 11.9% of total spending), on general public services (3.7% of GDP and 9.7% of total spending), and on defence, public order and safety, and environmental protection (3.2% of GDP and 8.2% of total spending).

The Ukrainian government has spent 75.3% of total expenditure (35.9% of GDP, the highest rate among the 15 countries) on social affairs. The remaining part of government spending is made up of public expenditure on general public services (4.4% of GDP and 9.3% of total spending), on defence, public order and safety, and environmental protection (4% of GDP and 8.6% of total spending), and on economic affairs (3.4% of GDP and 7.1% of total spending).

Estonia

The Estonian government has spent 62.3% and 14.3% of public expenditure for economic affairs on transport and agriculture (Table 2, 2013), respectively. In comparison, the output of agriculture and manufacturing has been less than the other sectors (Table 3, 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2000–2013 period *(see Table 7 and Figure 3)*.

Latvia

The Latvian government has spent 60.3%, 9.1% and 7.9% of the public expenditure for economic affairs (Table 2, in 2013), on transport, agriculture and manufacturing (including mining, construction) respectively. In comparison, the output of the agriculture and manufacturing have been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2000–2013 period *(see Table 8 and Figure 4)*.

Slovak Republic

The Slovak government has spent 58.1% and 15.3% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. At the same time, the output of agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a strong positive linear relationship between expenditure on economic affairs and GDP in the 2000–2013 period *(see Table 9 and Figure 5)*.

Table 7

CORRELATION: ESTONIA, 2000–2013

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.973**
	Sig. (2-tailed)		0.000
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.973**	1
	Sig. (2-tailed)	0.000	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 3

CORRELATION: ESTONIA

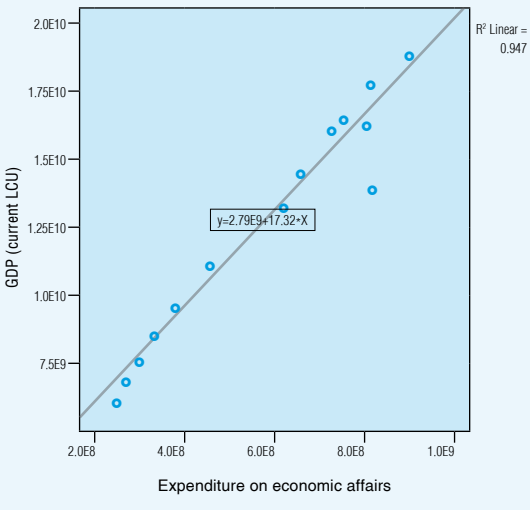


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Table 8

CORRELATION: LATVIA, 2000–2013

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.873**
	Sig. (2-tailed)		0.000
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.873**	1
	Sig. (2-tailed)	0.000	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).
Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 4

CORRELATION: LATVIA

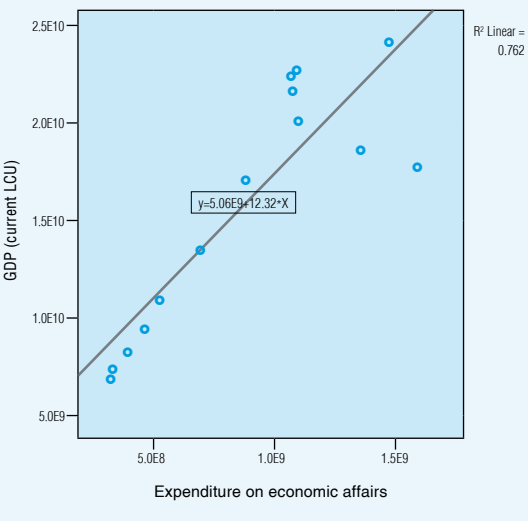

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Table 9

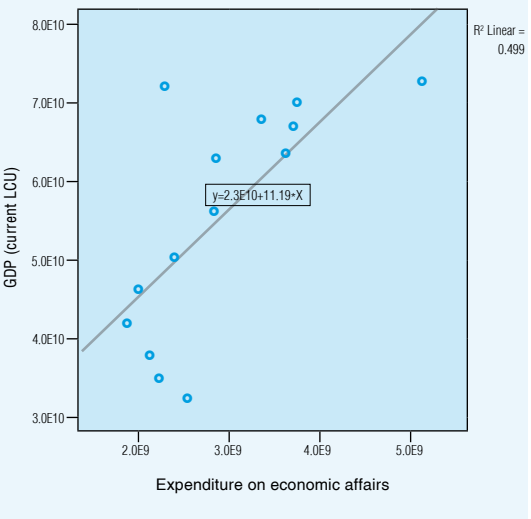
CORRELATION: SLOVAK REPUBLIC, 2000–2013

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.706**
	Sig. (2-tailed)		0.005
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.706**	1
	Sig. (2-tailed)	0.005	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).
Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 5

CORRELATION: SLOVAK REPUBLIC



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Azerbaijan

The Azerbaijan government has spent 90% and 5.5% of public expenditure for economic affairs (Table 2, in 2013) on mining (including manufacturing and construction) and agriculture, respectively. In comparison, the output of the agriculture and manufacturing have been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2008–2014 period *(see Table 10 and Figure 6).*

Belarus

The Belarus government has spent a quarter of public expenditure for economic affairs (Table 2, in 2013) on agriculture, and the remaining part on mining (including manufacturing and construction) and transport in equal amounts. The separate output of agriculture and manufacturing has been less than the other sectors of the country's economy, but joint output was greater than in the other countries (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2003–2014 period *(see Table 11 and Figure 7).*

Georgia

The Georgian government has spent 64.7% and 13.5% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. In comparison, the output of the agriculture and manufacturing have been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2003–2014 period *(see Table 12 and Figure 8).*

Table 10

CORRELATION: AZERBAIJAN, 2008–2014

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.972**
	Sig. (2-tailed)		0.000
	N	7	7
Expenditure on economic affairs	Pearson-correlation	0.972**	1
	Sig. (2-tailed)	0.000	
	N	7	7

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 6

CORRELATION: AZERBAIJAN

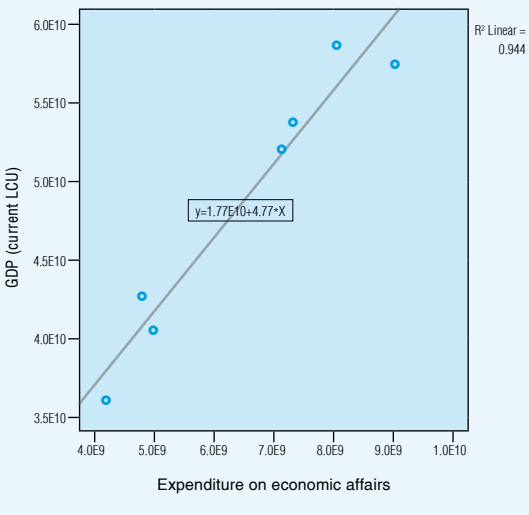

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Table 11

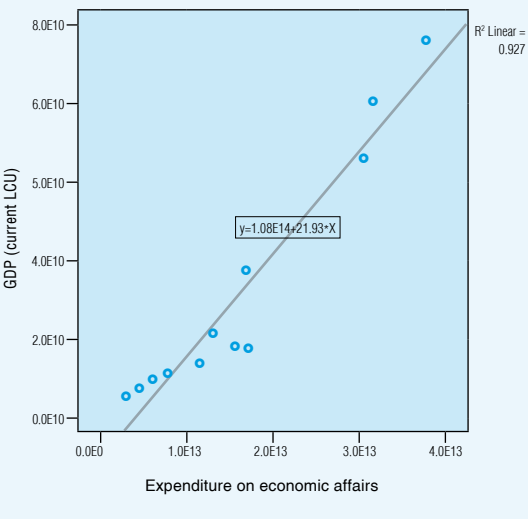
CORRELATION: BELARUS, 2003–2014

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.963**
	Sig. (2-tailed)		0.000
	N	12	12
Expenditure on economic affairs	Pearson-correlation	0.963**	1
	Sig. (2-tailed)	0.000	
	N	12	12

** Correlation is significant at the 0,01 level (2 tailed).
Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 7

CORRELATION: BELARUS



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 12

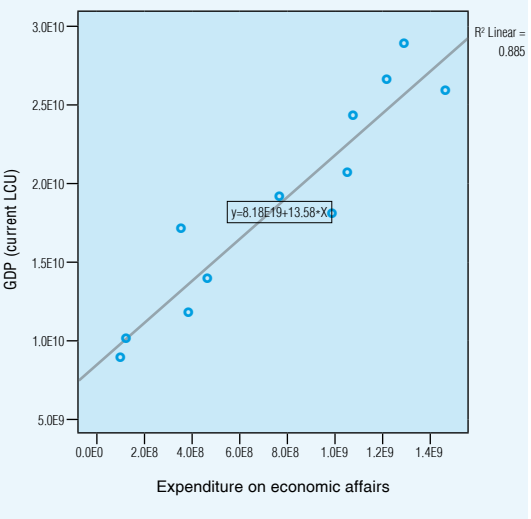
CORRELATION: GEORGIA, 2003–2014

		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.941**
	Sig. (2-tailed)		0.000
	N	12	12
Expenditure on economic affairs	Pearson-correlation	0.941**	1
	Sig. (2-tailed)	0.000	
	N	12	12

** Correlation is significant at the 0,01 level (2 tailed).
Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 8.

CORRELATION: GEORGIA



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Hungary

The Hungarian government has spent 54.3% and 6.7% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. On the other hand, the output of the agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2000–2013 period *(see Table 13 and Figure 9)*.

Kazakhstan

The Kazakhstan government has spent 56.3% and 26.3% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. On the other hand, the output of the agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a strong positive linear relationship between expenditure on economic affairs and GDP in the 2000–2014 period *(see Table 14 and Figure 10)*.

Moldova

The Moldavian government has spent 57.9% and 30% of public expenditure for economic affairs on transport and agriculture (Table 2, in 2013), respectively. The output of agriculture was higher than in the other countries (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2002–2014 period *(see Table 15 and Figure 11)*.

Table 13

CORRELATION: HUNGARY, 2000–2013

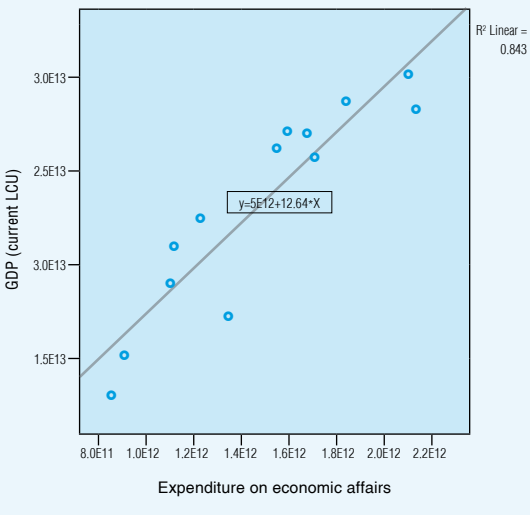
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.918 **
	Sig. (2-tailed)		0.000
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.918 **	1
	Sig. (2-tailed)	0.000	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 9

CORRELATION: HUNGARY



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 14

CORRELATION: KAZAKHSTAN, 2000–2014

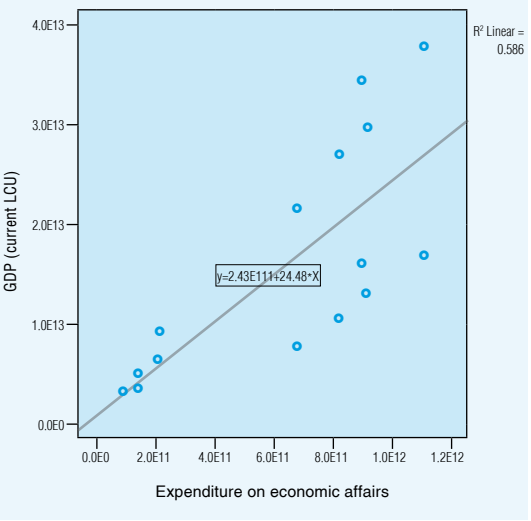
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.766 **
	Sig. (2-tailed)		0.001
	N	15	15
Expenditure on economic affairs	Pearson-correlation	0.766**	1
	Sig. (2-tailed)	0.001	
	N	15	15

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 10

CORRELATION: KAZAKHSTAN



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 15

CORRELATION: MOLDOVA, 2002–2014

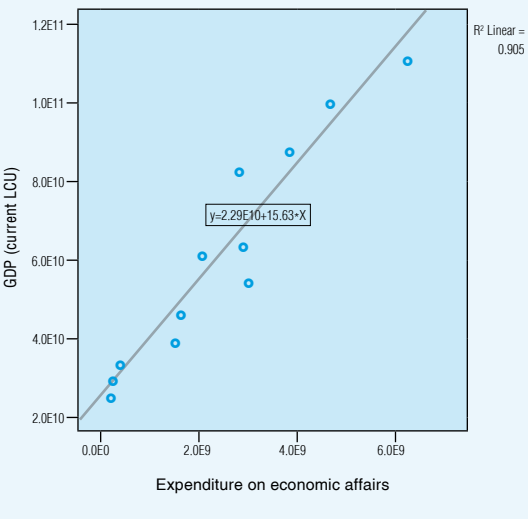
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.951**
	Sig. (2-tailed)		0.000
	N	13	13
Expenditure on economic affairs	Pearson-correlation	0.951**	1
	Sig. (2-tailed)	0.000	
	N	13	13

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 11

CORRELATION: MOLDOVA



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Poland

Poland has spent 75.8% and 13.4% of public expenditure for economic affairs on transport and agriculture (Table 2, in 2013), respectively. On the other hand, the output of the agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2001–2013 period (*see Table 16 and Figure 12).*

Russian Federation

The Russian government has spent 14.8% of public expenditure for economic affairs on agriculture (Table 2, in 2013). On the other hand, the output of the agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2000–2013 period *(see Table 17 and Figure 13).*

Ukraine

The Ukrainian government has spent 31.3% and 15.7% of the public expenditure for economic affairs on energy and fuel (due to the dependence on oil and gas import) and agriculture (Table 2, in 2013), respectively. By all means, the output of the agriculture has been more than the all of the countries (Table 3, in 2014). At the same time, there is a perfect positive linear relationship between expenditure on economic affairs and GDP in the 2001–2014 period *(see Table 18 and Figure 14).*

Table 16

CORRELATION: POLAND, 2001–2013

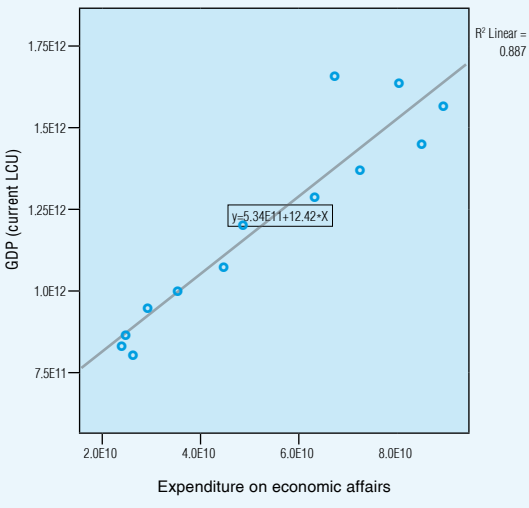
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.942**
	Sig. (2-tailed)		0.000
	N	13	13
Expenditure on economic affairs	Pearson-correlation	0.942**	1
	Sig. (2-tailed)	0.000	
	N	13	13

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 12

CORRELATION: POLAND



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 17

CORRELATION: RUSSIAN FED., 2000–2013

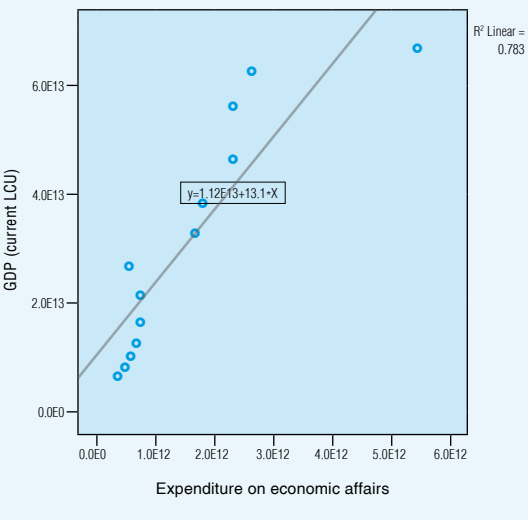
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.885**
	Sig. (2-tailed)		0.000
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.885**	1
	Sig. (2-tailed)	0.000	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 13

CORRELATION: RUSSIAN FEDERATION



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 18

CORRELATION: UKRAINE, 2001–2014

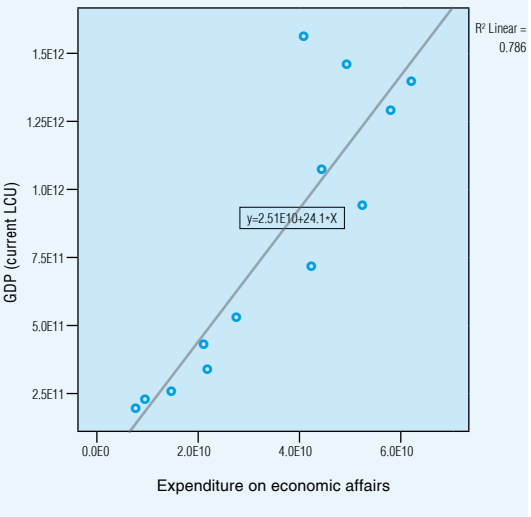
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.886**
	Sig. (2-tailed)		0.000
	N	14	14
Expenditure on economic affairs	Pearson-correlation	0.886**	1
	Sig. (2-tailed)	0.000	
	N	14	14

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 14

CORRELATION: UKRAINE



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Lithuania

Lithuania has spent 38% and 26.8% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. On the other hand, the output of the agriculture has been less than the other sectors (Table 3, in 2014). At the same time, there is a strong positive linear relationship between expenditure on economic affairs and GDP in the 2004–2013 period *(see Table 19 and Figure 15).*

Uzbekistan

The Uzbekistan government has spent 38.4% and 36.9% of public expenditure for economic affairs (Table 2, in 2013) on transport and agriculture, respectively. By all means, the output of the agriculture has been more than the all of the countries (Table 3, in 2014). At the same time, there is a strong positive linear relationship between expenditure on economic affairs and GDP in the 2011–2014 period *(see Table 20 and Figure 19).*

CONCLUSION

This research investigates the potential relationship between gross output and public expenditure in the selected countries: OECD members: Hungary, the Slovak Republic, Slovenia, Poland; Post-Soviet Union states: Latvia, Lithuania, Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, the Russian Federation, the Ukraine, Uzbekistan; Countries that fall into both categories: Estonia. Another key issue for the study is to create clusters according to public expenditure, as percentages of GDP. For purpose, the

Table 19

CORRELATION: LITHUANIA, 2004–2013

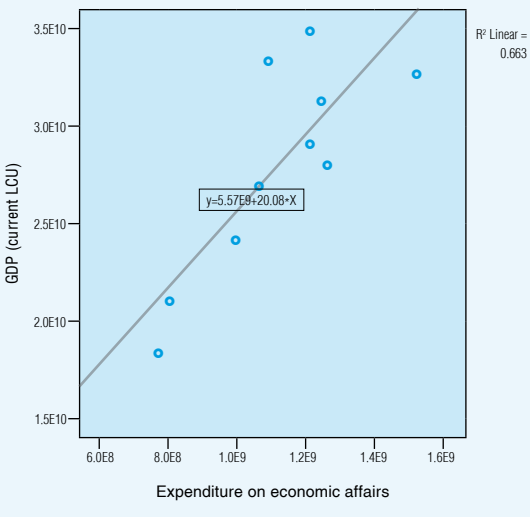
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.814**
	Sig. (2-tailed)		0.004
	N	10	10
Expenditure on economic affairs	Pearson-correlation	0.814**	1
	Sig. (2-tailed)	0.004	
	N	10	10

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 15

CORRELATION: LITHUANIA



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Table 20

CORRELATION: UZBEKISTAN, 2011–2014

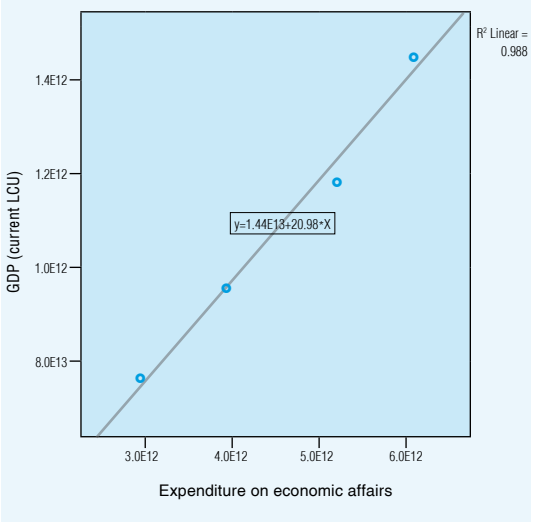
		GDP (current LCU)	Expenditure on economic affairs
GDP (current LCU)	Pearson-Correlation	1	0.994**
	Sig. (2-tailed)		0.006
	N	4	4
Expenditure on economic affairs	Pearson-correlation	0.994**	1
	Sig. (2-tailed)	0.006	
	N	4	4

** Correlation is significant at the 0,01 level (2 tailed).

Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

Figure 16

CORRELATION: UZBEKISTAN



Source: according to the IMF, Government Finance statistics and the World Bank data, author's own analysis, http://data.imf.org/?sk=5804C5E1–0502–4672-BDCD–671BCDC565A9; http://data.worldbank.org/topic/economy-and-growth

author used IMF and World Bank data from the 2000–2014 period.

Certain European countries preferred making cuts in public expenditure after the global financial crisis of 2008. However, the results of the correlation analysis show that there are strong and/or perfect linear relationships between GDP and expenditure on economic affairs. Accordingly, the cluster analysis has classified the countries into two groups. It can be concluded that the distance between the clusters is not significant. Thus, the main common feature is that public expenditure on social affairs (including housing, community amenities, health, recreation, culture, religion, education, social protection) has been a priority for all countries in 2013. The Russian Federation, Hungary and Belarus have spent the highest percentage of expenditure on general public services. On the contrary, Azerbaijan and Georgia have spent the main part of the public expenditure to the economic affairs and defence, public order, safety, environment protection respectively. Altogether, the distribution of public spending on economic affairs has been varied due to the different economic potential in each country.

All things considered, as the result of the cluster analysis, Lithuania, Azerbaijan, Georgia, Kazakhstan, the Russian Federation, Uzbekistan are in the first cluster, and Estonia, Latvia, the Slovak Republic, Slovenia, Hungary, Poland, Belarus, Moldova and the Ukraine are in the second cluster.

In comparison with the second cluster, lower expenditure on social affairs (Azerbaijan, Georgia, the Russian Federation), higher spending on defence, public order and safety and environmental protection (in all countries) are the main features of the first cluster. Azerbaijan, Kazakhstan and the Russian Federation are the main oil and gas export-

ers among the countries examined thus, in light of the above, oil and gas revenues have a substantial impact on their fiscal policy. Accordingly, the Azerbaijan government has spent 43.2% of total expenditure (15.6% of GDP) on economic affairs, particularly mining, manufacturing and construction due to its dependence on the oil and gas sectors. In addition, the Russian Federation has spent 22.6% of total expenditure (9.5% of GDP) on general public services on account of huge administrative costs.

In the second cluster, the shares of expenditure on social affairs (Latvia, Slovenia, the Ukraine), on defence, public order and safety, and environmental protection (Estonia, Latvia, the Ukraine), and on economic affairs (Slovenia, Hungary, Latvia) as a percentage of GDP have been greater than in other countries. Notably, the Hungarian government has spent 20.9% of total public expenditure (10.4% of GDP) on general public services.

In summary, the selected countries have spent more on social affairs (with some exceptions), and the relationship between GDP and public expenditure on economic affairs has been strong. However, some of the countries have to decrease public expenditure on general public services, and have to increase the percentage of expenditure on economic and social affairs (particularly, Azerbaijan, Kazakhstan and Georgia), and the oil and gas producers (Azerbaijan, Kazakhstan, the Russian Federation) have to diversify the economy with efficient fiscal policy.

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