

# Public Services and their Financial Allocation in the European Context

Scientific Papers of the University of Pardubice, Series D: Faculty of Economics and Administration 2020, 28(2), 1052.  
©The Author(s) 2020  
DOI: 10.46585/sp28021052  
editorial.upce.cz/SciPap

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## Abstract

Public services are a crucial part for working stable economies in the European Union and for the development of public policies, but also the ensuring of infrastructure and satisfaction of public needs. The article aims to evaluate selected public services by the volume of allocated public expenditures, focusing on similarities in the EU countries. The quantitative analysis concentrates on financial allocations by COFOG second level in selected areas of public services. The research is carried out for the period 2008-2017 by use of multidimensional scaling. The results have shown that the EU countries can be divided into seven clusters by the similarity of public expenditures on services, although partial differences are present even in these clusters. The results have proved a high similarity of services by the volume of allocated public expenditures (public health services, recreational and sporting services) and services related to housing development. On the other hand, differences in financial allocations are presented by public services which satisfy needs of society (police services) and areas of technical infrastructure (transport, waste management), compared to the other public services analysed. These findings reflect the role and size of the public sector with respect to priorities of the EU countries.

## Keywords

Public Services, Public Sector, Public Expenditure, COFOG, EU Countries, Multidimensional Scaling.

## JEL Classification

H40, H76, H83

## Introduction

Public services are connected to the causes of market failure, mainly in relation to the efficiency of the allocation of precious resources. A number of authors deal with the approaches to define public services and address public services from theoretical as well as practical perspectives. The term public services and their definition has multiple meanings (Smith, 2003; Aaberge et al., 2010; CEEP, 2010; Sauter (2015); Stejskal et al., 2017; Benito et al., 2019). Public services are defined as services with public interest financed from public budgets that aim to satisfy public needs, while being produced, organised, guaranteed or regulated by institutions of public administration. Public services are usually provided in areas which are not (for instance financially) attractive for the public sector (Wollmann and Marcou, 2010; European Commission, 2016; Wollmann, 2018).

A great deal of research tackles public services and public expenditures of the first level by classification of the functions of government (COFOG). This research aims to provide a more comprehensive view on the structure of public expenditures by the second level COFOG services, which render an in-depth reflection of the needs of the public sector in the individual countries. The quantitative research focuses on selected areas of the public sector from the viewpoint of financial allocations on public services of the second level (services focused on the development of human potential, services of the public state consumption and other areas of public services). The aim is to evaluate the selected public services by the volume of allocated public expenditures, focusing on similarities in the EU countries. With respect to the aim, three research questions are verified:

RQ1: Is there any similarity between the EU countries in the financial allocation of public services related to the development of human potential?

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RQ2: Is there any similarity between the EU countries in the financial allocation to services of public consumption of the state (police services) and in other areas of public services (housing development, waste management or transport)?

RQ3: Are EU countries with a similar volume of allocated public expenditures on public services connected with the same tradition of public administration?

## Literature Review

The public sector is an inseparable part of mixed economy of every advanced country. From the economic viewpoint, the state activity is connected with the human striving for satisfying needs (Lindahl, 1964). The structure of the public sector is based on these needs. The public sector is divided into specific blocks (areas) by the rate of financing production of goods and services from public resources, which reflect the economic character of goods that satisfy social needs (Bailey, 1995; Stiglitz and Rosengard, 2015). The procurement of public services is more specifically defined by, e.g. Stejskal et al. (2017) as support in a broader context, which is fulfilled through guarantee, organisation, regulation and partly checking of public-service financing. However, Musgrave and Musgrave (1989) distinguish between the procurement and provision of public services. Public services are covered from public budgets and available without consumers' fees when provided publically. How they are produced, i.e. who is their producer, the authors consider irrelevant.

The procuring party of the public service (as a guarantor or regulator) deals with the financing of a public service when setting up the system of the procurement. It is an extensive issue which needs to be approached individually for each type of public services. There is no single approach to solving the financing of public services. Neither is there any single recommended resource, form or tool for financing a public service. Answers to these questions can be searched in the theory of public finances. Several prominent authors deal with financing of public services from different perspectives, such as Musgrave and Musgrave (1989); Brown and Jackson (1990); Rosen (2005); Pigou (2006); Cullis and Jones (2009); Stiglitz and Rosengard (2015). These authors mostly focus on sources of financing public services, mainly transnational budgets, federal and state budgets, budgets of higher territorial units, municipal budgets and private resources, e.g. consumer payments, sources from undertaking or gifts (Stejskal et al., 2017). Financing of public services is mainly ensured by public administration which performs allocation and redistribution of public expenditures through the system of public budgets and funds on public needs and their satisfaction through public services. Public expenditures form part of the GDP consumed collectively on the basis of public choice and is used for the purposes of financing public needs. The key issue is the definition of not only the volume of public expenditures but also their structure, i.e. the allocation to needs with respect to the sources of financing available.

Ensuring, provision and financing of public services is dealt with in domestic as well as foreign research (Harvey, 1994; Brown and Potoski, 2003; Beblavý and Sičáková Beblavá, 2007; Wollmann and Marcou, 2010). These authors seek for ideal ways of financing but also new ways of ensuring and providing public services. As Meričková and Nemeč (2013) argue, a combination of public and private resources, namely user fees, is being promoted. Consumer participation in the costs of public service contributes to increased rationality of the consumer in consumption and fulfils the requirement for defining the benefit of the given service. Boadway et al. (1999) show that public services are often provided by lower level agencies that are funded by higher level government. The authors study a principal-agent model which emphasises the distinction between the financing and provision of public services. With respect to financing of public services, matters related to efficiency, effectiveness and quality of public services (Benito et al., 2019 or Diaz-Serano and Meix-Llop, 2019). Linhartová and Stejskal (2017) examine financing of public services and the efficiency of spent public funds on services of public libraries. It was found that the library size does not affect the final value of the public libraries services, thus the efficiency of spent public funds is comparable in both large and small libraries. Mededovic (2011) shows that countries with higher level of economic development have higher public expenditures, based on the expansion of state activities aimed at ensuring necessary quantity and quality of public services and public services in general.

## Methods

The data used comes from Eurostat statistics database - Annual government finance statistics (Eurostat, 2019). General government expenditures by function (COFOG) second level were selected for the purpose of the analysis see Table 1. For a detailed description of these services, see European Union (2019).

**Table 1.** General government expenditure by function (COFOG).

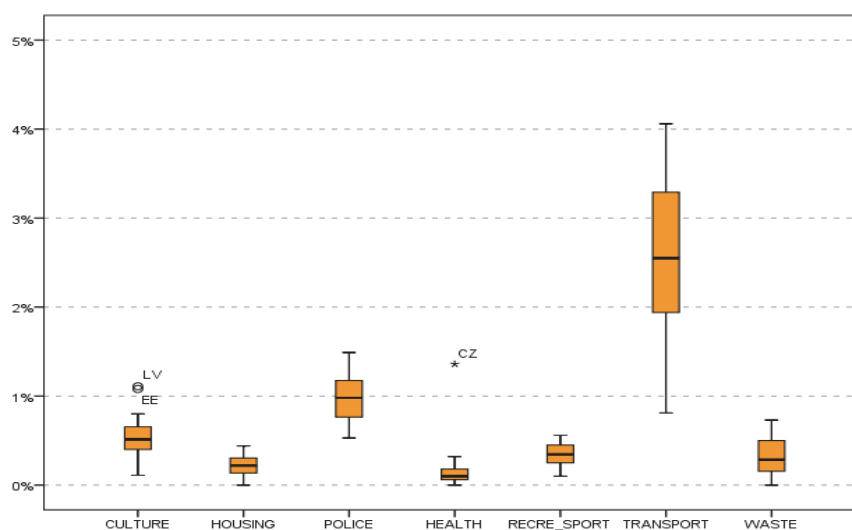
COFOG II. level	Function	Abbr.
GF0301	Police services	POLICE
GF0405	Transport	TRANSPORT
GF0501	Waste management	WASTE
GF0601	Housing development	HOUSING
GF0704	Public health services	HEALTH
GF0801	Recreational and sporting services	RECRE-SPORT
GF0802	Cultural services	CULTURE

Source: Eurostat (2019)

Three areas of public services have been selected (namely services for the development of human potential, services for public consumption of the state, and other areas of public services). Another criterion is availability of data for the selected set of countries in the analysed time period.

The original intention was to analyse allocations of public services in three stages: 2008-2010, 2011-2013 and 2014-2017. As public expenditures on services failed to show marked changes, the research deals with the average of the period 2008-2017. Public expenditures on services are analysed in the course of the ten-year period 2008-2017, which reflect the trend of the development of public services sufficiently. The year 2008 is the initial year of the analysis, and 2017 is the last year when the data was available at the time of the writing of the analysis.

The box plot was used to present the median a data variability that the individual variables reach (public expenditures on the selected public services as percentage of GDP, see Fig. 1). Pearson's correlation coefficient was applied to check multicollinearity of variables for the average values from 2008-2017 and it shows that correlation coefficients reach the maximum of approximately 0.300 ( $p < 0.05$ ), which can be considered a weak correlation, following Evans (1996). The highest rate of the correlation of public expenditures by function reaches the values  $r = 0.327$  ( $p < 0.05$ ) as average from 2008-2017.

**Fig. 1.** Box plot of the expenditures on public services as average from the period 2008-2017 in the EU. Source: Author's

The selected set comprises 28 EU countries: Austria (AT), Belgium (BE), Bulgaria (BG), Croatia (HR), Cyprus (CY), Czech Republic (CZ), Denmark (DK), Estonia (EE), Finland (FI), France (FR), Germany (DE), Greece (EL), Hungary (HU), Ireland (IE), Italy (IT), Latvia (LV), Lithuania (LT), Luxembourg (LU), Malta (MT), Netherlands (NL), Poland (PL), Portugal (PT), Romania (RO), Slovakia (SK), Slovenia (SI), Spain (ES), Sweden (SE), United Kingdom (UK).

Multidimensional scaling (MDS) was applied to analyse similarities and interpret the division of financial allocation in public services in the period 2008-2017. Multidimensional scaling is a visual representation of distances or dissimilarities between sets of objects (Borg et al., 2012). This method is suitable to compare objects when the basis of the dimensions compared is unknown. The aim of multidimensional scaling is to determine the number of dimensions and the position of an object (object coordinates). Objects that are more similar (or have shorter distances) are closer together on the graph than objects that are less similar (or have longer distances). Examples of relational data include correlations, distances, multiple rating scales or similarities. To create relational data, i.e. a distance matrix, and consequently compute scaling solution from our interval multivariate data matrix, the Euclidean distance was selected as a measurement of dissimilarity. Subsequently, we adopted ALSCAL type of

MDS in its metric version with matrix conditionality. ALSCAL approach implements an alternating least-squares algorithm. Thus, it calculates the number of input matrices by dividing the total number of observations in the dataset by the number of rows in each matrix (IBM Knowledge Center, 2017). The higher the similarity between two objects (in our case EU countries according public expenditures) is, the closer the points representing these are. The output of multidimensional scaling is a scatter diagram (perception map), where individual axes represent basic dimensions, and individual points the objects compared. Numerical outputs form the basis for the construction of the image. According to Garson (2013) a decompositional or attribute-free approach of metrical multidimensional scaling used in our case does not require assumptions of linearity, metricity, or multivariate normality. However, it does not take account of control relationships as factor analysis does. Limitation of decompositional multidimensional scaling is missing specific indication of the determinants of the relative position of the objects, i.e. it is not possible to plot the countries and variables in the same perceptual map.

Two factors are decisive in the evaluation of the validity of multidimensional scaling: 1) s-stress (good-compatibility rate) of the difference between distances calculated through multidimensional scaling and real distances prior to the calculation. The lower the s-stress value, the better the compatibility of the model and data. 2) correlation coefficient squared (RSQ) of input distances of the distances of objects and distances that are calculated and determined based on coordinates of the individual objects in the perception map (the higher the value, the better). For more detail, see Ersoz and Bayrak (2008). The data was processed with the software IBM SPSS Statistic 23.

## Results

In the period 2008-2017, EU countries are analysed by means of seven public services and their financial allocations by use of multidimensional scaling.

### Similarity of EU countries by financial allocations to public services - analysis applying multidimensional scaling

The Euclidean Distance Model, computed according to distances of EU countries and their variables (public expenditures on services, is presented below in a two-dimensional form ( $k = 2$ ). In the period 2008-2017 as average for matrix: Stress = 0.08107 and the RSQ = 0.97552. The values of the Stress show a good compatibility, but not a complete match of the model with the input data, and RSQ is adequately high. Based on the perception map (Fig. 2), we can observe a similarity of EU countries by the distances of the visualised points and distinguish clusters of countries in the dimension 1 (values ranging between -3 and 3) and dimension 2 (values from -1 to 1.5). On dimension 1, the most marked differences are seen between CY (-2.9357) and CZ (2.4311), mainly by public expenditures on transport, and dimension 2 EL (-0.7977) and CZ (1.331) by public expenditures on public health services.

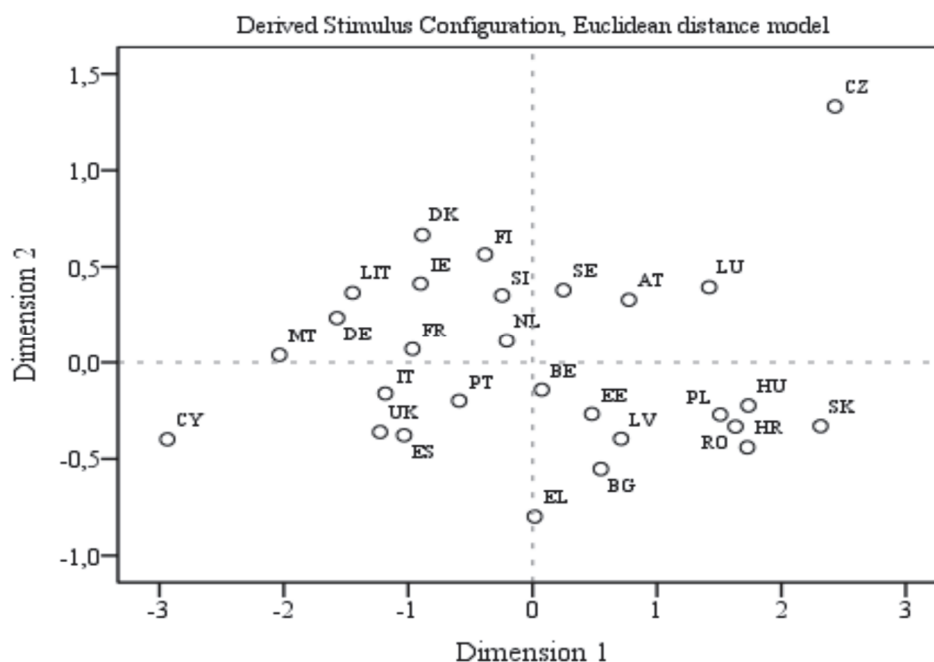


Fig. 2. Perception map of EU countries by public expenditures on services in 2008-2017. Source: Author's

According to the distances in Fig. 2, EU countries can be divided into seven clusters. The clusters divided by the similarity of the selected variables (volume of public expenditures on services) in the period 2008-2017 as average can be seen in Table 2.

**Table 2.** Division of EU countries by the similarity of public expenditures on services in the period 2008-2017.

Cluster	Country	Public expenditures on services / area of the public sector by need
1.	CZ	<ul style="list-style-type: none"> <li>transport (3.9% GDP); waste management (0.3% GDP) - <i>area of technical infrastructure</i></li> <li>police services (0.9 % GDP)- <i>area of society needs</i></li> <li>cultural services (0.6% GDP); recreational and sporting services (0.4% GDP); public health services (1.4% GDP)- <i>area of human potential development</i></li> <li>housing development (0.3% GDP)- <i>area of private goods financed from public resources</i></li> </ul>
2.	AT LU SE	<ul style="list-style-type: none"> <li>transport (2.7-3.5% GDP); waste management (0.1-0.3% GDP) <i>area of technical infrastructure</i></li> <li>police services (0.5-0.7% GDP) - <i>area of society needs</i></li> <li>cultural services (0.5-0.6% GDP); recreational and sporting services (0.3- 0.5% GDP); public health services (0.1-0.2% GDP)- <i>area of human potential development</i></li> <li>housing development (0.2% GDP)- <i>area of private goods financed from public resources</i></li> </ul>
3.	DE DK FI FR IE LT NL SI	<ul style="list-style-type: none"> <li>transport (1.6-2.5% GDP); waste management (0.1-0.5% GDP), except FI, DK a IE (0% GDP)- <i>area of technical infrastructure</i></li> <li>police services (0.5-0.9% GDP) - <i>area of society needs</i></li> <li>cultural services (0.3-0.8% GDP); recreational and sporting services (0.2- 0.6% GDP); public health services (0.1-0.3% GDP), except FI (0% GDP) - <i>area of human potential development</i></li> <li>housing development (0.1- 0.4% GDP), except LT (0% GDP)- <i>area of private goods financed from public resources</i></li> </ul>
4.	CY MT	<ul style="list-style-type: none"> <li>transport (0.8-1.4% GDP); waste management (0.2-0.7% GDP) <i>area of technical infrastructure</i></li> <li>police services (0.8-1.5% of GDP) - <i>area of society needs</i></li> <li>cultural services (0.3-0.7% GDP); recreational and sporting services (0.1-0.4% GDP); public health services (MT 0.1% GDP and CY 0% GDP)- <i>area of human potential development</i></li> <li>housing development (0.1-0.2% GDP) - <i>area of private goods financed from public resources</i></li> </ul>
5.	ES IT PT UK	<ul style="list-style-type: none"> <li>transport (1.8-2.2% GDP); waste management (0.2-0.7% GDP) <i>area of technical infrastructure</i></li> <li>police services (1.2-1.3% GDP) - <i>area of society needs</i></li> <li>cultural services (0.3-0.5% of GDP); recreational and sporting services (0.3-0.4% GDP); public health services (0.1-0.3% GDP) except PT (0% GDP)- <i>area of human development potential</i></li> <li>housing development (0.2-0.4% GDP) – <i>area of private goods financed from public resources</i></li> </ul>
6.	BE BG EE EL LV	<ul style="list-style-type: none"> <li>transport (2.7-3.0% GDP); waste management (0.2-0.7% GDP) - <i>area of technical infrastructure</i></li> <li>police services (1.0-1.3% GDP) - <i>area of society needs</i></li> <li>cultural services (0.1-1.1% GDP); recreational and sporting services (0.3-0.5 % GDP); public health services (0.1-0.2% GDP) except EL a EE 0% GDP- <i>area of human development potential</i></li> <li>housing development (0.1-0.4% GDP) - <i>area of private goods financed from public resources</i></li> </ul>
7.	HR HU PL RO SK	<ul style="list-style-type: none"> <li>transport (3.5-4.1% GDP); waste management (0.1-0.5% GDP) except HR 0% GDP- <i>area of technical infrastructure</i></li> <li>police services (0.9-1.2% GDP)- <i>area of society needs</i></li> <li>cultural services (0.4-0.8% GDP); recreational and sporting services (0.1-0.6% GDP); public health services (0.1% GDP) except SK 0%GDP- <i>area of human development potential</i></li> <li>housing development (0.2-0.4% GDP) except HR (0% GDP)- <i>area of private goods financed from public resources</i></li> </ul>

Source: Author's

Table 2 shows that in the period 2008-2017, EU countries allocated a larger volume of public expenditures on transport, while public health services of a preventative character (except CZ) and services related to housing development received funding to a lower extent. A higher structure of similarity of public expenditures on services can be seen in the second cluster of countries (with the exception of public expenditures on transport). A higher similarity according to the volume of the structure of public expenditures is seen in countries in the fifth cluster (except PT with higher public expenditures on transport and lower expenditures on waste management), countries in the sixth cluster (except EL with minimum public expenditures on cultural services) or in countries in the seventh cluster (except SK with the highest public expenditures on transport, but lower expenditures on police services).



### Verification of research questions

The volume of allocated public expenditures on services as % GDP is evaluated in relation to satisfied needs in the areas of the public sector. RQ1 verifies whether: "There is any similarity between EU countries in the financial allocation of public services related to the development of human potential?" In the period 2008-2017, EU countries showed a high similarity in allocated public expenditures on public services related to the development of human potential (public health services, recreational and sporting services), see Table 2. In the period 2008-2017, according to the volume of public expenditure on *public health services*, if expenditures were allocated at least in the minimum extent, the similarity was reflected in six clusters of countries (2-7 cluster, i.e. 27 countries). EU countries had the highest similarity in allocated public expenditures on *recreational and sporting services* (mainly in the 1st, 2nd, 5th and 6th cluster). Similarity in the volume of public expenditures allocated to *cultural services* was mainly seen in the 1st, 2nd and 5th cluster of countries. Based on the results, it can be argued that RQ1 has been confirmed.

RQ2 verifies whether "there is any similarity between EU countries in the financial allocation in services of public consumption of the state (police services) and in other areas of public services (using the example of housing development, waste management or transport)?" The similarity of the volume of public expenditures (if allocated to public services) can be seen in public services related to *housing development*, which have the nature of private goods financed from public resources from the economic viewpoint. A higher similarity in the volume of allocated public expenditures on housing development was seen mainly in three clusters of countries (1st, 2nd and 4th cluster). A lower similarity in terms of public expenditures was allocated to *police services*, which represent services of public consumption of the state and satisfy needs of society. The highest similarity in police services was found in two clusters, the 5th and 6th. Public expenditures allocated to *waste management* is similar in the countries in the 1st and 2nd cluster. The highest volume of public expenditures from the analysed public services in the period 2008-2017 was allocated to *transport* by the EU countries, and here the smallest similarities were found in the clusters of countries. In relation to RQ2, a high similarity of the volume of allocated public expenditures on services related to housing development was confirmed. While public services which satisfy needs of society (police services) and services in the area of technical infrastructure (in the present example transport and waste management) are associated with differences in financial allocations, compared to the other public services analysed. These differences are associated with the size of the public sector and priorities of the EU countries, to what extent they intend to provide funding of public services from public resources. Also, the concept of national public policies, associated with the varying degree of provision of public services in the respective countries, plays a role in this process. Based on the results, it can be said that RQ2 was confirmed only partially.

The results confirm a higher similarity in the volume of public expenditures on services (culture, recreational sport, health or housing) also in the EU as a whole (see Fig.3).

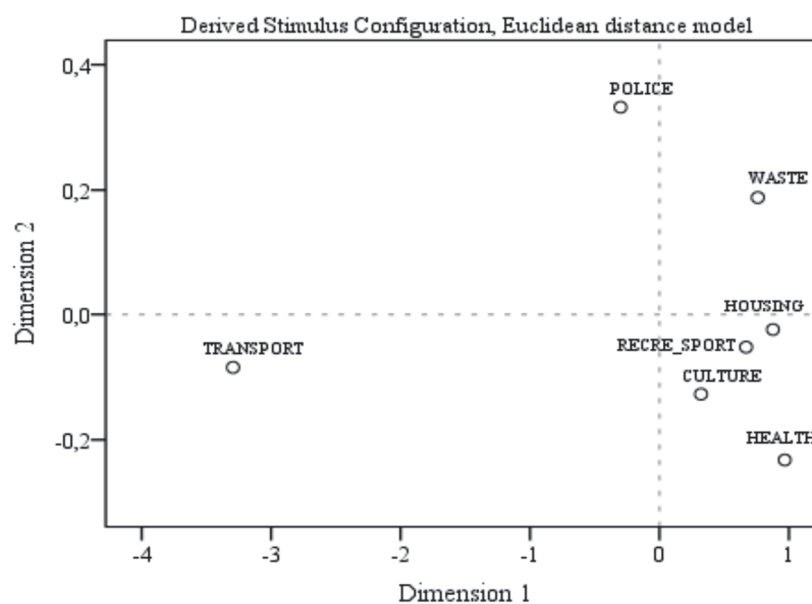


Fig. 3. Similarity of public expenditures on services in the EU in 2008- 2017. Source: Author's

RQ3 verifies if "EU countries with a similar volume of allocated public expenditures on public services connected with the same tradition of public administration?" Based on the results of the performed analysis using MDS in the period 2008-2017, the EU countries are evaluated in relation to the traditions of public administration (Table 3). According to Demmke (2008), EU countries can be assigned different models of traditions of public administration and human resource management (Anglo-Saxon, Continental European, Scandinavian tradition,

Mediterranean/South European, Eastern European, South-Eastern European). Table 3 shows cluster of EU countries by similar public expenditures by function and their affiliation to traditions of public administration. Countries can be found in one cluster which are also connected with the same tradition of public administration. Four countries (DE, FR, NL, SI) in the third cluster represent the tradition of continental Europe, and with the exception of SI, these countries represent Western Europe. Three countries (IT, PT, ES) in the fifth cluster represent the Mediterranean/South European tradition of public administration and represent Southern Europe. Three countries (HU, PL, SK) in the seventh cluster are associated with the Eastern European tradition of public administration and are countries of the Visegrad group, which represent Central Europe.

**Table 3.** Division of countries into clusters by use of MDS in relation to traditions of public administration.

Cluster	Similarity by public expenditures by services (COFOG second level)	Representation of tradition of public administration
1.	CZ	Eastern European: CZ
2.	AT, LU, SE	Continental European: AT, LU Scandinavian tradition: SE
3.	DE, DK, FI, FR, IE, LT, NL, SI	Continental European: DE, FR, NL, SI Scandinavian tradition: DK, FI Anglo-Saxon: IE Eastern European: LT
4.	CY, MT	Mediterranean/South European: CY Anglo-Saxon: MT
5.	ES, IT, PT, UK	Mediterranean/South European: IT, PT, ES Anglo-Saxon: UK
6.	BE, BG, EE, EL, LV	Continental European: BE Mediterranean/South European: EL Eastern European: EE, LV South- Eastern: BG
7.	HR, HU, PL, RO, SK	South- Eastern: RO, HR Eastern European: HU, PL, SK

Source: Author's

However, it is necessary to take into consideration that the administrative system of the respective countries and its management is influenced by historical, geographic, economic, cultural or internal conditions, which is related also to the role of the public sector in procuring public services. Therefore, it can be said that RQ (3) has been confirmed only partially.

## Discussion

The rate of financing activities by the public sector is the criterion for the structuring of public needs. The results of our research have proved a different role of EU countries in the size of the public sector, which is connected to the volume of allocated financial resources from public budgets in the respective areas. Many authors (Brown and Jackson, 1990; Bailey, 1995; Stiglitz and Rosengard, 2015; Stejskal et al., 2017) base the classification of the public sector on public needs, which are satisfied fully or to a large extent by activities of public institutions in the form of the provision of public services. Provision of public services includes services that involve the general interest of an undefined number of people regardless of part of a society or the society as a whole (Meričková and Stejskal, 2014). Some authors, e.g. Harvey (1994); Wollmann and Marcou (2010) argue that if a country produces goods or a service of collective consumption, these should be provided free of charge, or alternatively if any goods or a service is provided free of charge, it should be produced by the state. Procurement of services through public budgets does not mean a public production. It is therefore necessary to recognise how the service will be financed and who will provide it. Musgrave and Musgrave (1989) strictly distinguish between procurement and provision of public services. The difference between procurement (guarantee) and provision (production) of the respective public goods or services also consists in the principle of the concept of privatisation in the public sector and the definition of the role of the government. However, there is no direct link between production and financing. A suitable combination of provision and financing must be chosen based on specific circumstances and conditions (Boadway et al., 1999; Smith, 2003; European Commission, 2016). A public service can also be provided by a private undertaking. That means that the public sector can conclude an agreement on the production of the given goods/service provision with a private producer/operator. The general

aim of such provision is for the services to satisfy public needs while abiding by the subsidiarity principle. Market failure is particularly tangible when needs are satisfied through private goods. However, it needs to be taken into consideration to what extent people's needs will be satisfied through state intervention and to what extent they will be left to individuals and their market participation. These are substantial questions in finding the line between the public and the private sector, namely the size of the public sector in the respective countries (Sičaková Beblavá, 2007; Wollman and Marcou, 2010; Stejskal et al., 2017; Benito et al., 2019). Still, the ways of procuring and providing public services differ across countries. It is a complex process and several countries have been attempting to find new forms of ideal management and administration of public matters, bearing in mind current geopolitical and economic trends, while there is no single procedure in EU countries.

As Brown and Jackson (1990: 321) argue, "one of the principles of fiscal federalism defines the ensuring of minimum fundamental public services (safety, health, social care and education)." As a result, government should ensure the minimum level of certain fundamental public services to every citizen regardless of the area or place they live. According to other authors (e.g. Boadway et al., 1994; Beblavý and Sičaková Beblavá, 2007; Wollmann, 2018) recommendations for the provision of public services can be summarised. In relation to the allocation function, the majority of services should be procured at the local level if they are beneficial locally. Services above the local level should be procured centrally. Services that lead to market failure but are required by the society should be provided at the central level if a low risk of government failure is present.

## Conclusion

The analysis of the period 2008-2017 showed that on the basis of similarity of public expenditures on services, EU countries can be divided into seven clusters by the selected areas of the public sector. With respect to the defined goal, a high similarity of services by the volume of allocated public expenditures related to human potential development (public health services, recreational and sporting services) and services related to housing development was proved. On the other hand, differences in financial allocations are presented by public services which satisfy needs of society (police services) and areas of technical infrastructure (transport, waste management), compared to the other public services analysed. These findings reflect the role and size of the public sector by the priorities of the EU countries, thus the extent to which they intend to provide funding of public services from public resources. Also, the concept of national public policies, associated with the provision of public services, plays a role in this process. Public services, in particular the research into financial allocations, is a specific topic. Therefore, some questions remain unanswered (e.g. the link to the efficiency and quality of the production of public services) and can be addressed in further research.

## Acknowledgement

This contribution was supported by the project VEGA No.1/0705/18 "Economy of joint performance of competences"; Project No.CZ.1.07/2.3.00/20.0296 "Operational Programme Education for Competitiveness"; Internal Grant Agency of Tomas Bata University in Zlin; project No. RO/2018/12 "Smart governance and application of 3E principles in public policies".

## References

- Aaberge, R., Bhuller, M., Langorgen, A., & Mogstad, M. (2010). The Distributional Impact of Public Services when needs differ. *Journal of Public Economics*, 94(9–10), 549-562. DOI: <http://dx.doi.org/10.1016/j.jpubeco.2010.06.004>.
- Bailey, S. J. (1995). *Public Sector Economics. Theory, Policy and Practice*. London: Palgrave Macmillan.
- Beblavý, M., & Sičaková-Beblavá, E. (2007). Faktory ovplyvňujúce rozhodovanie o spôsobe zabezpečovania služieb vo veľkých slovenských mestách. *Politická ekonomie*, 55 (2), 245-262.
- Benito, B., Faura, U., Guillamón, M.D., & Ríos, A. M. (2019). The efficiency of public services in small municipalities: the case of drinking water. *Cities*, 93(october), 95-103. DOI: 10.1016/j.cities.2019.04.016.
- Boadway, R., Horiba, I., & Jha, R. (1999). The Provision of Public Services by Government Funded Decentralized Agencies. *Public Choice*, 100(3/4), 157-184.
- Borg, I., Groenen, P. J. F., & Mair, P. (2013). *Applied Multidimensional Scaling*. New York: Springer.
- Brown, C. V., & Jackson, P. M. (1990). *Public Sector Economics*, 4th ed. Oxford: Wiley-Blackwell
- Brown, T. L., & Potoski, M. (2003). Transaction Costs and Institutional Explanations for Government Service Production Decisions. *Journal of Public Administration Research and Theory*, 13 (4), 441-468. DOI: 10.1093/jpart/mug030.
- CEEP (2010). Public Services in the European Union & in the 27 Member States. Statistics, organisation and regulations. [online] Available at: [http://www.ceep.eu/images/stories/pdf/Mapping/CEEP\\_mappingreport\\_DEF\\_02072010.pdf](http://www.ceep.eu/images/stories/pdf/Mapping/CEEP_mappingreport_DEF_02072010.pdf) [Accessed 25. 11. 2019].
- Cullis, J., & Jones, P. (2009). *Public Finance and Public Choice – Analytical Perspectives*. 3th ed. Oxford: Oxford University Press.
- Demmke, Ch. (2008). *What are Public Services Good at? Success of Public Services in the Field of Human Resource Management*. Maastricht: European Institute of Public Administration.
- Diaz- Serano, L., & Meix- Llop, E. (2019). Decentralization and the quality of public services: Cross-country evidence from educational data. *Environment and Planning C: Politics and Space*, 37(7), 1296-1316. DOI: 10.1177/2399654418824602.



- European Commission (2016). *Study on the Financing Models for Public Services in the EU and Their Impact on Competition*; Final report. Luxembourg: Publications Office of the European Union.
- European Union (2019). *Manual on sources and methods for the compilation of COFOG statistics Classification of the Functions of Government (COFOG)*. Luxembourg: Publications Office of the European Union.
- Eurostat (2019). *General government expenditure by function (COFOG)*. [online] Available at: [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov\\_10a\\_exp&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=gov_10a_exp&lang=en) [Accessed 19. 10. 2019].
- Ersoz, F., & Bayrak, L. (2008). Comparing of Welfare indicators between Turkey and European Union Member States. *Romanian Journal of Economic Forecasting*, 9 (2), 92-98.
- Evans, J. D. (1996). *Straightforward statistics for the behavioral sciences*. Pacific Grove, CA: Brooks/Cole Publishing.
- Garson, G. D. (2013). *Multidimensional Scaling*. Asheboro, NC: Statistical Associates Publishers.
- Harvey J. (1994). The Provision of Goods and Services by the Public Sector. Book chapter. In *Economics Revision Guide*.
- IBM Knowledge Center (2017). IBM SPSS Statistics V23.0 documentation: Overview (ALSCAL command). [online] Available at: [https://www.ibm.com/support/knowledgecenter/en/SSLVMB\\_23.0.0/spss/base/syn\\_alscal\\_overview.html](https://www.ibm.com/support/knowledgecenter/en/SSLVMB_23.0.0/spss/base/syn_alscal_overview.html). [Accessed 12. 12. 2019].
- Lindhal, E. (1964). Just Taxation-A Positive Solution. Book chapter. In *Classic in the Theory of Public Finance*.
- Linhartová, V., & Stejskal, J. (2017). Public libraries' services and their economic evaluation. *Scientific Papers of the University of Pardubice, Series D*, 24(41), 90-101.
- Mededovic, A. (2011). Analysis of public expenditure in B&H and transition countries. *Technics Technologies Education Management-Ttem*, 6(2), 526-534.
- Meričková, B., & Stejskal, J. (2014). Value of collective consumption goods. *Politická ekonomie*, 62(2), 216-231.
- Mikušová Meričková, B., & Nemeč, J. (2013). Contract Management and its Impact on Contracting Public Services: Slovak Republic. *Journal of Economics*, 61(7), 690–700.
- Musgrave, R., & Musgrave, P. (1989). *Public finance in theory and practice*, 5th ed. New York: McGraw-Hill Book Co.
- Pigou, A. C. (2006). *A Study in Public Finance*. Redditch: Read Books.
- Rosen, H. S. (2005). *Public finance*. 7th ed. New York: McGraw-Hill Irwin.
- Sauter, W. (2015). Public Services and the Internal Market: Building Blocks or Persistent Irritant? *European Law Journal*, 21(6), 738–757. DOI: 10.1111/eulj.12155.
- Smith, P. C. (2003). Formula Funding of Public Services: An Economic Analysis. *Oxford Review of Economic Policy*, 19(2), 301–322. DOI: <http://dx.doi.org/10.1093/oxrep/19.2.301>.
- Stejskal, J., Kuvíková, H., Mikušová Meričková, B., & Linhartová, V. (2017). *Teorie a praxe veřejných služeb*. Praha: Wolters Kluwer ČR, a. s.
- Stiglitz, J. E., & Rosengard, J. K. (2015). *Economics of the Public Sector*. 4th ed. New York: W. W. Norton & Company.
- Wollmann, H., & Marcou, G. (eds). (2010). *The Provision of Public Services in Europe. Between State, Local Government and Market*. Cheltenham, Camberley, Northampton, Massachusetts: Edward Elgar Publishing.
- Wollmann, H. (2018). Public and Personal Social Services in European Countries from Public/Municipal to Private- and Back to Municipal and “Third Sector” Provision. *International Public Management Journal*, 21(3), 413-431. DOI: 10.1080/10967494.2018.1428255.