

Evaluation of Indicators of Public Administration in EU Countries by use of Multidimensional Analysis

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Approaches of Evaluating Indicators of Public Administration

- ▶ A variety of approaches and indicators can be applied to evaluate and measure public administration. Research studies that apply qualitative and quantitative analyses related to the evaluation of results of public administration are limited to a certain extent. That is because the existent sets of indicators mostly evaluate only selected areas of public administration, and the majority of analyses fail to provide a comprehensive notion of public administration on account of non-existent or limited data base.
- ▶ The Feasibility study “Measuring Public Administration for better comparative indicators in the EU” includes *indicator sets with global coverage and indicator sets of developed democracies* (European Commission, 2018). The main value of the existing indicator sets is that they allow for broad-brushed assessments of governance quality in a country.
- ▶ **World Bank Governance Indicators** are an indicator set with global coverage applied to measure public administration on the European as well as the global scale (World Bank, 2020).
- ▶ The individual indicators of good governance were evaluated by, e.g. Han et al. (2014) or Voghouei and Jamali (2018). According to Pommer and van Houwelingen (2016) **political and economic indicators** are related to actual policy issues and may influence the outcomes of public administration (quality of public administrative bureaucracy, expenditures on public administration and tax administration or level of decentralisation).

Aim and Research Questions

- ▶ The paper aims to outline approaches to the evaluation and measuring of public administration and to provide a detailed evaluation of selected indicators of public administration in EU countries.
- ▶ It focuses on the evaluation of public administration, stressing similarities and differences between EU countries from the perspective of the selected indicators: performance of government (*European Quality of Government Index, Corruption Perceptions Index, Use of the internet for interaction with public authorities*) and government expenditures on public administration i.e. *on general public services and on law courts* in the period 2012-2018, applying factor analysis and cluster analysis.
- ▶ So as to fulfil the aim of the paper, ***two research questions (RQs) are verified:***
 - ❑ *RQ1: Do economically developed countries reach better results in public administration in terms of the observed indicators compared to economically less developed countries?*
 - ❑ *RQ2: Is there a similarity between EU countries based on the observed indicators of public administration in the context of traditional models of public administration?*

Data

- ▶ The paper drew data as the average of the period 2012-2018 from 1) **Eurostat (Statistic database)**. Specifically, the data were obtained from the a) Government finance statistic - General government expenditure by COFOG; b) Benchmarking digital indicators: e-public services, c) Sustainable development indicators-Goal 16: Peace, justice and strong institutions and 2) Data from **World Bank - Worldwide Governance Indicators (WGI)**.
- ▶ *The selected set comprises 28 EU countries.*
- ▶ **Five indicators** have been selected for the purposes of the analysis:
 - ❑ *European Quality of Government Index,*
 - ❑ *Corruption Perceptions Index,*
 - ❑ *Government expenditures on general public services,*
 - ❑ *General government total expenditures on law courts,*
 - ❑ *Individuals using the internet for interaction with public authorities.*

Methods

In the period 2012-2018 selected indicators of public administration in the EU countries are evaluated by means of methods of multidimensional analysis, i.e. *factor analysis and hierarchical cluster analysis*.

- ▶ Original indicators of public administration and evaluated by use of **Factor analysis**.
- ▶ Newly created common factors of public administration are evaluated by means of **hierarchical cluster analysis**.

Results - Public Administration Indicators by use of Factor Analysis (Source: Authors)

Rotated Component Matrix		
	Component (factor)	
	1	2
European quality of government index (EQI)	0.974	
Corruption Perceptions Index (CPI)	0.963	
Individuals using the internet for interaction with public authorities (percentage of individuals)	0.917	
Government total expenditure on law courts (percentage of GDP)	-0.641	-0.514
Total government expenditure on general public services (percentage of GDP)		0.956

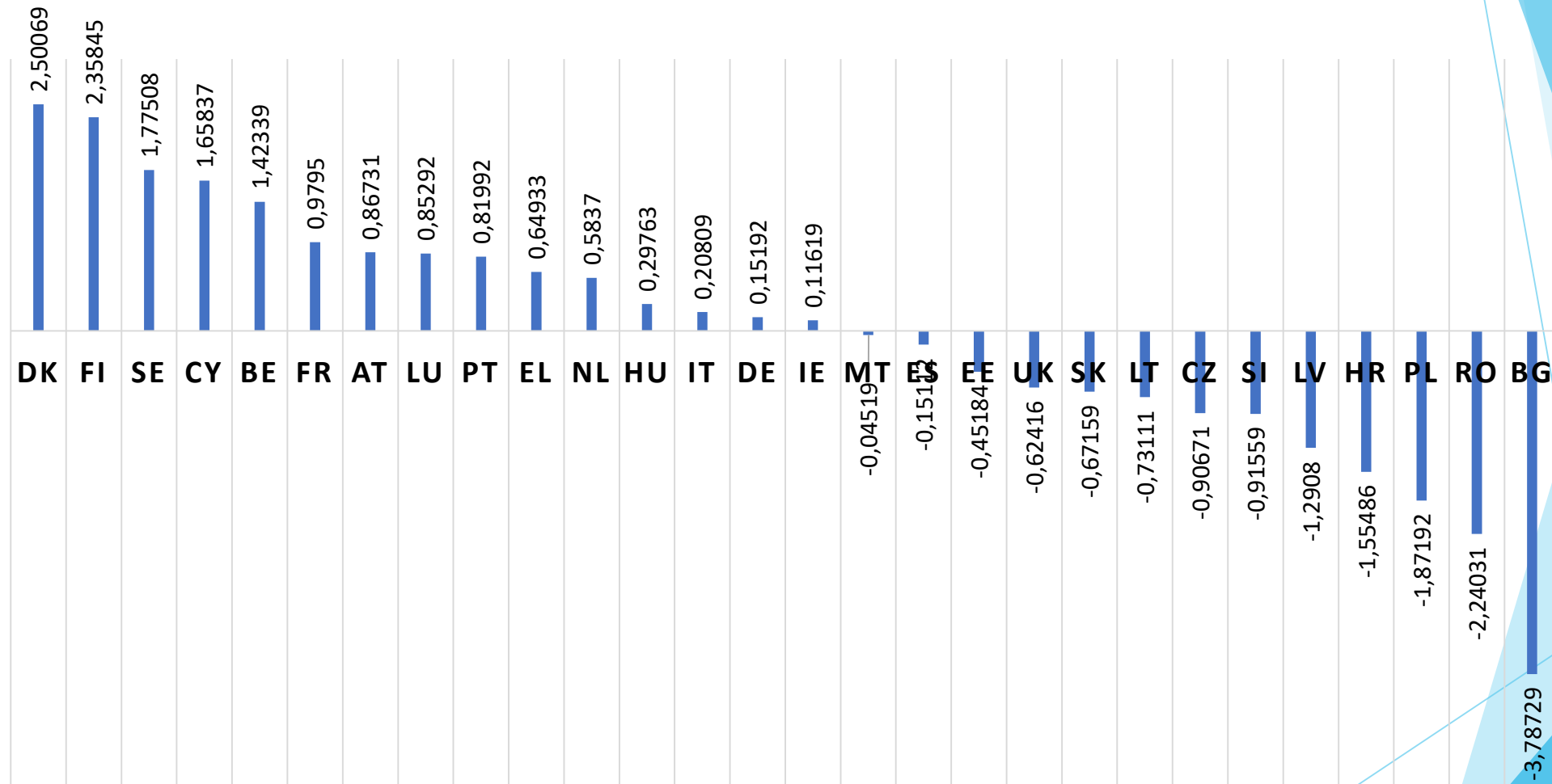
Results - Public Administration Indicators by use of Factor Analysis

- ▶ **Two factors** are created from the original indicators of public administration using factor analysis. The interpretation of the factors is performed on the basis of their correlation (factor loadings) with input variables.
- ▶ The **first factor** can be considered *Performance of public administration*. The variable Government total expenditures on law courts also significantly correlates with the first factor, although it has been logically assigned to the second factor.
- ▶ The **second factor** is indicated as *Expenditures on public administration*. The second factor predominantly correlates with government expenditures on general public services and the variable Government total expenditure on law courts, albeit to a smaller extent.

Results - Evaluation of Public Administration Indicators by use of Factor Analysis (Source: Authors)

Country	Factor score 1*	Factor score 2*	Score total	Country	Factor score 1*	Factor score 2*	Score total
AT	0.65929	0.20802	0.86731	SK	-0.52623	-0.14536	-0.67159
BE	0.47881	0.94458	1.42339	SI	-0.38700	-0.52859	-0.91559
DK	1.80467	0.69602	2.50069	ES	-0.22724	0.07612	-0.15112
FI	1.46594	0.89251	2.35845	CY	-0.18817	1.84654	1.65837
FR	0.65522	0.32428	0.97950	EL	-1.22764	1.87697	0.64933
SE	1.45282	0.32226	1.77508	HU	-1.01939	1.31702	0.29763
BG	-1.71352	-2.07377	-3.78729	IT	-1.36767	1.57576	0.20809
HR	-1.29466	-0.26020	-1.55486	PT	-0.34688	1.16680	0.81992
CZ	-0.39908	-0.50763	-0.90671	EE	0.64638	-1.09822	-0.45184
LV	-0.29117	-0.99963	-1.29080	DE	0.62517	-0.47325	0.15192
LT	-0.17284	-0.55827	-0.73111	IE	0.68144	-0.56525	0.11619
MT	-0.27994	0.23475	-0.04519	LU	1.31726	-0.46434	0.85292
PL	-0.76091	-1.11101	-1.87192	NL	1.41591	-0.83221	0.58370
RO	-1.56855	-0.67176	-2.24031	UK	0.56795	-1.19211	-0.62416

Results of EU Countries according to Rank Total Factor Score (Source: Authors)

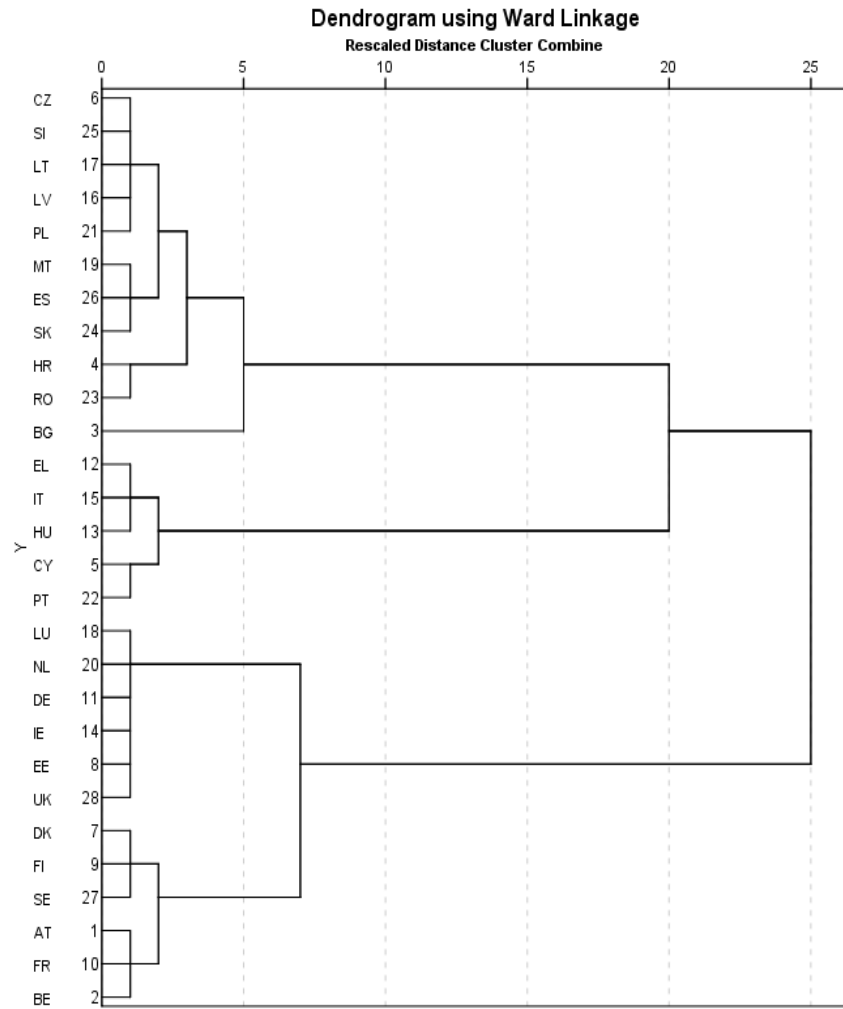


Results of EU Countries according to Rank Total Factor Score

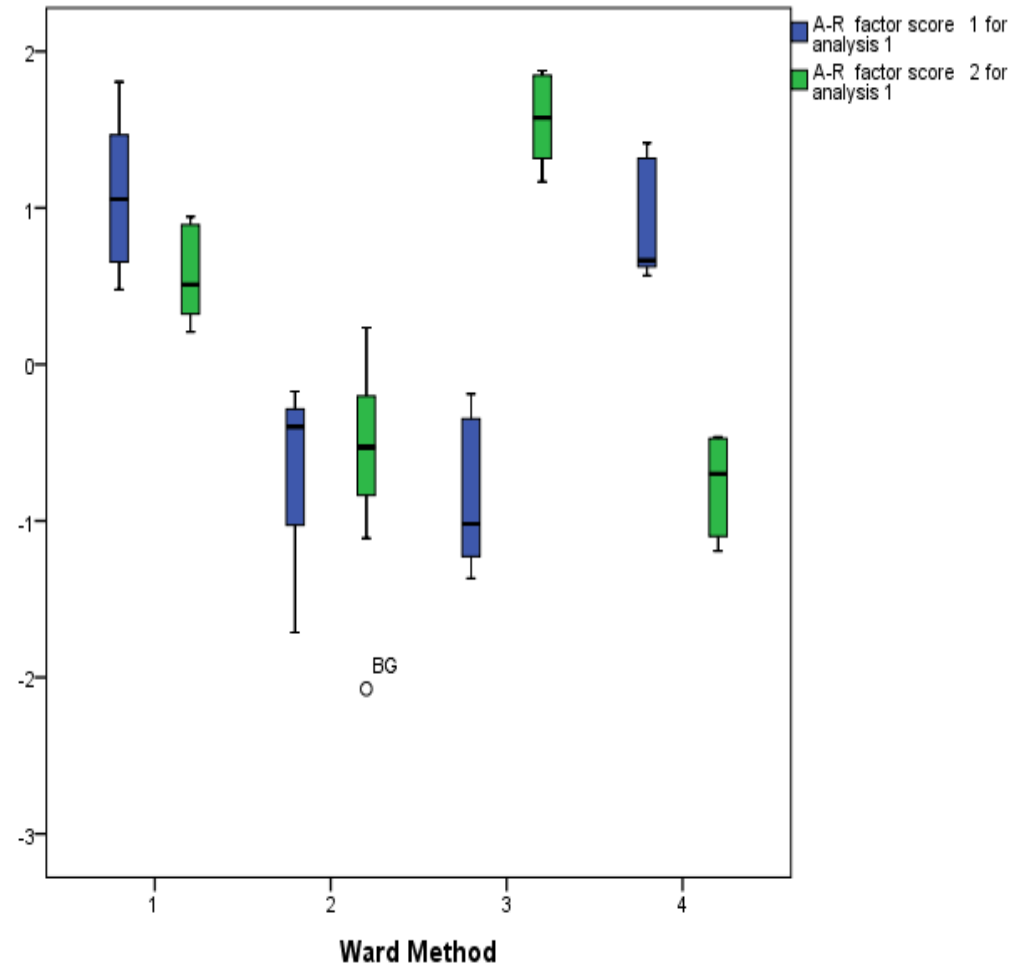
- ▶ The results of the total factor score of the EU countries in years 2012-2018 indicates that Denmark reached the best total results, followed by Finland and Sweden. These countries also demonstrate the best performance of public administration (factor score 1) and an above-average or average volume of expenditures allocated to public administration (factor score 2).
- ▶ In contrast, Bulgaria, Romania, Croatia, Poland, and Latvia are among the countries with the worst total results. Bulgaria is an extreme, demonstrating both a low performance of public administration (factor score 1) and the lowest volume of expenditures on public administration (factor score 2).

Results - Clusters of the EU Countries by Similarity Indicators of Public Administration (factor1 and factor2) Source: Authors

Dendrogram



Box plot



Division of EU Countries into Clusters by Similarity of Public Administration (factor1 and factor2)

- ▶ *The first cluster comprises of six countries (AT, BE, DK, FI, FR, SE)*
- ▶ *The second cluster is composed of 11 countries (BG, CZ, ES, HR, LV, LT, MT, PL, RO, SI, SK)*
- ▶ *The third cluster is comprised of five countries (CY, EL, HU, IT, PT)*
- ▶ *The fourth cluster consists of six countries (DE, EE, IE, LU, NL, UK).*

EU Countries by Similarity Indicators of Public Administration- Results of Cluster Analysis

- ▶ The highest similarity among EU countries by *performance of public administration* i.e quality of government, corruption and using the internet with public authorities (factor1) is seen in the countries in the second and third cluster.
- ▶ The largest similarity (by factor 2) regarding *expenditures on public administration and expenditures on law courts* is observed in the countries in the second and fourth cluster.
- ▶ By contrast, the largest differences regarding factor 1 can be seen in the countries in the first and fourth cluster, compared to the countries in the second and third cluster. The largest differences regarding *expenditures on public administration* (factor 2) were found in the third cluster, in comparison to the countries in the second and fourth cluster (see Box plot).

Results of Cluster Analysis of EU Countries by Indicators of Public Administration and by the Tradition of Public Administration

According to Demmke (2008), EU countries can be assigned different models of traditions of public administration and human resource management:

- ▶ *Anglo-Saxon tradition,*
 - ▶ *Continental European tradition,*
 - ▶ *Scandinavian tradition,*
 - ▶ *Mediterranean/South European tradition,*
 - ▶ *Eastern European tradition,*
 - ▶ *South-Eastern European tradition.*
- ▶ Following table shows the similarity of EU countries by the indicators of public administration and the link to traditional models of public administration.

Results of and Cluster Analysis of EU Countries by Indicators of Public Administration by the Tradition of Public Administration (Source: Authors)

EU countries by groups of indicators of public administration (results of cluster analysis)	EU countries by results of cluster analysis and by models - tradition of public administration
First cluster: AT, BE, DK, FI, FR, SE	Continental European model - AT, BE, FR
	Scandinavian model - DK, FI, SE
Second cluster: BG, CZ, ES, HR, LV, LT, MT, PL, RO, SI, SK	South-Eastern European model - BG, RO, HR
	Eastern European model - CZ, SK, LV, LT, PL
	Anglo-Saxon model - MT
	Mediterranean/South European - ES
	Continental European model - SI
The third cluster: CY, EL, HU, IT, PT	Mediterranean/South European - CY, EL IT, PT
	Eastern European model - HU
Fourth cluster: DE, EE, IE, LU, NL, UK	Continental European model - DE, LU, NL
	Anglo-Saxon model - UK, IE
	Scandinavian model - EE

Conclusion

- ▶ Tasks, means and achieved results are the decisive factors for the evaluation of public administration from the viewpoint of success and performance.
- ▶ **The evaluation of indicators of public administration in the period 2012-2018** showed that countries with a higher economic level reach better results of public administration compared to economically less developed countries.
- ▶ **Following the results of the factor analysis**, three economically developed countries attained the best total results of public administration: Denmark, Finland, and Sweden, which demonstrate the best performance of public administration and an above-average volume of expenditures allocated to public administration. By contrast, Bulgaria, Romania, and Poland are among the countries with the worst total results on public administration and a low economic level.

Conclusion

- ▶ The evaluation of common indicators of public administration (performance of public administration and expenditure on public administration) by use of hierarchical cluster analysis led to the division of the EU countries into four clusters by internal similarity. Also, the results of the analysed indicators of public administration proved a link to traditional models of public administration in the majority of similar countries.
- ▶ This fact confirms the specificities of administrative systems and the role associated with the management and evaluation of public administration. When applying suitable indicators of public administration, future research can deal with the efficiency of public administration.

Thank you for your attention

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