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Comparative research on government effectiveness and political stability in Europe

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Abstract: The trend of globalization, accompanied by the dynamic development of social systems, places the European states in a completely new position, in which institutions and administrative systems must be adapted. Any intervention in the field of public administration reform implies changes in its major components to have efficient governance in the context of internal and regional political instability. The objective of our research was to identify and analyze the correlations between the main indicators of government effectiveness and political stability in the EU member states during 2020-2022. For this research, we have selected four representative variables. The research methods used are the Pearson correlation matrix, for identifying and analyzing the correlations, and the K-means clustering algorithm for grouping the EU states into clusters based on the considered variables. The results show that approximately half of the EU states are grouped in cluster 3, which is characterized by a high level of governmental efficiency and political stability. The states in the first two clusters include states from Central and Eastern Europe where significant changes are needed to increase government effectiveness and political stability. The results of our research offer an updated correlative analysis between government effectiveness and political stability in the EU member states in the last few years.

Keywords: government effectiveness, political stability, public administration.

JEL: G28; J88; Q28

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Introduction

Some EU countries have consistently made good efforts to adapt their public administration to the real needs. The current contextual social, technological, and economic factors require all public administrations to adapt to the new realities. The last two decades of transformations in the European country's public administration have somewhat improved the cost-effectiveness and efficiency of public administration. Many public institutions become more open and transparent and improve communication with the citizens and other stakeholders to offer them good quality public services. However, citizens' trust in public administration, social cohesion, and the attractiveness of the public sector has deteriorated.

1. Literature review

Public administration reflects the institutional foundations of how countries are governed (Suong, 2021; Meyer, 2020; Holmberg & Rothstein, 2012). The mission of public administration is to respond to society's requirements and to deliver services according to them. This influences sustainable economic prosperity, social cohesion, and people's well-being (Bsoul-Kopowska et al., 2022; Sidak et al., 2021; Hallerod et al., 2013;). Public administration influences the citizen's trust and creates the frame for developing public core values (Pimonenko et al., 2021).
The specialists (Ntshangase & Msosa, 2022; Marišová et al., 2021; Pollitt, 2014; Peters & Pierre, 2017) show that there have not been enough improvements in the activities of the institutions in the partnership administration and within the networks. The reasons for these variable developments are difficult to analyze (Andronie et al., 2021; Lăzăroiu et al., 2017), as the systemic assessment of reform results tends to be underestimated and therefore limited. Furthermore, there is little comparative analysis across countries, policy areas, and administrative organizations of reform experiences and success. The research that is the basis of this work represents a first, because it is based on data on the governmental efficiency from the period 2020-2022 of the member states.
Many reform initiatives across Europe are focused on changing official structures and procedures. These initiatives are often initiated from the top down, reflecting a political or budgetary logic, and sometimes neglect aspects such as developing human potential, rethinking government action, or changing administrative culture. Public institutions are rarely encouraged to develop their internal reflection capacity, learn from failures, or innovate (e. g. Kliuchnikava, 2022).
The Member States that joined the EU after 2004 have carried out substantial administrative reforms as part of the preparation process for EU accession. These reforms aimed at modernizing policy-making, improving effective coordination, and creating a merit-based public administration capable of attracting and retaining well-qualified staff. However, a few years after accession, the initial momentum was lost in many of these countries (Hammerschmid, 2016). Many aspects of the changes

made in the administration remained fragile and fragmented. This was reflected in different results of public administration, the distribution of which among countries of the EU obviously resulted in a lag of new member states in different areas, like social justice policy implementation (Mishchuk et al., 2018), public debt sustainability (Scott-Joseph, 2021), social system stability (Vučković & Škuflić, 2021), etc. Sustainability has often been compromised by a lack of political consensus on issues of substance and direction, a failure to combat heightened politicization, and the weakness and instability of core public administration institutions. The absence of professional, unbiased senior management and professional management consulting (Szeiner et al., 2020) to guide the modernization process has thwarted many legislative changes, which have not been followed by working practices.

Sustainable governance indicators (Bertelsmann, 2017) analyze the capacity of public administrations to develop sound policies and the participatory and supervisory skills of social actors. The indicators highlight the existence of significant differences within the EU in terms of executive capacity and accountability.

Strategic planning and coordination are reduced in Greece, Cyprus, and Hungary, but best integrated into policy-making in Denmark, Finland, and the United Kingdom. In a significant number of countries, sustainable governance indicators analyze the capacity of public administrations to develop good policies (Kliestik et al., 2020a, b) and participatory and supervisory competencies of social actors (Balcerzak et al., 2022; Popescu et al., 2017). The indicators highlight the existence of significant differences within the EU in terms of executive capacity and accountability.

A large number of countries are under-implementing formal agreements to lead to better policy-making (Lăzăroiu et al., 2020; Popescu et al., 2018). There is a real need to significantly increase the quality of regulatory impact assessment (RIA). Stronger involvement of civil society and academia in policy development and evaluation can increase their quality in Greece, Hungary, and Romania.

Overall, the Global Governance Index is on a downward trajectory in 14 EU Member States (Estonia, Croatia, Latvia, Lithuania, Luxembourg, Hungary, Netherlands, Poland, Portugal, Slovenia, Slovakia, Finland, and Sweden). Only three countries (Italy, Cyprus, and Malta) have seen a more substantial improvement in executive capacity (over 0.5 pp) in the last years since the indicators were introduced.

The aging of civil servants represents the biggest risk for public institutions in the EU. In some countries (Belgium, Spain, Italy), up to 45% of civil servants will retire in the next 15 years. This means a serious concern about the management capacity of public institutions to deliver good quality public services. Effective strategies for attracting competent people, ensuring knowledge transfer, and providing career development opportunities are needed. Politicization and the absence of a meritocratic recruitment process in public administration led to corruption in this field and undermine performance. (Dvorský et al., 2021; OECD, 2017; Jiawei et al., 2012).

The reduction of public spending during the crisis affected employee remuneration and investments in professional training in public administration (OECD, 2016; OECD, 2017). On average, the remuneration of highly qualified professionals employed in public institutions is 2.6 times lower than that of their administrative superiors. Italy has the largest gap between the pay of senior civil servants and senior management, while Greece, Latvia, and Slovenia have the smallest gap. Most HR policies emphasize performance, but developing employee potential does not always receive the same level of priority. Process management prevails over human resource management. In some Central and Eastern European countries, the methods used in central and sub-central administration are inconsistent (Pollitt & Bouckaert, 2011; Pollitt, 2014).

Effective governance is strongly influenced by political stability in a state. Political stability can be explained in many ways. For some specialists (Holmberg, Rothstein, 2012; Hallerod et al., 2013), it means continuity and consistency in public affairs, as the Anglo-Saxons say (public affairs). For others, the issue refers to the calmness of life in a state not involved in revolutions, wars, and high-intensity street confrontations. Another category of specialists (Kaufmann, 2013; Kaufman & Rousseeuw, 1990) is of the opinion that it is stable when the king in the seat lives long when the president or, in general, the head of state or the government of a country ends his mandate quietly and with good results, undisturbed by citizens and the state apparatus and not bothering them in turn. Others (Meyer-Sahling, Jan-Hinrik, 2009) believe that the pulse of stability can be taken by following the government dynamics.

The opposite of political stability is political instability. Instability generates disorder, the lack of calculated, prudent, and well-grounded measures, arbitrary, emotional, and pathos measures, often uninspired repositioning, and statements by political factors that remain and influence the economic environment and society (Kutlu and Ayyildiz, 2021). All these actions are harmful to economic life and not only that. It blocks it, it paralyzes it, and it lacks will and dynamism.

The government literature (OECD, 2017) addresses the measurement of indicators such as government effectiveness, voice, accountability, corruption perception, economic wealth, press freedom, political constraint index, etc. Duho et al. (2020) study the determinants of government effectiveness in Asia and Africa for panel data from 2002 to 2018. They ascertain that there is a significant positive correlation between government effectiveness as a dependent variable and voice and accountability, government size, economic wealth, corruption perception index, and regulatory quality as explanatory variables.

Garcia-Sanchez et al. (2013) use a sample of 202 countries for the period 2002-2018 and determine the explanatory factors of government effectiveness: organizational environment (economic development and educational status), organizational characteristics (size and diversity), and political characteristics. Garcia-Sanchez et al. (2016) discuss the role of media on government effectiveness: in developed countries as democracies, the freedom is greater and as a consequence, the influence

of media is greater than in developing countries which are more corrupt and where media tend to be controlled by the government.
Next, the paper is structured into 3 sections: methods and stages of the research process; research results and discussion; some limitations of the research, and the main conclusions. The correlative analysis of some aspects of governmental efficiency and political stability in the states of the European Union highlights the gaps between the states and the groups of states integrated with the three clusters formed. The integration into the research process of VAT (Visual Assessment of the Cluster Tendency) helps us observe the tendencies of the manifestation of these differences and gaps between the EU states in the formed clusters.

2. Methods and the research process

K-means is an unsupervised learning algorithm (Han et al., 2012) used to detect groups with similar objects which are not labeled. A specified number of centroids are identified in a dataset, a centroid being computed as the arithmetic mean of all objects belonging to that cluster. Each object is assigned at each iteration to the nearest cluster. The cluster centers are updated by the same computation as arithmetic means at each iteration. The algorithm repeats until there is no change in cluster centers from the last iteration.
The k-means algorithm is appropriate for uniform and spherical-shaped clusters. A disadvantage of K-means is that distant points are not allowed to be in the same cluster. If there is overlapping among clusters, K-means cannot know how to allocate these objects where the overlapping occurs.
After clustering, the silhouette method was applied to see if the clustering was significant. Another way to check the quality of clustering is the visual assessment of cluster tendency, together with Hopkins statistics. The H-value was 0.75, meaning that the cluster structure is not random.

3. Research results and discussions

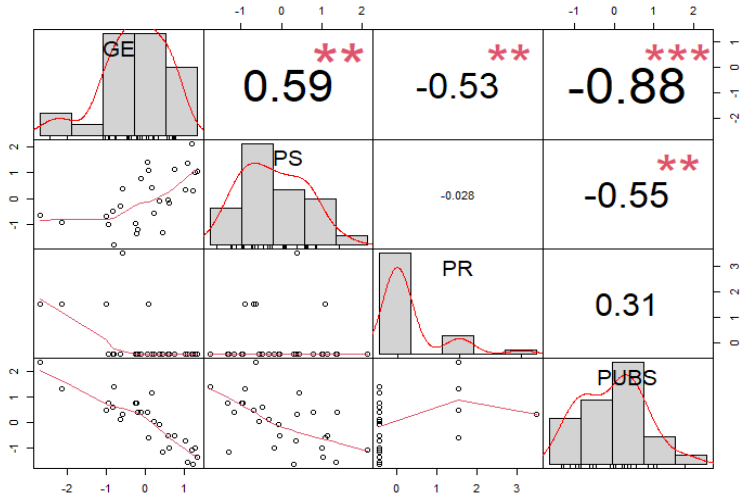
For this research, we have selected four representative variables for the research subjects, namely governmental efficiency and political stability. Table 1 contains the main indicators included in this analysis. We examine the correlations between government efficiency and political stability in the European Union, by means of four representative indicators reflecting these aspects. Data was collected for 2020-2022.

Table 1. The definitions of variables

Variable	Description of the variable	Abbreviation symbol of the variable	Range of possible values	Source
Government effectiveness index	perceptions of the quality of public services, the degree of its independence from pressures political, quality of design, and implementation policies and credibility of government engagement government towards such policies	GE	Percentage	www.govindicators.org
Political stability index	perceptions of the likelihood that the government will be destabilized, or overturned by unconstitutional means, or violence, including politically motivated violence, and terrorism.	PS	Percentage	www.govindicators.org
Political rights index	evaluates three categories: the electoral process, political pluralism and participation, and the functioning of government.	PR	1 (strong rights) to 7 (weak rights)	www.theglobaleconomy.com
Public services index	refers to the presence of basic state functions that serve the people, such as the provision of essential services, the state's ability to protect its citizens, such as from terrorism and violence	PUBS	0 (high) - 10 (low)	www.theglobaleconomy.com

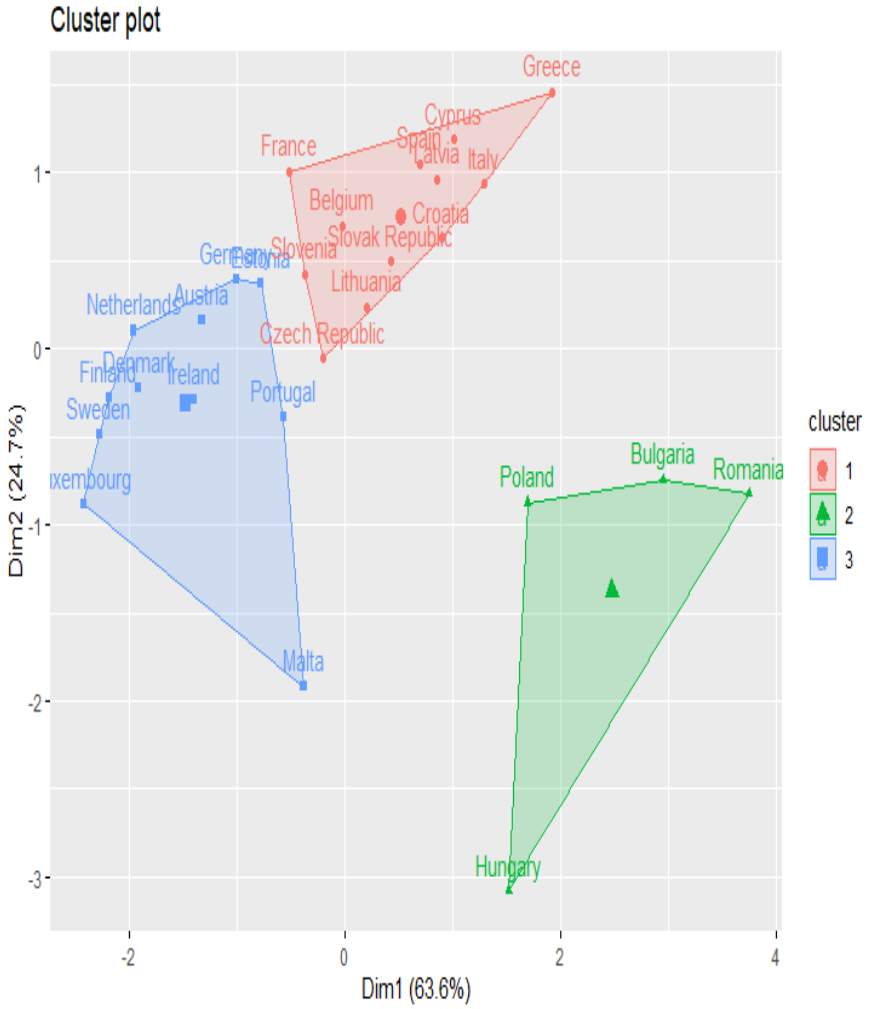
In the following, we analyze the correlations among the variables and their clustering in the analyzed period 2020-2022 by means of the R Studio environment.
In the correlation matrix in Figure 1, the distributions of the indicators are represented on the main diagonal.

Figure 1 Pearson Correlation Matrix



Above, the main diagonal of the correlation matrix, the correlation coefficients and the symbols of the significance levels (p-values) are shown: (p<.001) "***", (p<0.01) "**", (p<0.05) "*", (p<0.1) ".". Below the main diagonal of the correlation matrix the scatterplots with fitted lines are shown (Kassambara, 2017). There is a strong negative correlation (-0.88) between the government effectiveness index and the public services index, here expressed by a decreasing scale (0-high, 10-low). The higher the government's effectiveness, the higher the quality of public services. According to Adam and Alhassan (2021), government effectiveness is translated into efficient public services, a sound quality of public administration, competent and politically independent civil service members and efficient resource allocation. One also notices a moderate direct correlation (0.59) between the government effectiveness and political stability index. The higher the government's effectiveness, the higher the political stability index. One also notices a moderate inverse correlation (-0.53) between government effectiveness and the political rights index, here expressed by a decreasing scale (1-strong rights, 7-weak rights). The higher the government's effectiveness, the stronger the political rights system. We also obtain a weak positive correlation (0.31) between political rights and political stability. Lower values of these two indicators signify that the citizens benefit from broader political freedom. We can conclude that all correlations agree with economic theory. Next, we apply the K-means algorithm (MacQueen, 1967) to cluster the 27 EU member states into K=3 clusters. The k-means clustering algorithm divides a dataset into a predefined number of clusters that contain similar objects. We scale the dataset and we obtain the cluster plot in Figure 2.

Figure 2. Cluster plot



The three clusters in Figure 2 are well separated, not overlapped, in a plane whose axes are the first two principal components. The first principal component explains 63.6% of the total variability, and the second principal component explains 24.7% of the total variability.

The K-means algorithm detected the following cluster structure:

Cluster 1: Belgium, Cyprus, Czech Republic, Spain, France, Greece, Croatia, Italy, Lithuania, Latvia, Slovak Republic, Slovenia

Cluster 2: Bulgaria, Hungary, Romania

Cluster 3: Austria, Germany, Denmark, Estonia, Finland, Ireland, Luxembourg, Malta, Netherlands, Portugal, Sweden

Table 2 reports the cluster means after data scaling.

Table 2. Cluster means

No.	GE	PS	PR	PUBS
1	-0.2300362	-0.6401877	-0.4388537	0.4255247
2	-1.60359	-0.4604719	2.0296485	1.1072152
3	0.8340722	0.8658309	-0.2593227	-0.8668324

One sees from Table 2 that the countries in cluster 3 have the highest government effectiveness index and the highest public services index. This cluster of the most developed countries is characterized by efficient public services, a higher quality of public administration, and efficient resource allocation.

Government effectiveness could mean that public administration carries out its objectives at its best, resulting in increased economic growth, reduced corruption, better public services, public investment, etc. (Duho et al., 2020).

The citizens from the countries in cluster 3 enjoy broader political freedom. Political rights are more pronounced in the countries in cluster 3, these being the ones with better political stability and more efficient public services.

The three countries in cluster 2, Bulgaria, Hungary, and Romania seem to have the lowest levels of public services, political rights, and government effectiveness. These low levels are determined by political instability, unstable economic policies, and inconsistent economic planning. Tankovsky and Endrődi-Kovács (2021) discussing the economic integration maturity of the EU countries claim that Romania and Bulgaria are the least developed countries in the EU according to their GDP per capita and there are some concerns about how they respect the rule of law and the independence of the judiciary.

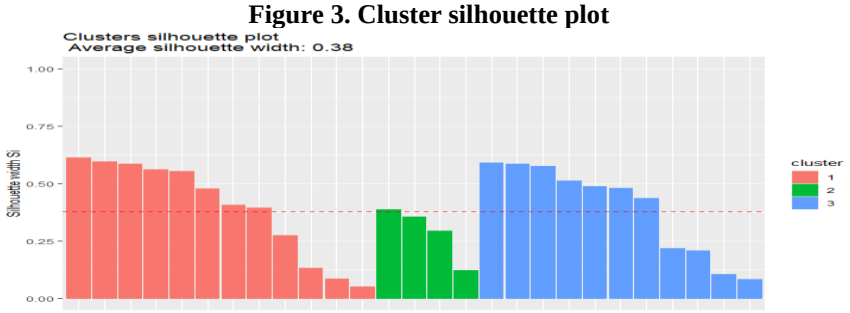
In a hierarchy, Cluster 3 is followed by cluster 1, containing 12 countries, and cluster 2. Cluster 2 contains some Central and Eastern European countries, which manifested corruption risks when accessing EU funds, instead of promoting institutional development (Fazekas, 2017, Dinca, 2022). According to a study by Dinca (2022), there are still discrepancies between Western and Eastern countries from the viewpoint of corruption and public institutions.

Silhouette analysis, proposed by the Belgian statistician P. Rousseeuw in 1987 is used to validate the cluster structure consistency. The silhouette width-taking values in the interval [-1, 1] measure how similar an object is compared to its own cluster or neighboring clusters.

A high value of the silhouette points out that the object is a good match to its own cluster. A value of 0 means that the object is on the border of two clusters. A value near -1 indicates that the object would have been better matched to a neighboring cluster (Rousseeuw, 1987).

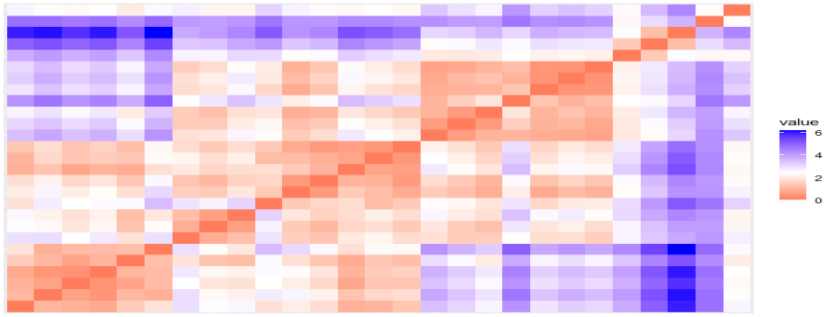
The silhouette coefficient was introduced by Kaufman and Rousseeuw (1990) as the maximum value of the mean overall data of the entire dataset for K=3 clusters. Here the silhouette coefficient equals 0.38.
The cluster sizes can be visualized by taking into account the thickness of the silhouette plots in Figure 3. One can see that all objects (countries) have positive silhouette widths, indicating that the objects are well-matched to their clusters.

Figure 3. Cluster silhouette plot



Besides the silhouette method, we will analyze a simple and intuitive visual approach to assess cluster tendency, a non-random structure called VAT (visual assessment of cluster tendency) proposed by Bezdek and Hathaway (2002). The VAT matrix is the ordered dissimilarity matrix between the objects using the Euclidean distance (Figure 4). Similar objects are close to each other in the VAT matrix. Diagonal blocks correspond to clusters in the VAT matrix. The size of each block is equivalent to the size of the cluster.

Figure 4. VAT visual output



Red indicates high similarity (i.e., low dissimilarity) while blue indicates low similarity. The high similarity is equivalent to pure red, meaning dist(x_i, x_j)=0. The low similarity is equivalent to pure blue, meaning dist(x_i, x_j)=1. The VAT dissimilarity matrix in Figure 4 confirms that our data is significantly clusterable.

Next, we intend to check the spatial randomness of the data using Hopkins statistics (Lawson and Jurs, 1990). The null and the alternative hypotheses H_0 and H_1 state the following:
H_0: the data is uniformly distributed (no statistically significant clusters).
H_1: the data is not uniformly distributed (statistically significant clusters).
If the Hopkins statistics is far above 0.5, then we accept H_1 and decide that the clusters are statistically significant. If the H-value is greater than 0.75, then the clustering tendency is present in the dataset (Han et al., 2012). In our study, we obtained an H-value of around 0.75, therefore the data clustering leads to statistically significant clusters.
Limitations of the research: The main limitations of the research are: the small number of research variables and the short period for which the analysis was carried out. In future research, we propose to increase the number of researched variables, diversify the methods used to analyze the correlations between variables, and extend the analysis period to at least 10 years, for relevance and representativeness at the European level.

4. Conclusions

In this paper, we used the K-means algorithm to cluster the 27 EU countries according to four variables representing government efficiency and political stability indicators. The clustering resulted in 3 clusters. The Hopkins statistic is 0.75, above the threshold of 0.5, therefore we conclude that the data presents a high clustering tendency. Cluster 3 containing the most developed countries has the highest values for all four indicators, characterized by efficient public services, a higher quality of public administration, efficient resource allocation, a higher respect for political rights, and broader political freedom. Cluster 3 is followed by cluster 1 and cluster 2, which comprise 3 countries, Romania, Bulgaria, and Hungary. Cluster 1 comprises a combination of Western and Eastern countries, among which discrepancies still exist concerning the effectiveness of public institutions.
Further studies could be directed toward exploring each country's specificity and discussing panel data models.

Conflict of Interest Statement

There is no conflict of interest.

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