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**Basic Information & Indexing**

Central European Public Administration Review is a scientific peer-reviewed journal that publishes original articles, devoted to the development and analysis of public administration and governance. We are mostly interested in articles on integrative and multidisciplinary research on the field that includes related scientific disciplines, such as law, economics and management as well as political, organisational and information sciences. The journal's goal is to cover mostly central European space, in not only geographical but mainly contextual sense by supporting administrative reforms in accordance with European principles.

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Indication of Economic Populism in Local Governance: A New Approach for Classifying Populist Behaviour

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ABSTRACT

Purpose: The extant literature on populism posits that populists frequently find themselves at odds with the neoliberal economic paradigm, as evidenced by rising debt, a public-investment deficit, and substantial deficit-financed government spending. Populist decision-making is characterised by short-termism and can, therefore, be distinguished from non-populist governance through economic variables. This study introduces an innovative quantitative approach that analyses local-government financial data to classify populist economic behaviour.

Design/Methodology/Approach: Adhering to the scholarly consensus that short-termism is a fundamental indication of populism, we operationalise economic populism with five financial variables, scrutinised using cointegration analysis and a probabilistic approach. The selected

variables are grounded in the literature on economic populism. The underlying data are publicly available for Czechia—the country examined—and for many other states. We verify the methodology by analysing governing coalitions in major municipalities.

Findings: Examination of 6,240 municipalities in post-communist Czechia between 2002 and 2021 reveals indications of economic populism in 6.2 % of cases. Result verification shows that these municipalities are frequently governed by populist parties or varied local initiatives, rather than by established non-populist parties.

Academic contribution to the field: This study employs an innovative quantitative assessment of financial indicators, diverging from mainstream populism research, which is usually based on qualitative assessment of sources such as statements, narratives and historical context. Moreover, it emphasises the local level of government in the study of economic populism—a phenomenon typically assessed at the central-government level.

Research implications/limitations: The findings suggest that populism may represent a strategic approach for certain local governments, particularly in smaller towns and villages where limited fiscal discipline can impede development. Some identified financial patterns may stem from incompetence or lack of expertise rather than intentional populism. Additionally, many municipalities in the sample are governed by a 'grey zone' of local initiatives, complicating result verification. Because the methodology is novel at the local level, there are virtually no comparable studies; consequently, our findings are considered alongside various Central European studies on populism.

Originality/Value: This study develops an original quantitative approach applicable at the local-government level to analyse extensive datasets. It enriches discourse on economic populism by examining the phenomenon through the lens of short-termism in financial data.

Keywords: economic populism, short-termism, local governance, financial data, Czechia

Kazalniki gospodarskega populizma v lokalnem upravljanju: nov pristop k razvrščanju populističnega vedenja

POVZETEK

Namen: Literatura o populizmu navaja, da so populisti pogosto v konfliktu z neoliberalno gospodarsko paradigmo, kar se kaže v čedalje večjem dolgu, naložbenem primanjkljaju in znatni javni porabi, ki se financira iz primanjkljaja. Odločitve populistov zaznamuje kratkoročna usmerjenost. Zato jih lahko od nepopulističnega upravljanja ločimo z gospodarskimi spremenljivkami. Pri študiji gre ta inovativen kvantitativni pristop, ki analizira finančne podatke lokalnih oblasti za razvrščanje gospodarskega populističnega vedenja.

Zasnova/metodologija/pristop: V skladu z znanstvenim konsenzom, da je kratkoročnost temeljni pokazatelj populizma, operacionaliziramo gospodarski populizem s petimi finančnimi spremenljivkami, ki jih preučujemo s kointegracijsko analizo in verjetnostnim pristopom. Izbrane spremenljivke temeljijo na literaturi o gospodarskem populizmu. Podatki so

javno dostopni za Češko republiko, ki je primer proučevane države, ter za številne druge države. Metodologijo preverjamo z analizo koalicij, ki vladajo v večjih občinah.

Ugotovitve: Analiza 6.240 občin v postkomunistični Češki med letoma 2002 in 2021 razkriva znake gospodarskega populizma v 6,2 odstotka primerov. Preverjanje rezultatov kaže, da te občine pogosto vodijo populistične stranke ali raznolike lokalne iniciative, namesto uveljavljenih nepopulističnih strank.

Znanstveni prispevek: Študija uvaja inovativen kvantitativni pristop k ocenjevanju finančnih kazalnikov in se oddaljuje od prevladujočih raziskav populizma, ki večinoma temeljijo na kvalitativnih virih, kot so izjave, narativi in zgodovinski kontekst. Poleg tega v ospredje postavlja lokalno raven upravljanja pri proučevanju gospodarskega populizma. Gre za pojav, ki ga običajno analiziramo na ravni centralne oblasti.

Praktične omejitve in implikacije raziskave: Rezultati nakazujejo, da je lahko populizem strateški pristop za nekatere lokalne skupnosti, zlasti v manjših mestih in vaseh, kjer pomanjkanje fiskalne discipline ovira razvoj. Nekateri zaznani finančni vzorci so lahko posledica nesposobnosti ali pomanjkanja strokovnega znanja, ne nujno namernega populizma. Številne občine v vzorcu vodi »siva cona« lokalnih iniciativ, kar otežuje preverjanje rezultatov. Ker je metodologija na lokalni ravni novost, skoraj ni primerljivih študij; zato rezultate primerjamo z različnimi srednjeevropskimi raziskavami o populizmu.

Izvirnost/vrednost: Raziskava razvije izviren kvantitativni pristop, ki ga je mogoče uporabiti na ravni lokalne samouprave za analizo obsežnih podatkovnih nizov. Bogati razpravo o gospodarskem populizmu, saj pojav preučuje skozi prizmo kratkoročnosti v finančnih podatkih.

Ključne besede: gospodarski populizem, kratkoročnost, lokalno upravljanje, finančni podatki, Češka Republika

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1 Introduction

The research on populism is evolving in geographical, political, or administrative settings. As pointed out by Waller (2024), scholars tend to apply their own interpretations and methods to analyze the existence of populism. In general, populism is investigated as case study research employing qualitative methods, such as the analysis of political narratives (Kyle and Mayer, 2020). However, this approach has limitations and is difficult to apply on a larger scale.

Populism is a complex political phenomenon indeed (Moffitt and Tormey, 2013) and the crucial challenge of today (Trebesch et al., 2020), but populist politics and policy have an impact on institutions, economy, and wealth (Seghezza and Pittaluga, 2018). As argued by Acemoglu et al. (2013) and Ausserladscheider (2024), populists in power are supposed to produce their specific economic policy distinguishing them from non-populists. We follow this idea and discuss a possible way to capture populism in terms of quantitative analysis.

We are aware of the breadth of the issue of populism; therefore, in this paper we focus only on its economic dimension (i.e. economic populism). Economic populism is considered in the literature as a link between populism and public financial management (Aslanidis, 2015; Franko and Witko, 2018; Bellodi et al., 2023). It is defined on the basis of a number of indicators and characteristics, but these vary from study to study (Waller, 2024). However, there is a consensus among the authors that populism is usually associated with short-termism in planning and decision-making (Andersen et al., 2017; Gnan and Masciandaro, 2020; Velasco, 2017, Saint-Paul, 2020; Guiso et al., 2017). We are aware that these are not the only features, but they are essential and can be identified using statistical methods. It is this symptom that we focus on in this paper and subject short-termism to a detailed quantitative analysis.

Populism is an economically devastating policy that leads to an increase of public sector inefficiency. Public decision-makers should have relevant information tools to counter this phenomenon. Quality information is a determinant of an efficient public sector and quality public services. Therefore, quality public services depend on quality information (Hub and Sedlák, 2014). The importance of information for public decision-making is emphasized by Stiglitz (1997; 2002), who classifies its insufficiency as one of the government failures, as well as by Almunia et al. (2024), who argue for the use of information based on scientific research in public policy making. The relevant information provided by an appropriate tool has the potential to reduce the problem of limited knowledge. Moreover, good quality and accessible data enables governments to deliver services that are more responsive, ethical, open, and fair (OECD, 2019). The relevance of information tools in the public sector has also been highlighted by Brill (1979). Decision-making tools should facilitate working with information and offer solutions. However, it is a fact that public decision-makers still often face challenges related to, among others, evidence-based decision-making, in addition to budgetary constraints (Marchand and Brunet, 2019).

Populism is usually studied at the central level of government, while studies focused on the local level of government are rare. However, populism does not avoid the environment of local or regional governments, which are made up of independent self-governing units (Drápalová and Wegrich, 2021; Ron, 2014; Fischer, 2014). Our ambition is therefore to focus on the local level and to contribute to filling the gap in the research of populism at the local level. In this paper, we employ local government financial data to capture economic policy that might be associated with populism.

The aim of this paper is to design an information tool for public decision-makers to identify symptoms of economic populism (short-termism), in this case at the local level of government. Within this framework, a new quantitative approach is introduced to classify suspicious economic behavior that may indicate economic populism. Although we focus on more aspects within this study, our main effort is directed towards introducing the classification tool. On a methodological level, this study seeks to contribute to the discourse

on development of novel quantifiable methodologies for analyzing economic populism. The transferability of the proposed tool is guaranteed by the fact that it is based on widely used concepts of populism, standard tools of economic analysis, and publicly available data.

We focus on experience from the European region, in particular post-communist Czechia. In particular, we are not concerned with what the root causes of populism are, but with the economic relations that can indicate populism in a large sample of statistical data. This study provides a methodology for identifying symptoms of economic populism in municipalities based on a robust statistical sample of more than 6,200 municipalities in Czechia between 2002 and 2021. The methodology is verified by analysing the governing coalitions in 20 largest of the captured municipalities.

2 Theoretical Background

Economic populism, committed by those who are considered populists, is contrary to neoliberal economic policies (Queiroz, 2023). Dornbusch and Edwards (1990; 1991) declared that economic populism approaches the economy by emphasizing the redistribution of growth and income and de-emphasizing the risks of inflation and deficit. In the example of Latin America, they argue that populist economic policies eventually fail, leading to a deterioration in financial indicators, culminating in collapse, and imposing costs on those who were supposed to benefit from these policies. Andersen et al. (2017) state that populist economic policy is designed for people who feel abandoned by the state.

Economic populism is then characterized by (Andersen et al., 2017): a) short-termism; b) the denial of intertemporal budget constraints; c) not evaluating the pros and cons of possibilities and compromises between different policies. Similarly, Gnan and Masciandaro (2020) defined five general features of economic populism; these include: a) short-termism; b) distrust of liberal mainstream politics and its institutions; c) nationalism and distrust of globalization; d) extreme electoral focus and resulting neglect for minorities; e) neglect of facts and analysis. The short-termism of populist economic policies and their negative effects are also noted by Unda-Gutierrez (2024). Although short-termism of public policies is a classic symptom of economic populism, Velasco (2017) adds that in the short term, such bad policies pay off for populists because the deterioration or destruction of the economy and the weakening or collapse of the state that populism tends is a long-term process.

Benczes (2022) argues that populism is also associated with income redistribution and that the economic consequences of populism need to be addressed. These include the privileging of some inhabitants ('our people') over others through the redistribution of public funds, a critical attitude toward autonomous subjects (institutions, organizations, professionals) and an antagonistic relationship with market mechanisms. In fact, this is a manifestation of the conflict between the elites and the people, as argued by Mudde (2004).

Regarding the impacts of economic populism, it is useful to mention Magud and Spilimbergo (2021) and their research on the institutional and economic consequences of populism in Latin America over the last 50 years. In one line with other researchers (e.g., Andersen et al., 2017; Gnan and Masciandaro, 2021), they argue that economic populism is intertwined with demonstrable deterioration in macroeconomic indicators leading to worse redistribution and economic crises. They also argue that favorable financing conditions allow populists to remain in power.

Noury and Roland (2020) argue that in the European environment, economic variables play a significant role in the emergence of populism. In particular, there is an interaction between values and trauma of society, political goals, and economic issues. Broz et al. (2021) even argue that in the case of wealthy countries, trade, automation, and offshoring have been lowering the economic standards of industrial workers since the 1970s and accelerating the growth of disparities between small towns and cities. Another cause of economic populism can be seen as passiveness in addressing inequality in society, which Franko and Witko (2018) examined in this context in the United States.

In Europe and the United States, Ivaldi and Mazzoleni (2019) conducted research on economic populism. In the context of right-wing populist politics, they define the link between the economy and the values of society. Their research also confirms that the economic narratives of populists in the European Union and the United States are shared, albeit interpreted differently. This view thus corresponds with the often-used paradigm of the general theory of populism, which argues that populism deliberately builds hostility between elites and citizens (Mudde, 2004), which populists then abuse (Devinney and Hartwel, 2017; Brubaker, 2020).

In Central and Eastern Europe, populists are using country-specific issues in addition to established schemes. These may include a 'backlash' against democratic reforms, fears of democracy, nationalism or a racist agenda (Kaltwasser et al., 2017; Pappas, 2013; Škobla and Filčák, 2020). Populism has a long tradition in Austria, where it was present for almost the entire post-war era (Ausserladscheider, 2024). However, since the turn of the millennium populism has also been on the rise in the whole post-communist region, in particular in Hungary (Bretter, 2022), Poland (Pirro and Stanley, 2022), as well as in the Balkan countries - Bulgaria (Domaradzki and Milosavljević, 2021) and Romania (Feldmann and Popa, 2022). In the Baltic region, populism has been linked to political entities backed by Russia (Ulinskaitė, 2020; Kazharski and Makarychev, 2020).

In Czechia, populism has been on the rise since 2010 (Havlík, 2015) and populist topics include criticism of political parties, corruption and incompetence of elites, fear of migration, the Green Deal, and the war in Ukraine. Following the research of Havlík (2019) and Kim (2020), populist political entities in Czechia include two main parties - ANO ('Action of Disaffected Citizens'), and SPD ('Freedom and Direct Democracy'); as well as a large number of small independent political entities of local or regional importance. Both main parties (ANO and

SPD) are labeled as populist in the Freedomhouse National Reports (2024). Furthermore, both are listed in the PopuList database (Rooduijn et al., 2023).

At the local level, populism in Czechia has been explored on a pilot basis by Pernica et al. (2024). Using a combination of quantitative pre-sampling and qualitative follow-up survey in a small sample of municipalities, they assumed that populism is a true phenomenon at the level of local governments. However, as they acknowledge, the approach used to analyse populism is too rigid and time-consuming, so innovative quantitative approaches to capture populism must be sought (Pernica et al., 2024).

It should also be emphasized that economic populism is conceptualized in this paper as an etatist, dirigist, and interventionist approach. While this characterization applies to numerous populist parties and movements, particularly in Central and Eastern Europe, it is important to acknowledge that neoliberal and radical libertarian economic principles also play a significant role in contemporary populism on a global scale. However, this study examines a specific instance of economic populism, using Czechia as a case study, which is defined not by neoliberal or libertarian principles, but rather by etatist, dirigist, and interventionist economic policies.

3 Analytical Framework

Given the complexity of the topic, we are aware of the limitations associated with research on economic populism. In particular, Aslanidis (2022) points to possible methodological and conceptual shortcomings associated with research on economic populism. However, our study has the ambition to propose a methodology that would be able to capture the existence of this phenomenon.

The scholars discussed above agree on several typical features of economic populism, which are short-termism, the denial of intertemporal budget constraints, not evaluating the pros and cons of possibilities and compromises between different policies, distrust of liberal mainstream politics and its institutions, nationalism and distrust of globalization, extreme electoral focus and resulting neglect for minorities, neglect of facts and analysis. They also share the view that a common and fundamental symptom of economic populism is a deterioration in economic indicators caused by short-termism. In particular, they point out short-termism that is involved in economic decision-making, economic opportunism, and budgetary irresponsibility of public decision-makers. Short-termism is then represented by populists' emphasis on expanding aggregate demand at the cost of future outcomes, or by privileging instant benefits over long-standing ones. Short-termism is also a characteristic that can be quantitatively evaluated in terms of economic analysis. These arguments are essential to the choice of short-termism as a feature of populism, which forms the basis for the analysis below.

We follow these findings to develop an original quantitative approach that can be applied at the local government level to access a large sample of data.

Our ambition is to contribute to the research on economic populism by analyzing this phenomenon through the assessment of short-termism in the financial data shared by Czech city managers with the Ministry of Finance. Moreover, the methodology is verified by analysing the governing coalitions in the largest of captured municipalities. Thus, this study can fill a part of the gap in economic populism research, which has been analyzed so far more at the level of central politics. Finally, this study is based on an innovative quantitative assessment of financial indicators, while the mainstream research on populism is usually based on the qualitative assessment of resources, e.g. statements, narratives, and historical context.

3.1 Model of Relationships in the Studied Environment

To understand the principles of governance in democratic market economies, we start with a description of the relationships between the relevant actors in the environment. The actors are presented in Figure 1 within an arena model based on the Pestoff triangle (1992). An arena model allows to analyze relationships, interests and agendas among households (electorate), firms (markets), and the government (public power), as proposed by Benáček (2006) and Jakubičová and Pernica (2016).

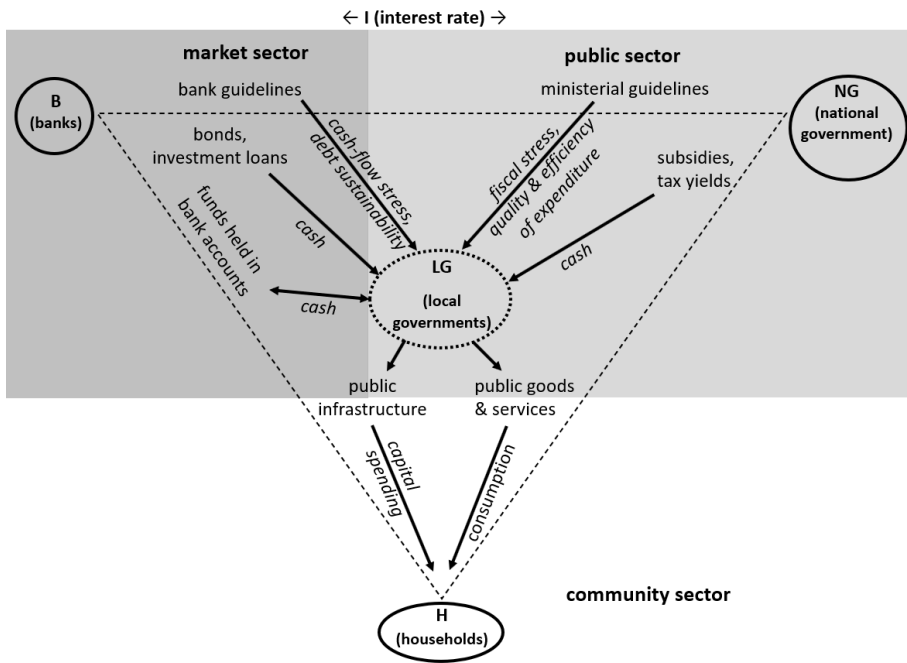
We apply the model to explain the position of local governments as an actor whose economic decision-making is influenced by demands and resources from many sides. The model pays close attention to the following.

- The national government (NG) – holding legislative power, collecting taxes, and organizing fiscal federalism in favor of households welfare (H).
- The local governments (LG) – taking care of the needs of households residing in municipalities and managing public funds in accordance with budget law and bank regulation.
- The banks, i.e., money market (B) – keeping current accounts of local governments and provide loans to fund infrastructure projects intended for purposes of provision of public goods and services.
- Interest rate (I) – the cost of money is a signal indicator for an investment strategy, bank guidelines, subsidies, etc., i.e., impacting whole environment. As pointed above, the favorable financing conditions allow populists to remain in power (Andersen et al., 2017; Gnan and Masciandaro, 2021).

As suppliers of local governments (LG) with cash, both the national (central) government (NG) and the banks (B) take care of financial risks. In addition, they continue to assess the quality of financial management of each local government that has a financial relationship with them. Although the private banks and the national government may differ in financial indicators assessed following institutional guidelines, they are usually interested in indicators reflecting the neoliberal paradigm of economics, i.e., actors can exercise choices through spending (Friedman, 1951). In particular:

- The banks want their money back with only little risk of loss for their stakeholders (Lucas and McDonald, 1992). Therefore, they care about the cash-flow stress and creditworthiness of business partners.
- The national government wants to give taxpayers' money to the local government only with a higher level of economy and efficiency (Smith, 2006). Furthermore, it is also interested in the development of budget deficits, i.e., fiscal stress, to avoid a growing of income inequalities and the intensification of economic insecurity (Rodrik, 2018).

Figure 1: An arena model of relationships among actors



Source: own

Also, the behavior of a local decision-makers is under both public (NG) and market (B) control, where national and private experts provide the financial analysis (feedback) of the financial health of a municipality (LG). In addition, this function is supported by households (H) and entities in the civic sector, such as local activists, cells from political parties/movements, and NGOs dealing with issues of transparency, corruption, and fair budgeting (Burger and Owens, 2010).

Considering literature review above, municipal managares, as providers of public goods and services, have to manage run cost in the short run and they have to sustain development in the long run by investment (Smith et al., 2011), in particular:

- They have to follow the development of interest rates (*i*) for purposes of favorable investment,
- They have to keep budget in balance when investing to prevent from an excessive debt rising the risk of a potential bankruptcy,
- They have to keep the budget in balance to prevent an excessive deficit inflating the debt and rising the risk of a potential bankruptcy.

3.2 Variables and Data

Concerning the accessibility of data, an arena model of relationships between actors (Figure 1) and the current literature on economic populism, the analysis of short-term behavior of public decision-makers assesses the relationships between five financial variables. In particular, we employed an interest rate (*i*) which can be considered an exogenous variable in our analysis, since its level is based on the National Bank's decision, which is implemented on the market via the banking sector. Also, we applied four economic indicators of municipal financing. Our approach to capture economic populism through short-termism is operationalized with variables that are summarized and argued in Table 1. These variables are available from public sources in Czechia, as well as in many other countries. The analysis covers the period of 2002-2021 and all municipalities of Czechia, in particular 6,240 entities.

Following economic theory and the studies discussed above, the existence of link between variables under examination can be considered as short-term behavior, and therefore a symptom of possible populism. These links do not necessarily mean populism per se; they are just indications. However, it can be assumed that if more symptoms (links) appear for some entities, their occurrence strengthens the probability of populism. Also, some of the variables are ratio-based, and hence links between variables that have common components are not assessed, for instance, links between the indicators of 'ratio of deficit to capital expenditure' and 'ratio of savings to deficit'.

Information on total and capital expenditures, budget deficits, and funds in bank accounts for individual years has been retrieved from the Monitor database, which is operated by the Ministry of Finance of the Czech Republic (2023). Information on interest rates has been retrieved from the Czech National Bank (2023). Interest rates, however, change during the year; for this reason, average annual interest rates have been calculated using the simple 30/360 method, treating a month as 30 days and a year as 360 days.

Since the analysis examines different types of variables, we standardized all variables on a scale between 0 and 1. This transformation allowed us to preserve information about dynamics, which is valuable in determining co-integration residues for particular pairs of variables.

Table 1: Variables under examination and links to populism in the literature

Variable	Explanation	Links to populism
Interest rate (I)	Refers to the profitability of investment. It effectively expresses the price and availability of money in the national economy. We applied the repo rate.	Favorable financing conditions allow populists to implement their policy and stay in power (Feldmann and Popa, 2022; Andersen et al., 2017).
Ratio of capital expenditure to total expenditure (RCT)	Reflects the quality and efficiency of expenditure, in particular, the creation of both long-term assets and short-term activities, and vice-versa.	Preference for short-term benefits at the expense of long-term ones is a major feature of populism (Saint-Paul, 2020; Guiso et al., 2017).
Government budget balance (GBB)	Expresses intertemporal shifts in expenditure. In addition, it represents fiscal stress for the local government.	Populists neglect economic constraints and increase debt (Andersen et al., 2017; Gnan and Masciandaro, 2020).
Ratio of deficit to capital expenditure (RDC)	Mirrors how the funds are spent on investments in the case of lack of cash. It shows the sustainability of debt financing and long-term solvency.	Populist movements pander to certain demand conditions and disregard future consequences (Masciandaro and Passarelli, 2020; Saint-Paul, 2020).
Ratio of savings to deficit (RSD)	Reflects the creditworthiness of municipalities. Also, it represents cash-flow stress for the local government.	Populism manifests itself in voluntaristic overspending and economic irresponsibility (Weyland, 2017; Benczes, 2022)

Source: own

3.3 Co-integration approach to the populism assessment

Now we have to explain why do we assess the relationships between the variables rather than simply their levels. Based on the limitations mentioned in literature, the analysis of indicator levels to be insufficient. First, it is related to the issue of setting indicator thresholds, which vary significantly between municipalities of different sizes. Second, it is difficult to classify a municipality given the evolution of indicators over a longer period in which conditions change significantly (e.g., the pattern of redistribution of resources, central and local government officials, acceptability of risk, etc.). Both issues were faced by Pernica et al. (2024) using Mixed Populism Indication approach. However, these issues remain a challenge that we address in this paper.

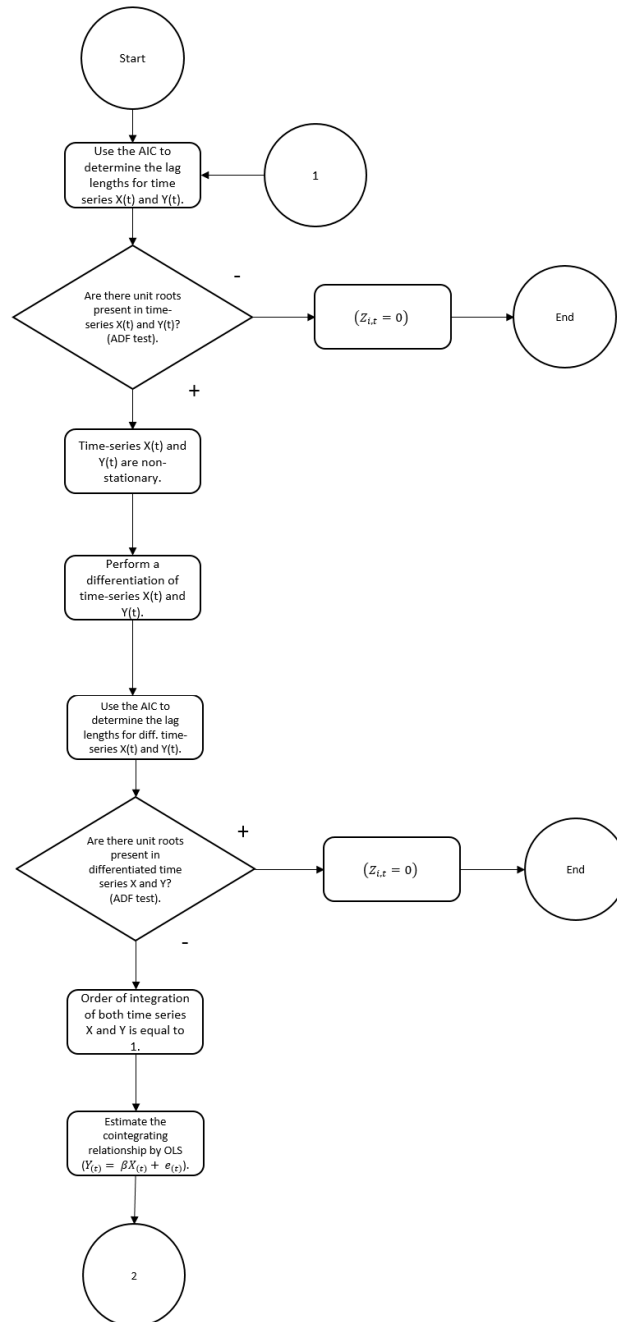
The use of the co-integration approach to the issue of populism is new. However, given that co-integration has a wide application and has proven itself in the analysis of a wide variety of problems in both economics and social sciences (Pesaran, 2007; Tu et al., 2019). Here we go beyond the Mixed Populism Indication approach (Pernica et al., 2024), which indicates economic populism based on predetermined threshold values of individual indicators.

To assess the relationships between the variables, we employed the conventional co-integration approach. This helped us to avoid the spurious regression problem, which is very common for many economic time series, since these time series usually involve trends (Nelson and Plosser, 1982). Simply put, the co-integration approach does not examine whether time-series walk together, while it examines whether variance between their means remains stable or not.

We applied the conventional Engle-Granger two-step method (1987), which builds up on testing the residuals created based on static regression for the presence of unit roots. In particular, we had to check the individual time series and to confirm that they are non-stationary and that their orders of integration are equal to 1. If so, we had to estimate the co-integrating relationship by ordinary least squares. This procedure (first step) is described in-detail by an algorithm (Figure 2).

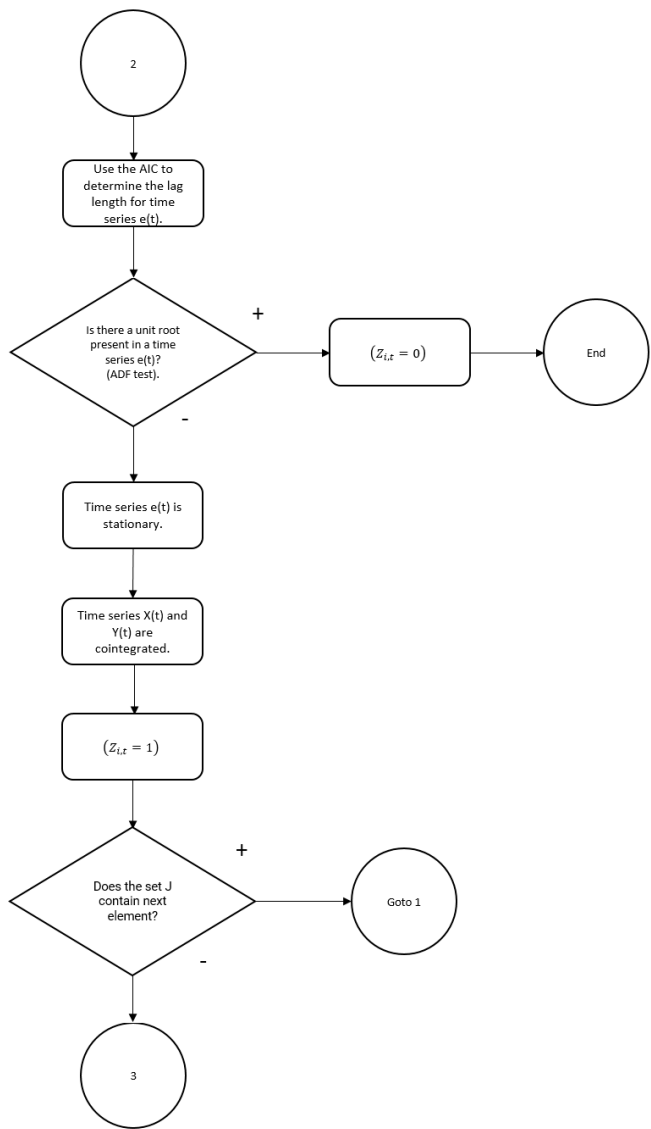
The second step consisted of the examination whether the order of integration of co-integrating residuals is equal to 0 (i.e., whether their time series is stationary). Considering the residuals are stationary, which means has a constant mean, constant variance, and autocorrelations that depend only on the time distance between any two variables in the series, we say that series and are co-integrated (Wooldridge, 2006). This procedure (second step) is described in-detail by an algorithm (Figure 3). To examine whether the series were non-stationary or stationary, we applied the augmented Dickey-Fuller t-test (ADF) with an intercept (Said and Dickey, 1984) in both steps. When proceeding with the ADF, we used the Akaike information criterion (AIC) (1974) to determine the appropriate lag length for variables.

Figure 2: Our application of Engle-Granger two-step method – step 1



Source: own

Figure 3: Our application of Engle-Granger two-step method – step 2



Source: own

When accessing possible relationships between variables, it was always necessary to apply the Engle-Granger two-step method for each municipality in the sample. The computational complexity caused by the individual testing of each pair of variables per each municipality in the sample results in maintaining a high level of information connected with the high robustness of the method (Pesaran, 2007; Pesaran et al., 2009). In particular, tens of thousands of statistical tests were required to evaluate the sample. Therefore, we employed a probabilistic approach to simply explain the findings. It rests in the

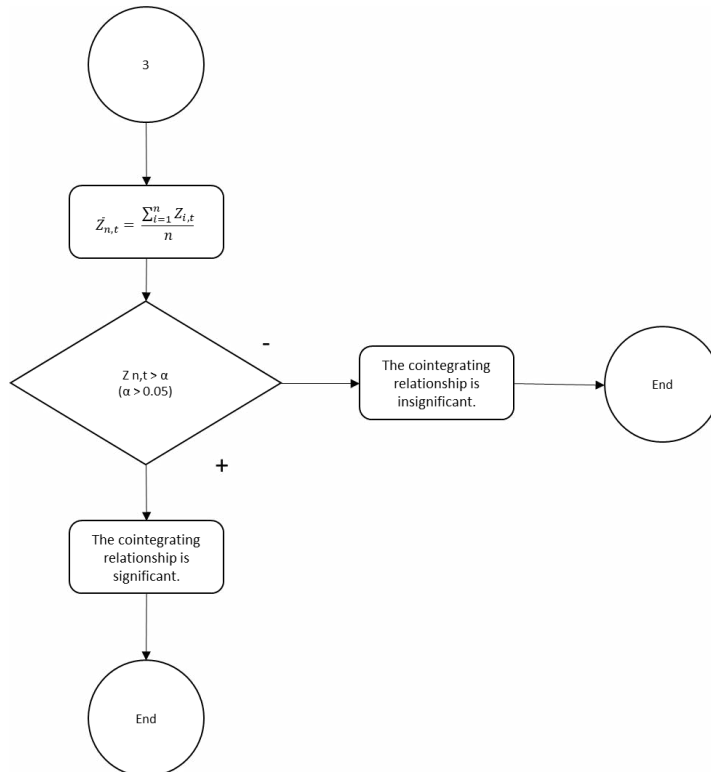
assessment of the ratio ($\bar{Z}_{n,t}$) between the number of municipalities that met the established criteria of co-integration ($Z_{i,t} = 1$) and all municipalities in the sample ($n = 6240$), see (1)

$$\bar{Z}_{n,t} = \frac{\sum_{i=1}^n Z_{i,t}}{n} \quad (1)$$

This approach was advocated by Pesaran (2007) and Pesaran et al. (2009), who was looking for a way to summarize the results of large-sample testing in time-series analysis. Based on the Monte Carlo simulations, Pesaran (2007) showed that during the application of tests with the null of unit roots (e.g. ADF) a low ratio ($\bar{Z}_{n,t}$) getting below the size of the test α , as n and $t \rightarrow \infty$ (2), can be expected in case of insignificant relationships. And vice versa, relationships can be spoken of, if $(\bar{Z}_{n,t}) > \alpha$, whereas it is getting closer to the unity, as n and $t \rightarrow \infty$ (3). One can also interpret these connections as: 'the higher the ratio ($\bar{Z}_{n,t}$), the more valid the conclusion about relationships'. We attach the algorithm with an in-detail description of the procedure (Figure 4).

$$\lim_{n,t \rightarrow \infty} E(\bar{Z}_{n,t} | H_0) = \alpha \quad (2) \quad \lim_{n,t \rightarrow \infty} E(\bar{Z}_{n,t} | H_0) = 1 \quad (3)$$

Figure 4: Pesaran's probabilistic approach to explain the results

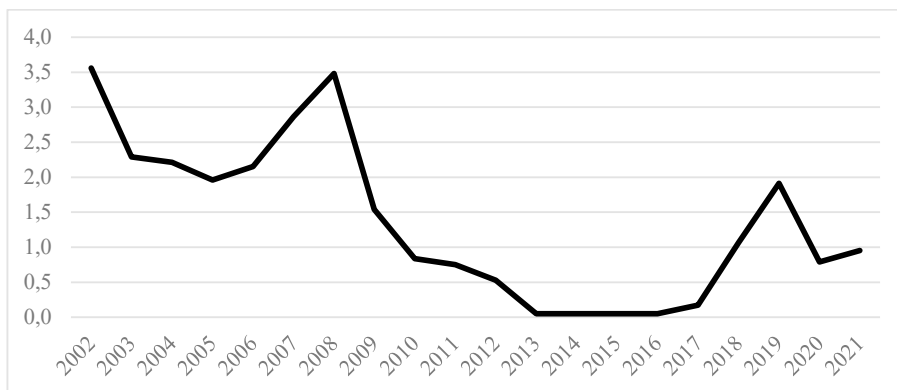


Source: own

4 Results

Figure 5 shows the development of the interest rate (I), which determines the cost of debt financing. A decrease of I can be used not only to increase investment, but also consumption because of the increased availability of money. It can therefore be assumed that the fall of I is being used by populist individuals to secure funds for the realization of their short-term objectives.

Figure 5: Interest rate development (I, in %)



Source: own processing based on Czech National Bank (2023)

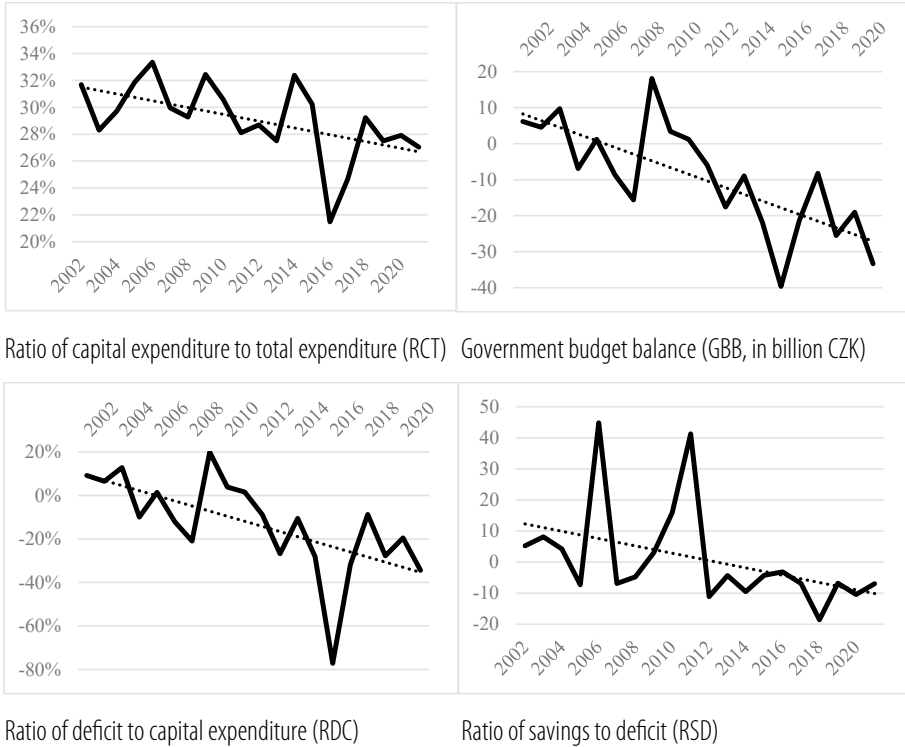
In Figure 6, trends in aggregated municipal financing variables are shown. Trends are negative in all cases. In general, therefore, one can point out the following:

a decline in the quality and efficiency of expenditure, which results from the decline of ratio of capital expenditure to total expenditure (RCT);

1. An increase in the use of resources at the expense of the future, which results from a decline of government budget balance (GBB);
2. A growing mismatch between borrowing and investment activity (the deficit is increasingly used to cover consumption), as a result of the decline of ratio of deficit to capital expenditure (RDC);
3. A decline in the solvency of municipalities, in particular a decline in the ability to cover debt creation with liquid assets, which is the result of a decline in the ratio of savings to deficit (RSD).

The development of financial variables can be related to a variety of circumstances, such as the phase of the economic cycle, changes in legislation, announced central government subsidies, extraordinary events, etc., but it can also be a short-termism. Of course, without the broader context, it is impossible to conclude the possible causes of the developments shown. However, it can be assumed that the existence of links between variables that are compatible with the symptoms of populism may be a preliminary indication of its presence. It is the analysis of these links that research should focus on.

**Figure 6: Development of financing variables in municipalities
(average of 6,240 municipalities)**



Source: own calculations based on Ministry of Finance of the Czech Republic (2023)

4.1 Outputs of the co-integration analysis

Within the research framework defined above, the short-term behavior of public decision-makers, is assessed by the links between financial variables for each of the 6,240 municipalities. The numbers of municipalities for which symptoms of possible populism (i.e., evidences of short-termism) were identified using the Engle-Granger two-step method are summarized in the matrix Figure 7.

Based on the results, we argue that for more than 750 municipalities, the decline of I led to a decrease in RCT. This trend implies a relative increase in consumption at the expense of investment, i.e., the quality and efficiency of expenditure are decreasing if the availability of debt financing is increasing. This can be assessed as short-termism. Furthermore, based on a probabilistic approach, this finding can be considered statistically significant, since the share of identified relationships (for 12% of municipalities) exceeds the standard level of significance ($\alpha = 5\%$).

Similarly, the downward effect of I on RDC growth is also considered. The relationship was identified for more than 320 municipalities (5.2%). Again, we

argue that the relative growth of deficits at the expense of investment supported by the increased availability of debt financing is a short-termism.

We also found that nearly 350 municipalities (5.5%) experienced an increase in GBB when I decreased. This phenomenon can also be considered statistically significant. However, its interpretation is ambiguous. Although the increase in debt at low I could be considered a sign of possible populism, it could also be considered a 'seizing the opportunity', if the borrowing would be performed for investment purposes. Whether it is more a sign of populism or rationality can only be deduced after putting the information into a broader context. Finally, there is no evidence that RSD decreases with decreasing I, as this relationship was identified in only 2% of municipalities.

Figure 7: Numbers and shares of municipalities with indications of populism

	I	RCT	GBB	RDC	RSD
I					
RCT	757 (12%)*				
GBB	346 (5.5%)*	520 (8.3%)*			
RDC	324 (5.2%)*	x	x		
RSD	122 (2.0%)	419 (6.7%)*	x	x	

Notes: * rejects null of no relationship between the variables in the Czech municipalities at the 0.05 level of significance.

Source: own

To obtain a broader context, or indications that can be used to talk about possible symptoms of populism or, on the contrary, to refute them, the relationships between the RCT and debt financing indicators (GBB, RSD) were also analyzed. As can be seen from the matrix (Figure 7), for a statistically significant number of municipalities (520, i.e., 8.3%), the share of investment in total expenditure decreases when deficits increase. This implies that the quality and efficiency of expenditure decrease as the debt increases. This debt financing of consumption can be described as a short-termism. Similarly, nearly 420 municipalities (6.7%) have been identified in which RCT is declining along with RSD. This can also be interpreted as a decline in the quality and efficiency of expenditure, but this time with an associated decline in solvency. At the same time, these negative trends are driven by a relative increase in consumption, which is covered by debt financing. This phenomenon, which is statisti-

cally significant among municipalities in Czechia, can also be considered as a clear short-termism, or possibly an indication of populism.

The findings have many practical implications, as they describe in detail the situation of Czech municipalities in the context of their approach to effective governance. Particularly unique are the responses to the changing availability of debt financing and the preference for short-term consumption goals at the expense of long-term investment goals. This behaviour can be considered threatening in relation to the future development needs of local governments.

4.2 An indication of populism

As noted above, the demonstration of an individual relationship that bears the hallmarks of short-termism can be considered as an indication, but not as a smoking gun, of populist management. However, we can assume that the more indications of populism are identified for a particular municipality, the stronger the conclusion about the presence of populism we obtain. Therefore, the findings of the co-integration analysis are evaluated further, looking for common occurrences of the relationships identified. The results of this investigation are summarized in Table 2. Due to the statistical insignificance found above, the relationships between I and RSD are not considered in this part of the analysis.

Table 2: Occurrences of multiple evidence of short-termism in municipalities

Evidence of short-termism	Number of municipalities
two, at least	384 (6.2%)
three, at least	82 (1.3%)
four, at least	10 (0.2%)

Source: own

Considering the occurrence of two evidences of short-termism at the same time to be sufficient, we can argue that populism is a phenomenon facing almost 400 municipalities in Czechia. Therefore, it is a systematic and statistically significant phenomenon, since the share of occurrence (6.2%) exceeds the level of significance ($\alpha = 5\%$). The most frequent symptoms are 'the fall in interest rates leads to an increase in municipal budget deficits' and 'when deficits increase, the share of investment in total expenditure decreases'. However, the least frequent connection was that of a 'relative increase in deficits at the expense of investment when interest rates fall' with a 'decrease in the ratio of capital expenditure to total expenditure accompanied by a fall in solvency'.

In general, multiple evidence of short-termism is more often in small municipalities. The median population in the sample of captured municipalities is 409, and the interquartile range <186; 853>. However, we also found several

microregional centers with more than 5 thousand inhabitants, and even one large regional center (Ústí nad Labem, with more than 90 thousand inhabitants), which show two evidences of short-termism, at least.

We should point out that the check of leaders and governing parties between 2014 and 2024 in these larger municipalities showed that many are (and were) governed by representatives of the populist parties, i.e., ANO and SPD. Furthermore, a significant segment of the municipalities is governed by parties and movements of regional or local importance, which cannot be clearly identified as populists or non-populists. However, established non-populist parties of national importance are marginal in these suspected municipalities (see Table 3).

If the requirement for three populism evidences of short-termism is tightened in a single municipality, it is possible to talk about meeting the condition in about 80 municipalities. In this case, however, it would no longer be a significant phenomenon, but rather a randomness that does not have statistical significance at $\alpha = 5\%$.

These results are valuable not only because they reveal indications of populism but also because they indicate which municipalities are showing undesirable trends in ensuring effective local governance. Thus, they also have practical applicability in optimising the efficiency of public administration in Czechia.

Table 3: Governing parties in the largest municipalities with indication of possible populism

		Election period		
		2014–2018	2018–2022	2022+
Municipality:	Population:	Governing parties/part of coalition:		
Ústí nad Labem	92,984	ANO	ANO	ANO+SPD
Znojmo	33,823	ANO	ANO	ANO+SPD
Kolín	31,123			
Kroměříž	29,002	ANO		ANO
Chrudim	23,102		ANO	ANO
Říčany	15,236			
Letohrad	6,283			
Skuteč	5,053	ANO	ANO	ANO
Vizovice	4,729			
Unhošť	4,636			
Mosty u Jablunkova	3,789			
Velká Bystřice	3,280			
Zruč-Senec	3,232			
Zeleneč	3,173			
Hanušovice	3,166			
Nový Hrozenkov	2,647			
Strašice	2,496			
Tlumačov	2,472			
Hovězí	2,386			
Solnice	2,211			

	Main populist parties
	Local or regional parties and movements
	Main non-populist parties

Source: own

5 Discussion

The literature review and analysis of economic populism at the level of local governments presented in the previous sections implies the following major findings for discussion:

1. The issue of local economic populism has not been explored enough and its theory is still undeveloped.

2. There are indications of economic populism at the local level in Czechia.
3. Populists exploit low-interest rates and decrease the quality and efficiency of expenditure to pursue their short-term goals at the expense of development.
4. There are several limitations to our approach.

First, considering the literature review, we found no appropriate analytical framework on the issue of economic populism that we could apply to the large sample of local governments. Therefore, it is necessary to build on the available research and definitions of economic populism in general (see Dornbusch and Edwards, 1990; 1991; Gnan and Masciandaro, 2020; Rodrik, 2018; Magud and Spilimbergo, 2021; Benczes, 2022). Subsequently, we assume that the symptoms of the most significant attributes, which result from the definitions of economic populism, can be approximated by the financial variables (Masciandaro and Passarelli, 2020).

We go beyond Pernica et al. (2024), who indicate economic populism in Czechia municipalities based on predetermined threshold values of individual indicators. In our study, the symptoms of economic populism, captured by evidence of short-termism, were selected and operationalized using financial variables and the relationships between them. When establishing the symptoms and related financial variables, we followed a broad discussion of scholars engaged in this field of research (e.g., Feldmann and Popa, 2022; Guiso et al., 2017; Andersen et al., 2017; Saint-Paul, 2020; Weyland, 2017). However, the employment of the innovative approach implies that there are almost no studies with which to compare our results.

Second, indication of economic populism at the local level in Czechia is an analogy to many other recent studies on populism behavior in post-communist countries of the Central and Eastern European region, however these studies are usually proceed at the level of the central government. Also, our results are compatible with the findings of Pernica et al. (2024), who found that economic populism is a reality in Czechia, especially in small municipalities environment.

Third, the neglect of stimulus of a lower interest rate on investment goes against the expected effects of macroeconomic policies of both the central government and the national bank (McKenna and Zannoni, 1990; Hall et al., 1977). This mismatch between local and national policies decreases the potential for further development. In particular, public investment is the main determinant of growth and development (Barro, 1991), while the 'non-favorable' behavior of local authorities, on the other hand, results in the outflow of investment (Snieska et al., 2018). This is followed by a decrease in regional competitiveness (Capello et al., 2011), brain drain and adverse labor market effects (Lucas, 1988), regional disparity, social tensions, etc. (Barro and Sala-i-Martin, 2004). All in all, this kind of short-termism results in a downward spiral of development.

Fourth, we are aware that our findings call for further qualitative research. It is crucial to determine whether populism is truly a political agenda of local authorities, or, on the other hand, the unfavorable links in financial indicators are just a side effects of lack of knowledge, incompetence to govern, etc. The results were verified only indicatively in the 20 largest municipalities with short-term captured. We found that some of them are indeed governed by populist parties, while reputable non-populist parties are only marginally represented in the sample. However, a significant number of municipalities with an indication of populism are ruled by a 'grey zone' of local initiatives. These political bodies often emerge ad-hoc and do not have a clearly formulated and publicly accessible programme. Therefore, it is difficult to classify these entities as populists or non-populists (Havlík, 2019; Pernica et al., 2024).

6 Conclusions

Although empirical research has not yet focused sufficiently on this area, it can hardly be assumed that any kind of populism would not occur at the level of local governments. Therefore, this study aimed to introduce a new approach for classifying populist economic behavior using a quantitative approach, which was applied to economic indicators in the environment of local governments. Our approach follows the idea that populists in power are supposed to produce their specific economic policy distinguishing them from non-populists. We also follow the consensus in the literature that short-termism is an essential indication of populism.

The research focusses on a post-communist Czechia, and our study explains how economic populism could be examined by an application of the arena model, clarifying the construction of fiscal federalism and substantial relationships among actors in a specific country, as well as which variables are significant for such research on a long period. In this respect, the econometric approach is easy to employ.

An implementation of the developed econometric framework on a sample of 6,240 Czech municipalities established the existence of short-termism as the symptom of economic populism. Considering the capture of multiple evidence of short-termism may indicate populism, we argue that populism is a phenomenon facing almost 6.2% of municipalities in Czechia. A verification of our results shows that populist parties govern the municipalities in the researched sample (with an indication of populism) more often than reputable non-populist parties.

Therefore, we argue that populism is not a random phenomenon, but a strategy among some of the local governments. However, several of the municipalities in the sample are governed by a 'grey zone' of local initiatives, where the verification of the results would be difficult. We found that the municipalities arguably affected by economic populism tend to be small municipalities and that a reduction in fiscal discipline could impact their development potential.

The strength of the methodology is its flexibility. The methodology can be used in a variety of environments, enabling the objectification of populism symptoms through the outputs of financial analysis. Moreover, it extends comparative analyses to deepen understanding of economic populism in an international context. Finally, the proposed methodology strengthens the research base aimed at the link between populist governance and fiscal policy. At a practical level, this approach represents a robust tool for focusing public policies in local and regional governments.

We admit, however, that the ambiguities within local governance create complexities in establishing a direct causal relationship between financial patterns and political ideology. Some of the relationships and unsatisfactory results in financial indicators that we examined could also be a side effects of lack of knowledge or incompetence to govern. This complicates the definitive attribution of every instance of unfavorable financial behavior that appears to resemble populist governance to actual populist governance. Thus, in some cases, our approach may reveal other disorders in local government and not only economic populism. This poses a challenge in integrating our findings into the broader academic discourse on economic populism. However, these findings are also important for public decision-makers. In addition to the disturbing truth about the financial behavior of some local governments in the period investigated, the study raised new questions for research on populism at the local government level.

The challenge for future research is, in addition to applying the methodology in other environments, to integrate other features of populism, i.e. to examine the possibilities of developing this methodology towards a more comprehensive quantifiable assessment of other features of economic populism.

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Law and Individualism: Balancing Rights, Responsibilities, and Group Dynamics

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ABSTRACT

Purpose: This article critically examines the interplay between individualism and collectivism in legal systems. It argues that the law remains disproportionately focused on individual rights and duties, even though group dynamics demonstrably shape behaviour. The paper therefore calls for the formal recognition of informal groups and the integration of collective responsibility to reflect current social realities more accurately.

Methodology: Employing a historical-legal and interdisciplinary lens, the study traces the evolution of individualism from Roman law to modern legal frameworks. It combines comparative legal analysis, theoretical critique, and normative analysis to propose legal reforms that reconcile individual autonomy with collective accountability.

Findings: Historically, legal systems have privileged individualism and underestimated the influence of groups. As a result, informal collectives often lack protection and meaningful participation in legal processes. This over-emphasis on the individual hampers effective responses to systemic discrimination, environmental harm, and labour rights violations. Although certain branches—such as corporate and environmental law—implicitly recognise collective responsibility, explicit mechanisms to balance individual and group interests are still required. Flexible legal models can integrate group accountability without eroding personal rights.

Practical implications: Conferring limited legal personality on informal groups would enable them to assert rights without full formalisation. A calibrated balance between individual and collective liability would enhance the law's capacity to address problems that demand shared responsibility. Strengthening collective legal tools—such as class actions, trade unions, and community governance—would improve legal representation, while the use of AI-enabled digital platforms could foster participatory law-making and deliver fairer legal structures.

Keywords: individualism, collective responsibility, group dynamics, informal groups

Pravo in individualizem: uravnoteženje pravic, odgovornosti in skupinske dinamike

POVZETEK

Namen: Članek kritično obravnava preplet individualizma in kolektivizma v pravnih sistemih. Avtor trdi, da je pravo nesorazmerno osredotočeno na individualne pravice in dolžnosti, čeprav skupinska dinamika dokazano oblikuje vedenje. Zato poziva k formalnemu priznanju neformalnih skupin in vključitvi kolektivne odgovornosti, s čimer bi pravo natančneje odražalo sodobno družbeno stvarnost.

Metodologija: S historično-pravnim in interdisciplinarnim pristopom študija sledi razvoju individualizma od rimskega prava do sodobnih pravnih okvirov. Združuje primerjalnopravno analizo, teoretsko kritiko in normativno analizo ter predlaga reforme, ki usklajujejo individualno avtonomijo s kolektivno odgovornostjo.

Ugotovitve: Zgodovinsko gledano so pravni sistemi privilegirali individualizem in podcenjevali vpliv skupin. Posledično neformalne skupine ne uživajo ustrezne zaščite in smiselne udeležbe v pravnih postopkih. To pretirano poudarjanje posameznika ovira učinkovite odzive na sistemsko diskriminacijo, okoljsko škodo in kršitve delavskih pravic. Čeprav nekatera področja – na primer korporacijsko in okoljsko pravo – implicitno priznavajo kolektivno odgovornost, so za uravnoteženje interesov posameznika in skupnosti še vedno potrebni izrecni mehanizmi. Prilagodljivi pravni modeli lahko vključijo skupinsko odgovornost, ne da bi pri tem razvrednotili osebne pravice.

Praktične posledice: Podelitev omejene pravne subjektivitete neformalnim skupinam bi jim omogočila uveljavljanje pravic brez popolne formalizacije. Uravnoteženo razmerje med individualno in kolektivno odgovornostjo bi okrepilo sposobnost prava za reševanje problemov, ki zahtevajo deljeno odgovornost. Krepitev kolektivnih pravnih orodij – kot so skupinske tožbe, sindikati in skupnostno upravljanje – bi izboljšala pravno zastopanje, uporaba digitalnih platform z umetno inteligenco pa bi lahko spodbujala participativno oblikovanje prava in pravičnejše pravne strukture.

Ključne besede: individualizem, kolektivna odgovornost, skupinska dinamika, neformalne skupine

JEL: K23

1 Introduction

Since prehistoric times, humans have lived in collectives, from basic family units and tribal communities to more complex modern forms of association, such as companies, political parties, trade unions, or NGOs. Although the influence of group dynamics on individual agency has long been recognized (and acknowledged) in social science disciplines such as sociology, psychology, and anthropology, legal scholarship remains largely individual-centred; it deals with groups only indirectly or through limited formal structures such as legal persons. This discrepancy between social reality and the legal system

raises the question of whether reality should be adapted to law or vice versa. Whatever the answer, the fact remains that legal scholarship insists on an individualistic approach despite the major role of groups in the lives and behaviour of individuals. Of course, the legal system also recognizes the existence of groups (e.g. families, religious communities, businesses or local communities), but it often does so in a limited and superficial way (legal regimes on the functioning of groups address the governance of individuals within them but rarely include the specificities of group dynamics that can decisively influence the behaviour of individuals within them. The individual is therefore always “blamed” or thanked as an individual, not as part of a group that has influenced his or her “individual” behaviour.

Individualism, as the central paradigm of contemporary legal scholarship, emphasizes the autonomy of the individual, his inalienable dignity and rights. This approach is the result of a historical development that has focused on protecting the individual against abuse of power and ensuring a legal order in which every individual is treated as an equal legal subject. However, this paradigm also has shortcomings about the (failure to) consider the collective influence of groups on the individual. Individuals are inextricably linked to groups such as family, community, cultural and religious groups that shape their behaviours, norms, and values. Legal scholarship that focuses solely on the individual often neglects these connections. Individualism can overlook the needs and rights of groups, such as minority communities or indigenous peoples, whose identity and interests are inextricably linked to the group context. Individualist-based legal scholarship can make collective action to enforce rights, such as trade union struggles or class actions, difficult. Legal scholarship often recognizes only formal groups (such as legal persons), while the influence of informal groups such as interest groups or local communities is ignored. Individualism legally treats responsibility as personal, which can make it difficult to address collective responsibility, for example, in the case of war crimes, environmental disasters, or systemic discrimination. The individualist approach assumes that all individuals are equal before the law but ignores structural inequalities arising from social and economic differences. Considering the above-mentioned problems, this paper will address issues related to the focus on the individual and his/her relationship to groups. The central research question concerns the regulation of the relationship between individual and collective responsibility and ways to regulate more effectively the impact of both informal and formal groups on the individual. The lack of an adequate legal framework to address groups leads to legal and social problems, including collective responsibility and heterogeneity of interests within groups. On the other hand, insisting on individualism risks making law an ineffective tool for ensuring justice in an increasingly complex social environment. After a historical-legal overview of the development of individualism in the next section, Chapter 3 examines the impact of groups on individual behaviour, to move on to the legal treatment of formal and informal groups. On this basis, Chapter 5 sets out the possibilities for future developments, which should also reflect the role of groups in society, followed by a conclusion in Chapter 6.

2 The Historical-legal Development of Individualism

2.1 Roman Law as the Basis of Individualism

Roman law is the basis for modern legal systems because of its focus on individual rights and duties. Its fundamental conception was based on the concept of the subject as a legal subject who had the capacity to be the bearer of rights and duties, which made a key contribution to the understanding and promotion of individualism. It focused on the distinction between persons who were the bearers of rights (lat. *persona*) and the things (lat. *res*) that were the objects of those rights. This distinction allowed individuals to have precisely defined rights, including the right to property, inheritance, and obligations. (Korošec, 1980) While Roman law also included collective structures such as families (lat. *familia*), urban communities (lat. *civitates in municipia*) and merchant associations (lat. *collegia in societates*), these collective units operated through individuals who were individually responsible for the actions of the group.¹ Similarly, corporations and associations have only acted through individuals who have acted on their behalf.² Because of its focus on the individual, Roman law provided a balance between legal certainty and predictability, which allowed for an effective and stable legal order in a complex society such as the Roman Empire. It is therefore reasonable to argue that Roman law, with all its peculiarities, was a key contributor to the development of the concept of individualism that shapes modern legal and social structures.

2.2 The Middle Ages Collective Responsibility and Feudalism

The Middle Ages offer a contrasting insight into the development of legal systems, as it is a period of collective responsibility and feudal regulation. One of the key features of medieval legal systems was collective communal responsibility, where local communities were often punished for the actions of individuals;³ this practice, which recognizes the influence of the individual on the collective, has strengthened the cohesion of the community, while at the same time limiting the rights of the individual and raising questions about the fairness of such an arrangement. Collective punishments burden innocent members of society, encroaching on the individualism that is also familiar in modern law (existing military and other conflicts where innocent victims are recorded, or actions taken against the wider community for the actions of one or a small group of people⁴). In a feudal society, where social classes were clear and impermeable, legal systems ensured that the nobility, peasantry, and clergy were treated differently. The social hierarchy thus created unequal-

1 For example, the "pater familias" had an authoritative position in the family, and his role emphasised individual responsibility for the legal actions of all family members.

2 Urban communities had elected or appointed officials who acted on behalf of the community; thus, contracts for the construction of public buildings (e.g. aqueducts or temples) were awarded by these officials. Associations appointed individuals (e.g. *magister collegii* or *actor*) to manage the day-to-day business and to conclude contracts on behalf of the association.

3 See e.g. (Barber, 2004; Glenn, 2004).

4 If a driver is caught by the police speeding, instead of just punishing him (and impounding the vehicle), the action taken is to reduce the speed of everyone on a given stretch of road.

ities that today (at least legally⁵) would be inappropriate. Nevertheless, the historical context of the medieval system teaches us a lesson about the role of community and collective responsibility. Although anti individualist, such an approach reinforces a sense of community and establishes the foundations for accountability within broader social structures. The question is how modern policies can strike a balance between preserving individual rights and promoting the collective responsibility that the Middle Ages were known for. If the system of collective responsibility was rooted in the need to maintain order, security, and stability at a time when the institutions of state power were weak, communication was slow, and modern legal systems were still underdeveloped, the question of how to integrate a system of collective responsibility into an otherwise prevalent and modern system of individual responsibility remains open.

2.3 Enlightenment and the Individual

Individualism as a fundamental paradigm of legal science is a concept that draws firmly on the philosophical debates of the Enlightenment, which produced thinkers such as John Locke, Thomas Hobbes, and Jean-Jacques Rousseau. In contrast to the doctrine of collectivism, which ignores the importance of individual rights and freedom, individualism offers a robust framework for regulation in modern society that respects the autonomy of the individual and his or her inherent rights. John Locke (1632–1704) is one of the key thinkers of the Enlightenment, whose works laid the foundations of liberal thought. In *Two Treatises of Government* (Locke, 2010), he introduced the concept of natural rights which belong to every individual at birth. These rights include the right to life, liberty, and property. Locke argued that the primary function of government is to protect these rights, with power derived from the consent of the governed, which is the basis of the social contract. If the government violates natural rights, citizens have the right to rebel. Thomas Hobbes (1588–1679) in his work *Leviathan* (Hobbes, 1998) presented a vision of a society where individuals in their natural state live in constant fear of violent death, because life is “lonely, miserable, miserable, animalistic, and short”. To avoid this situation, individuals unite and enter a social contract in which they transfer all their rights to the sovereign in exchange for security and order. Although Hobbes advocates the absolute power of the sovereign, his approach is deeply individualistic, starting from the assumption that individuals act in their own self-interest and that the social order is the result of their rational agreement. Jean-Jacques Rousseau (1712–1778) in the *Social Contract* (Rousseau, 2001) introduced the concept of general will (fr. *volonté générale*), which represents the collective will of all citizens and is directed towards the common good. Rousseau believed that by entering a social contract, individuals become part of a political community where they are subject

5 Despite the constitutional prohibition of caste-based discrimination and numerous reforms, caste still exists as a social and cultural phenomenon in India. The caste system, based on the traditional division of society into four basic varnas (varnas) and numerous sub-castes (jatis), continues to have a profound impact on social relations, marriage, employment and political practices.

to the general will, but in doing so they gain true freedom, since they act in accordance with their own will, which is aligned with the common good. Although he stresses the importance of the community, Rousseau starts from an individualist perspective, where it is the individual who chooses to enter a social contract. Immanuel Kant (1724–1804) in his moral philosophy emphasized the autonomy of the individual as the ability to act in accordance with one's own rational understanding of the moral law. In *Critique of Practical Reason* (Kant, 2003), he introduced the concept of the categorical imperative, which dictates that only those maxims should be acted upon which we can at the same time wish to become general laws. Kant's philosophy is based on the belief that the individual is autonomous and capable of moral judgement, which is the basis for a legal order that respects individual freedom and dignity. The Enlightenment thinkers laid the foundations for the emergence of modern legal systems by emphasizing reason, individual rights, and the social contract. Their ideas influenced the drafting of important documents such as the American Declaration of Independence (1776)⁶ and the French Declaration on the Rights of Man and of the Citizen (1789), which for the first time legally recognized fundamental human rights and freedoms.

2.4 Critique of Individualism

Individualism draws its philosophical-legal basis from the main ideas of the Enlightenment (natural rights, individual autonomy, and the social contract). Legal science, based on the historical-philosophical ideas of the Enlightenment, focuses on the individual as the fundamental unit of rights and duties, rather than on the community. If such an understanding is "classical", this word (lat. *classis*) has inversely developed as 'any one of the five divisions into which Servius Tullius divided the Roman citizenry, armed forces, fleet, group, rank, class' (Krüger, 2023), and from it the term classical as 'serving as a standard of excellence' (Merriam-Webster, 2025) (excellence in relation to class, community). This individualistic approach relies on the natural rights of the individual, which are still placed at the center of the social and legal order. The individual is thus treated in law as an autonomous subject, the bearer of rights such as the right to life, liberty, and property, and duties such as respect for the law and responsibility for one's own actions. Although Enlightenment ideas have shaped modern legal systems, it must be asked whether these ideas are still sufficiently effective in today's increasingly complex society. On the other hand, such an individualistic framework overlooks the fact that man is not an isolated entity most of the time, but a social being (*zoon politikon*) (Aristotle, 1998) who begins and lives life in a community based on relationships and social cohesion. On the contrary, Hobbes, in *Leviathan*, also addressed natural rights, but (differently from Locke (in his vision of the social contract, he believed that natural rights in the state of nature lead to chaos. To avoid this, individuals voluntarily give up part of their natural rights in favour of a sovereign (ruler or government) who provides security and order. According

⁶ In the opening lines of the US Declaration of Independence (1776), Jefferson proclaims that "all men are created equal" and that they are endowed with "unalienable rights", including life, liberty and the pursuit of happiness.

to Rousseau (Rousseau, 2001), individuals do not lose their natural rights by entering a social contract but transfer them to a collective body acting in accordance with the general will (*volonté générale*). The latter is now known in law as the public interest.⁷

Through the cognitive revolution of using language and imagined reality of nations and corporations, which are best exemplified by modern legal fictions, homo sapiens outstripped all other human and animal species mainly with his ability to cooperate (Harari, 2014); although corporate, “fictional”, legal systems have played a key role in this shift, the industrial revolution and the development of capitalist economies on this basis have primarily enabled the legal protection of individuals, owners, and entrepreneurs. Such a legal evolution was not merely a necessity of the moment but an inevitable orientation towards the recognition of the intrinsic value of the individual. Although individualized legal science encourages progress and innovation and the emphasis on individual rights protects against oppression and discrimination and promotes personal responsibility and motivation to participate in the legal and social spheres, the question of the impact of collective action in these areas remains unresolved. In this context, the question arises of whether legal theory and practice should remain within the framework of individualism or introduce a more inclusive approach that also recognizes the importance of the community. The reality of social co-existence certainly involves both individual and collective elements, as well as combinations thereof. Integrating collective aspects into legal thought is not just a theoretical move, but a necessary adjustment to ensure fairer and more effective legal systems that respect both the individual and the community.

2.5 The Evolution of Modern Legal Systems

The development of legal systems in the nineteenth and twentieth centuries, based on Enlightenment principles, is one of the most important milestones in legal history and gives individual rights a key place in the legal paradigm. The continental, as well as the Anglo-American system, and international human rights law focus attention on the individual, with both legal and social benefits. The Code Napoléon (1804) was of great importance for the codification of civil law; its system is based on the concept of individual rights and contractual autonomy, which allowed for greater legal protection of individuals and freedom of contract. Similarly, the Anglo-American legal system, based on case law, plays an important role in protecting individual rights through judicial decisions. By relying on past cases, it creates stability and predictability, which not only protects individuals, but also promotes social development. Finally, international human rights law, through documents such as the Universal Declaration of Human Rights (1948), establishes the individual as the bearer of universal rights that must be protected by every state. This is invaluable in the quest for the equal treatment and protection of all individu-

⁷ Declaration of the Rights of Man and of the Citizen already in Article 1 states that ‘people are born and live free and equal in rights. Social differences should only be based on the general interest’.

als worldwide. While the implementation of these principles has always been somewhat uneven, it is a fact that setting a framework of universal standards is a crucial step towards improving global justice.

Even though the existence of states and modern legal systems is per se based on the idea of the social contract (where individual freedom or security depends on collective regulation, where the protection of individual rights is also in the public interest), the philosophical basis developed through the ideas of Enlightenment thinkers remains at the heart of legal science.⁸ A key change in the evolution of legal systems has been the shift away from collective responsibility and towards greater individualism. Previously, the importance of the community had been emphasized, in the belief that social harmony derives from collective responsibility and solidarity (Durkheim, 1984; Ferdinand Tönnies, 2001; MacIntyre, 2007; Polanyi, 2008). The historical development of attention to the individual, from Roman law to modern legal systems, reflects the development of human rights; despite its importance (which no one denies), this individualistic focus is partly outdated, as in some parts it no longer corresponds to the needs of a complex modern society.⁹ Historical events often reveal conflicts between individualism and collectivism, which are not only of an academic nature, but have important implications for the contemporary understanding of law and social structure. The first well-known example that highlights this conflict is the French Revolution, where the Declaration of the Rights of Man and of the Citizen (1789) marked a turning point in the recognition of inalienable human rights, while at the same time being inextricably linked to the collective movement for equality and freedom. The Revolution thus combined individual ideals with powerful – despite on the emphasis on the individual – collective efforts, which has created a complex dynamic between the individual and the community. On the other hand, the public interest has been and continues to be those who, according to the principle of proportionality and through public services, can interfere with and restrict human rights.¹⁰ The next period of great change, industrialization in the 19th century, brought a different challenge; the capitalist system of the time was based on individual contractual autonomy, which often led to exploitative practices (Thompson, 2002). In response to this, a movement for collective workers' rights began to develop, which was crucial to protect workers from systematic exploitation, and these developments show that collective efforts can improve individual living and working conditions. It is still the case that trade unions are one of the bargaining parties in collective agreements

8 The practical implications of individualism in law are clear: contract law allows individuals to enter contracts that suit their interests; criminal law ensures that liability is personal. This makes everyone accountable for their actions, which promotes accountability and justice; constitutional law protects the fundamental, human rights of individuals from interference by the state or other groups, which is essential to guaranteeing individual freedom and autonomy.

9 One of the innovative aspects of the Nuremberg trials, which were based on the belief that war crimes and crimes against humanity could not be attributed solely to a state or an organisation, but rather to the individuals who made the decisions and carried out the crimes, was the treatment of certain Nazi organisations (*Schutzstaffel*, *Geheime Staatspolizei* and NSDAP) as criminal organisations, which implicitly included collective responsibility (although judgements still required individual proof of the guilt of each member of a criminal organisation, underlining that the law was based on individual responsibility for crimes) (Taylor, 2013).

10 See supra n. 16.

(which by its very name refers to the collective) and labour legislation, both in terms of working conditions and rights arising from work; as such, they apply even to those employees who are not union members and have never bargained for their rights on their own behalf.

2.6 Critique of Historical Development

Despite the attractiveness and usefulness of the individualistic approach, there are also critics who point to some of its inherent limitations. According to Marx, individuals in a capitalist system are inevitably trapped in a class structure (Marx, 2018), which means that individual rights are often insufficient to protect their interests because these rights take place within a broader economic context of inequality and exploitation. Durkheim highlights collective consciousness as fundamental to social cohesion, which is shaped by groups and shared values. He points out that individualistic legal systems often fail to take this collective dynamic into account, which can lead to a lack of social integration and consequently to increased social tension (Durkheim, 1984);¹¹ contemporary feminist theories also question individual autonomy, pointing out that it is often built on social norms that unequally privilege certain groups over others (Hooks, 2014); in this context, individualism is not only limited but also problematic, as it perpetuates systemic inequalities. Inequality is supposed to be the result of political, ideological, and systemic choices, not a natural consequence of economic laws or technological progress; it is the systems, their underlying structure, that enables and sustains inequality.¹² Systems theory, which is well known today, is based on the idea that systems are networks of smaller systems; this multilayered structure of systems is closely coupled with multiple relations at the same time from which emerge something new that parts per se do not have. Holism manifests itself throughout the set and is not present in any part. Hannah Arendt described the inter-

11 Collective consciousness, as defined by Émile Durkheim ("the sum total of beliefs, ideas and moral attitudes common to the average members of society"), plays a key role in shaping the mechanisms of social control: it acts as an invisible force guiding individuals towards conformity to social norms and values. Collective consciousness promotes stability and order in society. In a world where norms and values are often diverse, collective consciousness provides the common ground that allows individuals to interact in a way that minimises conflicting interests. Such a common framework acts as a reference point that enables harmonious action in the community. Collective consciousness is also crucial for internal control and self-regulation of individuals – instead of relying solely on external punishment mechanisms such as laws and regulations, collective consciousness fosters an internal sense of responsibility and duty. This not only strengthens individual moral responsibility but also reduces the need for strict institutional control. Without the basic level of coherence and harmony provided by collective consciousness, social innovation would not be able to flourish due to the lack of a common goal or starting point. Collective consciousness, as conceived by Durkheim, remains a fundamental tool for understanding and implementing mechanisms of social control. Its ability to guide individuals towards cooperation and harmony provides a solid basis for peaceful and orderly social living, which is essential for the progress and development of any society. Durkheim defined a social fact as any mode of acting, thinking or feeling which is external to the individual (is of a collective nature), exercises coercion or influence over the individual, exists independently of the individual's behaviour and is part of the social order. Examples of social facts are laws, norms, traditions, customs, religious rites, language, economics, culture (Durkheim, 1982).

12 A good example is the elephant curve of global inequality, also referred as the Lakner-Milanovic graph or the global growth incidence curve that visually represents how income growth has been unevenly distributed across various global income groups (Lakner and Milanovic, 2013).

twined web of relations that have no weight in isolation, but in their common (if unintentional) connections take on a new appearance, a new result that cannot be attributed to anyone individually, as “nobody’s rule” (Arendt, 1972, p. 137), as perhaps one of the most powerful forms of man’s domination over man, which goes by the name of “bureaucracy”: it is ‘a legally complex system of offices in which no one, not one, not the best, not a few, not many, can be held accountable’. Taken together, these criticisms reveal that the individualist approach, while attractive in design, can be flawed and prone to neglecting the broader social and economic structures that affect individual lives. Legal scholarship should – consistent with the findings of psychology, where the individual unconsciously follows the actions of other people and/or groups (Asch, 1952; Milgram, 2009; Zimbardo, 2008) – reconcile individual and collective perspectives and recognize that groups are an integral part of human identity and rights. In this way, we can achieve a better relationship between the individual and the social community that meets the needs of modern society. Pope Francis speaks of a similar issue when he mentions the globalization of indifference;¹³ his idea could be seen as the continuation of pastor Niemöller’s poem *First They Came*.¹⁴

3 The Influence of Groups on Individual Behaviour

Man is an intrinsically social being. Everyone’s behaviour and thought processes are shaped by interactions with others, which is crucial to understanding human nature. This demonstrates that the groups to which an individual belongs – family, friends, work teams, or wider social communities – inevitably influence the formation of an individual’s attitudes, values, and behavioural patterns. This influence is an indispensable tool to understand dynamics in sociology and psychology. Human behaviour is thus not only the result of individual choice but is also influenced by the groups within which individuals live and work. This was recognized (only) after World War II, particularly in the second half of the 20th century, with the development of the third generation of human rights (also referred to as collective or solidarity rights), as a response

¹³ The culture of comfort, which makes us think only of ourselves, makes us insensitive to the cries of other people, makes us live in soap bubbles which, however lovely, are insubstantial; they offer a fleeting and empty illusion which results in indifference to others; indeed, it even leads to the globalization of indifference. In this globalized world, we have fallen into globalized indifference. We have become used to the suffering of others: it doesn’t affect me; it doesn’t concern me; it’s none of my business (Pope Francis, 2013)!

¹⁴ First, they came for the Communists
And I did not speak out
Because I was not a Communist
Then they came for the Socialists
And I did not speak out
Because I was not a Socialist
Then they came for the trade unionists
And I did not speak out
Because I was not a trade unionist
Then they came for the Jews
And I did not speak out
Because I was not a Jew
Then they came for me
And there was no one left
To speak out for me (Niemöller, 2025).

to global challenges that transcend the borders of individual states. These rights are not only directed at individuals, but above all at communities, nations or even humanity. We often associate them with ideas of solidarity, sustainable development, peace and global justice. Examples include the right to peace, a clean environment, development, humanitarian aid or global justice.

The role of groups is a necessary component to understand the formation of identities and social norms. Recognizing the interactive nature of human existence opens the door to a deeper understanding of the ways in which social policies and programs to address societal challenges foster positive interpersonal relations. That groups influence individual behaviour is difficult to ignore from personal experience, as confirmed by several academic studies: the Asch conformity experiment (Asch, 1952), Milgram's obedience experiment (Milgram, 2009), the Stanford prison experiment (Zimbardo, 2008) or Sherif's experiment on the autokinetic effect (Sherif, 1988). This influence is manifested through various mechanisms, the most important of which are conformity,¹⁵ group polarization,¹⁶ and social impact.¹⁷ The influence of groups on individual behaviour is not only present but also complex. Understanding these mechanisms is the key to creating constructive group environments that also promote critical thinking and individual autonomy within groups. Understanding group dynamics is key to the effective functioning of any group; it is not just a series of processes and changes that take place within groups, but the mechanism through which group goals, values, and norms are shaped and expressed. Collective organizational behaviour is more than the sum of individual behaviours. The group environment has the capacity to (re)shape individual personal behaviour, which has an impact on group cohesiveness and the achievement of common goals. Neglecting group dynamics not only risks ineffective group functioning and lack of coherence among group members but also risks such behaviour against other individuals and groups or authorities.

In an organizational context, group dynamics play a key role in the functioning and performance of teams and organizations, paying attention to certain

15 Conformity is the process by which individuals adjust their behaviour to fit the expectations and norms of the group. People often change their own beliefs and behaviour under pressure from the group; they often choose to conform to the majority opinion, despite internal, personal disagreement.

16 Group polarisation is the result of debate within a group, often leading to the adoption of more extreme views than individuals would have held on their own. See e.g. (Sunstein, 2011) This, in turn, underlines the need for critical reflection on the impact of group dynamics, as polarisation can lead to sub-optimal decisions and limit constructive debate.

17 Social influence is motivated by an individual's desire for acceptance and fear of rejection; it involves processes such as persuasion, social compliance and obedience, which can change an individual's behaviour without his or her full awareness. This raises questions about the autonomy of the individual in social situations and even about subtle forms of manipulation. See e.g. (Harkins, Williams and Burger, 2017; Sunstein, 2021).

group regularities such as the Ringelman¹⁸ or Köhler effect.¹⁹ Interactions between group members lead to collective behaviour that goes beyond the sum of individual behaviours.²⁰ Synergy between team members often leads to innovative solutions and increased productivity. Organizational culture is also a central factor that determines the shape of group dynamics and the nature of relationships between individuals (e.g., Google culture or the Toyota Production System). Strong dynamics allow for the creation of cohesiveness that fosters cohesion and shared values, which in turn promotes collective goals and reduces conflict (Schein, 2016). On the other hand, weak or negative organizational culture can lead to a lack of alignment and increased internal tensions, which inevitably affect the performance of teams. Underestimating the dynamics within groups means losing an important competitive advantage. Institutions that focus on understanding and improving group dynamics often have better working relationships, higher employee satisfaction, and better results.

The influence of reference groups, which plays a key role in shaping individual behaviour, cannot be overlooked. The informational influence of reference groups is not just a passive form of influence, but an active process in which individuals seek guidance and validation for their decisions (Festinger, 1954; Tajfel, 2010). Information obtained from reference groups is often a credible source that can improve an individual's confidence in their decisions. People strive for conformity and social acceptance; people adapt their behaviour to fit the expectations of their reference group, as they want to maintain a positive social status and avoid rejection. This form of influence is particularly pronounced in adolescent groups, where the need to belong is extremely strong (Sherif, 1988). Adults face similar pressures, especially in professional settings where it is important to maintain respect and esteem among colleagues. Identification influence confirms the ingrained human need to identify with certain groups, values, and goals. Identification with a reference group reinforces an individual's personal and social identity, as they actively adopt the behavioural patterns and norms of the group with which they identify. Reference groups therefore play a major role in shaping individuals' behaviour as

18 When individuals work in groups (he studied groups of 7 and 14), their individual effort decreases as a result of a loss of motivation (individuals in groups work less hard because they feel less responsibility for the outcome, i.e. the 'fidgeting' phenomenon) and a loss of coordination (the larger the group, the more difficult it is to coordinate the actions of all members, which leads to inefficiency) (Kravitz and Martin, 1986) or the decrease in individual effort that occurs when the individual works within a cooperative group rather than alone. A group can be better than an individual if its members are well coordinated, motivated and able to communicate and work together effectively. At the same time, reducing losses due to poor coordination, conflict and lack of motivation is key. In the absence of these conditions, a group can perform worse than an individual (Steiner, 1972).

19 The Köhler effect is a psychological phenomenon in which less able members of a group increase their effort when working together with more able individuals to avoid being the "weak link" of the group. The conditions for the phenomenon are a competitive environment (presence of more able members), clear group goals and the possibility to compare one's contribution with others (Köhler, 1926).

20 The original Ringelmann effect is now replaced by the term social loafing: when people work on a task as part of a group, they often tend to disengage or work less enthusiastically than if they were working alone, but they still tend to perform better than an individual (Forsyth, 2019, p. 320).

citizens, voters, consumers, or admirers. Your influence is powerful and can guide your decisions at both conscious and unconscious levels. It is therefore crucial that people can recognize these influences and consciously address them in their decisions.

There are both positive and negative aspects associated with the influence of reference groups. In the latter case, it is a grouping of uncritical, isolated individuals that is a precondition for irrational collectivism with negative consequences. The latter arises under conditions of generalised loneliness, lack of meaning, indefinable anxiety, discomfort, frustration and aggression (Desmet, 2022). When these factors are attached to an idea or a common narrative that is supposed to “save people from anxiety”, a fertile ground for totalitarian forms of rule over atomised individuals with a “higher purpose” is created. (Arendt, 1973) The solutions to this, according to Desmet, are the mirror image of the above conditions: restoring meaning and connectedness, strengthening personal autonomy, building communities connected through shared values, transparency and participation, decentralisation of power and ethical use of technology (Desmet, 2022). Just as every thing can have good and bad sides (the ancient Greeks would have said “not too much of anything”), so too do the masses. Thus, one has to be alert to any deviations that go beyond the basic, fundamental sense, meaning and purpose. One of the solutions to the mechanistic ideology of collective faith in a common idea is the partial incorporation of informal groups into legal frameworks. Examples where this is necessary and justified are discussed in the next chapter.

4 Legal Treatment of Formal and Informal Groups

4.1 Formal Groups

Understanding legal persons is the key to operating successfully in the business environment, as legal persons are the holders of rights and obligations that shape the economic and social environment. Thus, companies, institutions, associations, bodies, and organizations, including religious communities, acquire the status of legal persons by registering in the relevant registers, thus forming the pillars of the legal order. By registering in the relevant registers, legal persons acquire legal capacity, which enables them to enter contracts, acquire property, bring actions, and respond to lawsuits. This capacity, which is granted exclusively to legal persons, also implies liability – the assumption of responsibility for one’s own obligations with one’s own assets, independently of the founders or members. Despite their different objectives, both private and public legal entities, each with its own role, co-shape the legal and economic system. The synergy between them allows for stability and progress in society, and awareness of their functioning and the legal frameworks within which it takes place is key to creating a balanced and fair environment that provides the foundations for growth. Formalizing groups brings advantages such as legal consistency, accountability, and confidence in the socioeconomic environment. Private law entities, such as companies,

associations, and institutions, and public law entities operating in the public interest, ensure orderly and predictable functioning, which is essential for the stability of the legal and economic environment. Legal persons are not merely constructs of legal fiction, but key building blocks of our economic and social reality. Marriage, as perhaps one of the oldest forms of formalized life and action between two persons, should not be overlooked.

4.2 Informal Groups

By privileging formal groups, legal scholarship largely overlooks informal groups,²¹ which also form an important part of the social fabric. This may to some extent lead to the latter being exposed because they lack legal protection, basic rules of engagement, and the possibility to act in the legal arena. In this context, of course, the importance of formal structures such as legal persons, which enjoy a certain degree of protection and accountability in the legal system, cannot be overlooked. Informal groups do not have such elements, which is why it could be argued that informal groups should be registered, but this may not be their intention, or it may be premature: at a given moment in the development of a group, it may be sufficient for it to have only certain rights protected (as is the case, for example, in the case of an extramarital or civil partnership). Informal groups, as associations of individuals without formal legal status, represent a paradox in an increasingly complex environment: even though individuals may live and work predominantly in groups and that they play a key role in society, informal groups remain marginalized by the legal system, which often does not even implicitly recognize their interests and activities. The lack of formal status prevents these groups from acting as legal subjects in legal proceedings, undermining their ability to assert their own interests and protect the rights of their members, which threatens their functioning and survival. In the event of legal disputes or damage caused, the determination of the liability of individual members is also problematic. As the group per se is not legally recognized, individual members are often placed in an unequal position, as they may be held liable for actions taken in the interests of the group. This creates legal uncertainty which may discourage members from participating in such groups. The lack of clearly defined rights and obligations for informal groups also makes it difficult to protect them legally, which may inhibit their contribution to social well-being (e.g., volunteering – this is not usually the case for volunteer fire brigades).es). Recognizing and regulating the rights and obligations of informal groups would not only better protect their interests but also encourage their active participation in the social dialogue.

An approach that would improve the situation of informal groups should focus efforts on developing mechanisms that would allow a certain degree of

²¹ Some informal groups are nevertheless involved: for example, in order to make more efficient use of forestry machinery and equipment, labour and other productive capacities, natural persons can set up machinery rings in accordance with the rules governing agriculture (cf. The Code of Obligations (Official Gazette of the Republic of Slovenia, No 97/07 – UPB, 64/16 – Decree of the US and 20/18 – OROZ631) also provides for a community (lat. *societas*) if a right belongs to several persons jointly (see Article 1003).

legal recognition also for these structures, without jeopardizing the already established legal standards of formal groups. The legal regulation of informal groups must be adapted to the social situation. Recognition of their existence and role in society would contribute to a fairer and more inclusive legal system, in accordance with the principles of equality and legal justice. Incorporating collective responsibility into a system dominated by individual responsibility can be challenging but would have advantages in situations where individual actions are linked to collective action or where the collective has a significant influence on individual behaviour. Such an approach would require a detailed legal regime that considers (at least) the fundamental legal principles and values of a given society. Ultimately, a responsible legal system serves all segments of society, not just those already formally recognized.

4.3 Options for the Integration of Collective Responsibility into the Legal Frame

As with any need, the need to include informal groups in a legal framework (which would still recognize their informality) needs to be recognized as such. The growing presence of such groups in contemporary society is undeniable; legal recognition and protection of informal groups is essential not only to strengthen the protection of human rights and to effectively prevent discrimination but also to enhance the effectiveness of their objectives and the efficiency of their governance. These collectives, although informal, make an important contribution to the diversity and vitality of the social ecosphere. Living in a community that recognizes, and values informal connections fosters greater social capital and promotes the participation of individuals in social processes. Therefore, a modern legal system must recognize the collective aspects of human existence and action, including their contribution to the creation of social norms and values. Inconsistency in the treatment of these groups only leads to structural discrimination, i.e., a failure to recognize their role and influence and, consequently, a diminution of their benefits by the established system. The inclusion of informal groups in the legal framework, without making them fully formal or separate from existing formal forms, answers the fear of dilution of legal predictability and legal certainty. Such a risk should not per se be a reason to ignore informal interests; flexible legal mechanisms should be developed to adequately address and protect the interests of these groups while preserving fundamental legal principles. The right degree of integration of these groups into the legal framework would not only improve their legal protection but could also contribute to the development of a fairer society, subject, of course, to certain conditions, which we set out below as a starting point.

Determination of specific fields of application (collective responsibility would make sense in situations where the group is a key actor or where the actions of individuals are inextricably linked to the group's performance). Such areas could include environmental damage²² (industrial sectors, communities or

²² Standing (lat. *legitimatio ad processum*), whereby a party has the right to bring a specific dispute (notwithstanding that it is not protecting its rights or obligations), is possible for environ-

companies that collectively contribute to pollution could be held responsible for remediation), organized crime²³ (for crimes committed by an organized group, liability could be extended to the group as a whole), labour law (trade unions or workers' collectives could be held partly liable for violations of rights arising from collective agreements or collective decisions), communities (local authorities or communities could be held liable for failing to act to solve local problems, e.g. The same applies to the State in cases of increased liability for e.g. backlogs of cases, non-compliance with court rulings, blatant inaction by state authorities).

Introduction of a combined liability scheme – the system could combine individual and collective liability, separating direct individual liability from indirect group liability. This could include primary individual liability (the individual who commits the crime or causes the damage is primarily liable) and secondary collective liability (the group is liable in cases where the individual cannot be identified or where the group was directly involved in the act, e.g., inadequate management or supervision).

Establishment of collective funds to cover damages (collective entities such as companies, local authorities, or industrial sectors could establish funds to cover damages arising from collective activities. This would allow collective damage recovery without burdening individuals and reduce the financial risk for individual group members.

Regulating preventive collective liability – collective responsibility could encourage groups to take preventive action to reduce the risk of harm. These would include self-regulatory measures (groups would be encouraged to establish internal rules to control the behaviour of their members), monitoring and reporting (groups would be responsible for reporting breaches or risks). Implementation of "collective fault" within organizations legal liability could be assigned to a group within an organization if the breach was the result of systematic actions or inadequate internal rules (if the damage was caused by group decisions at the management level of the company, the collective body, for example the board of directors, would bear the liability).

Integration into international law (collective responsibility could become an important part of international legal frameworks, especially in areas such as human rights (collective responsibility of states for systemic discrimination or oppression), and environmental obligations (states would be collectively responsible for global warming or environmental degradation). A system of collective responsibility would give groups more incentive to control their members, collective responsibility could encourage the introduction of preventive mechanisms, collective funds or accountability could ensure faster remediation of damage, and collective responsibility could also allow addressing systemic problems caused by collective action. A collective liability system

mental damage under the Aarhus Convention.

23 In predominantly Anglo-Saxon countries, it is possible to bring a *qui tam* action (a type of action that allows a private party to bring a lawsuit on behalf of the state and therefore receive an award).

could complement the prevailing system of individual liability in areas where collective action is key to the creation or prevention of harm. The approach should be considered, proportionate, and limited to specific circumstances where collective responsibility contributes to fairness and efficiency.

These measures must, of course, be approached with a high degree of responsibility; collective responsibility could lead to the punishment of innocent members of the group (which is contrary to the fundamental principles of individual responsibility). The treatment of informal groups, due to their fluidity and lack of formal structure, poses a particular challenge. Determining the responsibilities of the group and allocating the contributions of individuals to the overall result clearly requires a thoughtful reform based on an interdisciplinary basis. However, it is difficult that reality calls for reform and adaptation of the legal system, as the current system is simply not up to the dynamic and increasingly complex social changes that are creating legal voids. Although informal groups could make their own rules, there is too much scope for arbitrary interpretation and exemption from liability. Law is not a homogeneous system based on a single source; it is a variety of hierarchical and substantive normative systems, which, and in combination with each other, derive their identity and authority. Although the legal rules vary according to context, which makes it difficult to treat informal groups in a uniform manner, this does not mean that we cannot speak of a common basis or starting point governing the most important matters of their functioning. The situation brought about by modern legal pluralism calls for innovative approaches to ensure legal certainty and equality for all informal social actors.

4.3.1 Legal Constraints on the Treatment of Informal Groups

Informal groups without legal personality find themselves in a complex situation within an otherwise legal framework that is crying out for legislative change. In a modern society where cooperation and representation of interests is crucial, the informality of these groups can be an obstacle to their effective functioning. Without a formal status, informal groups are limited in their ability to become legally recognized parties in legal proceedings. This directly limits their right to legal protection and advancement of their interests, creates vulnerability, and reduces their influence in social and political debates. The difficulties in regulating informal groups represent a serious legal and administrative gap. Without a defined legal structure, it is almost impossible to determine the responsibility and control of the activities of these groups, which can lead to various legal anomalies. In the absence of clear regulatory frameworks, there is a higher risk of abuse and avoidance of legal obligations. This not only weakens the legal system but also leaves individuals uncertain about legal protection and guarantees. On the other hand, too rapid formalization of social movements can lead to a range of negative consequences that affect the effectiveness of the movement, its appeal to supporters, and its long-term social impact.

The risks of formalization can be loss of the original spontaneity and flexibility, which can slow down the movement and reduce its effectiveness. There is also

the risk of alienating supporters who feel excluded by the formalization of leadership, then there is greater vulnerability to external pressures and (due to financial support) compromises on values and objectives, reducing critical potential. The negative consequences of formalization can be avoided by such movements through gradual formalization, participatory decision-making, a constant focus on the original objectives, and a flexible structure that can respond quickly to change. Formalization should therefore serve the movement's objectives, not hinder them. Considering this, consideration should be given to introducing flexible legal solutions that would allow even informal groups to acquire (only) a certain degree of legal personality. This would strengthen their participation in social dialogue and protect their contribution to collective action, thus ensuring a more fair and inclusive legal system.

4.3.2 Legal Limits on Collective Liability and Heterogeneity of Interests

Collective responsibility is a concept that holds the whole group responsible for the actions of individuals within it. In a legal context, this concept often proves problematic, as legal principles have traditionally been built on the foundation of individual responsibility. The imposition of collective responsibility could risk unfairly sanctioning individuals who were not directly involved in certain acts, as well as, on the other hand, failing to consider the important differences between individuals and their levels of involvement in certain acts. Such an approach could also lead to the social stigmatization of entire groups. The diversity of interests within groups creates tensions that need to be balanced or resolved. General rules that attempt to protect all members of a group in the same way cannot be successful, as they fail to capture the necessary flexibility and specificity of situations. One of the key challenges for the legal treatment of groups is the heterogeneity of interests among the individuals who make up these groups. In this sense, collective bargaining in labour law is something of a paradox. Traditionally, trade unions have been the legal entities that are supposed to represent the interests of workers, but this role is not clearly identifiable. Not all workers have the same views and priorities (as trade unions do), which creates tensions in collective bargaining, especially when workers are not even members of a trade union.²⁴ This misalignment of interests not only makes it more difficult to reach consensus but also weakens the union's power as a negotiator. Another example is informal groups such as social movements.²⁵ Due to their nature, which usually involves a lack of formal structure and clear leadership, it is difficult to establish a common position for such groups. This raises the question of their legal recognition and effectiveness in legal proceedings. Without a clear and unified expression of interests, it is difficult for such groups to act as legitimate subjects in a legal context. A borderline example or so-called grey area are

²⁴ While politicians also make decisions on behalf of all citizens, at least the latter can express their political will in elections, which is not the case with trade unions (even if the individual is not a member of an [albeit representative] trade union, the union co-determines the level of his salary and other things related to his employment).

²⁵ E.g. ecological and climate movements, human rights movements, gender equality and LGBTQ+ rights movements, anti-globalisation and economic movements, technology and digital movements, animal rights movements.

the various consultative bodies of the government (e.g. the latter may have a formal status, but in practice their role is not strictly regulated, is based on informal functioning, and their recommendations are nonbinding. The diversity of interests within and between groups poses a serious challenge to the regulation and implementation of rights. It is of course easier for the legal system to work with single entities, but what is easier is not necessarily right or closer to reality. Law needs to find ways to include and address even the more complex forms of group interests; in this way, it can ensure that the different voices in the legal system are heard and adequately represented.

5 Options for Future Development

Having said that, it should be added that existing legal mechanisms do address collective interests to a certain extent.²⁶ For example, collective actions are an important legal instrument that allows a group of individuals with the same interest to enforce their rights more effectively. This mechanism, although complex and time-consuming, is crucial to ensuring fairness, as it brings together small individual claims into a stronger collective whole, often leading to more positive outcomes in the legal process. Recognition of collective organizations such as trade unions or specialized associations, as well as collective agreements, are also a step forward towards representing members' interests. Such organizations can act as influential representatives in legal proceedings, improving the conditions for achieving adequate legal protection and fair treatment in litigation.

However, given the characteristics of informal group behaviour (which is not contained in legal norms by legal science), the law faces challenges in dealing with such groups. To be more realistic or socially coherent, legal frameworks must always adapt to the dynamic nature of modern groups; this includes collective responsibility and diversity of interests. If the law is to be the foundation of social order, it must be static and flexible. Legal scholarship is (or could be even more so, in line with the speed of its response to changes in real time and space) subject to change, the tracking of which ensures that law remains relevant in the light of an increasingly complex web of social relations and in-

²⁶ *War crimes.* After the Second World War, discussions on the collective responsibility of nations for war crimes emerged as a moral and ethical imperative. Nations were complicit in the conflicts and should consequently bear collective responsibility for atrocities. In contrast, the International Military Tribunal at Nuremberg advocated the concept of individual criminal responsibility, which is crucial from the point of view of legal justice, as it prevents the blanket punishment of entire nations. On the other hand, the law is familiar with the concept of joint and several liability in the case of common causes of damage, or multiple liability for the same damage. Thus, post-war Germany also repaid other countries for their actions in the form of millions of dollars in damages. *Joint and several liability.* Liability for damages may be based on joint and several liability where two or more persons are liable for the damage caused and it is established that each is liable for the entire damage. This concept is derived from civil law and is usually governed by the law of obligations. *Commercial companies.* The concept of "waiver of legal personality" allows liability to be shifted to individual members of the company in certain circumstances, thus breaking with the traditional belief that liability is limited to the assets of the company. This approach seeks to prevent abuses where individuals, under the umbrella of a legal person, would abdicate responsibility for their unethical or illegal activities. Individuals acting under the umbrella of a company should not be immune from the consequences of their actions, which encourages responsible business and ethical behaviour.

teractions. The development of law towards the inclusion of different groups and individuals is not only a necessary, but an inevitable step towards a more cohesive society in which everyone is included in their own, personalized way. Development that considers both individual and collective aspects of social interaction can always be a competitive advantage, which requires further economic study.

5.1 Legal Recognition of Informal Groups

Traditional legal systems have historically favoured formal entities such as companies, foundations, and other legal persons. The need for legal recognition of informal groups in modern society, without formalizing them as such, may be a good step toward both stability and flexibility of the legal system. Informal groups, which include communities of interest, NGOs, and social movements, play a key role in the social fabric, even if they do not have a formal legal status. They are an important part of civil society, whether promoting social justice, contributing to environmental protection, or humanitarian work. Many informal groups also play an important role in social welfare, education, and culture. The inclusion of these groups in the legal framework not only recognizes their value but also their legitimacy, their ability to apply for funding, and (at least occasionally) the legal protection necessary for their activities. At a time when diversity and particularity are increasingly recognized as fundamental attributes of human society, it is crucial that the law also not only pursues universalistic trajectories but also responds to specific and dynamic contexts. It is not a question of limiting equality before the law but of deepening it, including by recognizing the specific needs and challenges faced by different segments of society. Inclusion in the legal framework is also a moral responsibility that always requires equality before the law for all. Equality is not just a principle on paper but must also be implemented in a way that every individual, group, or combination thereof, can exercise their rights, opportunities, or “pursuit of happiness” without discrimination or barriers. Adapting the legal system not only creates a fairer society but also strengthens public trust in institutions.

5.2 Development of Collective Legal Mechanisms

The development of collective legal mechanisms is essential for the more equitable and efficient functioning of the legal system. Extending the possibilities for collective action in areas such as discrimination,²⁷ consumer rights,²⁸ or

27 Mastercard and wage discrimination: in January 2025, Mastercard agreed to a \$26 million settlement over a lawsuit alleging that the company systematically underpaid some 7,500 women, black and Latino workers in the US. The lawsuit alleged that these employees were in lower positions and received smaller raises and fewer opportunities for promotion compared to white male employees. (Wiessner, 2025) McDonald's – Scholarships for Latinos: in December 2024, McDonald's was the target of a lawsuit over its HACER scholarship programme for Latino students. The lawsuit claims that the programme discriminates against non-Latino students, which has sparked debates about the legality of racially or ethnically restricted scholarships following a recent US Supreme Court decision banning affirmative action in college admissions (Francis, 2025).

28 Shein – working conditions: Chinese fast fashion company Shein is facing allegations of labour rights violations, including child labour and poor working conditions in its factories. Although

environmental damage²⁹ is not only recommended but essential. This allows people who have individually suffered harm to come together and seek justice as a group, increasing the weight of their case and improving the chances of success in complex legal proceedings. Conversely, the so-called ‘sample collective procedure’ allows official bodies to jointly deal with already lodged claims, in which rights or obligations are based on the same or similar factual and legal basis. The promotion of collective forms of action strengthens the economic and social power of individuals, that leads to the promotion of economic justice, cooperation, and solidarity among community members. The integration of collective legal mechanisms and promotion of collective models is not only an alternative to conventional legal and economic practices, but a way of strengthening legal equality and economic and social justice. By adopting such approaches, we create the conditions for a more responsive and just society, where individuals are better protected against systemic inequities.

5.3 Mediation and Group Dispute Resolution

The introduction of mediation processes to resolve internal conflicts within groups (e.g., in a company tensions could arise between two departments due to disagreements over work tasks and communication, and management decides to mediate to prevent further deterioration of relations and impact on productivity) is not only recommended, but necessary to achieve good functioning and harmonious co-existence. Mediation could facilitate the unified representation of interests and facilitate cooperation in legal proceedings. It is particularly relevant in the context of labour disputes and conflicts in local communities, where tensions often stem from unresolved misunderstandings (e.g., in the context of the “labour dispute”). In these cases, mediation offers a platform for constructive dialogue, allowing the parties involved to clarify their positions and find common solutions. It is a more economical and quicker alternative than the burden of courts and lengthy legal proceedings, which often do not lead to mutually satisfactory solutions. Mediation speeds up the conflict resolution process and builds a foundation for sustainable cooperation and respect between all parties involved and could therefore become an integral part of dispute resolution structures.

5.4 Interdisciplinary Analysis of Legal Norms

The inclusion of sociological, psychological, and economic research in the development of legal norms is necessary to develop more fair and effective legislative solutions.³⁰ Sociological perspectives offer insights into the behav-

it is not stated whether a class action lawsuit has been filed, these allegations have sparked international outrage and calls for more transparency and accountability from the company (Saunders, 2025).

29 Starbucks – working between the fires: In January 2025, the Starbucks Workers United union accused the company of requiring baristas in Los Angeles to work in dangerous conditions while wildfires were spreading. The union claims that the company is putting profits before employee safety, which could lead to legal action for endangering workers’ health (Zilber, 2025).

30 E.g. laws addressing speed limits on roads could/should be based on research on drivers’ behaviour and their response to penalties. Thus, sociological research could identify the impact of cultural norms and social acceptability of risky behaviour in traffic, psychological research

journal patterns of individuals and groups, allowing a better understanding of how rules influence social structures and how these structures, in turn, influence the implementation of rules. Without this insight, decision makers risk adopting norms that are out of touch with reality, which may lead to their disapplication or even rejection by society. Psychological research reveals the internal motivations and reactions of individuals, which is key to predicting how people will react to new or changed legislation. Taking psychological factors into account ensures that legal frameworks are not only punitive and restrictive but also encourage desired behaviour through reward and positive reinforcement. Finally, economic analysis allows one to assess the financial impacts of legal norms and how they affect economic relations. Legal norms that do not consider economic facts may lead to unforeseen economic consequences, such as a reduction in productivity or economic instability. To exclude interdisciplinary research from the process of developing legal norms is to ignore the complexity of human society. Only through a holistic approach can legislators create just, effective, and sustainable legal systems that serve not only the letter of the law but also the needs and expectations of society.

6 Digitalization and Collective Participation

In today's globalized world, technological innovations have a profound impact on all aspects of life, including the way we participate in democratic processes.³¹ Digitalization, realized through on-line platforms, and the use of artificial intelligence in the analysis of group interactions can also improve the field of participatory democracy (Noveck, 2010, 2015). On-line platforms democratize access to information and enable voting, discussion, and participation, not only increasing citizen engagement, but also making decision-making faster and more transparent. Artificial intelligence can play a very important role in analysing data on group interactions. The use of AI can improve understanding of the dynamics within groups and assess its impact on legal processes. This can mean more informed legislative initiatives, tailored to the real needs and wishes of citizens. (Dignum, 2019) Digitization through online platforms and artificial intelligence in the analysis of collective data represent not only

could examine the impact of warning signs, campaigns and penalties on individual behaviour, and economic research could analyse the cost of road accidents to the country and the effectiveness of different punitive measures in reducing harmful consequences. Such an approach would allow for a more comprehensive understanding of road user behaviour, social impacts and economic consequences of transport policies. By bringing together different disciplines, legislation can be made fairer, more effective and more socially acceptable. Examples from practice are Sweden's Vision Zero and the Netherlands' urban neutral zones. The Swedish Vision Zero: an interdisciplinary approach has involved psychology (changing driver behaviour), sociology (encouraging responsible behaviour) and economics (cost analysis of infrastructure improvements), leading to a reduction in traffic fatalities) (Smart City Sweden, 2025). In the Netherlands, sociological research on pedestrian and cyclist movements has led to the creation of car-free zones, which reduce traffic accidents and improve quality of life (Bicycle Dutch, 2010).

31 See e.g. the Digital Agenda for Europe or the Communications from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A Digital Agenda for Europe (COM(2010)245 final), A Digital Single Market Strategy for Europe (/ * COM/2015/0192 final */), Shaping Europe's Digital Future (COM/2020/67 final) and Digital Compass 2030: Europe's path to the Digital Decade (COM/2021/118 final).

a major technological advance but also an increasingly indispensable instrument for the modernization of democratic processes.

7 Conclusion

For most of history, legal scholarship has been primarily concerned with individual rights and duties, overlooking the real influence of groups on individual behaviour and wider social relations. Today, where individuals are increasingly interconnected and, above all, interdependent, it is becoming apparent that such an approach does not allow for a comprehensive treatment of such realities. The traditional individualist framework is effective in protecting fundamental rights but cannot comprehensively address the issue of group interests and collective influences. The adaptation of legal systems to better address the complexity and dynamics of contemporary group entities is imperative. Efforts to develop more flexible, equitable, and specific legal norms that allow for harmonized procedures in heterogeneous group contexts, particularly in areas such as labour law, environmental protection, and minority protection where legal gaps exist, are essential for their effective functioning. Individuals are sometimes unable to exercise their rights effectively without cooperation with others. Collective action and collective models of cooperation are some of the examples that demonstrate that it is possible to reconcile individual rights and collective interests within legal frameworks.

However, these practices by no means cover all aspects of group dynamics, especially when it comes to informal groups or less organized communities. Modern legal scholarship must move away from traditional individualism and incorporate group dynamics and social into its norms and practices. Modern social relationships are intertwined and complex, which requires a broader approach to legal regulation that not only favours the individual perspective but also considers the role of groups. Ignoring group influences can lead to flawed legal regimes that do not respond to the real needs of society. A legal framework that recognizes the importance of both individuals and groups is essential to promote fairness and equality. Achieving more balanced protection of rights and duties leads to better conflict resolution and reduced social inequalities. Contemporary informal legal thought in the form of articles and opinions should address the full range of influences that shape society, prevent marginalization, and open opportunities for all members of society, while an inclusive formal legal structure in the form of existing regimes should recognize the complexity of human interactions and, on this basis, bring about change in the social fabric. More heads can do more and more hands can do more. And here we are back to the greatness of community.

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Civil Service Ethics in Germany from an International Perspective – Between a Role Model and Latecomer

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ABSTRACT

Purpose: The article evaluates how civil-service ethics are institutionalised and managed at federal level in Germany, and situates German practice within a broader European perspective. It addresses the conspicuous absence of empirical evidence on the effectiveness of ethics policies, despite the proliferation of governance indices.

Design/Methodology/Approach: The analysis draws on a 2025 EU survey on ethics policies in central public administrations. Twenty-six countries and all EU institutions contributed data, completing a seven-chapter, 59-question survey that covered rules, implementation, enforcement and emerging issues such as artificial-intelligence-related risks. Germany's responses are examined in detail and juxtaposed with international benchmarks for corruption, rule of law, good governance and impartiality.

Findings: Germany retains many "classical" bureaucratic features—lifetime tenure, hierarchical structures and a rule-oriented culture—yet scores consistently well on cross-national governance indicators. Fragmented responsibility and limited monitoring mean that hard evidence on policy effectiveness remains scarce, both in Germany and elsewhere. Nonetheless, the German system appears to deter misconduct effectively when compared with its European peers. New challenges linked to artificial intelligence, disclosure of interests and revolving-door movements are recognised, but comprehensive data and coordinated oversight mechanisms are still lacking.

Academic contribution to the field: The study provides one of the first systematic, data-driven assessments of civil-service ethics in Germany and enlarges the comparative evidence base for public-sector integrity research. It exposes methodological gaps in measuring ethics outcomes and underscores the need for interdisciplinary approaches that integrate legal, organisational and behavioural perspectives.

Originality/Significance/Value: By combining a rare national case study with a unique EU-wide dataset, the article challenges the assumption that

traditional, compliance-based systems are inherently obsolete. It demonstrates that Germany's ostensibly old-fashioned model performs robustly in practice, while highlighting structural and informational deficits that must be addressed if ethics policies are to keep pace with technological and organisational change.

Keywords: civil service, ethics, innovation in public administration

Etika javne službe v Nemčiji z mednarodnega vidika – med vzornikom in zamudnikom

POVZETEK

Namen: Članek ovrednoti, kako je etika javnih uslužbencev institucionalizirana in upravljana na zvezni ravni v Nemčiji ter nemško prakso umešča v širši evropski kontekst. Obravnava očitno pomanjkanje empiričnih dokazov o učinkovitosti etičnih politik kljub množici kazalnikov upravljanja.

Zasnova/metodologija/pristop: Analiza temelji na anketi iz leta 2025, ki jo je podprla EU in je obravnavala etične politike v osrednjih javnih upravah. Sodelovalo je šestindvajset držav in vse institucije EU, ki so izpolnile vprašalnik s sedmimi poglavji in z 59 vprašanji, ki je zajemal pravila, izvajanje, izvrševanje ter nova vprašanja, kot so tveganja, povezana z umetno inteligenco. Nemški odgovori so podrobno analizirani in primerjani z mednarodnimi merili za korupcijo, vladavino prava, dobro upravljanje in nepristranskost.

Ugotovitve: Nemčija ohranja številne »klasične« birokratske značilnosti – zaposlitev za nedoločen čas, hierarhične strukture in k pravilom usmerjeno kulturo – vendar pri mednarodnih kazalnikih upravljanja dosledno dosega visoke ocene. Razdrobljena odgovornost in omejeno spremljanje pomenita, da trdni dokazi o učinkovitosti politik ostajajo redki, tako v Nemčiji kot tudi drugje. Kljub temu se zdi, da nemški sistem v primerjavi z evropskimi primerljivimi sistemi učinkovito odvrča od neustreznega ravnanja. Priznani so novi izzivi, povezani z umetno inteligenco, razkritjem interesov ter prehodi med javnim in zasebnim sektorjem, vendar celoviti podatki in usklajeni nadzorni mehanizmi še vedno manjkajo.

Akademski prispevek k področju: Študija je ena prvih sistematičnih, na podatkih utemeljenih vrednotenj etike javnih uslužbencev v Nemčiji in razširja primerjalno bazo dokazov za raziskave integritete v javnem sektorju. Razkriva metodološke vrzeli pri merjenju etičnih rezultatov ter poudarja potrebo po interdisciplinarnih pristopih, ki združujejo pravne, organizacijske in vedenjske vidike.

Izvirnost/pomen/vrednost: Z združitvijo redke nacionalne študije primerja z edinstvenim naborom podatkov EU članek izpodbija predpostavko, da so tradicionalni, na skladnosti utemeljeni sistemi po svoji naravi zastareli. Pokaže, da se navidezno staromodni nemški model v praksi izkaže kot zelo učinkovit, hkrati pa poudari strukturne in informacijske pomanjkljivosti, ki jih je treba odpraviti, če želijo etične politike slediti tehnološkim in organizacijskim spremembam.

Ključne besede: državna uprava, etika, inovacije v javni upravi

JEL: H11, H83

1 Introduction

Overall, the effectiveness of ethics policies and ethics management is under-researched. Grand exceptions concern Mackenzie (2002) and Anechiarico and Jacobs (1996) in the US and in Canada and Demmke and Moilanen (2012) in the European Union. The highly critical study by Mackenzie (2002) concludes: "Is there more integrity in government today than there was before 1961? No one knows because no one can measure what cannot be observed" (Mackenzie, 2002, p. 150). Anechiarico and Jacobs noted that "the public standard of morality has become much stricter, and the gap between the mythical system and the operating system much wider. Previously accepted conduct (...) is now deemed unethical, and previously unethical conduct is now deemed criminal..." (Anechiarico and Jacobs, 1996, 16). Demmke and Moilanen (2012) are less sceptical but conclude that ethics policies produce several side-effects, unintentional effects, and paradoxes. In the field of corruption, Johnston and Fritzen (2021) note: "We know far more about the issue than we did 30 years ago, and we have a network of policies, organizations, and researchers on a scale, and level of sophistication, few could have imagined in those earlier days (...). Still, most reforms have met stiff headwinds (for evidence suggesting that most countries have made little or no progress against corruption over the last 20 years..." (Johnston and Fritzen (2021, p. 5)). Also, in other policies, for example in the field of conflicts of interest, Peters and Handschin (Peters and Handschin, 2012) discuss trends towards the widening of the concept of conflicts of interest and the blurring of the concept with the notion of conflicting interests. Whereas in the past, the concept of conflict of interest focused on financial interests and how these could lead to a conflict between professional and private interests, today, all sorts of financial and non-financial interests, value conflicts, and role conflicts are discussed under the label of conflict of interest. As a consequence of the constant widening of the concept, it is impossible to assess the effectiveness of the concept. Similar methodological challenges exist as regards the concepts of (sexual) harassment, bullying, and anti-discrimination. Almost all researchers criticize the lack of data as a sore point in the research. Also, in our study, including Germany, many countries noted: *There is no data, information, or research available on this.*

2 Methodology

2.1 Ethics Policies in Central Public Administration

The purpose of the study is to compare and analyze the effectiveness of existing rules, policies, instruments, and the management of ethics policies in central public administrations in Europe. Moreover, the study takes an interest in how the national central public administrations respond to new ethical challenges arising from public administrative reform and innovation, with a focus on the link between the introduction of artificial intelligence in central public administrations and the management of ethical challenges.

As such, there exists no commonly agreed-upon definition of key concepts such as public sector, public services, civil services, and public administration, not to mention 'central' public administration (Sommermann, Krzywon and Fraenkel-Haeberle (eds.), 2025). This absence is problematic when comparing distinct public administrative systems, civil services, public institutions, or when addressing central public administration from a sectoral (government, education, health) or functional (central, regional, local) approach

Without entering into a lengthy discussion about the pros and cons of the various definitions and concepts, we have decided to define central public administration as excluding deconcentrated government levels at the regional and local. However, central public administration can include agencies and public service bodies supervised by the central government, but depending on the country's definition (thus, Sweden would exclude the situation of the Swedish independent agencies for this study).

The choice for Germany as a case study has to do with the fact that very little research and evidence exist about ethics policies in the German public sector (Sommermann, 1998; Behncke, 2005 and 2005; Faust, 2008). If so, literature focuses on corruption Wolf, 2013; Wolf and Meyer, 2025).

Thus, our research suggests a re-opening of the debate about effective ethics policies (and, also, about German ethics policies)

2.2 Effectiveness as Goal Achievement – Focusing on the Prevention of Unethical Conduct

In the study, we decided to restrict our research interest to the study of goal achievement. As regards ethics policies, this means that we were mostly interested in finding out whether and how ethics policies contribute to the prevention (and reduction) of the different forms of unethical behavior.

This approach requires us to define unethical behavior. Here, various concepts exist, ranging from insidious behavior, unethical work behavior, and harmful behavior to unethical behavior (Giacolone and Promislo, 2013). Despite this existing variety of concepts (and the constantly evolving definitions), the concept of unethical behavior is the most commonly used on the international level. Here, the definitions by Lasthuizen, Huberts and Heres (2011) and by Huberts and Lasthuizen (2014) are widely accepted. Therefore, we have decided to use the following definition.

1. Corruption: Misuse of (public) power for private gain: asking, offering, and accepting bribes
2. Favoritism: Decision-making and use of authority/position to favor family (nepotism), friends (cronyism), or party (patronage) – violation of merit-based principles
3. Fraud and theft of resources: Improper private gain acquired from the organization or colleagues and citizens

4. Conflict of (private and public) financial interest: Such as gifts, sideline activities, assets, or other financial interests the interference (or potential interference) of personal interest with the public/organizational interest because of gifts, services, assets, or promises taken
5. Conflict of (private and public) non-financial interest: Through job mobility (revolving door), professional activities, affiliations, memberships or other activities practiced outside the organization
6. Improper use of authority: The use of illegal/unethical means or methods to achieve organizational goals (sometimes for 'noble causes'), like surveillance, intrusion into privacy, control
7. Misuse and manipulation of information: Data and internet the intended or unintended abuse of (access to) online information, such as hate speech, internet aggression, disinformation, shit storms, violation of secrecy rules, breaching the confidentiality of information, or concealing information
8. Indecent treatment of colleagues, politicians, or citizens: Unacceptable treatment such as discrimination (based on gender, race, or sexual orientation), intimidation, sexual harassment, improper behavior like bullying (protection of personal dignity, vulnerabilities)
9. Waste and abuse of organizational resources: Failure to comply with organizational standards
10. Misconduct in private time: Conduct during private time that harms people's trust in the (public) organization

This definition by Lasthuizen, Huberts and Heres (2011) and Huberts and Lasthuizen (2014) was slightly adapted by the author to consider the most recent developments in the field of artificial intelligence and misinformation, fake information, and so-called post-truth (Farkas and Schou, 2024).

These types of unethical behavior occur at any time, place, and in all countries. Also, the definition of unethical behavior is understood in all languages and administrative cultures.

2.3 Research Questions

The study focused on civil service ethics (statutory staff and staff with a public law status) in the central public administrations. However, some countries (who do not apply status differences or differences in the field of public ethics for civil servants and public employees) focused on public employees on the central public administration level, or on

Our main research questions in this survey were the following:

1. What do we know about the effectiveness of ethics policies as regards unethical outcomes such as corruption, fraud, conflicts of interest, bullying, (sexual) harassment, and other forms of unethical (workplace) behavior (definition Leo Huberts et al.)?

2. What do we know about the effectiveness of individual ethics policies such as revolving door, disclosure policies, whistleblowing policies, and anti-discrimination policies?
3. What do we know about the effectiveness of instruments used in the field, such as ethical leadership, rules, codes of ethics, training, enforcement, behavioral instruments...?
4. What do we know about the effectiveness of ethics management and the institutionalization of ethics policies, such as centralization/decentralization, self-regulation/management vs. independent management, and coordination amongst ethics bodies?
5. What do we know about the effectiveness of measuring ethics policies (measuring corruption, measuring conflicts of interest, measuring harassment, etc.)?
6. What do we know about innovation/change processes of governance and public administration, and the impact on ethics and unethical behavior, such as outsourcing, public-private partnerships (PPP), collaborative forms of governance, and artificial intelligence?

While all six research questions merit being treated equally in our analysis, neither time nor resources have allowed us to study all of these elements in full detail. We suggest that further research is needed to investigate in more detail all of these issues.

2.4 Survey Methodology and Shortcomings of the Study

As already mentioned, the survey contained seven chapters and 59 questions. In the survey, central public administrations and the various responsible ethics bodies were asked to provide information, ranging from questions about the effectiveness of rules and instruments, the institutionalization of policies, the implementation and enforcement of ethics policies, and more forward-looking questions about how countries and institutions address new ethical challenges, e.g. arising from the introduction of artificial intelligence in the central public administrations. Overall, most countries answered most questions, but to a lesser extent, as regards questions regarding the effects of artificial intelligence. As regards the latter, Germany answered to all questions.

Overall, in this study, not only the availability of data but also the quality of data was a sore point in the development of this comparative work. In our survey, this mainly concerned open questions about the impact of administrative reforms and the introduction of artificial intelligence, and the effects on ethical challenges. Of course, some countries could not answer all survey questions. We also noted that, despite the intensive work of the OECD in the field of integrity indicators, overall, data about the effectiveness of ethics policies is scarce, and it is also vulnerable to change and manipulation. For example, Germany noted that the most pressing monitoring challenge in the field of disclosure policies is the lack of information.

Here, we should add that the sending of the survey to respondents in the national central administrations means that we followed partly the tradition of elite studies. Respondents were higher officials who were supposed to provide official data and factual information that did not reflect personal opinions. These respondents were asked to further distribute the survey to experts and the competent ethics and AI bodies. Also, the German respondents coordinated internally within the Ministry of the Interior in order to respond sufficiently to the various questions. Thus, in this type of administrative elite studies, top officials are members of organizations with expected higher reliability, institutional knowledge, and experience. Despite this, we took note that some questions in our survey were answered rather on an individual basis. In one case, the official country's answer was "distorted" and not accepted by the research team. In other cases, it was not always possible to check which questions in the survey were answered in a personal capacity or influenced by other subjective (and political) considerations. Experience with this type of survey shows that official responses to empirical surveys differ according to the choice of the target groups. For example, top leaders respond differently from middle managers, and middle managers respond differently to technical staff. Also, official sources differ from academic sources.

We acknowledge that the responses in our survey represent official government sources and that answers to the survey necessarily differ if we had collected perception samples or from citizens.

We also opted for the possibility for countries to comment on each question. This type of allowing for open comments should allow the countries to discuss the questions internally and in a coordinated way, and provide opportunities to better explain the national context.

Therefore, in this survey, we acknowledge the danger of significant sources of bias. Official respondents to the survey may have had an interest in reporting favorable outcomes to present a positive and successful image on the international scene. As such, it is difficult to assess the quality of national answers to the survey questionnaire. However, we took note that whereas countries invested a lot of (coordination) time and work before answering this survey, other countries responded in an ad hoc manner and consulted fewer colleagues, ethics experts, and ethics bodies before replying to the survey.

In carrying out this study, it also became evident that there can be too little or too much attention on theoretical issues, too little or too much focus on historical explanations, or a too general analysis without taking into consideration the many existing specific features of the national systems, avoidance of different linguistic meanings and definitions, etc. Moreover, the existing national arrangements are in a constant process of change, and it seems that change is happening at ever faster speeds. If decades ago, public administration and politics were synonyms for stability, today, it is a symbol for hasty change, especially in the field of artificial intelligence. Parallel to this, ethics management is a very young discipline, both in the private and even more in the public sector.

In this study, we noted that, overall, studying the effectiveness of ethics management requires an interdisciplinary and integrative approach. In the case of Germany, this means that only questions about corruption, fraud, and civil service ethics are the sole responsibility of the German Ministry of the Interior. Other issues, like conflicts of interest, anti-discrimination and bullying (and harassment) also fall into the responsibility of other administrations. Contrary to this, the implementation logic in the national administrations follows a so-called silo-approach. Whereas corruption, conflicts of interest, harassment, abuse of power, misconduct, discrimination, etc., are different forms of unethical behavior, they are all dealt with in a sectoral and fragmented logic. This, however, is an international phenomenon (and not only typical for Germany).

While analyzing the existing data, we took note that the concept of the effectiveness of ethics policies is highly contingent. It cannot be explained without considering the environmental legal, political, economic and cultural dimensions within the different countries. This makes research even more complicated. Whereas all experts commonly agree that ethics policies and ethics management cannot be effective as stand-alone policies (and must be integrated into other management logics and governance styles), this highly important insight is making research highly complex. Take only the case of state capture by influential super-rich people, companies, or political groups. In times of growing state capture and conflicting interests, it is unlikely that corruption and conflicts of interests can be reduced more effectively (David-Barrett, 2023).

In this study, we focus on the institutionalization and the management of ethics policies in the (German) central public administration.

Here, our data illustrates that the effectiveness of ethics policies requires better coordination, integration and communication, as ethics policies are managed by different authorities, agencies, administrative units, and persons. The institutional landscape is highly fragmented. Most countries criticize that ever more ethics bodies are taking on ever more tasks. In the national central public administration, the (seemingly) integrated term “ethics policies” or “integrity policies” meets a highly decentralized and fragmented institutional landscape. In our survey, this is also confirmed by Germany. Often, the allocation of responsibilities and competences follows a so-called silo-thinking logic in the national public administrations. In the field of ethics policies, often, different institutions, organisations, agencies, committees, or HR offices are responsible for different policies. For example, corruption policies may be managed by ministries or specialized agencies, but conflicts of interest by auditing offices or human resource management offices. Moreover, organisations (or HR offices) have a high degree of autonomy in how to manage certain ethics policies, like for example revolving door policies, diversity policies, or disclosure policies. As regards the latter, these policies fall under the autonomy of each (organizational) employer. Especially, in more decentralized countries like Germany, Sweden, or Denmark, internal coordination challenges were extremely challenging. Some countries even responded that they would not be

ready, nor entitled, to respond for other administrations or organizations. As it turned out, in some cases, responsibilities in the field of public ethics are not only decentralized but also individualized. Every ministry, or every agency, pursues its own policies and adopts its own instruments. Thus, even if a huge number of public authorities contributed to this survey, this does not mean that we are able to present a full and coherent picture of the situation in central public administrations in all countries. Take the case of a more centralized country like France, which also reported that ethics and integrity is a shared responsibility between the Directorate General for Public Administration and the Civil Service (DGAFF), the High Authority for the transparency of the public life (HATVP), and the French anticorruption agency (AFA).

We therefore (and differently from the OECD) refrained from benchmarking countries, or ranking and rating countries.

Next to the coordination challenge, the most important challenge concerned access to reliable data about the various survey questions. The author of this EU study carefully avoided any overlap with other studies carried out by the OECD or the Council of Europe/GRECO. Instead, the objective was to generate new data and avoid double-work for the central public administrations. In our EU study, we noted that not only the availability of data, but also the reliability of data was a sore point in the development of this comparative work. We also noted that, despite the intensive work of the OECD in the field of integrity indicators, overall, data about the effectiveness of ethics policies is scarce, and it is also vulnerable to change and manipulation. We, therefore, decided to refrain from benchmarking countries and not to rank or rate national data. Instead, we opted for a comparative presentation of national answers to the various policies and topical issues. More concretely, this means that we reject any approach that compares a state-centric German “performance” with any other state-centric “performance” (in the field of civil service ethics).

3 Defining Ethics Management and the Institutionalization of Ethics Policies in Europe

Research on anti-corruption strategies and institutions (Marčetić, Džinić and Manojlović, 2020), national and local integrity systems (Huberts et al., 2008), organizational integrity (Kaptein, 2024), and on specific integrity measures has resulted in many suggestions about what elements, components, or measures are needed that will enable organisations to achieve more ethicality (Hoekstra, Huberts and van Montfort, 2022; Huberts, 2014). Overall, experts distinguish between ethics management and organizational integrity, although the boundaries between both concepts are rather unclear. In this respect, ethics management can be described as the sum of consistent (systemic) efforts of an organization focused on promoting ethical behavior (integrity) (Hoekstra, Huberts and Gaisbauer, 2016, p. 16; Kaptein, 1998) or as the activities undertaken to stimulate and enforce ethical behaviour and integrity and prevent corruption and other integrity violations within a particular organization (Maesschalck and Bertok, 2008).

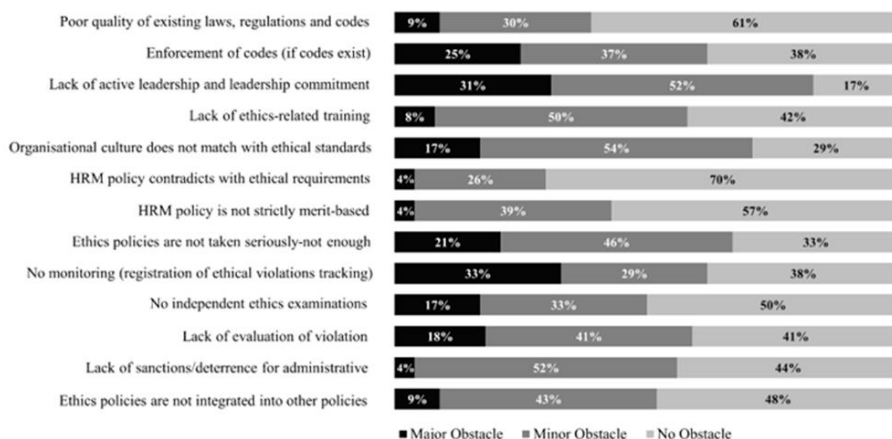
As regards the public sector, much of the literature assumes that the components of ethics management systems are universally applicable (OECD, 2020). For example, according to Huberts (2014), it is possible to stress the “basics of an integrity system”. Suggested instruments include the existence of rules, disciplinary policies, the setting of ethical standards, the adoption of codes of ethics and codes of standards, the introduction of an active value management policy, ethical leadership, effective whistleblowing opportunities, job rotation, risk analysis, training, integrity plans, integrity monitoring, scandal management, registers and disclosure policies, ethical climate surveys, self-assessments, integrity officers, ethics committees and good working conditions. Alternatively, Kaptein’s concept (2015) distinguishes amongst nine elements: a code of ethics, an integrity office (or officer), ethics training, an ethics hotline, the existence of accountability policies, oversight and monitoring, and conflicts of interest screening.

Next to these recommended ingredients of ethics management systems, the concept of organisational integrity is more complex and has many definitions, interpretations, forms, layers, and dimensions, and it contains many perspectives and ideas. According to Kaptein et al. (2024), organisational integrity is a multifaceted and inexhaustible subject to study because it can be explored in many ways and constantly leads to new insights” (Kaptein, 2024, p. 1). Kaptein’s “Research Handbook on Organisational Integrity” (2024) is, by itself, a great testimony of how research in the field has advanced.

Organisational Integrity is being examined from different perspectives, such as a virtue ethics perspective, a regulatory perspective, an institutional perspective, or a corporate governance perspective. There also exists a strong disciplinary influence from related concepts in the private sector like business ethics, compliance, corporate citizenship, corporate social performance (CSP), purpose driven management, value management, corporate social responsibility (CSR), corporate social responsiveness, responsible management, and sustainability (Trevino, L.K. and Brown, 2004; Windsor, in Kaptein et al, 2024).

Still, both ethics management and organisational theories are influenced by developments in the private sector. They are also highly inward-looking and focus on “ethics management”, instead of considering evidence from related fields like Human Resource Management or Organisational Behavior. Dysfunctions of ethics management systems are often explained by the fact that organisations have not yet fully implemented the menu of proposed components, elements and instruments, as discussed above (take, as example, Hoekstra, Huberts and von Montfort, 2023) about the evaluation of integrity systems in the Netherlands, Belgium and Germany). Thus, whereas research about organisational integrity and ethics management in the public sector is strongly improving (Kaptein (Ed.), 2024), many fields are still widely under-researched. For example, despite the introduction of the abovementioned universal components of an ethics management system, how to explain the huge variation of responses as regards national responses to the major obstacles and difficulties for an effective policy in the field of civil service ethics.

Table 1: Overall, what are the major obstacles and difficulties for an effective policy in your national civil service? N=24



Source: Author's own.

At the same time, little is known about “real life”, e.g., how European countries organize and manage ethics policies. One exception is a study by Marčetić, Džinić and Manojlović for the Croatian EU-Presidency (2020) that focused on codes of ethics, ethics bodies, and an analysis of the existing legal frameworks (Marčetić, Džinić and Manojlović, 2020, p. 1). The study concludes that European public administrations should (especially) work on continuous education and application of soft law mechanisms in the field of ethics, networking, and cooperation with other countries, the development of an administrative culture based on high levels of ethical standards, learning from own and other countries’ experience and keeping good communication with citizens” (Marčetić, Džinić and Manojlović, 2020, p. 27).

Also, little is known whether certain types of governance models, or administrative traditions, prefer certain ethics management models, or prefer certain instruments more than others. It also remains unclear how a coherent and systematic integrity approach fits into different organizational cultures, more or less politicized systems, or systems with more or less resources. Finally, little is known as regards institutional differences in managing ethics policies (like anti-corruption, conflicts of interest, and anti-discrimination policies), monitoring policies (like the monitoring of disclosure policies, or revolving door policies), and in the enforcement of policies (who takes responsibility in sanctioning misconduct?). Finally, how to interpret the different meanings of the same ethical concepts in different organizational cultures, like, for example, the meaning and importance of whistleblowing.

Throughout our comparative work, we could confirm the existence of a (surprisingly) huge variation of ethics management structures and practices. To start with: Ethics policies and ethics management do not only differ amongst the executive, legislative and judiciary sectors but also within sectors, (inde-

pendent) agencies, amongst categories of employment statuses (civil servants and public employees), categories of Holders of public Office (Ministers, Secretaries of State, Presidents of Courts, Banks etc.) and other categories of staff like Special Advisors, Directors-General and top-and middle level civil servants. To this should be added great differences on the sub-national level (Lapuente and Dijkstra, 2012, pp. 68–90).

On the central level, some countries have relatively centralized management systems (like Romania with the General Anti-corruption Directorate (DGA) the National Integrity Agency (ANI) (which is, exclusively responsible for disclosure policies), Latvia with the Corruption Prevention and Combating Bureau – KNAB, or France (where ethics and integrity is a shared responsibility between the Directorate General for Public Administration and the Civil Service (DGAFP), the High Authority for the transparency of the public life (HATVP), and the French anticorruption agency (AFA). Compared to France, the Dutch model can be defined as a hybrid integrity model, at least with some forms of centralized management and monitoring. However, since the Netherlands is a decentralized unitary state (and the public sector is divided into sectors), the levels of government have considerable freedom in the design of their policies. A case for a deconcentrated model is the Danish (but also the Swedish) model. In the central public administration in Denmark, the management of integrity policies is at the discretion of each individual employer (there exists no central employer for government employees in Denmark or a central institution that monitors or is responsible for anti-corruption measures for government employees, etc.). It is therefore up to the individual employer to assess the employee's behaviour and determine sanctions within the applicable rules. If the employee's behaviour violates the rules of the Danish Criminal Code, the responsibility lies with the police and the public prosecutor. In Denmark, there are no rules regarding 'revolving door' and 'non-financial conflict of interest' for government employees. Instead, it is the individual employer that is responsible for compliance with the guidelines, etc., as there are no such rules for public employees in Denmark. Also, in the field of disclosure policies, there are no central monitoring bodies in Denmark that monitor the above-mentioned interests of government employees. The Responsibility for ensuring compliance with applicable rules and guidelines lies with the individual employer. This, again, contrasts with the situation in Germany, where responsibilities for the federal level are vested in the German Ministry of the Interior.

Interestingly, all Scandinavian and northern states (Estonia, Sweden, Denmark, Finland and Estonia) have highly deconcentrated models. In these countries, each ministry manages ethics policies like revolving door and disclosure policies on its own. Also, disclosure policies are managed "individually". Likewise, these countries do not monitor ethics policies on a central level. All of these countries found it difficult to provide general answers to our survey. In the latter case, this does not only mean that no centralized rules exist on how to disclose interests, which interests, how to verify disclosure requirements, and how to sanction the violations of policy require-

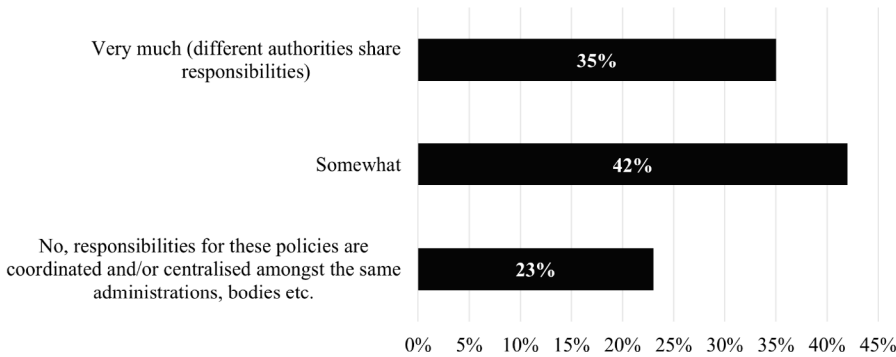
ments. In fact, this also means that ethics policies are not monitored and no cost assessments exist on the central level. Therefore, a standard answer from northern countries to our survey was the following: *“The effectiveness is not measured and we do therefore not have data to support a conclusion. Therefore, we cannot answer the question”*.

Similar “differentiation” trends can also be seen in the enforcement of ethics policies. Also, in this field, it would be wrong to assume that enforcement is only carried out by the judiciary and the police. In reality, enforcing misconduct has become the responsibility of a variety of organizations (and also a leadership responsibility). Overall, HR offices play a widely underestimated role in the monitoring (and enforcement) of ethics policies. Partly, HR offices also monitor and enforce side activities and gift policies for different categories of staff. However, it also happens frequently that different HR offices and HR officials in different ministries and agencies monitor revolving door policies, side-activities, and gift policies, although these issues relate to each other and should be managed within the same organization and office.

Thus, this great diversity of systems in Europe raises the question whether it is possible to classify national systems into typologies or to develop state-centric benchmarking models. As such, we note that, in all countries, monitoring practices, monitoring evidence, data, and measurement differ, sometimes from one organization to the next. Also, the choice of policy instruments is pluralist, non-deterministic, and flexible, and varies from one country to the next, from one institution to the next, and from one policy to the next. Here, there is no logic. For example, it is impossible to state that more bureaucratic, or countries with (rather) classical career systems, have also chosen a more centralized or decentralized approach in the field of ethics management. Likewise, it is impossible to state that, for example, revolving door policies are managed according to a specific public management or organizational model. Overall, most European countries agree that the institutionalization of ethics policies is highly fragmented and ineffective, especially in related policies like the management of side-activities, revolving door, and gift policies.

In addition, we note European-wide trends towards the proliferation of ethics bodies and ethics actors, but also the emergence of a great variety of administrative bodies and organisations, and no development towards one best-practice innovative organizational model. Therefore, most likely, the current trend is not toward one best-practice organizational model but rather towards a hybridization and differentiation of various ethics management systems. This also means that it is very difficult to determine the effectiveness of one national system by comparing it to another national system. Still, this does not mean, of course, that countries could benefit greatly if they were interested in exchanging experience, for example, as regards the management of revolving door policies.

Table 2: In the field of related policies, such as the management of gift policies, revolving door policies, and disclosure of (financial), administrative responsibilities are shared and fragmented, N=26



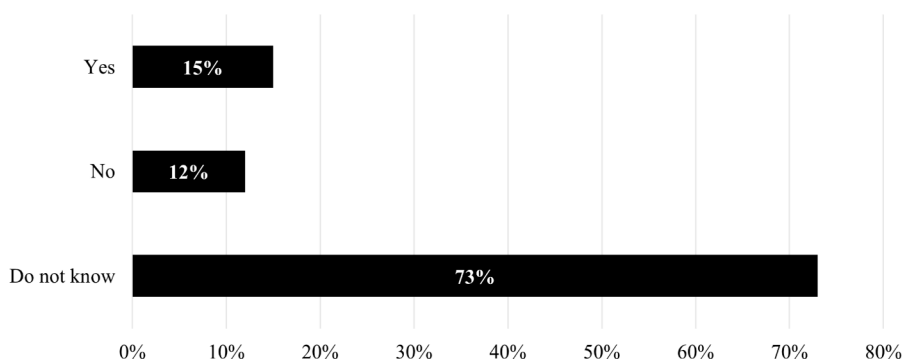
Source: Author’s own.

Of course, it is hugely tempting to engage in the benchmarking of countries or even to rate and to rank countries, as regards certain ethics policies, instruments, processes, or procedures. However, after carefully studying the highly different institutionalization of ethics policies and the varying distribution of internal responsibilities, we have decided to refrain from benchmarking, ranking, and rating of countries.

In our EU study, countries responded that they have progressed in the field of measuring corruption, but not very much in other fields. They have no overview of the costs of ethics policies. Finally, politicians and public servants are not aware of the monitoring challenges of those who need to monitor disclosure policies. Overall, there seems to be very little communication amongst the (mostly HR) experts who are in charge of monitoring top civil servants. It is, therefore, not surprising that 73% of respondents to our study replied that they are not aware of (increasing) difficulties and technical challenges in the monitoring process. Also, in Germany, there exist no assessments about the costs (and benefits) of ethics policies on the federal level. Likewise, conflicts of interest policies are not monitored. Until today, there exist no studies or assessments about the monitoring of disclosure of interest policies (and the enforcement of these policies). If so, statistics are (sporadically) established in the various sub-fields, like in the field of revolving door policies.

Therefore, ethics policies present a huge paradox: For example, if disclosure policies are supposed to be effective, the management and monitoring require capacities, skills, personnel resources, and sophisticated and complex examinations into personal behavior (take the discussed case of requiring disclosure information from the “spouse”). If current trends have been towards more detailedness and individualization of monitoring requirements, this will also increase administrative burdens, complexity, and time-consuming monitoring processes.

Table 3: In the field of disclosure policies, do monitoring experts in your country report about increasing difficulties as regards the verification of disclosure information? N=26



Source: Author's own.

We are aware that these findings run counter to the present explosion of benchmarking studies, rankings and ratings, and trends towards the quantification of governance and – even of – ever more aspects of social life (Mau, 2020).

Benchmarking studies are attractive because statistics, rankings, and ratings enable easy comparisons, competition, the possibility for evidence-based learning, and the reduction of complexity. Figures and statistics promise objectivity. They also promise the possibility for fact-based learning. At present, one can observe the emergence of a truly globalised world of comparisons, scores, rankings, likes and grades. Because of data-driven benchmarking, ever-new rankings and ratings of various governance indicators come and go with remarkable rapidity, “New techniques come into fashion and old ones go out, much like the outfits modelled in Paris, Milan, and New York” (Aberbach and Rockman, 2000, p. 9). Benchmarking raises the question, which indicators and factors to use as the basic features for comparing policies, instruments, and structures? This again raises the question of whether and how some phenomena can be measured at all. Finally, we need data, comparable data, good data and data that is based on the same definitions, reliable and accurate data. In our study, most countries informed us about their challenges when monitoring ethics policies, the non-existence of data, and the challenges when it comes to measuring ethics policies. We also learned about the important link between national administrative culture and the management of ethics policies. Should we rank some countries better than others, because they have centralized monitoring structures or more detailed disclosure requirements or stricter revolving door policies than others, (in some instances, because they are more reluctant in the field because of privacy and data protection issues)? Should we applaud countries because they have adopted stricter legal requirements, introduced new ethics bodies, or have been ranked more positively in the Corruption Perception Index (CPI), or by the OECD (or by GRECO)?

These issues constitute only a fraction of the existing challenges in the field of comparing and analyzing the effectiveness of ethics policies. If we ranked countries in top-performers or low-performers, laggards and forerunners, we risk basing our judgments on problematic indicators, poor data, value judgments, unclear assumptions, and on different definitions. Again, take the case of disclosure policies in the field of conflicts of interest. Today, despite laudable progress in the field of corruption (United Nations Office on Drugs and Crime (UNODC), 2023), it remains an extraordinary undertaking to generate, measure, compare, and analyse data in conflicts of ethics policies. Thus, while we welcome any progress in the field of measuring integrity, we nonetheless remain cautious in our temptation to generate data-driven comparisons in fields where the quality of data is scarce, difficult to compare, or not yet fit for comparison. The decentralized and, often, individualized management of ethics policies has important implications for the quality of comparative and benchmarking studies and the possibility of measuring and monitoring ethics policies.

Consequently, the effectiveness of any particular institutional integrity system can only be determined by the degree of consistency amongst its proper constituent elements, practices, procedures, instruments and resources and how these fit into the specific constitutional-, legal-, and political system, the culture, organizational design, organizational culture and leadership styles.

Given the limited space in this paper, we will focus on the case of Germany (within the international context) and discuss the (in-) consistency of the German model.

4 Case Study: The Specifics of German Civil Service Ethics

In Germany, the belief is still very strong that government integrity flows from respecting and applying the rule of law, a public ethos, sound administration, classical hierarchical structures, and a very specific civil service system with life-time tenure, full-time employment, advantageous pension systems, and the existence of career systems. All of these features, it is believed, are necessary in order to reduce as far as possible the risk of too much political influence, corruption, misconduct, conflicts of interest, and state capture for private interests. Following this, at a minimal level, the German administration is considered to be good and ethical if it achieves the implementation and enforcement of the existing civil service laws and disciplinary rules of the Government of the day. Moreover, ethically good or acceptable behavior is defined in terms of rationality, impartiality, and the application of the merit principle.

Like in so many other countries, also, in Germany, no day goes by without media coverage about new scandals and discussions about (im-) moral behavior in the German society, in the whole public service, and, increasingly, also against civil servants. Often, the diagnoses for the various types of unethical behavior is very simplistic and depending on political attitudes to which the reasons are either not enough rules (and the need for stricter rules), a decline

or even loss of societal values, or too much of it - the moralization of the (political) discourse. Other experts point to the effects of increasing individualization (Beck), singularization (Reckwitz), self-optimization (Bröckling, 2013; Röcke, 2021), acceleration (Rosa, 2005), and polarization in the German society and their effects on the development of values. In this more nuanced, but also culturally pessimistic discourse, it remains unclear why values and ethical standards do not continue to deteriorate and new ethical standards continue to emerge. Against these trends, and when entering into the legalistic and technical world of the German civil service, the discussion about ethics seems to play a minor role. The German public sector does not pursue an active ethics (integrity) policy for the public sector. Germans are highly skeptical as to the question whether public organisations should also pursue active moral policies, or any sort of purpose-driven management (Kuehl, 2021). Instead, in Germany, the expectation was always that civil servants would be implicitly ethical because they have a specific public service motivation, a specific public ethos, and because civil servants are different, because they are civil servants (Demmke, 2020). Today, this fundamental understanding of ethical behavior is, however, increasingly questioned (Demmke, 2019).

Still, heavily influenced by the skepticism of the German sociologist, Niklas Luhman, from a German point of view, the relationship between organization and integrity is not a love affair (Ortman, 2010). There is no perfect ethical organizational recipe. And, not to forget: For many Germans, German history proves that both, bureaucratic blind obedience (“administrative evil”, Adams, 2011) and “greedy institutions” (Coser, 1974) can be abused for many unethical individual and political interests. Therefore, German civil service ethics follows (in the words of Dobel, 2004) a legal-institutional model of public integrity which is combined with a strong sense of public service motivation and personal responsibility. However, the personal responsibility dimension (Dobel, 2004) could also be interpreted as a certain *rule of law obedience*. Again, the latter should be distinguished from blind obedience and personal irresponsibility.

However, in Germany, one can note an increasing interest in the broader concept of integrity policies. One reason for this is the growing conviction that integrity policies “pay” (Paine, 2000), which means that an ethical organizational culture has positive side-effects on organizational and individual performance, motivation, job satisfaction, teamwork, and – more generally – recruitment and retention policies. Another more critical reason is that ethics policies are discovered (and abused) as a political weapon. Like this, ethics policies are instrumentalized for (un-) ethical reasons.

Therefore, the overall purpose of ethics policies is no longer seen as a purely intrinsic interest in the need for specific public values and principles. Instead, the trend is clearly towards a more utilitarian understanding and acceptance of ethics in Germany. More concretely, people are interested in whether and how ethics “pay” (Paine, 2000). Like this, the trend in Germany is no different than elsewhere in Europe.

4.1 The Concept of Public Ethics and Its Acceptance in the German Civil Service System

Discussions about a loyal, integer, efficient, and trustworthy civil service in Germany are already 300 years old, or (even) as old as the existence of the concept of bureaucracy, as such. What is still a relatively new phenomenon is to use the term “public ethics” in this context (or, more recently, the term “integrity”). In Germany, for a long time, ethics were discussed abundantly in the field of philosophy (Kant) but not in public policies or in public administration. Instead, in the German civil service, civil servants are called upon to apply the rules, values and principles enshrined in the German Grundgesetz (Basic Law), the case law of the German Bundesverfassungsgericht (Federal Court of Justice), the Beamtendienstrecht (Civil Service Law of the Federation and the Bundesländer) and respect disciplinary law. Actually, Germany imported the term “public ethics” from Anglo-Saxon countries and, later, earlier at the end of the 20th century (Behncke, 2006).

Since then, the concept is interpreted in a two-dimensional way: On the one hand, public ethics refers to a moral dimension with regard to values, norms, and personal behavior. On the other hand, the term included a judicial-legalistic dimension with regard to laws, institutions, and controls (Behncke, 2006, 251). According to Article 33, Paragraph 5 of the Basic Law (Grundgesetz), the law of the civil service must be regulated while taking into account the traditional principles of the professional civil service. The Federal Constitutional Court defines these principles, among other things, as the performance principle, the loyalty principle, the duty of neutrality, and the employer’s duty of care. Since civil servants have a special relationship of service and loyalty under public law, a number of special duties are imposed on them. These basic duties include that civil servants carry out their duties impartially and fairly, and that they must take the public good into account when carrying out their duties. In addition, they must dedicate themselves to their job with full personal commitment. Their behavior on and off duty must reflect the respect and trust that their profession demands. This duty can also be violated if an official commits a crime while off duty. When carrying out their duties, they must always take Art 33 paragraph 5 of the German Basic Law (the public good) into consideration.

The civil service is for life. This is associated with the expectation that civil servants are less corrupt, are less influenced by conflicts of interest and are fully dedicated to their job. However, it has never been examined whether the lifetime principle (particularly in an international comparison) actually has these desired effects. According to Section 77 of the Federal Civil Service Act (BBG), civil servants commit an official offense if they culpably violate their duties. This is a disciplinary offense if it is a particularly serious breach of duty and is likely to impair trust in a way that is significant for your office or the reputation of the civil service. For retired civil servants, according to Section 77 Paragraph 2 BBG, certain breaches of duty are deemed to be official misconduct, e.g., activities contrary to the free democratic basic order or breach

of the duty of confidentiality. Disciplinary statistics collected annually (most recently in 2023) record the official and judicial disciplinary proceedings that were concluded due to a breach of official duty. The 2023 disciplinary statistics concern 248,900 federal civil servants. In 2023, a total of 1,091 disciplinary offenses were examined for disciplinary relevance (which is a relatively stable figure compared to the years 2022, 2021 and 2020). Out of these, 723 disciplinary proceedings were completed, resulting in 321 disciplinary measures being imposed. In 2023, a disciplinary measure was taken for around 0.13% of the active federal civil servants included in the disciplinary statistics. The most frequently identified official misconduct concerned the unethical behavior of the civil servant on or off duty. This was followed by failure to comply with the obligation to follow official instructions from the superior (Federal Ministry of the Interior, Building and Community, disciplinary statistics 2023, <https://www.bmi.bund.de/>). However, these low numbers do not allow any conclusion to be drawn as to whether German civil servants behave particularly ethically or whether the control and enforcement of breaches of duty is deficient. In fact, disciplinary statistics are the only way to get insight into the monitoring and measuring of unethical conduct. In reality, just like in most other European countries, Germany is not monitoring and measuring civil service ethics (except for criminal and disciplinary wrongdoings).

Thus, for a long time, public ethics policies primarily addressed problems of corruption, bribery, fraud, theft, discrimination, conflicts of private and public interest (through rules and policies as regards gifts, promises, jobs, activities), and infringement against disciplinary law. This is fairly conventional. For example, the yearly published Integrity reports by the Federal Ministry of the Interior Building still focus on the fight against corruption (BMI, 2023). Compared to the situation elsewhere, the term „integrity“ is used in a very narrow sense and means that all public employees should follow the rule of law, are not corrupt (commit no fraud) and take impartial decisions (“VerwaltungsinTEGRITÄT bedeutet, dass in Deutschland alle Beschäftigten im öffentlichen Dienst rechtstreu, unbestechlich und objektiv Entscheidungen treffen”) (BMI, 2023, p. 19). Contrary to this, Huberts (2018, p. 2) distinguishes eight forms of integrity (ethics): wholeness and coherence, professional responsibility, moral reflection, values (s) like incorruptibility, abidance to laws and rules, moral values and norms, and exemplary behavior.

Thus, in the German discussion about ethics and integrity, there is less attention to other forms of administrative misconduct like bullying, intimidation, violence, abuse and manipulation of data, algorithms and information, unethical leadership, unfairness, harassment, waste of organisational resources, and private time misconduct.

Again, this can be explained by a fundamental feature of the German public administration: The separation of morality from work and the wish to maintain an impersonal character of organizational life. Like this, subjective and emotional behavior should be subordinated to the objectives of the “iron cage machinery” (Max Weber): German organizations are supposed to act

rather amoral, legalistic, standardized, and functional, and without regard to persons (to make it short: as impersonal and machine-like systems). However, this classical bureaucratic (and Weberian) understanding of civil service ethics should not be misinterpreted as a form of inhumane organization. Far from this: Internal decision-making is also highly participative, and the decentralization of responsibilities (also in an international context) relatively high. As such, the German administrative system is highly decentralized. According to Art. 79 3 Basic Law, each of the 16 German Bundesländer has its own organizational prerogatives and can design its own institutional design.

4.2 The Administration and the Distribution of Responsibilities in Germany

Interestingly, despite its classical approach to ethics, another feature of the German system (notably in relation to the French, Greek, Portuguese or Romanian system) is the decentralised structure and delegation of (legal) competences in the field of civil service ethics.

Like most other European countries, Germany has a fragmented and decentralized system based on the principles of self-regulation and self-management. For example, suspected cases of misconduct by German ministers or secretaries of state can be checked and monitored by the German parliament. However, there exists no independent and external monitoring bodies that supervise either top civil servants or parliamentarians. There is also no centralized public- and civil service ethics body for all public institutions and bodies. Instead, in Germany, the Federal Ministry of the Interior, Building and Community (Division DG I 3 takes the lead on these issues) is the main coordinating body for ethics policies, but only on the federal level. The Ministry also issues yearly reports about integrity (so-called *Integritätsberichte*) and oversees the implementation of the various anti-corruption and anti-fraud laws on the federal level.

It is supported in its work by other bodies and organisational structures, such as units responsible for internal audits and/or the prevention of corruption in other ministries and the Federal Chancellor's Office, bodies responsible for authorising secondary employment and the acceptance of gifts and/or the Agency for Civil Education.

Furthermore, in accordance with the Anti-Corruption Directive, each federal agency (including all ministries) is required to appoint contact persons for corruption prevention, who can inter alia be charged with advising the management on corruption prevention issues, keeping staff members informed on corruption prevention matters, and monitoring and assessing any indications of corruption. Under the auspices of the Federal Ministry of the Interior, Building and Community, a network of contact persons across the federal administration would come together annually to discuss issues pertinent to the prevention of corruption in the federal administration. The main policy document in the field of civil service ethics at the federal level is the Federal

Government Directive concerning the Prevention of Corruption in the Federal Administration (hereafter “the Anti-Corruption Directive”). The current version of the Anti-Corruption Directive dates back to 2004 (with a revision currently being prepared by the Federal Ministry of the Interior, Building and Community in close consultation with all federal ministries).

The Anti-Corruption Directive prescribes inter alia that all federal agencies shall identify areas of activity especially vulnerable to corruption, which is to be followed by an assessment as to whether existing safeguards are sufficiently effective to counter the risks. In addition, the Anti-Corruption Directive is said to serve as a model for the 16 Länder and to influence strategies of the private sector. The Anti-Corruption Directive is complemented with an Anti-Corruption Code of Conduct and Guidelines for supervisors and heads of public authorities. The Anti-Corruption Directive, Code of Conduct and Guidelines for supervisors and heads of public authorities are compiled in one brochure “Rules on Integrity” (Regelungen zur Integrität), which also contains further guidance to each of the provisions of the Anti-Corruption Directive (called recommendations for the prevention of corruption), additional circulars and administrative regulations on such issues as gifts, sponsoring (etc.), as well as relevant excerpts of the German Criminal Code, the Freedom of Information Act and useful internet links.

In addition, various legal provisions (on ancillary activities and post-employment restrictions pursuant to the Act on the legal status of Federal Ministers and the Act on the Legal Status of Parliamentary State Secretaries) set out certain enforceable integrity standards. Next, the ethics of German (federal) civil servants, including principles and ethical leadership obligations (*Fürsorgeprinzip*), are defined in the various German civil service laws.

Still, since police matters are (mostly) the responsibility of the German Länder, this is also the case for the implementation of anti-corruption laws and ethics policies on the sub-national level. Overall, each Land has its own policies, strategies, and rules in the field of civil service ethics.

4.3 Towards the Choice of New Instruments, Approaches, and Styles

When reflecting upon the development towards ever broader conceptions of the term “public service ethics”, in Germany, the focus has long been on the adoption of more and stricter rules and sanctions, thus hard institutional instruments. On the one hand, also in Germany, it is accepted that bureaucratic organisations are often dysfunctional and people dislike organizations that perceive organisations and employees as machines and people as instruments. Therefore, during the last decades, policies also focused on preventive measures like investments in training, awareness raising, ethical leadership, risk management, the introduction of the so-called four-eyes principle, the strengthening of internal reviews, the introduction of anti-corruption officers, and the hesitant adoption of codes of ethics.

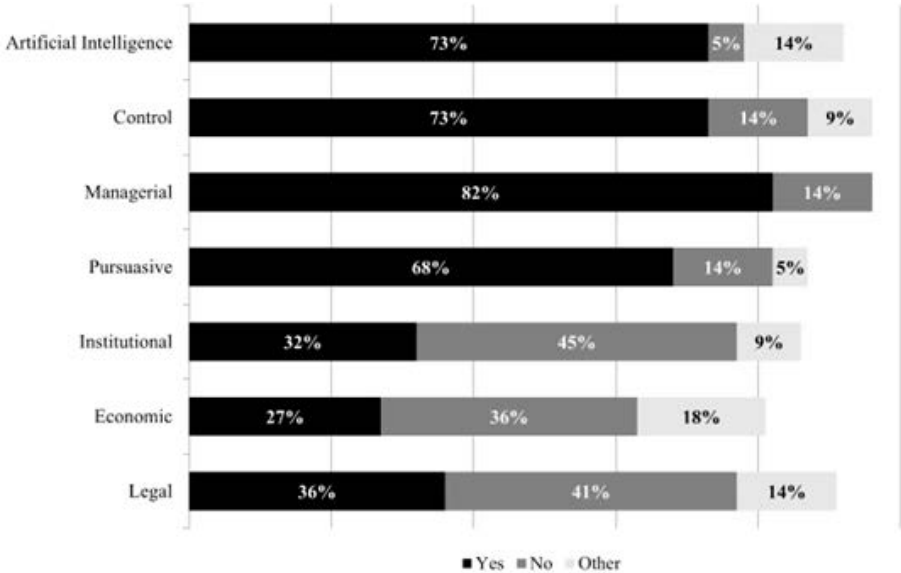
With this choice of instruments, Germany is fairly traditional.

Like this, we contradict the popular assumption that Germany is focusing exclusively on compliance-based approaches and hard instruments. In fact, it is widely accepted that only the combination of soft, informal, and hard approaches offers opportunities and prospects for good administrative practice (Faust, 2008, p. 260). In fact, this has long been recognized by the German Government. For example, the yearly published Integrity report lists all existing preventive measures in chapters 1.2 and 2.2. and the most important laws and rules in chapter 2.1.2. of the report.

This, again, means that public ethics can only be effective if there exists a broad menu of instruments and if ethical requirements match with other societal standards, norms, and values. Thus, even if countries have a perfect ethics management system at their disposal, this does not mean that this system also generates the anticipated positive outcomes.

Still, as regards the question “In which fields are the most promising opportunities for innovations and effectiveness?”, Germany responded that it still sees great opportunities in the field of legal innovation. This contrast with most other countries who see the greatest opportunities in the field managerial, Artificial Intelligence, control, and persuasive instruments, but not in the legal field (which is perceived as not innovative) and also not in the field of economic innovation (because the choice of available instruments is too limited in this field).

Table 4: When considering the need to increase the effectiveness of ethics policies, in which of these fields are the most promising opportunities for innovations and effectiveness? N=22



Source: Author's own.

Moreover, public service policies can only be effective if there exists awareness that public ethics “pays” (Paine, 2000; latest Ahluwalia, Ferrell, Ferrell and Gandhi, 2023) in terms of increased country, organizational, and individual performance. Only then is there a chance that ethics policies are taken seriously.

Whereas in the meantime, a solid body of research exists (Mungiu-Pippidi, 2015; Mungiu-Pippidui and Johnston, 2017; Mungiu-Pippidi, 2020; Bågenholm et al., 2021; Meyer-Sahling et al., 2019, 2020 and 2021) that backs up claims to which good governance features and ethical governance are linked to positive governance outcomes such as lower corruption levels, higher trust levels, enhanced organizational- and individual performance, lower sickness levels, higher job motivation etc. This is not yet common sense in German public life, where public ethics is still seen as a soft policy.

Proponents of ethics management rightly claim (for exp., OECD, 2020) that institutions can enhance individual- and organizational performance, promote honor, respect, compassion, mindfulness, tolerance and anti-discrimination.

However, as can be seen, leadership and institutions can also act exactly into the opposite direction: They can promote and support unethical conduct, suppress morality, overstretch it, deviate and transgress from accepted norms, and commit employees to unethical acts.

Overall, it is naive to think that ethics management also pays in a context of democratic backsliding, at any time and in any political context. There is a discernible perception that merit-based and impartiality principles are at the very least being less implemented and enforced (Oliveira et al., 2023). At the same time, populists and authoritarian leaders are popular because of their anti-elitist and anti-corruption agendas and because people are distrustful of the powerful and of politicians, political parties, and public authorities. Like this, anti-corruption and integrity policies are easily abused as political stigmatizers and against good governance policies. Overall, more politicians have discovered that moral talk and moral action are popular and help them to gain political support.

Thus, also in Germany, the present understanding of ethics seems to be paradoxical: on the one hand, as the results of the study show, everywhere in Europe, there has never been so much public attention on ethics, discussions about the need to fight unethical behavior, moralization, and scandalization. On the other hand, different policies have different objectives. Ethics policies are popular, but not effectively implemented and enforced, and there is very little common understanding of what should be the objective: what is ethical behavior?

In the meantime, also inside the public service, moral and ethical standards are changing as rapidly as the administrative and Human Resource Management (HRM) context. What was legal a generation ago is considered unethical today. Thus, the concept of ‘Integrity of Governance’ is more complex and “path dependent” than ever. Progress in the field is combined with new challenges, conflicts, and dilemmas. In the field of Governance, experts (Peters

and Pierre, 2021; Torfing, 2023) observe trends are moving towards a “marketization of societies” (Sandel, 2012), but also towards the return of the big security state - *Leviathan*, towards flexible forms of Governance, the emergence of a digitalized shared economy, and a return to ‘moral politics’ – all in one. To this should be added trends towards the diversification of institutional systems and HRM systems.

Finally, despite ever more investments in the field of ethics management, little is known about the effectiveness of various hard- and soft policies and instruments and in which institutional contexts and individual situations they work, or not. Despite these uncertainties, in many European countries, the reform of ethics policies develops into a highly specialized and professionalized ethics bureaucracy. Here, trends are towards ever broader and stricter integrity requirements. Still, our data shows that ethics policies are ineffective because of the existing shortcomings in measuring, monitoring implementing integrity policies. Here, Germany is pursuing a slightly different and less bureaucratic path because it “trusts” heavily in the public ethos of its civil servants and its rule-abiding culture.

This altogether presents a highly fascinating, but also a contradictory scenario. In the field of civil service ethics, there is no common trend towards a universal ethical administrative model. Instead, there is – differently to what neo-institutionalists expected – no “isomorphism” logic and no trend towards a best-practice model.

For example, the German model differs considerably from the French model, although both models can be described as rather classical bureaucratic ethics systems. Because of its focus on regulation and (judicial) control, the German model is easily dismissed and perceived as old-fashioned (Hoekstra, Huberts and van Montfort, 2021). Still, from a German perspective, the emerging ethics management systems and institutional models in other EU countries also do not necessarily perform better, because there is no evidence that corruption levels, conflicts of interest, discrimination, unethical leadership, bullying, or harassment would be significantly lower elsewhere. This also relates to the so-called forerunners in ethics policies, like the Scandinavian countries. While these countries perform well in the field of anticorruption, this cannot be confirmed in other fields of civil service ethics, like in the field of conflicts of interest

Still, in all countries, integrity policies, ethics management, and the monitoring and measurement of ethics policies are expanding and becoming more complex, bureaucratic, and control-oriented. Looking at these developments, one could even say that the bureaucratisation of ethics policies is a global trend (Demmke, 2024) whereas the – so-called traditional, compliance oriented and bureaucratic German ethics system is only reluctantly accepting the latest reform fashions in the broader field of public service ethics, like requirements to introduce detailed disclosure requirements or to introduce tough revolving door measures. This is paradoxical indeed.

4.4 Current Reform Trends of German Ethics Policies

Also in Germany, during the past decades, trends have been towards an ethicalization of law and policies. Ethicalization means that ever more laws, regulations, and administrative provisions refer to ethical requirements and ethical standards. Ethics concepts have also become broader, and ethical standards have become stricter, especially in the field of anti-discrimination and conflicts of interest (Demmke et al., 2021). This is also being confirmed by our data: These trends can also be characterized as a self-reinforcing and scandal-driven logic that is highly simplistic, change-resistant and continues to follow the logic of requesting ever more and ever stricter laws, after scandals took place. Simplistic and change resistant means that it is simply impossible to call for a deregulation, relaxation, or differentiation of integrity policies in certain areas, or – sometimes – to criticize the call for more and stricter laws. Partly, this logic still exists today. The popular narrative is the following: More, stricter, wider – is the way to go.

However, scandals are rarely the only (or most important) reason (or cause) why countries reform and innovate ethics policies. For example, in the past, in many national cases, assessments and recommendations by GRECO evaluations have played a role in why governments changed policies. In other cases, new research, evidence, or studies published by the OECD can also be influential. Again, in other countries, new case law by courts puts governments under pressure to change laws and policies. Also, media attention or reports by watchdogs (NGO's) are important causes and pressures for new reforms and innovations. In Germany, GRECO evaluations and OECD assessments are not well known to the public. Instead, the most important pressures for (mostly legal) reforms are scandals. Still it is worth noting that German policies in the field of public ethics strongly focus on problems of corruption, bribery, fraud, theft, discrimination, conflicts of private and public interest (through rules and policies as regards gifts, promises, jobs, activities). They are less designed to address other forms of misconduct. Just like most other countries, the German administration is reluctant to effectively monitor ethics policies or to measure misconduct, like conflicts of interest. Also, enforcement activities strongly focus on criminal misconduct, which is conducted by the police, (special) prosecutors, courts, and so-called internal review (monitoring) activities.

Therefore, the German system could be described as a highly legalistic system that is reluctant to "moralize" ethical conduct within the civil service. Instead, the system focuses on the maintenance of the rule of law, the principle of merit, and the realization of a public service ethos through a number of (highly specific) civil service principles and norms. Like this, it is less a "Weberian" rule-abiding system, but rather a rule of law- and principle-based system.

Consequently, in Germany, the belief is still very strong that government integrity flows from respecting and applying the rule of law, a public ethos, sound administration, classical hierarchical structures, and a specific civil service system with life-time tenure, full-time employment, seniority, advantageous pension systems and the existence of career systems. All of these fea-

tures, it is believed, are necessary in order to reduce as far as possible the risk of too much political influence, corruption, misconduct, the exercise of private interests, and state capture for private interests. Following this, at a minimal level, the German administration is considered to be good and ethical if it achieves the implementation and enforcement of the existing laws and policy goals of the Government of the day. Moreover, ethically good or acceptable behavior is defined in terms of rationality, impartiality and the application of the merit principle. But not in terms of expected and anticipated, concrete behavioral features.

This approach is still widely supported and had its early origins in the skepticism of Immanuel Kant and Niklas Luhman, who either (Kant) did not believe in the possibility of defining normative and right/good pure values or (Luhman) warned against the moralization of organizational life. Today, influential experts like Kuehl (2020) and Armbruster et al. (2021) follow this tradition and continue to discuss the ambivalent relationship between organization and morality. Together with the still existing Weberian influence and memories of the fascist period (in which the administration was heavily politicized and emotionalized), this makes German decision-makers and civil servants reluctant to accept any form of emotional management.

Still, German civil service experts are convinced that specific organizational structures, principles and specific civil service features implicitly “produce” a certain bureaucratic personality (Merton, 1940), public service ethos, and “public service motivation” for civil servants who – in exchange – will be committed to the public good, neutrality, impartiality and displaying expertise (Like this, it can be explained why the German civil service has the most specific civil service features in Europe in which status, pension systems, sickness insurance and working conditions differ most from private sector employees. For many Germans, a specific (amoral and functional) civil service is a synonym for institutional integrity. Therefore, German civil servants should follow a rational, technical, instrumental, and impersonal understanding of integrity.

4.5 The German Civil Service Ethics System Under Pressure

For a while, Germany is under pressure to adopt the Freedom of Information Act, with a particular focus on the scope of exceptions under this act and other more recent legislation, the application of these exceptions in practice, the system of fees, and the enforcement of the act, whenever necessary. The main issue at stake is disclosure requirements of lobbyists, top executives, and members of parliament. Mostly, as regards the latter, Germany notes a conflict between the duty to disclose interests and (fundamental) privacy rights of Members of Parliament. However, Germany also considers that the obligation to include requirements for spouses and dependents to declare (financial) interests in disclosure policies constitutes an interference with the constitutional rights of those persons obliged to disclose financial information. Germany argues that it is always necessary to take into account the right to determine the use of one’s personal data (Article 2(1) in conjunction with Article 1(1) of the

Basic Law) and the right to freely choose one's occupation (Article 12(1) of the Basic Law). "If fundamental rights are affected, interference with these rights must serve a legitimate purpose and be suitable for achieving this purpose. Such interference must also be necessary to achieve the desired purpose, and the intended purpose of the interference must be in reasonable proportion to the severity of the interference" (GRECO, 2023). On the other hand, it is acknowledged that transparency obligations serve the important purpose of preventing corruption among persons with top executive functions. However, it is not clear whether detailed disclosure obligations and those of spouses are necessary (and proportional) to combat conflicts of interest.

Therefore, Germany is reluctant to require extensive disclosure requirements and the sanctioning in practice, in case of non-disclosure. Another challenge concerns the management of revolving door policies. For example, GRECO notes that Germany has still not introduced an unequivocal obligation to disclose various situations of conflicts of interest, as they occur on an ad hoc basis. "GRECO also recommended that (i) measures be taken to ensure consistency and transparency of the decisions authorising new occupations of state secretaries and directors general following their public service, and (ii) it be considered to extend the length of the cooling off period for ministers and parliamentary state secretaries, to change the composition of the advisory body and to introduce sanctions for failing to comply with decisions of the federal government on these matters" (GRECO, 2023).

Also, Germany argues with the existence of value conflicts and, consequently, the difficulty in managing revolving door policies effectively. For example, the German authorities agree that civil servants (and holders of public service) should notify their last employer of any remunerated or other employment after leaving their office. This obligation to report employment after leaving office represents a necessary and reasonable balance between enforcing obligations that continue to apply after leaving active public service, but, and on the other hand, the right of retired civil servants to freely choose their occupation, according to Article 12(1) of the Basic Law, or the freedom of expression, arts and sciences according to Article 5(3) of the Basic Law.

Since Germany still has a very traditional civil service system (which is based on the principle of life-time tenure), most directors general (and even state secretaries) end their careers as civil servants with life tenure by retiring. This also explains the (relative) disinterest in Germany for revolving door policies: German civil servants rarely move between the public and the private sector. Whereas internal mobility within the public service (and even within Ministries, Agencies, etc.) is high, this is not the case as regards mobility between sectors (Behncke, 2006, p. 254).

By contrast, high political office in the Federal Government is only held for a limited time, and office-holders must often pursue new careers before they reach retirement age. Unlike civil servants, they are typically unable to retire when they leave office and support themselves with their pension benefits. Therefore, rules on the length of cooling-off periods should be applied to dif-

ferent categories of staff and, if necessary, offer an appropriate balance in each individual case between the public interest and the constitutional right to freely choose one's occupation.

However, even if it can be agreed that managing revolving doors is highly complex and sensitive, the Federal Government rarely sanctions public officials in the case of possible violations of cooling-off, or even prohibits officials from taking up job offers in the private sector (provisions). However, also here, managing and enforcing revolving door policies is also considered one of the greatest challenges elsewhere in Europe. Together with Germany, all countries note that the management of revolving door issues is one of the greatest challenges in the field of public ethics. Thus, also here, Germany is neither a laggard but also not a forerunner.

4.6 Bureaucratic Germany Against the Emergence of an Ethics Bureaucracy

In Germany, awareness is still strong that bureaucratic structures and specific civil service features produce the intended integrity results (Huber, 2025). This contrasts with research, in which specific public service working conditions and bureaucratic structures did not necessarily produce less corruption and a specific public service ethos (Demmke, 2019). Dahlström and Lapuente (Dahlström and Lapuente, 2017) examine the existing link between bureaucratic structures and corruption. Both authors also conclude that closed bureaucracies are negatively related to the quality of governance. In "The Merit of Meritocratization: Politics, Bureaucracy, and the Institutional Deterrents of Corruption" Dahlström et al (Dahlström et al., 2012; see also Rauch and Evans, 2000) concluded that only some factors (most notably the meritocratic recruitment of public employees) exert a significant influence on curbing corruption even when controlling for the impact of most standard political variables. French experts like Lascoumes (2011) have demonstrated that compliance-based approaches do not work in situations when people are highly tolerant of various (and different) forms of wrongdoing. In all of these cases, legal obedience will not help (and motivate people to become less tolerant).

Thus, when assessing the German system, we find ourselves in a paradox: On the one hand, it is difficult to argue why Germany continues to apply a classical compliance-based and rather bureaucratic approach to the concept of integrity. On the other hand, nobody can deny that the German system works well and even outperforms many other reform-minded ethics systems. Even more, from a German point of view, many seemingly non-bureaucratic (New Public management) countries such as... find themselves in a process of introducing ever-growing and powerful ethics bureaucracies. Compared to these trends, the German approach is rather hesitant and anti-bureaucratic.

In fact, whereas many countries support that the management of integrity policies requires sophisticated and complex interventions into personal behavior (for example, when monitoring financial- and non-financial interests of

employees), from a German point of view, these trends easily turn towards a surveillance bureaucracy, easily violate privacy rights and easily turn into greedy institutions (Coser, 1974) and moral entrepreneurship that informs employees how to behave (Anderson, 2017). In fact, these trends are seen as highly problematic: It should never be the role of organisations to interfere in personal moral issues. Instead, organisations should be amoral and purely functional creatures. Seen from this perspective, transparency is seen as a truly ambivalent instrument. On the one hand, transparency and disclosure are preferred to classical modes of secrecy and closed forms of bureaucratic governance. Overall, transparency is perceived as having positive effects on public acceptance and trust. It also enhances policy decisions, which indirectly makes people more trusting. Thus, modern transparent instruments like disclosure policies are generally perceived to be fairer than secrecy and increase the public's feelings of accountability.

However, it is also claimed that disclosure should be better understood as a paradoxical policy and not as a magical device that simply reduces conflicts of interest and enhances trust (Sah, 2023). In times of critical governance, transparent disclosure policies can be easily abused for personal and political interests. Next, effective disclosure depends not only on how people process information but also critically on how the disclosure influences the behavior of monitoring officials, underscoring the need for a holistic approach to managing conflicts of interest that go beyond mere transparency (Sah, 2023). According to our study, monitoring experts in all European countries face a quantity challenge (too much data and information), an overload challenge (disclosures are too complex, need to monitor different disclosure requirements for different categories of staff), and an accumulation challenge (too many updating requirements). Especially, the accumulation problem is little noticed. Consequently, it is hard to organize and manage the amount of complexity (Ben-Shahar and Schneider, 2014, pp. 8–9).

Thus, the German integrity logic reminds us that, because the management of integrity policies is becoming ever more complex and individualized, it is time to raise the question of whether or not it would be more effective to move back from an individual “bad apple” approach to an institutional integrity approach. While evidence is indeed mounting that the nature of integrity policies is strongly moving to accept the importance of (changing) behavioral, cognitive, and cultural patterns, the German logic is that the conservative legalistic, technical, and impartial approach is not so bad at all.

5 Results and Conclusions

From an international point of view, the German public service ethics system is much criticized as being old-fashioned, regulatory, compliance-oriented, and exclusively focused on corruption, fraud, criminal enforcement, and the enforcement of highly sophisticated civil service rules (Hoekstra, von Montfort and Huberts, 2023). Moreover, the German administrative culture is criticized as not being sufficiently interested in transparency issues, the monitor-

ing of disclosure and revolving door policies, and the measurement of ethics policies, especially as regards conflicts of interest. (GRECO, 2023). Germany is also reluctant to introduce a code of conduct for persons with top executive functions and regarding conflicts of interest and other integrity-related matters (e.g. gifts, outside activities, third party contacts, lobbying etc.) and that such a code be coupled with a mechanism of control, enforcement and sanctions (depending on the breach and its severity) and that is – not only – implemented by Parliament (GRECO, 2023)

All of this may be a correct assessment of German ethics policies.

However, from a German point of view, it is important to note that Germany performs relatively well as regards most ethics policies and – even better – than many other countries such as demonstrated by various good governance indexes (V-Dem Index, CPI Index, Rule of Law Index, Equality Index and Impartiality Index). However, a correct conclusion should be to acknowledge that European countries do not know much about themselves and the effectiveness of their own ethics policies. As regards Germany, trends are towards a more pragmatic reflection about the right regulatory mix, the role of self-regulation, moral reasoning and biased judgment, knowledge about the effectiveness of deterrence mechanisms and sanctions, the need for better integrity policy impact assessments, and the need to overcome the classical distinction between compliance-based and value-based systems.

As such, the German ethics system is much more complex than widely assumed. It certainly focuses on a limited and compliance-based logic. It is also not very innovative. Still, here, again, Germans would reply: Is innovation in the field of ethics a positive trend? (Demmke, 2024). What is innovation? Does it really contribute to better outcomes in the field? (Rouet, Raytcheva and Come, 2024). From a German point of view, everywhere exists no perfect ethical organizational recipe, no evidence about a best-practice menu of tools and instruments in the field, and no readily established accepted theory of public sector innovation in the field of integrity policies (Criado et al., 2023). Our study confirms that innovations in the field of ethics policies may themselves easily turn into bureaucratized, burdensome, personalized forms of purpose-driven management. Whereas many innovations are well-intended as a counter-development to the old bureaucratic and compliance-based approaches, they can also be problematic, as personalized forms of management are just one step away from personalized monitoring and even individualized social credit management practices, or greedy institutional behavior. All of these outcomes of innovation raise serious questions about the relationship between the organization and morality. We are also concerned that, in an era of digitalization and artificial intelligence, the positive understanding about (the myth of) transparency is slowly disappearing. Instead, transparency policies in combination with artificial intelligence raise deep questions about the value of privacy, the effectiveness of monitoring, and call into question naïve requests for more and new technologies. Like this, innovation may be as “new” as it is “conservative”. Not surprisingly, the EU AI Act has designated the intro-

duction of AI in national public HR policies as risk area. Will the introduction of artificial intelligence contribute to easing administrative burdens, or is the concept of innovation nothing but a different word for the creation of a new individualized monitoring and control bureaucracy (Demmke, 2024)? These critical questions not only challenge the concept of innovation in the field of ethics policies. Instead, they only question another central assumption: Are ethics policies *good policies* because they are ethics policies?

Note: The author reports there are no competing interests to declare.

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Cost-Effective Strategies for Regional Road Network Management: The Role of Reclaimed Asphalt Pavement Materials and Urban Factors

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ABSTRACT

Purpose: Our article addresses road-cost management at the regional level—an area less studied than local roads or highways. The study aims to identify critical, long-term urban factors that lead to higher regional road-management costs and to propose a financially sustainable strategy for road-network reconstruction using various reclaimed asphalt pavement (RAP) materials.

Methodology: Using stepwise and enter regression analyses with data on road quality and maintenance costs in Czechia, the study considers fac-

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tors such as elevation, slope, and changes in population and population density.

Findings: The results highlight that slope and road class—both of which are linked to the disconnectedness of the road network—increase road-maintenance costs. Thus, network renewals implemented in compact sets of roads can significantly reduce costs. By contrast, population and population density have only a minimal impact on long-term costs.

Practical Implications: We define scenarios to reduce costs through RAP materials and determine potential savings, using regional roads in Czechia as an example. The scenarios indicate potential savings of nearly €27 million per region when RAP is employed. In practice, using RAP materials can enable infrastructure managers to renew more than one-third of roads each year compared with conventional mixes, or to increase the frequency of restoring lower-quality road sections from every three years to every 2.25 years.

Value: The article offers new insights into the factors that determine regional road-level costs. It demonstrates that using RAP materials in regional road management can positively affect the frequency of road revitalisation.

Keywords: road management, regional roads, RAP, critical cost factors, modernisation, planning, transportation

Stroškovno učinkovite strategije za upravljanje regionalne cestne mreže: vloga materialov iz recikliranega asfalta in urbanih dejavnikov

POVZETEK

Namen: Prispevek obravnava upravljanje stroškov cest na regionalni ravni. Gre za področje, ki je v primerjavi z lokalnimi cestami in avtocestami precej manj raziskano. Cilj študije je opredeliti ključne dolgoročne urbane dejavnike, ki vodijo k višjim stroškom upravljanja regionalnih cest, ter predlagati finančno vzdržno strategijo obnove cestnega omrežja z uporabo različnih materialov iz recikliranega asfalta (RAP).

Metodologija: Na podlagi postopnih in standardnih regresijskih analiz ter podatkov o kakovosti cest in stroških vzdrževanja na Češkem študija upošteva dejavnike, kot so nadmorska višina, naklon ter spremembe števila prebivalcev in gostote poselitve.

Ugotovitve: Rezultati poudarjajo, da sta naklon in cestni razred – oba pa sta povezana z razdrobljenostjo cestnega omrežja – ključna vzroka za višje stroške vzdrževanja. Obnove, izvedene na kompaktnih sklopih cest, lahko zato stroške občutno znižajo. Nasprotno pa število prebivalcev in gostota poselitve le minimalno vplivata na dolgoročne stroške.

Praktična uporabnost: Na primeru regionalnih cest na Češkem smo oblikovali scenarije za znižanje stroškov z uporabo materialov RAP in določili možne prihranke. Scenariji kažejo, da lahko uporaba RAP prinese skoraj 27 milijonov evrov prihrankov na regijo. V praksi to omogoča upravljavcem infrastrukture, da letno obnovijo več kot tretjino cest v primerjavi s klasičnimi zmesmi ali pa pogostost obnove nižjekakovostnih odsekov povečajo z enkrat na tri leta na enkrat na 2,25 leta.

Dodana vrednost: Članek prinaša nova spoznanja o dejavnikih, ki določajo stroške na ravni regionalnih cest, ter dokazuje, da uporaba materialov RAP v regionalnem cestnem gospodarjenju pozitivno vpliva na pogostost revitalizacije cest.

Ključne besede: upravljanje cest, regionalne ceste, RAP, ključni stroškovni dejavniki, modernizacija, načrtovanje, promet

JEL: H54, R4, R53

1 Introduction

Investment in transport infrastructure has an essential role in public spending. It has been the subject of many economic and technical studies but has also attracted attention from several humanities disciplines. Transport infrastructure is often considered a prerequisite for a particular economic development potential. Thus, transport infrastructure has quite an irreplaceable place corresponding with the increasingly intensive shift to just-in-time planning systems. Abeysekara et al. (2021) show that road infrastructure accounts for 31% of capital expenditures globally but also acknowledged a significant gap between the demand for large-scale transport infrastructure and investments in such infrastructure.

Many studies focus on material structure and construction of road pavements, discussing the usage of reclaimed asphalt pavement material (RAP) and identifying potential cost savings. Celauro et al. (2017) show that the use of sustainable construction techniques (RAP and lime stabilisation of clayey soils) can lead to the reduction of total cost and thus allow the allocating of more significant financial resources to perform an “ideal” road maintenance plan on the example of local roads. Other studies aim to identify critical factors in road management. The maintenance costs of roads vary with the type of surface, age, and traffic (Nicholls et al., 2016). Haraldsson (2007) found that costs for all operation and maintenance measures increase with traffic intensity. Furthermore, traffic overload is discussed, showing trucks are expected to pay for most of the cost because heavy vehicles are responsible for most road deterioration (Henning et al., 2014). This is confirmed by Pais et al. (2013), who identified that overloaded vehicles could increase pavement costs by more than 100% compared to the cost of identical vehicles with legal loads. Extensive literature discusses road maintenance under specific weather conditions regarding seasonal changes, especially in winter (Ye et al., 2009) or climate change with increasing temperature extremes (Mallick et al., 2014). Moreover, the core of current studies usually lies on local roads (Nassiri et al., 2015) and highways (Cechet, 2005). Even urban factors determining long-term conditions such as population, population density or elevation and slope (mentioned only in particular conditions – see Stükelberger et al., 2006) are rarely discussed in the literature.

The emphasis on mid-level regional road management regarding long-term cost determinants is much less discussed in the literature, and it is scarce to find studies that can bridge the technical, urban and economic focus. The essential goal of our article is to identify critical urban long-term factors leading to higher costs in regional road management and to contribute to defining the financially sustainable strategy for reconstruction and modernisation of the regional road network by comparing scenarios that use or do not use RAP. In the following part of the paper, we first identify the current research knowledge. Second, we describe the data and methods. Third, we will explain Czechia's regional road network, potential technological change, and financial framework. Then, we define the model on road cost urban factors and determine scenarios for future road cost management. Finally, we discuss our results and come to conclusions.

As one of the key problems related to planning infrastructure projects, Chang (2002) identified cost increases and related delays in project schedules. Project average cost overrun is a commonly discussed problem. For example, cost overruns have been identified in the Netherlands (Cantarelli et al., 2012a; Cantarelli et al., 2012b), where the overrun was 18.6% for road infrastructure. Flyvbjerg et al. (2003) reached an even more remarkable conclusion (based on 258 projects in 20 countries) with an average cost escalation of 45% for rail and 20% for roads. Lichtenberg (2016) documented that some projects in Denmark had overruns of almost 80%, while Odeck (2004) showed a range of overruns in Norway varying from 59% to 183%. Estimates of the cost of future investment in road infrastructure are a large area within the literature and have been addressed in a range of surveys highlighting inaccuracies in the estimation of these costs as the most significant risk in infrastructure construction, including the estimates of future material price changes (Makovšek, 2014).

Some economic studies focusing on transport infrastructure investment have conducted life cycle analysis of road infrastructure (Bessarabov et al., 2021; Cavalieri et al., 2019; Shani et al., 2021). Butt et al. (2014) found that asphalt production and material transport are the two processes that consume the most energy and emit the most greenhouse gases. In contrast, the technical literature discusses the use of new (Cong et al., 2015), innovative (Vlachovicova et al., 2007), copper (Raposeiras et al., 2021), and recycled materials (Salehi et al., 2021; Pasetto et al., 2021) as well as the exploration of the possibilities of producing a new generation of building materials and road surfaces (Lipina et al., 2017). The use of rejuvenators has been addressed from a technical point of view by several studies revealing and analysing the improved properties of these materials compared to conventional materials (Im et al., 2014; Lin et al., 2014). These studies have often focused on finding the optimal ratio to achieve the desired properties and an acceptable lifetime (Zaumanis et al., 2014; Taher et al., 2021) or the sustainability of a specific rejuvenator such as rubber seed oil (Saeed et al., 2021; Zhou et al., 2018).

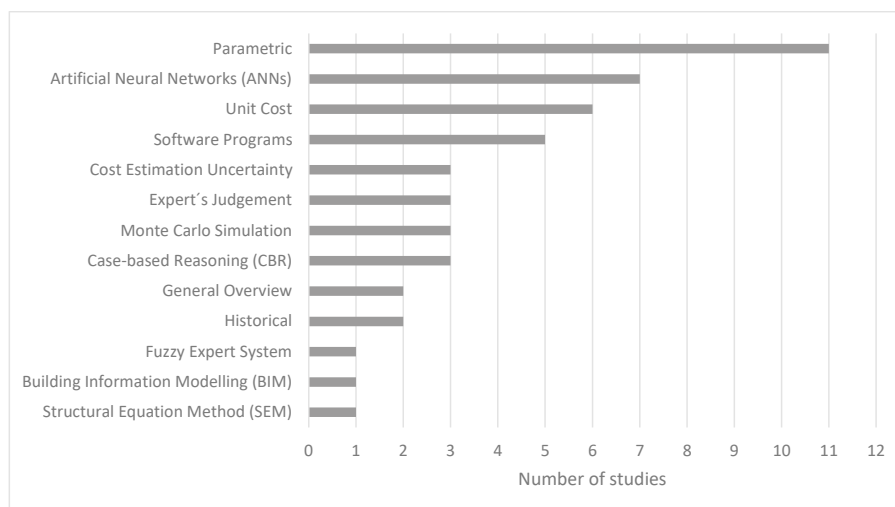
Few assessment studies on using new materials have assessed road infrastructure management's financial impacts and efficiency. Cirilovic et al. (2014) studied 14 countries in Europe and Central Asia and looked at variables that influenced the unit cost of asphalt concrete (AC) and road rehabilitation and reconstruction (RRR) costs. Their results showed that the country's corruption level and economic environment significantly affected both costs. Ahmed et al. (2015) showed how past damage cost estimation studies on highway pavement had been plagued by several devastating limitations, ranging from the lack of appropriate data and unrealistic or impractical assumptions to inadequate consideration of criteria that influence such costs. Another study by Lee and Ibbs (2005) estimated the maximum amount of highway rehabilitation/reconstruction during various closure time frames. Regarding road infrastructure management, Tran et al. (2018) provided a categorisation of road reconstruction based on 139 project pairs with five categories: (1) new construction; (2) reconstruction; (3) resurfacing, restoration, and rehabilitation (3R) projects; (4) intelligent transportation systems (ITS)-related projects; and (5) miscellaneous construction such as pavement, cycle lanes, and landscaping. Our study focuses on optimising road infrastructure management in category three, corresponding to resurfacing, restoration, and rehabilitation.

2 Data and Methods

The study is based on two primary data sources. The first one is the MONITOR information portal from the Ministry of Finance of Czechia (Ministry of Finance, 2017), which is the basic database of public expenditures in Czechia, both for the state budget and state funds and for local self-government units and organisations established by them, including both regions and municipalities. Data on expenditures on road maintenance and reconstruction at the level of both cohesion regions and regions from 2008 to 2015 were drawn from this database. Cohesion regions were responsible for the redistribution of financial resources from the European Structural Funds during this period, and one of their basic agendas was the financing of road reconstruction and modernisation. To specifically identify expenditures on regional roads, we used paragraph 2212 (Ministry of Finance, 2018) in combination with operational (class 5) and capital expenditures (class 6) of the budget structure. The second data source is the Transport Yearbooks of the Ministry of Transport (2003–2016), which provide basic information on the extent and condition of transport infrastructure. These yearbooks were also supplemented by information from the annual reports of the regional road infrastructure managers (officially called the given region's Road Administration and Maintenance 2003–2016). The data on geographical characteristics are based on Arc ČR 3.4 (Arc Data Praha, 2022). This dataset provides basic geographical features for Czechia in ESRI ArcGIS. Finally, our database covers 49 2nd class roads and 446 3rd class roads split into 43,262 specific sections according to road section and relevance to a municipality.

An overview of the most commonly used methods for estimating road infrastructure costs is provided by Barakchi et al. (2017). This study includes all unit cost methods corresponding with our research. Figure 1 presents the frequency of use for these methods.

Figure 1: Cost estimation method frequency

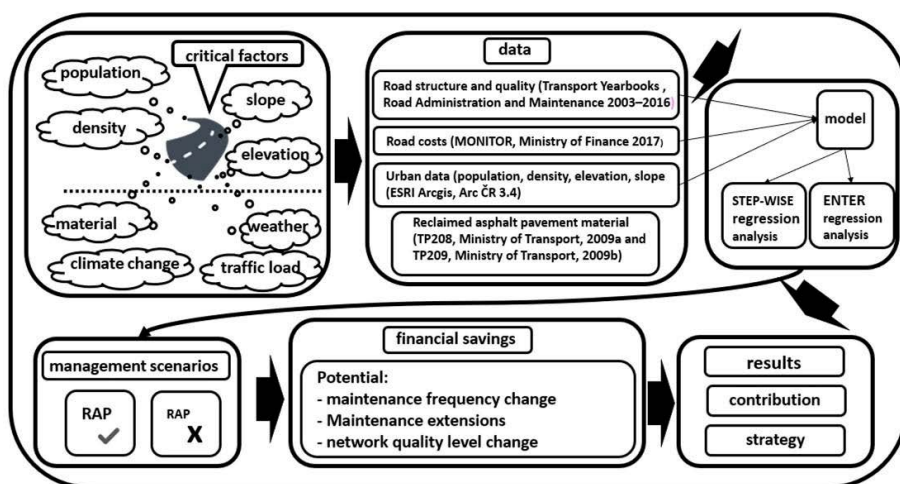


Source: Barakchi et al. (2017).

Our study addresses the research question by looking at the management of regional road infrastructure in Czechia and identifying factors that can help answer the questions about what factors are leading to higher costs in regional road cost management. The roads in question are referred to as 2nd and 3rd class roads. These are not the most critical roads managed by the central administrator (The Road and Motorway Directorate of Czechia), but they are a very dense network of regional infrastructure managed by 14 different entities at the level of self-governing regions. These roads are managed through a road management and maintenance body subordinated to the region. This study focused only on 13 regions in Czechia because the capital of Prague is excluded from this analysis. After all, it corresponds closely to the administration of local roads. Methodologically, we start with descriptive characteristics of regional road infrastructure in Czechia, including the quality of roads. We continue defining the technological potential of using RAP material instead of conventional materials for resurfacing roads, and we assess the financial and budgetary framework of regional road investment and maintenance cost by public operational and capital expenditures. Reclaimed asphalt pavement material (RAP) is defined in this study according to official Czech technical requirements in TP208 (Ministry of Transport, 2009a) and TP209 (Ministry of Transport, 2009b). In the following part, we created a model to explain the critical regional road cost optimisation variables. All appropriate input explanatory variables were found and selected for the average total expenditure regression analysis using the step-wise regression method. These variables

were then used in the classical enter regression method. Even if we studied 2010 to 2016, our analysis is based on cross-sectional data because we used whole-period averages. The period from 2010 to 2016 was selected because it corresponds with the Regional operation program funded by structural funds from the EU (officially, the period was defined from 2007 to 2013. However, the start of the disbursement was delayed by about two to three years, and it was billed financially in 2016. Long-term averages are why we have worked with raw financial expenditures, not including inflation, because the expenses for all regions correspond to cashflow volatility (see Figure 5). This method was then applied separately to capital and operational expenditures, with the sum of the regression coefficients for these two types of average expenditures always yielding a regression coefficient for total average expenses. Regression analysis is used to determine the dependence of the quantitative dependent variable under study on one or more independent quantitative variables. For all regression models, we performed residual tests: normality of distribution, autocorrelation and heteroskedasticity, specifically the Breusch-Pagan test. In cases where the models developed problems with residuals, we created new robust models using rlm functions and robust standard errors that are less prone to these problems. We then compared the results of the original and robust models. The results of the two approaches are not significantly different, and the original variables remain statistically significant. The aim of regression analysis is then to describe this dependence using an appropriate model. Finally, the study employs a scenario method, which compares two potential scenarios in terms of adaptation or resistance to the use of new materials and, based on this comparison, determines the potential cost or time savings or changes achievable in regional road management. Our methodology is reflected schematically in Figure 2.

Figure 2: Methodological framework



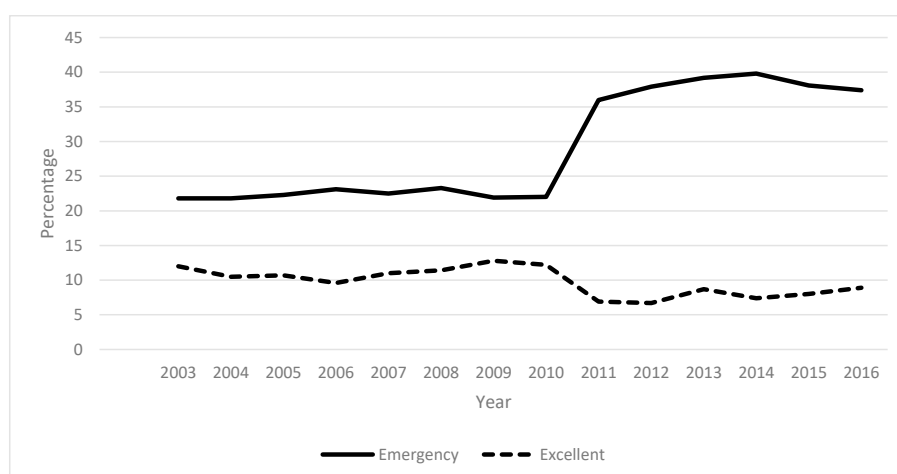
Source: authors' processing.

3 Results

3.1 Regional Road Infrastructure, Technology and Financial Framework in Czechia

In this section, we provide crucial characteristics of the regional road network in Czechia, including its geographical spread, quality level, and entry pre-conditions for using RAP material instead of conventional technology. The crucial point is identifying the needs for such repairs/modernisation/reconstruction and the follow-up technological possibilities regarding material feasibility. Figure 3 shows the average percentage of regional roads in an emergency between 2003 and 2016, according to the Catalogue of Non-rigid Road and Pavement Failures (TP82; Ministry of Transport, 2010).

Figure 3: The average share of regional roads in emergency and excellent condition according to TP82 from 2003 to 2016 (in percentage)



Source: Transport Yearbooks (Ministry of Transport, 2003–2016), Road Administration and Maintenance (2003–2016), authors' processing.

Figure 3 shows that the situation remained constant with a higher rate of roads in an emergency state, with an average during the selected period of 29%, and, in contrast, roads in an excellent state with an average of less than 10%. After 2010, the percentage of roads in an emergency state substantially increased. This could be one of the more long-term effects of the financial crisis in 2008 and 2009, given that in Czechia, there were many budgetary restrictions on the national and regional levels. While before 2010, the average share of roads in an emergency state ranged around 22%, after 2011, the average share increased to 38%.

Table 1 shows the length of roads in an emergency state, including the average annual increase in roads in an emergency state. The table presents two basic variants of the calculations. The length of roads in a state of emergency expresses the need in its maximum variant. In other words, how many

kilometres of regional roads need to be repaired in the regions in total? The second variant is relatively minimal and works with the need to restore at least an annual increment of the roads in an emergency condition and bring them to excellent condition (in reality, however, more should be repaired).

Table 1: The length of roads in an emergency state (maximum variant) and the average annual increase of roads in an emergency state (minimum variant) from 2003 to 2016 (in km).

Region	Total	Length of roads in an emergency state	Increase of roads in an emergency state
Prague	74	28	0.884
Central Bohemia	9,441	3,531	113.294
South Bohemia	6,106	2,284	73.271
Plzeň	5,024	1,879	60.283
Karlovy Vary	2,049	766	24.585
Ústí nad Labem	4,159	1,555	49.904
Liberec	2,422	906	29.068
Hradec Králové	3,742	1,400	44.909
Pardubice	3,589	1,342	43.069
Vysočina	4,981	1,863	59.775
South Moravia	4,316	1,614	51.79
Olomouc	3,533	1,321	42.396
Zlín	2,125	795	25.497
Moravia-Silesia	3,401	1,272	40.813

Source: Transport Yearbooks (Ministry of Transport, 2003–2016), Road Administration and Maintenance (2003–2016), authors' processing.

Table 2 shows the material distribution of the different road layers, from which the needs and possibilities for using RAP in combination with a rejuvenator are then derived, which is reflected in Table 3, which gives the unit prices of materials in EUR per tonne.

Table 2: The thickness of individual road layers and the possible use of RAP according to the ČSN EN 13108-1 standard.

Road composition	Thickness (m)	RAP content (%)
Wearing course	0.04	30%
Binder course	0.06	50%
Base course	0.05	60%

Source: ČSN EN 13108-1 (2008); ČSN EN 13108-1 ED.2. (2017)

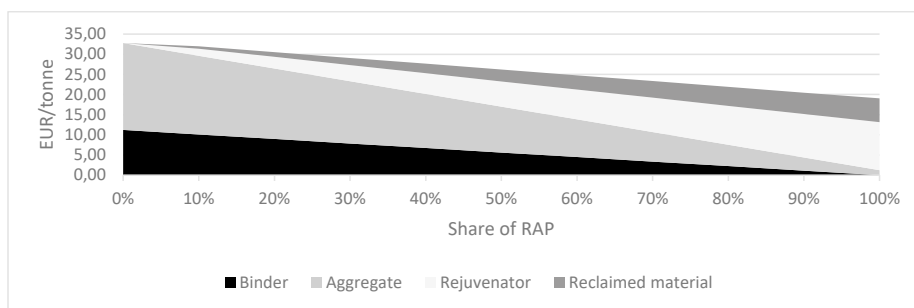
Table 3: Material prices in mixture content in 2017

Raw material	EUR / tonne
Aggregate	11.49
Asphalt binder	267.99
Reclaimed asphalt pavement material (RAP)	4.59
Revitalising additive (rejuvenator)	1,378.25

Source: ČSN EN 13108-1 (2008); ČSN EN 13108-1 ED.2. (2017)

In terms of the specific technical options for the use of RAP and the impact of the chosen process on the final cost or price, the price of the mixture can be observed to decrease with a higher ratio or quantity of RAP used, including the rejuvenator, as shown in Figure 4.

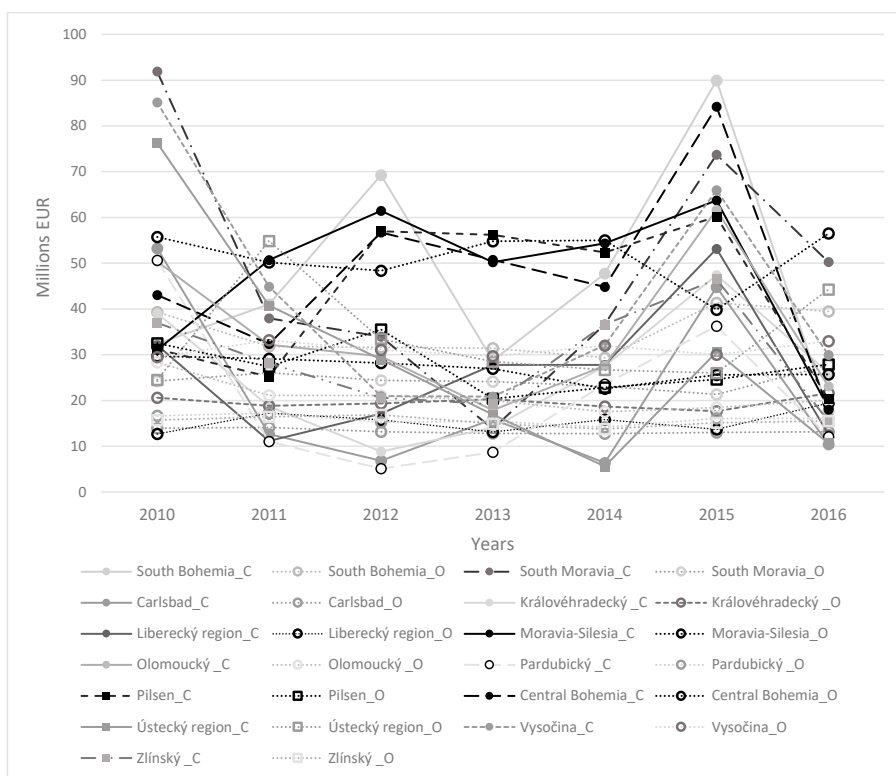
Figure 4: Relationship between the use of RAP (share in the mixture) and price (EUR/t)



Source: Koudelka, 2017.

Identifying annual regional budgetary limits is necessary to determine potential savings. It is required to consider all regional expenses and the relevant expenditures from the regional operational programmes implemented through cohesion regions from 2007 to 2016 to reflect all available funds for the financing of the repair, modernisation, or reconstruction of regional roads.

Figure 5: Total operational and capital expenditure on 2nd and 3rd class regional roads during 2010–2016 (paragraph 2212; in EUR)



Source: Ministry of Finance (2017, 2018); authors' processing

Note: C is for capital expenditures, O is for operational expenditures.

Figure 5 shows the financial budgets for regional roads, including all possible funds from both self-governing and cohesion regions. They show operational expenses and capital expenses. Total expenditures include relatively stable operational spending and, on the other hand, significantly varying capital expenditures. The seven-year average spending over the reference period is assessed as relevant according to a further procedure for evaluating the annual market potential for road repairing activities. Because capital expenditures on regional roads vary significantly in individual years, these fluctuations during this period were mainly caused by the drawing of EU structural funds implemented by the regional operational programmes for each cohesion region. This fact was reflected very clearly in 2015.

3.2 The Model of Road Cost Management Factors

This section defines the model to identify road cost management as a crucial factor. In our defined model, the three explanatory variables, total, capital and operating expenditure on regional roads, were successively considered in the STEP-WISE and ENTER regression analysis. Step-wise regression is a

method of finding the best predictive model. The variables enter the model sequentially in a specific order. At each step, all predictors are examined to determine which one best captures the variability of the dependent variable and its inclusion in the model is decided using sequential F-tests. When the proportion of explained variability increases, the variable is included, a rough rule of thumb for this method is that in a regression based on STEP-WISE, there should be at least forty cases for each variable, so the model should satisfy the 1:40 ratio of the number of variables to the number of observations. Once all variables are selected for the model, the parameters of the linear regression function are estimated, and the regression quality is assessed using the index of determination R^2 , which indicates the proportion of variability explained by the model. This is identical to the classical ENTER regression method, where only all the variables suitably selected in advance are entered into the model. Unless the analysis aims to fit an overall model that thoroughly explains the phenomenon under study, only t-tests of individual variables are essential. Suppose their P-value of significance is less than the significance level (usually 0.05). In that case, the variable is statistically significant in the model, and the magnitude of the effect on the explained variable is given directly by the regression coefficient, which tells how many units the explained variable changes if the input variable increases by one unit.

We analysed the following variables included in our model: `road_class` defines the type and the level of the road, it divides the sample into 2nd class roads and 3rd class roads, which are the categories managed on the regional level in Czechia; `road_length` defines the length of road in one municipal cadastral area in meters; `age_days` this variable describes the age of road expressed in days; `slope_mean` corresponds with mean slope of the road according to the geographical area; `elevation_mean` corresponds with the mean elevation of the road according to the geographical area; `area_ha` corresponds with the area covered by the road in the relevant municipal cadastral area; `pop1961` is municipality population in 1961 relevant to the selected section of the road; `pop2011` is municipality population in 2011 relevant to the selected section of the road; `density2011` is population density of municipality in 2011 relevant to selected section of the road; `change1971` is population density change in municipality between 1961 census and 1971 census relevant to the selected section of the road; `change1981` is population density change in municipality between 1971 census and 1981 census relevant to the selected section of the road; `change1991` is population density change in municipality between 1981 census and 1991 census relevant to the selected section of the road; `change2001` population density change in municipality between 1991 census and 2001 census relevant to the selected section of the road; `change2011` is population density change in municipality between 2001 census and 2011 census relevant to the selected section of the road.

The regression model found for total average expenditure (Table 4) explains 15% of the total variability according to the R^2 determination index. This is not much, but the analysis aimed not to find a comprehensive model but to find which variables affect the level of expenditure. Moreover, the model

achieved a good quality level because the significance of the P-value of the overall F-test on the model was less than 0.05. The histogram of the model's residuals shows a mean of 1 and a standard deviation of 0, indicating a good-quality model. All the selected input variables are statistically significant in the model because the significance P-value of the t-test was less than 0.05. Their regression coefficients then form the equation of the resulting total expenditure model.

Table 4: Model on total expenditures

Variable	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	426.330	3.057		139.470	.000
road_class	8.888	1.148	.039	7.741	.000
road_length	.003	.000	.028	6.253	.000
age_days	-1.475	.062	-.120	-23.936	.000
slope_mean	2.562	.261	.056	9.800	.000
elevation_mean	-.037	.003	-.068	-11.857	.000
area_ha	.005	.000	.176	17.403	.000
pop1961	-.009	.000	-5.569	-42.066	.000
pop2011	.008	.000	5.450	40.106	.000
density2011	.012	.003	.096	4.915	.000
change1971	.111	.025	.075	4.528	.000
change1981	-.372	.021	-.132	-18.013	.000
change1991	-.492	.027	-.158	-18.326	.000
change2001	.805	.039	.307	20.719	.000
change2011	-1.051	.023	-.246	-45.722	.000

Source: authors' processing

The constant for total average expenditure is 426.33. The regression coefficient for road class indicates that if the road is 3rd class and not 2nd class, the total average expenditure is higher by 8.888. This result corresponds with the continuous connectivity of 2nd class roads, which creates a constant network while the 3rd class roads are not connected. In other words, inter-connected networks are less expensive to maintain or invest in. If the length of

the measured section is greater by one, then expenditures are increasing by 0.003. If the road age exceeds one, expenditures are lower by 1.475. This result is very logical and intuitive: the older the road, the higher the costs of maintenance or modernisation. If the slope is greater than one, then expenditures are more significant by 2.562. Even in this case, the slope and geographical conditions matter, which is also confirmed in the case of elevation. If the average elevation exceeds one, expenditures are lower by 0.037. If the area is higher by one hectare, the expenditure is higher by 0.005. If the 1961 population was more significant by one, expenditures are lower by 0.009, and if the 2011 Census population is more significant by one, expenditures are higher by 0.008. If the 2011 density is greater by one, expenditures are higher by 0.012. Changes in population densities between censuses affect spending levels but differ each decade. A change in 1971 density more significant than one means spending is 0.111 higher, a change in 1981 density more significant than one means spending is 0.372 lower, a change in 1991 means spending is 0.492 lower, a change in 2001 means spending is 0.805 higher, and a change in 2011 means spending is 1.051 lower. Taken together across all decades, an average density change that is more significant than one means a reduction in total average spending of 0.987.

The regression model of average capital expenditure (Table 5) explains 12.8% of the total variability according to the R² determination index. This is not much, but the goal of the analysis was not to find a comprehensive model but to find which variables affect the level of spending. The model is again of good quality. The P-value of the significance of the overall F-test on the model came out to less than 0.05. The histogram of the model's residuals shows a mean of 1 and a standard deviation of 0, indicating a good-quality model. All but one of the selected input variables (mean elevation) are statistically significant in the model, as the P-value of the significance of the t-test came out to less than 0.05 for all of them. Their regression coefficients then form the equation of the resulting total expenditure model.

The constant for average capital expenditure is 245.562. The regression coefficient for road class indicates that if the road is 3rd class and not 2nd class, the average capital expenditure is 5.115 higher. If the length of the measured section is greater by one, then expenditures are more significant by 0.003. If the road age is more significant than one, expenditures are lower by 1.082. If the slope is greater than one, expenditures are more significant by 2.066. If the average elevation is greater than one, expenditures are lower by 0.001, which does not have a significant effect, so this variable came out statistically insignificant for the model. If the area is higher by one ha, expenditures are higher by 0.003. If the 1961 population was more significant by one, expenditures are lower by 0.006; if the 2011 census population is more significant by one, expenditures are higher by 0.006. If the 2011 density is greater by one, expenditures are higher by 0.006. Changes in population densities between censuses affect spending levels but differ each decade. A 1971 density change more remarkable than one means higher expenditures by 0.119, a 1981 density change more remarkable than one implies a decrease in expenditures by

0.279, a 1991 density change represents a decline in expenditures by 0.299, a 2001 density change means an increase of 0.554, and a 2011 density change implies a decrease in expenditures by 0.814. In sum, across all decades, an average density change that is more remarkable than one means reducing capital average expenditures by 0.712.

Table 5: Model on capital expenditures

Variable	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	245.562	2.409		101.945	.000
road_class	5.115	.905	.028	5.653	.000
road_length	.003	.000	.035	7.526	.000
age_days	-1.082	.049	-.113	-22.291	.000
slope_mean	2.066	.206	.058	10.029	.000
elevation_mean	-.001	.002	-.001	-.232	.816
area_ha	.003	.000	.140	13.664	.000
pop1961	-.006	.000	-4.969	-37.054	.000
pop2011	.006	.000	4.918	35.731	.000
density2011	.006	.002	.059	3.020	.003
change1971	.119	.019	.103	6.153	.000
change1981	-.279	.016	-.127	-17.132	.000
change1991	-.299	.021	-.123	-14.126	.000
change2001	.554	.031	.272	18.099	.000
change2011	-.814	.018	-.245	-44.928	.000

Source: authors' processing

The regression model found for operating average expenditures (Table 6) explains 18.3% of the total variability according to the R² determination index. This is not much, but the analysis aimed not to find a comprehensive model but to find which variables affect the level of expenditure. The P-value of the significance of the overall F-test on the model is again less than 0.05. The histogram of the model's residuals shows a mean of 1 and a standard deviation of 0, indicating a good-quality model. All but two of the selected input variables (length of the measured segment and change in

density 1971) are statistically significant in the model, as the P-value of the significance of the t-test came out less than 0.05 for all of them. Their regression coefficients then form the equation of the resulting total expenditure model. The constant for the operating average expenditure is 180.768. The regression coefficient for road class indicates that if the road is 3rd class and not 2nd class, the average running expenditure is higher by 3.774. This result confirms the significance of the network connectivity and its impact on the spending.

Table 6: Model on operational expenditures

Variable	Unstandardised Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	180.768	.927		194.909	.000
road_class	3.774	.348	.053	10.833	.000
road_length	.000	.000	.005	1.062	.288
age_days	-.392	.019	-.103	-20.996	.000
slope_mean	.496	.079	.035	6.253	.000
elevation_mean	-.037	.001	-.217	-38.476	.000
area_ha	.002	.000	.217	21.870	.000
pop1961	-.003	.000	-5.505	-42.409	.000
pop2011	.002	.000	5.248	39.385	.000
density2011	.006	.001	.159	8.356	.000
change1971	-.008	.007	-.017	-1.057	.290
change1981	-.093	.006	-.107	-14.871	.000
change1991	-.193	.008	-.200	-23.712	.000
change2001	.251	.012	.309	21.280	.000
change2011	-.237	.007	-.179	-34.008	.000

Source: authors' processing

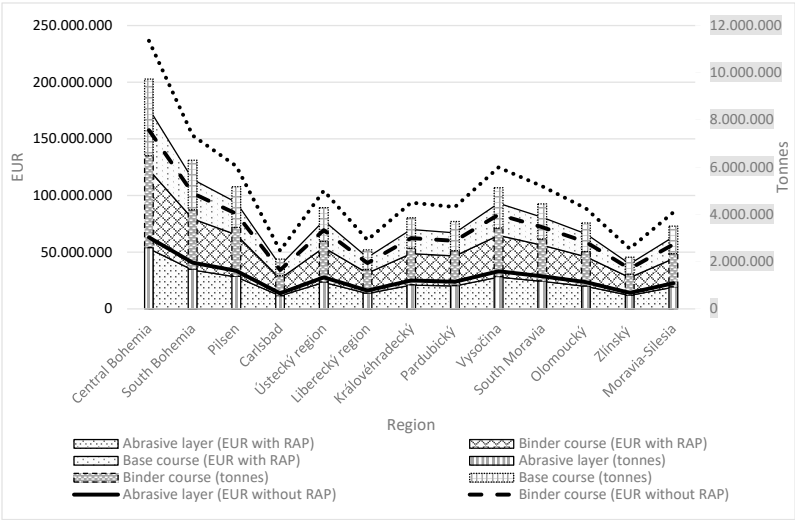
If the length of the measured section is greater by one, then expenditure does not change (0.000), so this variable came out statistically insignificant for the model. If the road age exceeds one, expenditures are lower by 0.392. If the slope is more significant than one, then expenditures are higher by 0.496. These results confirm the importance of geographical conditions, even

confirmed by the elevation. If the average elevation exceeds one, expenditures are lower by 0.037. If the area is higher by one hectare, the spending is higher by 0.002. If the 1961 population was more significant by one, expenditures are lower by 0.003; if the 2011 Census population is more significant by one, expenditures are higher by 0.002. If the 2011 density is greater by one, expenditures are higher by 0.006. Changes in population densities between censuses affect spending levels, but each decade differs. A change in 1971 density higher by one means spending is lower by 0.008, which does not have a significant effect, so this variable came out statistically insignificant for the model. A change in 1981 density more remarkable than one means a 0.093 decrease in spending, a change in 1991 represents a 0.193 decrease in spending, a change in 2001 means a 0.251 increase in spending, and a change in 2011 means a 0.237 decrease in spending. Taken together across all decades, an average density change more remarkable than one implies a 0.274 reduction in average operating expenditures.

3.3 Road Cost Management Scenarios

Under the aforementioned assumptions regarding the utilisation of RAP, the total expenditures required for the repair, modernisation, or reconstruction of regional roads were calculated according to the individual variants based on Table 1. The necessary material was calculated by recalculating the total monetary value in EUR. These calculations were considered for a road width of 7.5 m, which meets the Czech standard (TP82; Ministry of Transport, 2010). Both calculation variants shown in Figures 6 and 7 always reflected the material requirement and its price without RAP compared to the price with RAP. In both cases, the distribution of material and prices for the individual layers, including abrasive, binder, base, and total sum. It can be seen from the figures that to consistently place all 2nd and 3rd class regional roads in an emergency state into an excellent state (the maximum variant), it would be necessary with existing technology to pay for all regions excluding the capital city of Prague a total of EUR 1.378 billion. At the same time, only EUR 1.026 billion would be needed with the use of RAP. Thus, the price difference is EUR 352 million (25.5%), the savings achieved in regional budgets using this material. On the other hand, it is possible to see the entire problem oppositely. Benefits other than only financial savings can be considered because, with the preserved expenditures in this necessary amount of EUR 1.378 billion, it would be possible to repair longer sections in a poor condition: not only roads in an emergency state but also roads and parts of roads in a non-compliant state (TP82 – 4). This would be done by utilising the aforementioned 25% savings on repairs of roads in an emergency state.

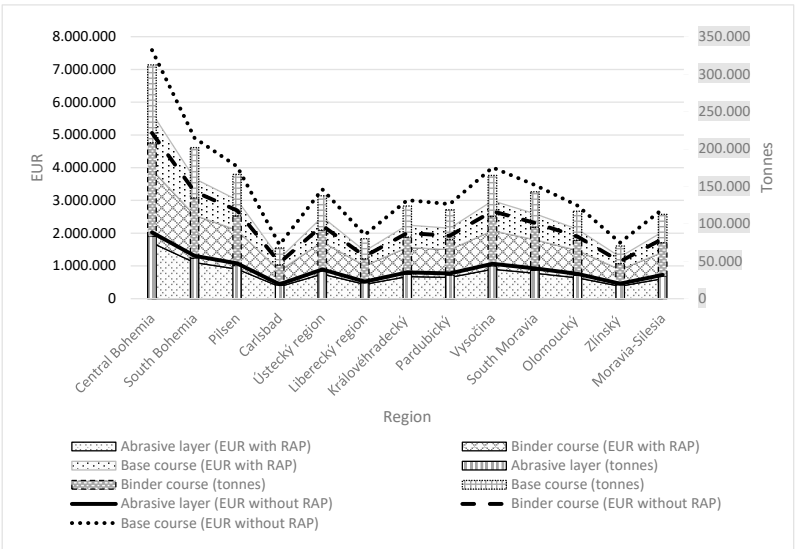
Figure 6: Maximum variant – What likely needs to be repaired by region?



Source: authors' processing

In the minimal variant represented in Figure 7, which is based on the necessity to carry out repairs on at least such a length of roads that is equal to the average annual increase in roads in an emergency state from 2003 to 2016, only 1.2% of all roads are considered, which equals 659 km. With this minimal variant, the costs with current technology correspond to EUR 44.14 million, whereas the expenses with RAP total about EUR 32.963 million, revealing savings of EUR 11.179 million.

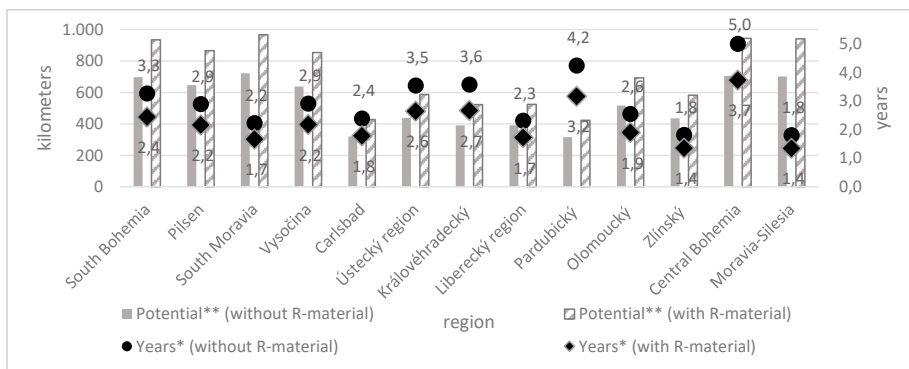
Figure 7: Minimum variant – What necessarily needs to be repaired by region?



Source: authors' processing

We define scenarios A and B. Annex 1 shows the annual average capital expenditures in the individual regions and their total for the Czech Republic. The table then identifies the time needed to reconstruct all roads in an emergency state and the potential length of roads that could be reconstructed in one financial year. Everything was calculated in Scenario A without the use of RAP. Annexe 2 shows the possible savings in EUR and the time needed to reconstruct all roads in the emergency state or the potential length of the roads, which can be reconstructed in one budget year in Scenario B using RAP. Figure 8 compares the scenarios with and without RAP, with the characteristics identified in Annexes 1 and 2 (the number of years required to reconstruct roads in an emergency state and the potential for road repairs in km). It is clear from these results that the market for road maintenance and management of 2nd and 3rd class roads in terms of RAP use during reconstruction ranges around the long-term average of approximately EUR 459 mil per year for all regions excluding Prague (see Annex 1). Another finding is that, from the point of view of road controllers, it is possible to reduce the average time for the reconstruction of all roads in an emergency state (with the maximum utilisation of investment expenditures) from 3 years to about 2 years using RAP see Fig. 6), thus shortening this interval by about one third (on average for the regions considered). Another determined fact is that using all of the funds saved, not only could nearly 7,000 km of roads per year be repaired without RAP (see Annexe 1), but 9,000 km of roads could be repaired with it (see Annexe 2). With a total length of regional roads of 54,888 km (excluding Prague), it is theoretically possible to reduce the period for reconstructing the complete network from 8 years to 6 (assuming full utilisation of investment expenditures from regional budgets and the budgets of the regional councils of cohesion regions according to paragraph 2212 (Ministry of Finance, 2018) of the sectoral division of local self-government budgets and organisations).

Figure 8: The time needed to restore all regional roads in an emergency state (in years) and the potential for annual repairs using RAP (in km)



Source: authors' processing

Table 7 shows the possible savings available for the minimum variant, namely for reconstructing only such a length of roads that corresponds to the year-

ly increase in the length of roads in an emergency state, which would not, in the long-term, lead to the overall improvement in the state of the entire network of regional roads. It is, of course, advisable to carry out some repairs in advance when the roads are not yet in a state of emergency (only in, for example, a state of non-compliance).

Table 7: Identification of the potential savings in the minimal variant

Region	Annual average capital expenditure (in EUR)	EUR without Rm	EUR with Rm	Potential savings (EUR)
South Bohemia	46,814,510	4,909,571	3,666,329	1,243,243
Pilsen	43,373,790	4,039,311	3,016,443	1,022,868
South Moravia	48,389,195	3,470,261	2,591,493	878,769
Vysočina	42,758,088	4,005,305	2,991,048	1,014,257
Carlsbad	21,459,804	1,647,361	1,230,203	417,159
Ústecký	29,400,774	3,343,882	2,497,116	846,766
Královéhradecký	26,201,070	3,009,205	2,247,189	762,016
Liberecký	26,221,756	1,947,706	1,454,492	493,214
Pardubický	21,178,232	2,885,865	2,155,082	730,783
Olomoucký	34,694,528	2,840,776	2,121,411	719,365
Zlínský	29,200,883	1,708,471	1,275,838	432,633
Central Bohemia	47,280,490	7,591,407	5,669,047	1,922,359
Moravia-Silesia	47,093,661	2,734,710	2,042,204	692,506
Total	464,066,782	44,133,832	32,957,895	11,175,937

Source: authors' processing

4 Discussion

Our analysis reveals several interesting findings regarding critical factors that may influence the cost of regional road management in the long run. Road type appears to be the most significant factor in increasing average total, capital and operating expenditures. However, it is somewhat surprising that a 3rd class road is relatively more expensive than a 2nd class road (of higher hierarchical importance) in terms of investment and maintenance.

This finding is contrary to expectations. However, it can be interpreted precisely by the fragmented and geographically inconsistent network of 3rd class roads. In contrast, 2nd class roads are primarily long and interconnected sections forming a continuous network. The disruption of this continuity in the case of 3rd class roads leads to their being managed in smaller sections and makes investment and maintenance relatively more costly. In other words, some economies of scale can be achieved for 2nd class roads. The slope of the terrain where the road is built and subsequently managed is also proving to be critically important. This geographical assumption significantly affects the increase in average investment costs, but it also increases the cost of routine maintenance to a lesser extent. Demographic factors show another interesting finding: neither population nor population density significantly affects regional road management costs. On the contrary, the change in population density plays a role. Again, contrary to the assumptions, an increase in population density does not increase the cost of road management, which might be expected since a more significant population adjacent to a given section implies a higher traffic volume. Nevertheless, the effect is the opposite. It can be explained by the fact that when new residential districts adjacent to the regional road are built, the management of the road is transferred from the region to the municipality. Thus, the road is moved under the municipality's management in the long term. This process then leads to a reduction in expenditure at the regional level.

In our analysis, we considered the period from 2010 to 2016. This period (following the financial crisis starting in 2008) was very stable in Czechia in terms of monetary issues. The gross domestic product deflator yearly change was less than 1%, and the consumer price index annual change achieved around 1.5%. Moreover, the construction output price index showed a decrease in the construction area (Czech Statistical Office, 2023). Thus, the time-given price issues do not significantly affect the relevant period. On the other hand, the last few, starting in 2020 with the COVID-19 crisis, showed a high risk of price volatility of material inputs determined by global supply chain disruptions. The construction output price index in November 2022 achieved almost 12% (Czech Statistical Office, 2023), which means a significant change compared to the studied period. It defines the limit of our study and emphasises the factor of time as a very considerable feature that needs to be considered in road maintenance planning. The savings regarding the costs of RAP can still be identified compared to conventional mixes. The combined savings of asphalt binder and aggregate from using RAP and RAS in asphalt mixtures in the United States is estimated at more than \$3.0 billion and nearly 59 million cubic yards of landfill space (Williams et al., 2020).

The presented results' predictive ability is limited by the use of existing technologies used in Czechia for the maintenance and repair of regional roads. At the same time, these results are limited by the potential use of RAP and its specific ratio together with a rejuvenator. The critical limitation of our results lies in discussing the RAP mixture. Based on annual industry and highway agency surveys in the United States, there appears to be an upper limit on the

average amount of RAP in asphalt mixtures of about 20%. However, these same surveys have identified that most state Department of Transportation (DOT) specifications and standards will allow up to 30% RAP on average (Copeland, 2011; Hansen & Copeland, 2015). Nevertheless, the average percentage of RAP used in asphalt mixtures in the United States has increased from 15.6 per cent in 2009 to 21.3 per cent in 2020. On the contrary, in Japan, RAP used in asphalt pavements achieves, on average, 47 per cent (Williams et al., 2020). Thus, the potential scenario savings can vary according to the specific mixtures implemented in road maintenance.

5 Conclusion

In conclusion, we studied road cost optimisation factors using the example of Czech regional road networks. The regional road level is rarely discussed in current literature compared to primarily studied highways or local roads. Our study focused on urban factors affecting road maintenance costs, especially network structure and discontinuity, slope, elevation, population and density, and long-term changes. According to our results, the critical factors that increase road costs are slope (increasing the costs by more than two times) and the discontinuity of the network represented by road class, which can increase the costs most significantly. On the contrary, the population and density are not very significant factors in a long-term period, which is an unexpected result. Then, we defined road maintenance scenarios that distinguished the usage of RAP to identify potential financial savings. From the above results, it is clear that to consistently place all 2nd and 3rd class regional roads currently in an emergency state into an excellent state as in the maximum variant, it would be necessary to pay for all regions excluding Prague with conventional mixes of the total of about EUR 1.378 billion, while when using RAP only EUR 1.026 billion would be needed. Thus, the price difference is EUR 352 million (25.5%), which determines the total savings.

Furthermore, the results show that, in terms of the use of RAP during reconstruction, the market potential in the administration sector, using all capital expenditures of regions and cohesion regions in paragraph 2212 (Ministry of Finance, 2018) of the sectoral division of 2nd and 3rd class roads, ranges around the long-term average of about EUR 464 million in total for all regions excluding Prague (see Annex 1). This figure is the maximum possible potential, which means it is possible to reduce the average time for reconstructing all roads in an emergency state from 3 years to about 2 years using RAP, thus shortening this interval by about one-third. When considering the overall length of the regional roads of 54,888 km (excluding Prague), in the maximalist variant, it would be theoretically possible to reduce the period for reconstructing the complete network from 8 years to 6 (assuming the full utilisation of the investment expenditures from the regional budgets. Nevertheless, the interval can be shortened by about one quarter, ultimately improving the state of the entire network of regional roads.

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ANNEX 1

Scenario A – Identification of the time required to restore all regional roads in an emergency state and the potential for annual repairs without the use of RAP

Region	Annual average capital expenditure (in EUR)	Amount (EUR, without Rm)	Years*	Potential**
South Bohemia	46,814,510	153,014,970	3.3	698
Pilsen	43,373,790	125,891,872	2.9	647
South Moravia	48,389,195	108,156,483	2.2	722
Vysočina	42,758,088	124,831,997	2.9	637
Carlsbad	21,459,804	51,342,761	2.4	320
Ústecký	29,400,774	104,217,657	3.5	438
Královéhradecký	26,201,070	93,786,890	3.6	391
Liberecký	26,221,756	60,703,504	2.3	391
Pardubický	21,178,232	89,942,792	4.2	316
Olomoucký	34,694,528	88,537,512	2.6	517
Zlínský	29,200,883	53,247,342	1.8	435
Central Bohemia	47,280,490	236,598,840	5.0	705
Moravia-Silesia	47,093,661	85,231,810	1.8	702
Total	464,066,782	1,375,504,430	3.0	6,919

* Note 1: "Years" means the number of years needed to reconstruct all roads in an emergency state.

** Note 2: "Potential" means the maximum potential length in km for road reconstruction in one financial year.

ANNEX 2

Scenario B – Identification of the time needed to restore all regional roads in an emergency state and the potential for annual repairs using RAP

Region	EUR with Rm	Possible savings (in EUR)	Years*	Potential**
South Bohemia	114,267,242	38,747,728	2.4	935
Pilsen	94,012,481	31,879,391	2.2	866
South Moravia	80,768,195	27,388,287	1.7	967
Vysočina	93,220,997	31,611,000	2.2	854
Carlsbad	38,341,318	13,001,442	1.8	428
Ústecký	77,826,792	26,390,865	2.6	587
Královéhradecký	70,037,391	23,749,499	2.7	523
Liberecký	45,331,656	15,371,848	1.7	524
Pardubický	67,166,728	22,776,065	3.2	423
Olomoucký	66,117,304	22,420,208	1.9	693
Zlínský	39,763,606	13,483,737	1.4	583
Central Bohemia	176,685,307	59,913,533	3.7	944
Moravia-Silesia	63,648,699	21,583,110	1.4	941
Total	1,027,187,717	348,316,712	2.2	9,268

* Note 1: "Years" means the number of years needed to reconstruct all roads in an emergency state.

** Note 2: "Potential" means the maximum potential length in km for road reconstruction in one financial year.

Examining Individual Tax Morale in Europe with Machine-Learning Methods

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ABSTRACT

Purpose: This research examines and contributes to the behavioural literature on voluntary tax compliance. It focuses on the use and potential of machine-learning (ML) methods and models to predict individual tax morale across Europe, and it identifies the factors that influence predictive accuracy.

Design/Methodology/Approach: Using data from the fifth wave (2017–2020) of the European Values Survey (EVS), a data-driven, systematic approach employing six ML methods is applied to predict individual tax morale across Europe. The importance of formal, informal and socio-demographic factors is assessed, and the study tests whether incorporating the Corruption Perception Index (CPI) improves predictive accuracy.

Findings: The results indicate that ML methods and models can enhance understanding and prediction of individual tax morale in Europe. Among the deployed models, artificial neural networks (ANNs) achieved the highest accuracy. Accuracy increased across all ML methods when the CPI was included. Attitudes towards bribery, perceptions of immigrants' im-

pact on the national welfare system, and gender emerged as significant formal, informal and socio-demographic factors.

Academic contribution to the field: The study offers a novel application of data-driven ML methods to the prediction of individual tax morale. Given the scarcity of empirical ML research in the social sciences, the findings provide valuable insights in a European context and may serve as a basis for further global research.

Practical Implications: The conclusions are particularly relevant for governments and tax administrations seeking to improve tax compliance and revenue collection. In the European context, the results confirm the virtuous circle linking effective government performance, high tax morale and voluntary tax compliance—insights that are crucial for decision-makers, regulators, European institutions and tax-policy makers.

Originality/Value: The findings confirm that, when ML methods are applied, individual tax morale can be viewed as an outcome of interactions between formal and informal institutions. They also show that predictive accuracy is higher in countries with lower corruption, as indicated by a higher CPI.

Keywords: corruption, EVS, individual tax morale, machine learning

Preučevanje individualne davčne morale v Evropi z metodami strojnega učenja

POVZETEK

Namen: Raziskava proučuje in nadgrajuje vedenjsko literaturo o prostovoljnem izpolnjevanju davčnih obveznosti. Osredotoča se na uporabo in potencial metod ter modelov strojnega učenja za napoved individualne davčne morale po Evropi ter opredeljuje dejavnike, ki vplivajo na napovedno natančnost.

Zasnova/metodologija/pristop: Na podlagi podatkov petega vala (2017–2020) Evropske raziskave vrednot (EVS) je bil uporabljen podatkovno voden, sistematičen pristop, ki vključuje šest metod strojnega učenja za napovedovanje individualne davčne morale v Evropi. Ocenjena je bila pomembnost formalnih, neformalnih in soci-demografskih dejavnikov, hkrati pa je študija preverila, ali vključitev Indeksa zaznave korupcije (*Corruption Perception Index* – CPI) poveča napovedno natančnost.

Ugotovitve: Rezultati kažejo, da lahko metode in modeli strojnega učenja izboljšajo razumevanje ter napovedovanje individualne davčne morale v Evropi. Med uporabljenimi modeli so umetne nevronske mreže dosegle najvišjo natančnost. Pri vseh metodah strojnega učenja se je natančnost povečala, ko je bil v model vključen CPI. Odnos do podkupovanja, zaznave vpliva priseljencev na nacionalni socialni sistem in spol so se izkazali za pomembne formalne, neformalne in soci-demografske dejavnike.

Akademski prispevek k področju: Študija je nov, podatkovno usmerjen pristop uporabe metod strojnega učenja za napovedovanje individualne davčne morale. Zaradi redkosti empiričnih raziskav strojnega učenja v družboslovju ugotovitve ponujajo dragocene vpoglede v evropskem kontekstu in so lahko temelj za nadaljnje globalne raziskave.

Praktična uporabnost: Sklepi so posebej pomembni za vlade in davčne uprave, ki želijo izboljšati davčno skladnost in stopnjo pobiranja prihodkov. V evropskem kontekstu rezultati potrjujejo krog pozitivnih povratnih zank, ki povezuje učinkovito delovanje vlade, visoko davčno moralo in prostovoljno izpolnjevanje davčnih obveznosti. Gre za spoznanja, ki so ključna za odločevalce, regulatorje, evropske institucije in oblikovalce davčne politike.

Izvirnost/vrednost: Ugotovitve potrjujejo, da lahko pri uporabi metod strojnega učenja individualno davčno moralo obravnavamo kot rezultat interakcij med formalnimi in neformalnimi institucijami. Prav tako kažejo, da je napovedna natančnost večja v državah z nižjo stopnjo korupcije, kar se kaže v višjem CPI.

Ključne besede: korupcija, EVS, individualna davčna morala, strojno učenje

JEL: H26

1 Introduction

In recent years there has been a growing academic interest into investigation of values, attitudes and social norms as possible explanations to human and economic behaviour, particularly within the extensive body of tax compliance literature (Alm and Torgler, 2007, p. 1). Even though some research into tax morale has been conducted in the late 1960s by Strümpel (1969) and Schmolders (1970; Alm and Torgler, 2007, p. 4), the empirical investigation of the tax morale concept began with the World Values Survey and the European Values Survey (WVS and EVS respectively) in the 1980s. Hence, the article wishes to contribute towards the understanding of human and economic behaviour in the investigation of individual tax morale across Europe by applying ML methods and models for the first time.

In academic literature and empirical research, several terms are closely associated with the concept of tax morale, including tax evasion and tax compliance. In theory, the social psychology has set the question about the relationship between tax evasion and tax morale (Lewis, 1982, p. 165), while empirical studies have provided strong evidence of a negative correlation between tax morale and both – tax evasion and – the size of the shadow economy (Torgler, 2005, p. 135; Sá et al, 2013, p. 1). Empirical studies have mostly relied on either WVS or EVS datasets. Furthermore, authors have investigated the concepts of tax morale and tax evasion separately, whereby tax evasion has been the subject of more than 40 years of academic research, including studies on tax evasion games (Alm and Malézieux, 2021, p. 699). In the context of the European Union (EU) and its member states, research on tax evasion has been growing, especially in relation to the size of the shadow economy (Schneider, Raczkowski and Mróz, 2015, p. 34) and an estimation of substantial loss of tax revenues due to Value Added Tax (VAT) frauds (Dobrovič, Rajnoha, and Šuleř, 2021, p. 705). In addition, significant differences exist among EU member states, with newer members (those that joined post-2004) experi-

encing higher levels of tax evasion compared to older member states (Yamen et al., 2018, p. 26; Dobrovič, Rajnoha, and Šuleř, 2021, p. 705). For example, in 2019, the EU average share of tax evasion expressed as a share of total tax liability amounted to 20 percent, with great differences among the EU member states (e.g. tax evasion in Sweden as an old EU member amounted to only 2% and Romania as a new EU member to 49% (Dobrovič, Rajnoha and Šuleř, 2021, p. 722)). Due to the negative consequences of tax evasion on public revenues and the tax system equity (Sá et al, 2013, p. 1), the EU institutions are actively engaged in researching and prevention of tax evasion, but also on methods and ways to increase tax morale. For instance, the EU Tax Observatory publishes global tax evasion reports, or organizations such as OECD have most recently reported on tax morale (OECD, 2019, p. 4).

The investigation in concepts related to tax morale as a component of tax compliance (Luttmer and Singhal, 2014, p. 150) has its roots in the Allingham and Sandmo (1972, pp. 323–324) benchmark model of tax evasion. So, the academic interest and related research to why people pay taxes (or do not) has been examined throughout decades, and yet still the understanding remains limited (Dulleck et al., 2016, p. 9). Authors deal with this issue from different perspectives all grounded in the traditional economics-of-crime approach (Becker, 1968, p. 173; Dulleck et al., 2016, pp. 9–10) which is elaborated through tax compliance. Tax compliance could be viewed from three perspectives: general deterrence theory, economic deterrence models and fiscal psychology (Riahi-Belkaoui, 2004, p. 137). Tax compliance or non-compliance (as investigated through the concept of tax evasion) have been evaluated in all three concepts and their economic and political impact in the society have also been measured (Riahi-Belkaoui, 2004; Barone and Mocetti, 2011, p. 5). However, the social psychology question to why people pay or evade taxes (Lewis, 1982, p. 165), still remains open, so, in order to solve a puzzle, researchers have introduced a concept of ‘tax morale’ as an ‘individual intrinsic motivation to pay taxes’ (Feld and Frey, 2002, p. 88; Riahi-Belkaoui, 2004, p. 137; Barone and Mocetti, 2011, p. 5). Due to the negative correlation between tax morale and tax evasion, the literature dealing with tax evasion is as comprehensive as the literature on tax morale and it has been investigated and empirically researched through the concept of ‘tax evasion games’ using different methods and models for more than 40 years now (Alm and Malézieux, 2021, p. 700). In this article, the focus is on applying new methods and models in the prediction of individual tax morale which contributes towards tax compliance literature.

Tax morale, as an important and popular concept that increases voluntary tax compliance (Luttmer and Singhal, 2014, p. 151) has been gaining prominence in the empirical research over the past three decades. Different aspects of tax morale have been investigated so far – from five possible tax morale mechanisms (intrinsic motivation, reciprocity, peer effects and social influences, cultural factors and information imperfections and deviations from utility maximization) defined in the works of Luttmer and Singhal (2014, pp. 155–163), to more specific investigation of determinants of tax morale (Hofmann et al.,

2017, pp. 64–65). In terms of factors that influence tax morale, three main categories have been recognized (formal and informal institutions and socio-demographic characteristics, Horodnic, 2018, p. 870).

The OECD highlights the significance of the virtuous circle between effective government performance and high tax morale/high tax compliance (OECD, 2018; 2019) indicating the significance of formal institutions as defined by Horodnic (2018, p. 871) or reciprocity as a tax morale mechanism defined by Luttmer and Singhal (2014, p. 157). The inevitable party of interest is the tax administration as the executive power of the state that keeps records and collects tax revenues. Understanding concepts and determinants are of a crucial importance to governments, tax administration officials and tax policy makers, all aiming to improve tax compliance and revenue collection.

The research uses ML methods in the prediction of individual tax morales since ML methods have not yet been used. The results of the research ought to help tax administration officials and tax policy makers in improved prediction accuracy regarding individual tax morale as well as the identification of key determinants of individual tax morale primarily across Europe. Furthermore, results may be replicated to other countries as well. The significance of such interdisciplinary research being conducted for the first time has been highlighted in the works of Athey (2018, p. 507). So, for the first time, present research wishes to contribute to current theoretical and empirical literature gap related to the application of ML methods and models in the prediction of individual tax morale. After the introduction section, the paper is divided into four parts: a brief literature review, research design and methodology, results and discussion and conclusion sections.

2 Literature Review

The investigation of tax morale takes an interdisciplinary approach, drawing from multiple scientific fields all trying to explain human and economic behaviour. Following the arising questions in the traditional economics-of-crime approach (Becker, 1968, p. 173; Allingham and Sandmo, 1972; Dulleck et al., 2016, pp. 9–10) related to why people pay (or not) taxes, the concept of tax compliance has been gaining academic prominence over last few decades (Luttmer and Singhal, 2014, p. 166). However, the basic economics-of-crime approach cannot fully capture the vibrant nature of decisions and motivations to comply or evade taxes as explained in tax compliance theory and practice (Dulleck et al., 2016). Dulleck et al. (2016, pp. 13–16) argue that other factors, social norms, individual, social, and cognitive dissonance affect tax compliance. Even though Luttmer and Singhal (2014, p. 151) consider enforcement as the primary driver of tax compliance, authors also argue that concept of tax morale is an important component of voluntary tax compliance.

The concepts of tax morale and tax evasion have been theoretically introduced and investigated in the social psychology in the early works of Lewis (1982, p. 165). The empirical investigation and possible connection between

attitudes and behaviour have been exhaustively investigated with the WVS and the EVS surveys introduced in the 1980s, and several questions thereof that might explain and measure the level of tax morale, or the size of tax evasion (Torgler, 2005, p. 136; Sá et al., 2013, p. 1).

The tax compliance concept in economic theory is closely examined through concepts of tax avoidance and tax evasion as explained in seminal works of Allingham and Sandmo (1972, p. 323) and Yitzhaki (1974, p. 201). Over more than 50 years of study, researchers have tried to disentangle individual determinants of tax compliance. Alm et al. (1995, p. 6), have used experimental methods to explore the major factors – economic and noneconomic – that affect tax compliance: detection and punishment, the burden of taxation, public good provision, overweighting of low probabilities, and social norms. Authors such as García et al. (2018, p. 8) argue that the causes of tax evasion acceptance may be divided into three categories: *internal or individual* that depends on values, *contextual*, *social or institutional* that focuses on differences across countries and regions (Lago-Peñas and Lago-Peñas, 2010, p. 441) and a third category introduced by Alm (2014) that combines *group motivations such as altruism and fairness* (Alm, 2014, pp. 261–267; García et al., 2018, p. 8). Most recently, Horodnic (2018, p. 878) in the systematic literature review argues that tax morale could be perceived as an outcome of interaction between formal and informal institutions, whereby socio-demographic variables are mostly used as control variables.

Following the identification of five classes of tax morale mechanisms (intrinsic motivation, reciprocity, peer effects and social influences, cultural factors and information imperfections and deviations from utility maximization) defined in the works of Luttmer and Singhal (2014, pp. 155–163), the first mechanism of intrinsic motivation measures tax morale as a feeling of guilt or shame (Andreoni et al., 1998, pp. 850–852). With the EVS cross-country surveys in several waves, the academic research in the measurement of tax morale and its determinants through EVS questionnaire within and across countries has been exhaustive (Hofmann et al., 2017, p. 65). In all research, the dependent variable taken as a representative of the level of tax morale has been the statement from the EVS survey responded at the scale from 1 (never) to 10 (always): Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: “*Cheating on tax if you have the chance*”. García et al. (2018, p. 8) have identified that previous studies included two groups of research related to the EVS’s statement on cheating on taxes. The first group included research where higher scores involved higher intrinsic willingness to pay taxes (Torgler, 2003, p. 286; Torgler, 2012, p. 23; Lago-Peñas and Lago-Peñas, 2010, p. 441). In the second group authors examined ‘unwillingness to cheat’ (Alm et al., 2006, p. 861; Frey and Torgler, 2007, pp. 140–142). Academic research also acknowledges the measurement of individual tax morale through various survey questions. According to social psychology theory (Lewis, 1982, p. 144), when individuals observe widespread tax evasion or the behavior of their peers, their willingness to pay taxes may decline, diminishing intrinsic motivation and encouraging

opportunistic behavior (Torgler, 2005, p. 136). Hence, authors such as Torgler (2005, p. 136), Sá et al. (2013, p. 4) and Doerrenberg et al. (2014, p. 39) have analysed responses to the level of tax morale by including the statement of 'avoidance of the payment of public transport fare', or 'manage to avoid paying all his tax' in the Latinobarómetro (Torgler, 2005, p. 136) together with cheating on tax statement.

The research therefore involves two sets of modelling organized around two EVS statements: *cheating on tax* and *avoidance of the payment of public transport fare*. Since the full list of all articles where EVS has been previously academically used is available on GESIS Leibniz Institute for the Social Sciences (Gesis, 2023), Appendix 1 provides an overview of the relevant findings. Appendix 1 indicates measurement of individual tax morale through cheating on taxes statement (Tax morale represented as a dependent variable in Appendix 1), its determinants, methods used and obtained results. Appendix 1 clearly indicates statistical and econometric methods and models that have exhaustively dealt with causality detection and identification of key factors of predicting individual tax morale in different circumstances – individual countries, cross-country analyses, etc. Appendix 1 also indicates that determinants of individual tax morale are multifaceted, encompassing trust in institutions, perceived fairness, social capital, cultural background, socio-demographic factors, economic context, and psychological considerations. Horodnic (2018, p. 870) provides systematic review of tax morale arguing that all factors could be grouped into three categories: formal institutions, informal institutions and socio-demographic characteristics and personal values. Under such circumstances, tax morale is argued to be a result of the interaction between the formal and informal institutions.

The possibility of ML's application in social sciences and public policies has been recognized by Athey (2018, p. 509) and Lee (2020, p. 14), but not sufficiently applied. As the results from both Web of Science and Scopus topic research by two keywords of *tax morale* and *machine learning* generate only one result that examine the effects of religiosity and religion on individual tax morale (Davidescu et al., 2022, p. 2), ML application in social sciences is scarce. Most recently, Weber et al. (2018, p. 577) used ANN in the application regarding voter turnout and Chen et al. (2022, p. 1) used ANN together with Ordinal Logistic Regression method in predicting happiness levels of European immigrants and natives.

With further research, it has been determined that ML methods and models have demonstrated substantial potential in enhancing various tax-related processes, but not prediction of individual tax morale. Most recent academic research indicates that by leveraging advanced algorithms and feature transformation techniques, ML models can significantly improve the accuracy of tax default predictions (Abedin et al., 2020, p. 19879), tax burden forecasts of agricultural enterprises (Kharitonova, 2023, p. 28), the detection of tax avoidance (Rahman et al., 2019, p. 536; Rahman et al., 2020, p. 722) and fraud (Murorunkwere et al., 2023, p. 731). These advancements not only help tax

administrators and policymakers but also contribute to more efficient and informed financial decision-making. However, the ethical implications and potential biases of ML applications in these fields warrant careful consideration and ongoing research.

Based upon current literature, a combination of formal and informal institutions together with socio-demographic and personal characteristics to predict individual tax morale has been used by deploying ML methods. The motive for this investigation arose from the fact that respondents across Europe in the EVS usually state that they would never cheat on taxes, but indicators in the economy such as tax evasion (e.g. VAT gap report) or corruption index tell a different story. Bearing in mind the significance of corruption as a vertical trust or a formal institution parameter (Horodnic, 2018, p. 873) or mechanism of reciprocity in tax morale as defined by Luttmer and Singhal (2014, p. 157), a further investigation on the significance of perceived levels of corruption on predicting individual tax morale has been conducted. Corruption in relation to tax morale has been somewhat investigated but mostly in Latin America, whereby Torgler (2005, p. 153) highlights that tax morale in Latin America is significantly affected by the shadow economy, corruption, and trust in officials. Gerstenblüth et al. (2009, p. 2) and Gerstenblüth et al. (2012, pp. 129–131) discuss how GDP per capita, income distribution, and corruption perception shape tax morale in Latin America and the Caribbean while Jahnke and Weisser (2019, pp. 5–7) analyse how does petty corruption affect tax morale in Sub-Saharan Africa. Alm et al. (2016, p. 147) find that corruption among tax officials leads to higher levels of tax evasion of firms, with bribes reducing reported sales for taxes. Cung (2019, p. 189) shows that in Vietnam, economic freedom and corruption perceptions positively impact corporate income tax revenue, while inflation negatively impacts it. Most recently, Hsu (2023, p. 4) finds that when individuals perceive more government corruption, fiscal transparency is associated with lower tax morale. However, no research has yet integrated corruption perception index in assessing individual tax morale across Europe, as most European countries are among those with the lowest levels of perceived corruption worldwide.

3 Methods and Research Design

3.1 Machine Learning Methods and Models in The Individual Tax Morale Context

Academic research across various disciplines suggests that the machine learning (ML) methods and models presented in this subsection have a broad applicability. After providing an overview of the six universal ML methods and models, their role in assessing individual tax morale will be contextualized and explored in the following subsections. The explanation will include the necessary research steps required, which will be presented in the results section.

In the literature review section, the identified problem of predicting tax morale has been investigated through regression analysis (measurement on a

scale with values from a continuous set, Appendix 1) or classification analysis (respondents are grouped into categories, Appendix 1). The article contributes to the latter. In terms of assessment of the level of individual tax morale, two target variables were selected: 'Cheating on taxes' (CoT) and 'Avoiding fare of public transport' (AFoPT). Respondents are classified into three groups based on their answers which reflect the degree of their agreement to those statements: 'Never justifiable', 'Somewhat justifiable', 'Almost always justifiable'. So, a multiclass classification problem is defined. Thus, the aim is to predict the respondent's group using available formal, informal, and socio-demographic data, framing the problem as a multiclass classification task in six ML methods and models.

For the ML methods, contrary to binary classification problems, multiclass classifiers can distinguish between more than two classes. In order to solve the classification problem, a wide range of classical ML algorithms and methods that are available in Scikit-Learn, an open-source ML library for Python, such as Logistic Regression, Random forests, k-Nearest Neighbors, etc. Also, deep learning frameworks in Python are used to build artificial neural network model using Keras and TensorFlow.

It is important to note that before briefly explaining methods and models, some of the classical binomial classifiers can be easily adapted to multiclass classifiers (such as Decision trees and Random forests), while some others are based on multiple applications of binary classifiers when solving multiclass classification problems (such as logistic regression and Support vector classifiers). When binary classification is used to solve multiclass classification problem, two strategies are available (Géron, 2022): the first strategy is called one-versus-the-rest (OvR) which uses one binary classifier for each class in the dataset, and the second strategy is called one-versus-one (OvO) which uses a binary classifier per each pair of classes in the dataset. Also, it is possible to use the cross-entropy loss if the 'multi_class' option is set to 'multinomial'. Under Scikit-Learn, different strategies can be selected depending on applied algorithm (Yu et al., 2011).

For a multiclass classification problem, six types of models were created and tested: the logistic regression (LR), the decision tree (DT), random forest (RF), k-Nearest Neighbors (kNN), Support vector classifier (SVC) and an artificial neural network (ANN) model providing explanation for each selected model.

The logistic regression (LR) model is based on the estimation of the probability that an instance belongs to a particular class using a logistic function. When using logistic regression for the multiclass classification problem different solvers are available. A 'newton-cg' as a solver has been used, based on Newtons method, and parameter 'multi_class' is defined as 'multinomial' (Yu et al., 2011).

The decision tree (DT) model is based on a tree (constructed from nodes and edges), as a hierarchical data structure. Each node in the constructed tree represents a decision based on a feature, while each leaf node represents a class.

The prediction is made by traversing through the model tree from the root to the leaf using input data.

Random forest (RF) is a typical example of an ensemble model, i.e., it uses several models and aggregates their result. Precisely, the RF model uses many decision trees on random subsets of the features of the problem, then produces a result by averaging out their predictions.

k-Nearest Neighbors (kNN) model for classification estimates the class that an instance belongs to, using majority voting among the k-nearest neighbors of the given instance. The model assumes that the distance between the given instance and all the data in the training set is precalculated and that the hyperparameter k is selected, thus k-nearest neighbors can be identified.

Support vector classifier (SVC) is a model for solving multiclass classification problems based on maximizing the margin between the decision boundary and the closest samples from the different classes in the feature space of the data set. It applies OvO strategy by default.

An artificial neural network (ANN) is a machine learning model inspired by the networks of biological neurons, hence it is based on the neural network. The basic idea of ANN is to learn complex relationships between features and outputs by simulating the behaviour of neurons in the human brain. Neural network consists of layers of adequately connected nodes (neurons) where the initial layer corresponds to the features, while the final layer contains information about the classes of the problem. Internal layers are usually called hidden layers. Each neuron in a hidden layer receives inputs from the previous layer, performs some computations, and passes outputs to the next layer (Géron, 2022). The research in social sciences applies ANN for improving prediction accuracy (Schmidhuber, 2015; Weber et al., 2018, p. 580; Chen et al., 2022, p. 2).

3.2 Research Design and Data

The statement about cheating on taxes if one would have the chance measured on a scale from 1 to 10 within the EVS has been exhaustively applied as a measurement of individual tax morale across European countries (Appendix 1). The statement regarding avoidance of the payment of public transport fare has also been previously used in the academic research in an additional measurement of the level of individual tax morale (Torgler, 2005, p. 136; Sá et al., 2013, p. 4; Doerrenberg et al., 2014, p. 39). However, the statement about the avoidance of paying a public transport fare might be seen as either a representation of 'civic attitudes' or might even represent dissatisfaction of transport service (Doerrenberg et al., 2014, p. 40) with a possibility of paying a small penalty. The cheating on taxes statement in its formulation might be used to predict that a decline in tax attitudes or tax morale will lead to an increase in tax evasion (Lewis, 1982, p. 177; Torgler, 2005, p. 135), indicating a potentially stronger representation of a decline in tax morale than the avoidance of public transport fare statement. Both statements have previ-

ously been used in the assessment and measurement of individual tax morale. The academic research shows that determinants that explain the level of tax morale across countries are groups of socio-demographic variables together with groups of subjective economic, institutional, and social variables (Lago-Peñas and Lago-Peñas, 2010, p. 441; Hofmann et al., 2017, p. 65). Alternatively, factors that influence tax morale may be grouped as formal institutions, informal institutions and socio-demographic factors (Horodnic, 2018, p. 870) whereby tax morale is a result of interaction between formal and informal institutions, highlighting the significance of reciprocity as defined by Luttmer and Singhal (2014, p. 157).

Based upon literature review and the absence of the application of ML methods and models in predicting individual tax morale, following research questions have been defined:

1. *Can individual tax morale across Europe be predicted more accurately by using ML methods and models?*
2. *Does corruption perception index contribute towards a more consistent and accurate ML predictions?*
3. *What are data-driven key determinants in predicting individual tax morale across Europe by using ML methods?*

The data for the analysis is compiled from the fifth wave EVS dataset of June 2022 for all participating European countries until that point in time (EVS, 2020). EVS was conducted from September 2017 until October 2021 and alike previous EVS waves included statements that are used in the measurement of the level of tax morale. The entire fifth wave EVS methodology corresponds to EVS (2020) and includes: sampling methods of respondents older than 18 years, explanation of country-by-country data collection and inclusion of 35 participating countries (excluding Latvia which was added in 2021). Participating countries and sample size per country are provided in Appendix 2.

The data-driven analysis of the two selected statements as target variables, should contribute towards the group of research where higher scores involve higher intrinsic willingness to pay tax (Torgler, 2003, p. 286; Torgler, 2012, pp. 23–24; Alm et al., 2006, pp. 858–860; Lago-Peñas and Lago-Peñas, 2010, p. 441; Garcia et al., 2018). Both statements were recorded on a ten-point scale (1=never justified, 10=always justified) and similar to previous academic research were grouped into a three-point scale: K_0 – Never justifiable (corresponds to 1 in the original scale), K_1 – Somewhat justifiable (corresponds to values 2–7 in the original scale), and K_2 – Almost always justifiable (corresponds to values 8–10 in the original scale). Even though ML methods can overcome unbalanced datasets, similar procedure of grouping variables into three categories had been applied in previous studies, such as Alm et al. (2006, p. 852) or Ryšavá and Zídková (2021, p. 391). The instances where the targeted variables were missing have been dropped from the dataset (1342 instances or 2.3% of the entire dataset). The dataset included EVS individual data of 56761 instances collected across 35 European countries from 2017 to 2020.

Based upon literature and identified variables summarized in Appendix 1, description of selected variables (including socio-demographic, formal and informal institutions or vertical and horizontal trust variables respectively, Horodnic, 2018, pp. 872–876) are presented in Table 1. In case of missing values, Multivariate Imputation by Chained Equation method as described in the pre-processing phase has been applied.

Reciprocity mechanism of tax morale and measures for changing formal institutions are necessary for building vertical trust in public authorities (Horodnic, 2018, p. 878). In line with research questions, the research includes Transparency International's Corruption Perception Index (CPI) as the most distinguished global index of corruption and a measure of a vertical trust. CPI indicates the perceived level of public sector corruption in a country, and it ranks countries on the scale from 0 to 100 (Transparency International, 2022). The lower the perceived level of corruption, the higher the CPI and vice versa. The created CPI ranks countries by using several macroeconomic variables. Sources of data and methodology are unrelated and different from the opinion statements from the EVS, so the CPI can be integrated in such research. CPI per each country was collected for the same year as the year of EVS survey. As noted by Horodnic (2018, p. 873), wider corruption is associated with lower tax morale.

The purpose and the motivation to include external country-level determinant such as CPI in the research rose from the fact that in EVS responses, individuals mostly replied that they would never cheat on taxes and would always pay a public transport fare which usually does not correspond to the estimated level of corruption within a country (individuals tend to underestimate that they would cheat on taxes). This is the case even for European countries which traditionally have lowest levels of CPI. Previous academic research determining the relationship between EVS's tax morale and perceived corruption with the application of statistical methods and models has been scarce and already discussed in the literature review section.

3.3 Pre-Processing Phase

In the pre-processing phase some classical steps have been performed, including data cleaning, feature engineering, some scaling, and encoding categorical variables. In the feature engineering step, some of the selected variables are modified and aggregated as described in Table 1. Missing values are treated very carefully in the cleaning data process (Géron, 2022). Multivariate Imputation by Chained Equation (MICE) method is used to fill in the missing data. It is a statistical method based on multiple imputations used to produce final input values aiming to preserve relationships of variables in the original dataset and to reduce the amount of the bias. Scaling of some variables and one-hot encoding for categorical variables has been performed, as required for the application of ML algorithms. The final data set consisting of 56761 instances is split randomly into training and test dataset by 60%–40% respectively. The results are similar without significant deviations even if the data is split differently.

Table 1: Description of selected variables and coding of selected variables

	Variable	Code in EVS	Modified measurement units
Country level	Country	S003	Nominal measure – Numeric code for Country
	Year of Survey	S020	Scale measure 2017–2020
Individual-level	Gender	X001	0 – male, 1 – female
	Age	X003	0 – original scale 18–29 1 – original scale 30 and more
	Education	X025_01	0 – low education level corresponds to original scale 0, 1, 2, 3 1 – medium level education (original scale 4, 5, 6) 2 – high level education (original scale 7, 8)
	Marital status	X007	1 – married (original scale 1) 0 – not married (original scale 2–8)
	Religiosity	F028	1 – once a week or more (original scale 1, 2) 0 – less than once a week (original scale 3–8)
	Public vs. Private sector employment	X052	1 – public institution (original scale 1) 0 – not public institution (original scale 2, 3, 4)
	No. of children	X011	0 – no child (original scale 0) 1 – one or more children (original scale 1–5)
	Employment status	X028	2 – employed (original scale 1, 2) 1 – self-employed (original scale 3) 0 – other (original scale 4–10)
	Confidence in Government	E069_11	Scale 1 to 4: 1 – A great deal, 4 – None at all
	Confidence in Parliament	E069_07	Scale 1 to 4: 1 – A great deal, 4 – None at all
	Confidence in Justice System/Courts	E069_17	Scale 1 to 4: 1 – A great deal, 4 – None at all
	Bribery	F117	Scale 1 to 10: 1 – Never justifiable, 10 – Always justifiable
	Government responsibility	E037	Scale 1 to 10: 1 – Individuals should take more responsibility for providing for themselves, 10 – The state should take more responsibility to ensure that everyone is provided for
	Immigrants strain	G041	Scale 1 to 10: 1 – Immigrants are a strain on a country's welfare system, 10 – Immigrants are not a strain on a country's welfare system

Source: authors.

4 Results

Separate analyses have been performed for each of the two target variables as measures of individual tax morale. They have been analysed through the two scenarios named “Country” and “CPI”. Initially, in the Country scenario, selected variables have been used, while in CPI scenario the ‘country’ variable has been replaced with the ‘CPI’.

Having in mind that the level of tax morale measured by the two target variables might not be free from biases and problems (Torgler and Valev, 2010), in the conducted ML analysis, it is necessary to include the CPI in all models as an external variable not accounted for in the EVS. The reason lies in the examination if the level of prediction of individual tax morale would improve. Since cross-cultural comparisons should be used cautiously, especially in countries with high corruption and tax evasion (Torgler, 2005), the inclusion of the CPI can be justified from the speeding up reasons (Torgler and Valev, 2010).

The six ML models and methods are applied for each target variable and for each scenario. Created models are evaluated and compared using accuracy, a commonly used metric to evaluate multiclass classification models. Results represented as accuracies are calculated for the training and test sets and are presented in Table 2.

Table 2: ML methods performance of “Country” and “CPI” scenarios for target variables ‘CoT’ and ‘AFoPT’

	Accuracy - CoT				Accuracy - AFoPT			
	Training set		Test set		Training set		Test set	
Scenario	Country	CPI	Country	CPI	Country	CPI	Country	CPI
LR	0.72205	0.71036	0.71733	0.70641	0.64925	0.62878	0.65118	0.62532
DT	0.99471	0.71036	0.63637	0.70641	0.99413	0.99325	0.56071	0.56195
RF(10)	0.97175	0.97158	0.71975	0.71790	0.97199	0.97146	0.63400	0.63083
RF(100)	0.99471	0.99401	0.73552	0.73548	0.99410	0.99324	0.65268	0.64506
kNN(10)	0.71385	0.71036	0.66426	0.70641	0.67486	0.65953	0.61097	0.58291
kNN(25)	0.69544	0.68449	0.67236	0.66294	0.64852	0.63084	0.61845	0.59092
kNN(50)	0.68549	0.67253	0.67373	0.66118	0.63701	0.61863	0.61709	0.59560
SVC	0.71192	0.70487	0.70786	0.70099	0.63205	0.62333	0.63096	0.61973
ANN	0.74131	0.74656	0.73056	0.74104	0.70575	0.65416	0.65684	0.64643

Source: authors.

To understand and evaluate each of the universal six ML models and methods, it is necessary to contextualize and explain them in the specific assess-

ment of the individual tax morale. In the two models – RF and kNN, the values in brackets next to RF and kNN in Table 2 indicate several hyperparameters scenarios. For RF model hyperparameter represents number of trees used to create model, while for the kNN hyperparameter k represents number of neighbors of a single instance used for the prediction. For the ANN models underlying network is created using a classical “half-rule” approach. According to this rule, the number of neurons in each successive hidden layer is approximately half the size of the previous layer. Thus, for the Country scenario, 3 hidden layers with 26, 13 and 7 neurons were used. For CPI scenario, number of initial variables is considerably smaller since categorical variables for the variable ‘country’ are replaced with numerical variable CPI, thus hidden layer consists of 9 and 5 neurons. In both cases half of the instances in the test sets are used as a validation set.

A significant difference in the accuracy in train and test sets for DT and RF models indicates that overfitting occurs, i.e., the model is too complex, and it captures the noise in the training data instead of the underlying patterns. Thus, other models are preferred or - in ML methodology – some pruning, i.e., limiting the depth of the tree, needs to be done. So, the two models were excluded from further analysis.

Six ML methods and models were further deployed to see if the level of prediction of the tax morale across Europe may be improved by including the country-level CPI as one of the most important vertical trust factors that shape the tax morale (Horodnic, 2018, p. 878). As the research developed in terms of interlinking vertical trust factors with the individual tax morale, a further investigation from the CPI scenario was researched by separating instances into two groups based on the country level CPI, namely the *High corruption* (CPI less or equal to 50) and the *Moderate corruption* group (CPI equal or greater than 51). The complete procedure was repeated for the two groups separately. The data set for High corruption group consisted of 21974 instances, while Moderate corruption group consisted of 34757 instances and the results are presented in Table 3.

As the results in Table 2 indicate, accuracies for all six ML methods are consistent for both variables of interest. Very small differences between accuracies on the test and training datasets indicate that overfitting is not present, and that all conducted ML models are adequate.

Table 3: Models' performance for High corruption and Moderate corruption groups for target variable 'CoT' and for target variable 'AFoPT'

	Accuracy 'CoT'				Accuracy 'AFoPT'			
	Training set		Test set		Training set		Test set	
Group	High corruption	Moderate corruption	High corruption	Moderate corruption	High corruption	Moderate corruption	High corruption	Moderate corruption
LR	0.69804	0.72303	0.68817	0.72203	0.59815	0.64670	0.60262	0.63917
kNN(10)	0.69342	0.71124	0.63823	0.67273	0.63721	0.67368	0.56473	0.59871
kNN(25)	0.66512	0.69461	0.64585	0.67632	0.61233	0.64622	0.57281	0.60374
kNN(50)	0.65276	0.68101	0.64152	0.67826	0.60133	0.63362	0.57952	0.60884
SVC	0.69023	0.71431	0.68191	0.71276	0.59603	0.64215	0.59044	0.63356
ANN	0.73128	0.76181	0.71741	0.75321	0.64886	0.68259	0.61086	0.66154

Source: authors.

5 Discussion

After applying several ML methods and models, the results and a response to the first research question indicate and confirm (Schmidhuber, 2015) that ML methods and models may be used in the assessment of the individual tax morale. Among all six ML methods and models, ANN model provides superior results compared to all other ML methods and models in predicting individual tax morale (Table 2 and Table 3).

The perception of corruption has been previously identified as one of the key factors affecting individual tax morale (e.g. Torgler, 2005, p. 139; OECD, 2019, p. 28). To assess the significance of CPI as a measurement of corruption in the data-driven evaluation of individual tax morale, another set of ML methods and models were conducted as an answer to the second research question as presented in Table 3. Previous empirical research indicated a close relationship between the level of corruption measured by the CPI (Torgler, 2005, p. 153; Torgler, 2006; Torgler and Valev, 2010; Garcia et al., 2018) or inclusion of the perceived bribery in the explanation of the two target variables. Bribery is a concept closely related to corruption (OECD, 2013) and in tax terminology related to tax evasion and tax audits, it is also considered a type of corruption. Furthermore, Vargas-Hernández (2009, p. 272) states that some examples of forms of corruption are bribery, collusion, embezzlement of public funds and theft, fraud, extortion, abuse of discretion, favouritism, clientelism, nepotism, the sale of government property by public officials, patronage, etc.

The results from Table 3 reveal several important findings. Firstly, the results are consistent for both target variables across applied ML models which can

be verified by the best fitting results obtained in the ANN models. Secondly, if the results within training set or within test set for both target variables are compared, the results show an improvement of accuracy of predictions in the Moderate corruption group compared to High corruption group. Thirdly, the results remain consistently improved in the test set with reduced variability in comparison to the training set. Finally, and most importantly, the results for both target variables regardless of training and test set indicate an increase in accuracy of prediction in the Moderate corruption group where country-level CPI is higher, hence the level of perceived corruption is lower. The results are in line with previous literature as stated in Horodnic (2018, p. 878) and the response to the second research question is positive. In the broader context of the virtuous circle between effective government performance and tax morale, the application of the six ML methods and models with the inclusion of the CPI as a measurement of corruption has several important policy implications in the assessment of individual tax morale. As Torgler (2005, p. 135) and Sá et al. (2013, p. 1) found a negative correlation between tax morale and tax evasion and shadow economy, corruption has been recognized as a factor that affects the taxpayers in terms of lowering their tax morale (hence increasing tax evasion, Torgler, 2005, p. 139). Furthermore, since corruption also affects morality among the tax administration officials (Torgler, 2005, p. 139), if corruption occurs within public administration, it inevitably affects the entire tax system and therefore credibility of formal institutions (Horodnic, 2018, p. 871). It affects both efficiency of allocation in terms of possible delays in transactions and affects the fairness of the entire tax system, which in turn confirms the social psychology milestones set by Lewis (1982, p. 177) in diminishing intrinsic motivation to pay taxes and encouraging opportunistic behaviour if the avoidance occurs and therefore might lead to evasion. The presented research investigated both – the intention to avoid paying a public transport fee as a proxy to avoidance issues, and the intention to evade taxes measured through a proxy of cheating on taxes statement and the obtained results confirmed that ML methods and models may be used for such predictions.

If the obtained results are compared to the previous academic analyses of the differences between old and new EU member states in terms of the level of tax evasion (Yamen et al., 2018, p. 26; Dobrovič, Rajnoha, and Šuleř, 2021, p. 705), the data-driven results from six ML methods and models still confirm the existing differences in the level of individual tax morale among countries in their significance of a country belonging to a high versus a moderate CPI group.

The results support the fact that in countries with higher CPI and therefore lower perceived corruption, the perceived level of individual tax morale can be predicted with higher accuracy, indicating higher respondent's honesty when asked to estimate individual level of tax morale. The opposite is valid for responses in the High corruption group of countries with lower CPI and higher perceived corruption. These results further support the significance of reciprocity mechanism of tax morale (Luttmer and Singhal, 2014, p. 157). Similar conclusions, using different methods have been previously elaborated

in Torgler (2006), Lago-Peñas and Lago-Peñas (2010), Garcia et al. (2018) and Horodnic (2018, p. 878).

As presented in Table 3, the results indicate higher accuracy of prediction for the 'CoT' target variable than 'AFoPT' target variable across all models. This indicates superiority of the 'CoT' variable to 'AFoPT' variable in estimating and measuring individual tax morale and/or individual tax morale. A further explanation might be that 'AFoPT' is considered a less serious aspect of tax evasion due to its relatively small penalty and the fact that the sanction for non-compliance is only financial (payment of a fine/penalty). A possible limitation of the AFoPT statement might be in a fact that respondents indicated a dissatisfaction with a transport service (Doerrenberg et al., 2014, p. 40). Therefore, the results by using ML methods and models are more accurate with the 'CoT' variable, that is considered a more fraudulent, with higher financial implications that might also have criminal implications. Both of results are in line with previous studies such as James et al. (2019).

To answer the final, third research question, the importance of the input variables for ANN models has been further analysed. The permutation importance method is performed to calculate the feature importance of constructed models for the given dataset. Feature importance as mostly applied in ANN has been obtained in a such way that it can be understood as a decrease in a score associated with the model when values for the selected feature are shuffled randomly. The effects of random shuffling values are measured using an appropriate scoring function and the 'Explained variance' metric as a scoring function has been used. Even though the list may be more exhaustive, as a response to the third research question, the results indicate three most important determinants of individual tax morale:

1. The respondents' attitudes towards accepting a bribe during their duties emerged as the most significant variable across all CPI scenarios and groups within;
2. CPI was consistently the second most crucial variable, except in the case of CPI scenario (CoT) and Moderate corruption group, where it was replaced by the gender variable;
3. Gender together with respondents' belief that immigrants impose a strain on a country's welfare system were a third most important determinant of individual tax morale.

On one side, these findings support the significance of interaction between the formal and informal institutions together with socio-demographic factors as indicated in the works of Horodnic (2018, p. 879). On the other, the results highlight the significance of reciprocity of tax morale (Luttmer and Singhal, 2014, pp. 157-160). Furthermore, in the European context, the results confirm the virtuous circle between effective government performance, high tax morale and voluntary tax compliance (OECD, 2018) which are very important to the European tax administration officials and tax policy makers. Finally, the results contribute towards academic literature in the understanding of

human and economic behaviour in the investigation of individual tax morale across Europe by applying ML methods and models.

Recommendations for future research include the application of other possible variables in the present research, such as country's belonging to the European Union (or not) together with other official macroeconomic country indicators. Obtained results by using different sources of data, for example Special Eurobarometer 498 – Wave EB92.1., World Values Survey, Afrobarometer, Latinobarómetro, may also be tested using ML methods and models which ought to provide useful insights and perhaps highlight important regional differences. Further research might also use target variables on the original scale, since ML methods available in Python can handle imbalanced datasets. As a research limitation, it is important to note that the accuracy of predictions in social sciences is somewhat below the results that can be obtained with ML methods and models in natural sciences or engineering.

6 Conclusions

The primary purpose of the interdisciplinary study was in the contribution towards academic literature in the understanding of human and economic behaviour in the investigation of individual tax morale across Europe by applying data-driven ML methods and models. Research was based on the dataset that included 56761 individual data selected from 35 countries and compiled from the EVS over 2017-2020 period. The study investigated the relationship between 'CoT' (cheating on taxes) and 'AFoPT' (avoiding public transport fare), as two target variables and proxies to individual tax morale, together with factors explained by sixteen sociodemographic and subjective economic, institutional, and social variables. Three research questions have been defined with several important policy level conclusions for government and tax administration officials across European countries and beyond. The research highlights the role of ML methods and models in explaining individual tax morale, corruption levels, and broader human behaviour. The findings demonstrate that ML methods and models enhance accuracy and predictive power, particularly when the CPI is incorporated into the analysis. Among all applied ML methods and models, ANN models yielded the highest prediction accuracy. Furthermore, the results indicate that CPI is a stronger predictor than country-specific variables for the two proxy variables of individual tax morale, reinforcing the importance of corruption levels in tax morale assessments. The results again highlight the significant policy implications for the European decision makers, regulators together with the EU institutions (tax officials, tax administration and beyond, Horodnic, 2018, p. 871; OECD 2018; 2019) in their determination to research and tackle tax evasion and increase tax morale across EU.

Finally, findings of this study contribute significantly to social sciences by enhancing the understanding of human behaviour measured by the key factors shaping individual tax morale across Europe. The results reveal that respondents' attitudes toward bribery, the CPI, beliefs about immigrants' im-

pact on national welfare, and gender are the most important determinants of tax morale. These insights align with previous social science research (e.g., Lago-Peñas and Lago-Peñas, 2010; Garcia et al., 2018), highlighting the importance of these variables in shaping tax compliance behaviour. Future research should continue to incorporate ML methods and models in the assessment of the key factors influencing perceived tax morale, as they offer a deeper understanding of the social, economic, and ethical dimensions influencing individuals' willingness to comply with tax obligations.

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Appendix 1. Overview of the most relevant findings regarding measurement of individual tax morale

Author(s)	Methods/Data	Dependent Variable	Independent Variables	Results
Listhaug and Miller (1985)	Regression analysis	Tax morale	Political ideology, religious values, political dissatisfaction, self-interest, personal dissatisfaction, political interest	Strongest support for symbolic politics model; weak support for self-interest explanation
Torgler (2005)	Empirical study (Latinobarómetro and World Values Survey)	Tax morale	Size of shadow economy, tax burden, lack of honesty, corruption, trust in officials, belief in law enforcement, pro-democracy attitudes	Tax morale is influenced by the size of the shadow economy, with tax burden, lack of honesty, and corruption being key factors; trust in officials, belief in law enforcement, and pro-democracy attitudes positively impact tax morale
Torgler and Schneider (2005)	Weighted probit estimation	Tax morale	Societal institutions such as trust or pride	Decrease in tax morale between 1990 and 1999 in Austria; societal institutions are key determinants
Richardson (2006)	Cross-country investigation (OLS regression analysis)	Tax evasion - TEVA - country survey rating of tax evasion collected by the World Economic Forum	Complexity, education, income source, fairness, tax morale	Lower complexity, higher education, income source, fairness, and tax morale are associated with lower tax evasion levels across 45 countries
Torgler and Schneider (2007)	Ordered probit model	Tax morale	Cultural and institutional differences	Differences in tax morale exist between Switzerland, Belgium, and Spain
Alm and Gómez (2008)	Unique dataset (Spain's Survey of Fiscal Policy)	Tax morale	Social capital, perception of benefits from public goods and services, perceived fiscal fraud	Social capital and perception of benefits from public goods and services significantly influence tax morale in Spain, while perceived fiscal fraud negatively affects it
Lago-Peñas and Lago-Peñas (2010)	Multilevel model	Tax morale	Socio-demographic characteristics, personal financial experiences, political attitudes, regional GDP, tax arrangements, ethnic and linguistic fractionalizations	Tax morale in European countries varies with socio-demographic characteristics, personal financial experiences, political attitudes, regional GDP, tax arrangements, ethnic and linguistic fractionalizations
Torgler and Valev (2010)	Weighted probit modelling	Tax morale	Gender, public attitudes towards corruption and tax evasion	Women are less likely to justify corruption and tax evasion

Lubian and Zarri (2011)	Non-RCT observational study	Stated happiness	Fiscal honesty	Tax morale, the intrinsic motivation to pay taxes, is a new determinant of happiness, as fiscal honesty generates a higher hedonic payoff than cheating
Molero and Pujol (2012)	Empirical study (binomial logit model)	Tax morale	Grievances about taxes, public funds, underground economic activities, duty, solidarity	Tax morale is influenced by grievances about taxes, public funds, and underground economic activities, with a lesser impact from duty and solidarity
Torgler (2012)	Weighted ordered probit model	Tax morale	Socio-demographic, economic, social, political, and institutional variables	Significant decrease in tax morale in 7 out of 10 Eastern European countries between 1999 and 2008
Kountouris and Remoundou (2013)	Empirical study (European Social Survey)	Tax morale	Culture (immigrant origin country tax morale)	Culture significantly influences individual tax morale, with immigrant origin country tax morale significantly influencing morale in the destination country
Doerrenberg et al. (2014)	Ordinary Least Squares (OLS)	Tax morale	Tax rates, avoiding public transport fee (instrumental variable)	Higher tax morale groups bear a higher tax burden
Cyan et al. (2016)	Binary probit regression model	Tax morale	Education, gender, age, location (industrialized population centres)	Tax morale in Pakistan is higher among educated individuals, especially those with very low or very high education, and is highest in major industrialized population centres; females generally show higher tax morale than males
Horodnic (2018)	Systematic review	Tax morale	Trust (vertical and horizontal), formal and informal institutions	Horizontal and vertical trust are the most significant factors that positively influence tax morale
García et al. (2018)	Generalized linear model	Tax morale	Socio-demographic factors, subjective economic, social, institutional variables	Impact of spatial dependence, economies of agglomeration, income inequality, economic imbalances, and perceived corruption on the variable -rejection of tax evasion
Castañeda (2021)	Pooled cross-sectional data	Tax morale	Horizontal equity, vertical equity	Tax equity, including horizontal and vertical equity, is the most important determinant of fiscal morale

Source. Own interpretation.

Appendix 2. Participating countries and sample size per country

ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents	ISO Country code	EVS No.o.f respondents
DK	3362	DE	2170	GB-GBN	1788	UA	1612	RS	1499	PL	1352	SE	1194
CH	3174	FR	1870	BA	1724	BG	1558	HR	1487	EE	1304	NO	1122
NL	2404	RU	1825	AT	1644	BY	1548	LT	1448	PT	1215	MK	1117
IT	2277	CZ	1811	IS	1624	HU	1514	AL	1435	ES	1209	SI	1075
GE	2194	AZ	1800	RO	1613	AM	1500	SK	1432	FI	1199	ME	1003

Source: EVS, 2020.

The Nexus Between European Funds, Economic Growth, and Government Quality in the EU

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ABSTRACT

The purpose of this paper is to identify the contextual associations between the absorption of European funds, economic growth, and the quality of governance. The structural funds of the European Union support the strengthening of the economies of its Member States. The efficient use of these funds is achieved through high-quality governance; however, efficient governance presupposes a stable and developed economy.

Design/Methodology/Approach: The methodological background comprises a qualitative sequential approach involving a literature review and empirical analysis that provide coherence and viability for the study. We mainly employ quantitative methods, including an econometric model based on panel data for European countries over the period 2007–2020, which represents a novel approach in the literature.

Findings: The empirical results indicate a positive relationship between the European funds absorption rate, economic growth, and institutional governance factors.

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Originality/Value: The article may be considered a useful contribution to understanding the complex relationship between European funds, government quality, and economic growth, thus adding to the existing literature.

Keywords: economic growth, European funds absorption, government quality

Povezava med evropskimi sredstvi, gospodarsko rastjo in kakovostjo upravljanja v EU

POVZETEK

Namen tega prispevka je opredeliti kontekstualne povezave med črpanjem evropskih sredstev, gospodarsko rastjo in kakovostjo upravljanja. Strukturni skladi Evropske unije podpirajo krepitev gospodarstev držav članic. Učinkovita uporaba teh sredstev je dosežena z visokokakovostnim upravljanjem; vendar učinkovito upravljanje predpostavlja stabilno in razvito gospodarstvo.

Zasnova/metodologija/pristop: Metodološko izhodišče temelji na kvalitativnem zaporednem pristopu, ki vključuje pregled literature in empirično analizo, kar zagotavlja koherenco in izvedljivost študije. Pretežno se uporabljajo kvantitativne metode, vključno z ekonometričnim modelom na podlagi panelnih podatkov za evropske države v obdobju 2007–2020, kar je nov pristop v literaturi.

Ugotovitve: Empirični rezultati kažejo na pozitivno razmerje med stopnjo črpanja evropskih sredstev, gospodarsko rastjo in institucionalnimi dejavniki upravljanja.

Izvirnost/vrednost: Članek je uporaben prispevek k razumevanju kompleksnega odnosa med evropskimi sredstvi, kakovostjo upravljanja in gospodarsko rastjo ter tako dopolnjuje obstoječo literaturo.

Ključne besede: gospodarska rast, črpanje evropskih sredstev, kakovost upravljanja

JEL: H11, I38, O52, O47

1 Introduction

The Structural and Investment Funds of the European Union (EU) are designed to support the goal of convergence, benefiting mostly poorer states or regions (Atunes et al., 2020). This major objective is accompanied by the action of absorbing these funds as the percentage of EU funding that has been paid by the European Commission to member states' Operational Programmes (OPs) at a certain point in time (European Parliament, 2024). The Structural and Investment Funds have experienced changes throughout history, either by adding new funds following the resolution of some problems encountered with the accession of several states to the European Union or by changing their structure following the prioritization of new visions of political and economic at the European level. Since the 2000–2006 funding period, the changes began to be major with the expansion of the

European Union to eastern Europe, the states that joined in that period being developing states and therefore with a much-reduced economic power compared to old member states, as Dornean (2016) mentioned also. As a rule, absorption tends to start slowly, and then it accelerates in the last years of programming. Since the 2000–2006 funding period, the changes began to be major with the expansion of the European Union to Eastern and Central Europe, the states that joined in that period being developing states and therefore with a much-reduced economic power compared to the West member states, as Dornean (2016) mentioned also. The real period in which developing states entered the world of European structural and investment funds was the period 2007–2013, a period in which three other states joined: Romania and Bulgaria at the beginning of the financing period (2007), and Croatia at the end of the period (2013). These three countries had the lowest absorption rate because the institutional and procedural infrastructure for attracting funds required a transition period, which determined that the funds were absorbed towards the end of the Multiannual Financial Framework 2007–2013. The administrative capacity of these states (Bulgaria, Croatia, Romania) gradually improved, and in the next Multiannual Financial Framework 2014–2020 were the results evident, including from the perspective of the degree of absorption of European funds. The extension in question has generated major interest, and some studies have been written on the impact that European funds have on the new member states (Albulescu and Goyeau, 2013; Achim and Borlea, 2015; Tigănasu et al., 2018; Surubaru, 2020; Vukasina et al., 2022).

In our paper, we will investigate the two funding periods, 2007–2013 and 2014–2020, creating an overview of the absorption of funds which allows us to identify real developments, in particular regarding the member states who joined the EU starting with 2004, given the fact that not only the economic power results in poorer performance but as countless factors can also cause fund absorption discrepancies. In this context, we intend, through this paper, to find out not only whether the European structural funds lead to economic and sustainable growth but also if the economic and institutional factors affect or support the increase in the degree of absorption. The methodological background includes qualitative sequential methodology, literature review, and empirical analysis that provides coherence and viability for our study, but also quantitative methods, including an econometric model based on panel data for the European countries over the period 2007–2020.

In terms of the structure of the paper, the next section examines the literature regarding the researchers' approaches and the results obtained. Section 3 describes the method, variables, and data sources; Section 4 summarizes the results of the empirical study conducted on 27th European countries over the period 2007–2020; and Section 5 outlines the conclusion, the main findings, their implications, and potential policy implications.

2 Literature Review

The European Parliament (2024) identified some factors as barriers to the absorption both at the level of the European Union (delays in adopting a legal framework for the Multiannual Financial Programme) and at the level of the eligible states (limited quality of government, limited administrative capacity, inefficient institutional structures, training gaps, low public administration workforce engagement, inadequate practices and procedures for the selection of operations, and insufficient digitalization). Among these factors, administrative capacity at national and regional levels is one of the key factors in explaining the different performances of the Cohesion Policy in Europe (Smeriglio et al., 2015) and being identified by literature (Incaltarau et al., 2020; Kersan-Škabić et al., 2017, OECD, 2020, Tigănasu et al., 2018) as one of the most frequently emphasized factors correlating with high absorption rates. Absorption drivers related to administrative capacity include the quantity (total staff and turnover) and quality (competencies and skills) of human resources in the public administrations in charge of programming, implementing, monitoring, and controlling interventions (European Parliament, 2024).

According to OECD (2023), good governance is under the auspices of 32 recognized Principles and 270 sub-principles developed by SIGMA (starting with 2014) at the request of the European Commission (EC) on six thematic areas that can guide reform efforts to ensure adequate administrative capacity: (i) strategy; (ii) policy development and coordination; (iii) public service and human resource management; (iv) organization, accountability, and oversight; (v) service delivery and digitalization; and (vi) public financial management.

A large series of studies has suggested that the economy of a state can be directly affected by the poor quality of public administration and, therefore, of public institutions, alongside which there can be a present level of corruption (Mauro, 1995; Paldam, 2002) and which harm the increase in the number of investments (Gundlach and Paldam, 2009; Franco de Lima and Maciel-Lima, 2021). Other studies show that the previously mentioned factors can negatively impact the performance and development of enterprises (De Rosa et al., 2016; Achim, 2017). Achim and Borlea (2015) argued that the economic and sustainable development of a state can be directly affected by the quality of institutions and the current level of corruption.

Looking at the European level, European funds represent one of the main ways of economic and sustainable development of the member states, especially concerning the Central and Eastern European states that joined in 2004 (Cyprus, Malta, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia, and Hungary), 2007 (Romania and Bulgaria), respectively 2013 (Croatia), developing countries compared to the existing Member States at the time. As a result, special attention was paid to the impact that the European structural funds have on the economic growth of the member states, in particular after the period 2000–2006, respectively 2007–2013, the latter being the period of the union of the democratic states and the states from the former communist bloc.

Some studies have focused on finding explanations for how European Union funds are allocated to member states (Kemmerling and Bodenstein, 2006; Zaman and Georgescu, 2009; Dellmuth, 2011; Dellmuth and Stofell, 2012; Bachtler et al., 2014; Albulescu and Goyeau, 2013; Tosun, 2013). These studies revealed many factors that influence the degree of absorption of European funds, such as the administrative capacity of public institutions, the level of socio-economic development of the member states, the degree of excessive bureaucracy, the level of inter-institutional coordination, the efficiency of public-private partnerships, the degree of available resources regarding project financing. Grecu (2009) identified a series of obstacles regarding the higher absorption of European funds, such as excessive bureaucracy, the reduced degree of decentralization, and the “heavy” normative framework regulating the financing and implementation of projects.

Some authors have focused on the implications of the absorption of European funds at the regional level within the European Union states (Kirbis, 2009; Albulescu and Goyeau, 2013; Tosun, 2013; Calinica, 2020). They focused on the impact of funds from the European Regional Development Fund, structuring the impact into two categories, namely: i) the impact on the states that joined in 2004, 2007, and 2013, and ii) the impact on the older member states. These two categories are justified by the authors that the new member states have much weaker economic development power, with major regional disparities.

At the same time, some authors in question discovered a series of advantages regarding the absorption rate of European funds at the regional level within the developing states. Albulescu and Goyeau (2013) argued that the increase in the gross domestic product (from the previous year) does not have a direct negative impact on the ERDF absorption rate because the old Member States show a higher degree of economic growth. A similar result was also obtained by Tosun (2013), arguing that states with a high power of economic development tend to absorb a larger amount of the funds in question, but which do not imply a significant impact within a strong economy developed. However, Tosun (2013) identified an impediment for the new member states because some factors, such as their administrative capacity, were not so strong to face and apply as effectively the requirements imposed by the European Union. This theory is supported by Sedelmeier (2008), Bailey and De Propis (2004), and Cartwright and Batory (2012) too.

In the same context, Kirbis (2009) claims that the policy attributed to regional development through the use of European funds does not significantly contribute to reducing the disparities between the regions of the member states, the regional policy does not contribute to the facilitation of economic growth, while other authors claim that, despite the disparities between regions, there is a long-term positive effect on gross domestic product and implications for reducing the unemployment rate.

Other authors have focused on the Cohesion Fund and the impact it had on the states of Eastern Europe, being an instrument focused on reducing dis-

parities between the regions of all member states and, at the same time, promoting economic and sustainable development (Grusevaja and Pusch, 2011; Albulescu and Goyeau, 2013; Hapenciuc et al., 2013). Although all states tend to have regions with an economy below the European Union average, the concern regarding the states that joined from 2004 to 2013 arises from most of the Regions of these states being below the economic average at the European level, finding a problem not only locally, but also nationally. In this context, the Cohesion Fund complements the European Regional Development Fund to have real results in reducing disparities between regions and, at the same time, to have the capacity to support economic growth at the level of each state. Santos et al. (2024) focused on the analysis of cohesion policy for the period 2014–2020 and concluded that the absorption of funds could be significantly improved through increased flexibility in spending rules and the adoption of more tailored strategies.

In the work of Mihăilescu (2012), the role of public institutions regarding the degree of absorption of European funds has a significant impact. Mihăilescu (2012) shows that states with a high level of corruption are a major factor contributing to the low absorption rate in the European Union. Grusevaja and Pusch (2011) also used corruption (corruption perception index) as a variable to demonstrate the lower degree of absorption. Grusevaja and Pusch's (2011) work was focused on the Central and Eastern European states that joined in 2004. The difference between the two works previously mentioned is the corruption index variable used where Mihăilescu (2012) opted for the corruption control indicator of the World Bank's Worldwide Governance Indicators, while Grusevaja and Pusch (2011) decided to use the perception index of corruption.

The study of Kersan-Skabic and Tijanic (2017) also used the corruption perception index. The novelty of the study was the use of a dummy variable, demonstrating that a high degree of corruption at the institutional level leads to the attraction of reduced European funds compared to states with a low degree of corruption ($p < 0.01$).

Albulescu and Goyeau (2013) adopted a different perspective on the absorption of funds from the Cohesion Fund. Unlike the previously cited studies, they opted to utilize the average growth rate of gross domestic product (GDP) instead of GDP per capita. They argued that the economic growth rate from the previous year substantially impacts the current year's absorption of European funds. Albulescu and Goyeau (2013) findings indicate a significant relationship at the 1% level ($p = 0.003 < 0.01$). Another innovative aspect of Albulescu and Goyeau's (2013) work is the use of the economic sentiment indicator variable, showing if the general investor perception improves, there is a greater willingness to invest, therefore resulting in a high absorption rate ($p = 0.000 < 0.01$). The authors decided, thus, to analyze the impact of the Cohesion Fund (CF) together with the European Regional Development Fund (ERDF) because in the period 2007–2013 (the period of analysis of the research paper), the CF would be applied within the first objective called "con-

vergence" of the Multiannual Financial Frameworks 2007–2013. The convergence objective consists of "ensuring economic growth and employment by increasing the quality of infrastructure and human capital investments, developing the information society and supporting innovation, adaptability to economic and social changes, protecting the environment and improving environmental conditions and increasing administrative capacity" (Dornean 2016). This objective was applied to regions with GDP below 75% of the EU average, a target that overlaps with that of the European and Regional Development Funds and explains the relevance of approaching these two funds within the same study.

The advantage of carrying out a study on the impact of resources from the Cohesion Fund on the economy of a state emerges from its importance that has grown substantially over time, with the expansion both from the perspective of the number of states and from the perspective of demographic factors (population, territory), in especially concerning the last three waves of accession, states that presented an economy much lower than the existing member states, these providing an addition to the gross domestic product of the organization of approximately 5% (Dornean 2016). Based on the above, it is clear that the Cohesion Fund would be used strictly within the new member states, the primary eligibility criterion to benefit from its resources is the gross national income (GNI) does not exceed 90% of the resulting average at the European Union level. On the other hand, the strict analysis of the Cohesion Fund leads to a restrictive database, both from the perspective of the number of states that can be analyzed and the period covered. The explanation of the authors Albulescu and Goyeau (2013) regarding why they did not choose the period 2000–2006 was for two particular reasons, the first being the way of structuring regarding the objectives and the allocation of funds was modified as a result of the EU enlargement, and the secondly the database that could be relevant in their study is partial, the enlargement taking place in the middle of the execution of the program from 2000–2006.

Hapenciuc et al. (2013) addressed the issue related to the degree of absorption within ten states (Estonia, Lithuania, Latvia, Hungary, Slovakia, Slovenia, Czech Republic, Poland, Bulgaria, and Romania), analyzing the period 2007–2011, making a linear correlation for each year between gross domestic product and contracted grants. Thus, the authors identified that in the first 2 years, the correlation did not show a strong link between the two variables, finding that the link became significant in the years 2009, 2010, and 2011. They thus identified that a cause of the growing link year by year is due to the administrative and financial capacity to implement the established projects, finally arguing that the attraction and use of European resources significantly depends on the ability of the authorities at the level of each state to make decisions as efficient as possible and, at the same time, to be under the criteria imposed by the European Union.

As a result of analyzing the studies carried out by the previously mentioned researchers, we can conclude that the impact created by the event in which

the largest expansion in the history of the European Union took place (2004 – 10 states) and later two other states in the same geographical area (2007 – Romania and Bulgaria) led to a large series of scientific works to identify the impact of the absorption of the European structural funds on the under-developed states and at the same time, which can be the factors involved in the increase or decrease of an absorption rate in consequence. The EU-15 (traditional countries of the European Union) had a high level of absorption capacity for structural funds, which, as the European Union continued to expand, gradually resulted in a decline in the average absorption rate, resulting from factors such as a level of low economic growth of the member states, an inefficient or weakly decentralized administrative system, the high degree of corruption or a regulatory framework not adjusted towards sustainable and efficient economic growth.

A series of scientific papers also concerns the Romanian state and its economic evolution since its accession to the European Union, with the demonstrative aim of demonstrating its evolution through the involvement of European structural funds.

A study that stands out among the ones mentioned above is that of Marinaș and Prioteasa (2015), who consider the impact of the European Social Fund on the Romanian state, analyzing the issue of the absorption rate from the perspective of 3 main indicators: the attractiveness rate for potential beneficiaries regarding the access and use of European funds (calculated as the fraction between the requested grants and the amount of planned allocated funds), the success rate (calculated as the fraction between the contracted grants and the requested grants) and the quality of the use of the grants. The authors wanted to demonstrate which are the impediments at the administrative level that cause the last position that Romania represents regarding the degree of absorption at the EU level. Thus, following the results obtained, they concluded that the low level of absorption in the case of Romania is determined by the management that is not optimized in using the funds obtained effectively, the cause in the case being a high degree of political interference that is not justified and that leads to erroneous management of resources.

Lucian (2021) analyzed the impact that European structural funds can have on Romania with the increase in the absorption rate, arguing that at the administrative level, the decisions taken did not take into account the vision and objectives at the level of the union in the period 2007–2013, resulting of reduced decision-making transparency, non-compliance with operational procedures, leading to inefficient implementation of the resources obtained. Although in the period 2014–2020, the European Union imposed a set of rigid rules, which did not have a major impact on the performance regarding the management of funds, the Romanian state suffered from a lack of communication and cooperation at the interinstitutional level, which led, according to the author, to massive delays regarding the approval of projects by the European Commission.

A noteworthy approach in the analyzed studies is identifying the absorption rate of structural funds as a factor of economic growth, a method that we consider the most relevant and comprehensive.

Jureviciene and Pileckaite (2013) analyzed the impact of the European structural and investment funds on the specifics of Lithuania, wanting to demonstrate the potential impediments that can cause a much lower absorption rate than expected. A unique aspect to mention is that the authors have identified, based on their research, diminished attention paid by the European Union to the states with a small territorial area. Most of the states in this spectrum benefit from the necessary funds from a national perspective and are not categorized by region. Such an approach inevitably leads to the provision of funds in often erroneous amounts and with imprecise destinations. Some risks can lead to implementing the initially established projects (e.g., weak interinstitutional communication, reduced administrative capacity, reduced decision-making transparency, and the inability to specifically monitor each project and its destination). The authors, in this case, focused primarily on three aspects: (i) the impact of greater absorption of European funds on foreign direct investments, (ii) the degree of influence of European funds on government investments in gross fixed capital, and (iii) the level of experience of businesses regarding the importance of external support through European funds. The researchers were able to demonstrate, based on a correlation matrix, that a higher rate of absorption of funds used for economic and competitive growth leads to a higher rate of foreign direct investment.

The approach of Achim and Borlea (2015) directly involves the Worldwide Governance Indicators (WGI) developed by the World Bank, arguing that a greater absorption of European funds is strongly influenced by the administrative capacity, respectively the quality of public institutions in attracting them and use effectively. As a result, the authors performed a series of 6 linear regressions using the absorption rate of European structural funds as the dependent variable and the previously mentioned indicators as independent variables (voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption), using the Ordinary Least Squares (OLS) calculation method. The authors' results conclude that 5 of the 6 variables significantly influence the degree of absorption of European funds (voice and accountability; government effectiveness; regulatory quality; rule of law; control of corruption, the exception being political stability and absence of violence variable).

Similarly, the approach of Incalțărău et al. (2020) highlights the importance of administrative capacity and, at the same time, some political factors regarding a higher rate of absorption of European funds, using 4 of the Worldwide Governance Indicators (government effectiveness, regulatory quality, political stability, and corruption control), the econometric results, in this case, demonstrating a significant relationship only in the case of government effectiveness and corruption control.

In a later paper by Roman et al. (2023), the authors focused strictly on the degree of corruption and fraud carried out at the level of public institutions as the cause of a low absorption rate, repeatedly arguing that an unethical and moral performance at the administrative level leads to economic growth in continuous stagnation. The study shows, in the analyzed period 2014–2020, based on a two-level regression (fraud indicator regarding European funds and corruption control), that the first model (using the fraud indicator) has a strong influence on absorption rate while the second model (using corruption control) does not show an influence on the increase or decrease of the dependent variable. The authors argue that the second model resulted in an insignificant relationship because corruption control was used as a subjective alternative to represent fraud, compared to the first model, where they used an objective indicator, advising researchers to use indicators based on facts and not on perception.

An important aspect to mention is the fact that regardless of the method of approach of the researchers mentioned in this scientific paper, a common point in all the analyzed studies is represented by the impact that the European structural funds have on economic and lasting growth. Thus, most of the papers analyzed presented the gross domestic product as the main indicator, either per capita or as a percentage of the average growth from year to year, highlighting the fact that the primary purpose of the structural and investment funds is to develop the member states of the European Union from an economic point of view and to maintain this growth in the long term.

3 Data and Method

Our study considers 27 states (EU members, Great Britain excluded) and analyzes the periods programmed for the allocation and use of European structural funds, more precisely, 2007–2013 and 2014–2020, using the World Bank database (2024).

Thus, the purpose of the work will be verified by implementing three main hypotheses:

Hypothesis 1: The rate of absorption of European Structural Funds will increase if the average GDP of the previous year has increased.

Hypothesis 2: There is a strong link between the quality of institutions (corruption perception index, government effectiveness) and the degree of absorption of European structural funds and economic indicators (average GDP, inflation, economic sentiment indicator).

Hypothesis 3: There is a strong link between inflation, public institutional quality, and the degree of absorption of European structural funds.

Our paper will consider using a multi-level econometric model using OLS (Ordinary Least Squares), representing the most used and recommended econo-

metric model in the previously studied research papers. At the same time, the regression analysis will be carried out using the methodology with fixed effects on all levels (cross-fixed effects). According to Albuлесcu and Goyeau (2013), such an approach allows the variables taken in the analysis not to be omitted, in the case of using temporary fixed effects, the features not observed by OLS that fluctuate over time but which are common to all states, will be taken into account.

We can observe the variety of the works analyzed above, which allows us to identify each method of approaching the impact of the absorption rate and identify numerous indicators and their influence on the results obtained by the authors in question. Thus, using a regression using OLS allows us to consider more variables, resulting in more accurate results. At the same time, it allows us to demonstrate not only the impact of the absorption rate on economic growth (average GDP) from year to year but also the economic and institutional factors that influence the rate in question.

First of all, the reason to analyze not only one funding period but two funding programs is to capture how the states in the last three waves of accession have evolved, given the fact that, according to Hapenciuc's et al. (2013) results, the states of Central and Eastern Europe needed time to adapt to the European system and to create an institutional framework and at the same time an approach that would allow the absorption and use of funds as efficiently as possible. At the same time, a similar view was in the case of the study by Albuлесcu and Goyeau (2013), who considered taking into account the previous funding period (2000-2006), the argument for which they decided not to include it being that the structure of the funds, the objectives of each fund and the way of allocation and prioritization of needs at the level of the new member states have changed significantly.

Secondly, the analysis of the absorption rate on two funding programs represents the novelty of our work, given the fact that, according to the research of the large number of studies presented previously, the authors analyzed only one programming period. Thus, the argument of an analysis of this kind consists in the fact that only one state acceded in the middle of the analysis period (Croatia – 2013), something that did not affect or change the structure of European funds, having previously experienced the waves of accession from 2004 and 2007. Another argument can also be identified in the specialized literature (Dornean 2016), where we could observe that although there is a degree of allocation from the EU budget of structural and investment funds, the objectives have remained the same but just adapted in a minimalist way.

We use our analysis data taken from a series of databases, the absorption rate of the European structural and investment funds (*AbsR*) of the 27 states was taken from the database made available by the Cohesion Open Data Platform (European Commission, 2024a). The gross domestic product average (*GDPaverage*), along with the inflation rate (*Infl*), were taken from the World Bank database (World Bank, 2024). The World Bank made available the world governance indicators, from which we extracted one of the six indicators, namely

government effectiveness (*GE*) (its value being between -2.5, meaning weak effectiveness, and +2.5, meaning high effectiveness) (World Bank, 2024). The indicator of economic sentiment (*ESI*) was taken from the official website of the European Commission (2024b), in the Economy and Finance section, and the last indicator, the perception of corruption index (*CPI*), was taken from the database of the Global Anti-Corruption Organization (Transparency International, 2024). The variables are described in Table 1.

To perform the 3-level regression analysis and implicitly test the hypotheses, we used the following equations:

$$\text{AbsR} = \alpha + \alpha_1 \cdot \text{GDPaverage}(-1) + \alpha_2 \cdot \text{CPI} + \alpha_3 \cdot \text{ESI} + \alpha_4 \cdot \text{Infl} + \alpha_5 \cdot \text{GE} + \varepsilon \quad (1)$$

$$\text{CPI} = \alpha + \alpha_1 \cdot \text{GDPaverage} + \alpha_2 \cdot \text{AbsR} + \alpha_3 \cdot \text{ESI} + \alpha_4 \cdot \text{Infl} + \alpha_5 \cdot \text{GE} + \varepsilon \quad (2)$$

$$\text{Infl} = \alpha + \alpha_1 \cdot \text{GDPaverage} + \alpha_2 \cdot \text{CPI} + \alpha_3 \cdot \text{ESI} + \alpha_4 \cdot \text{AbsR} + \alpha_5 \cdot \text{GE} + \varepsilon \quad (3)$$

Where: AbsR – absorption rate of European structural and investment funds; GDPaverage – the average growth rate of the gross domestic product; CPI – corruption perception index; ESI – economic sentiment indicator; Infl – inflation rate; GE – government effectiveness.

Table 1. Description of the variables

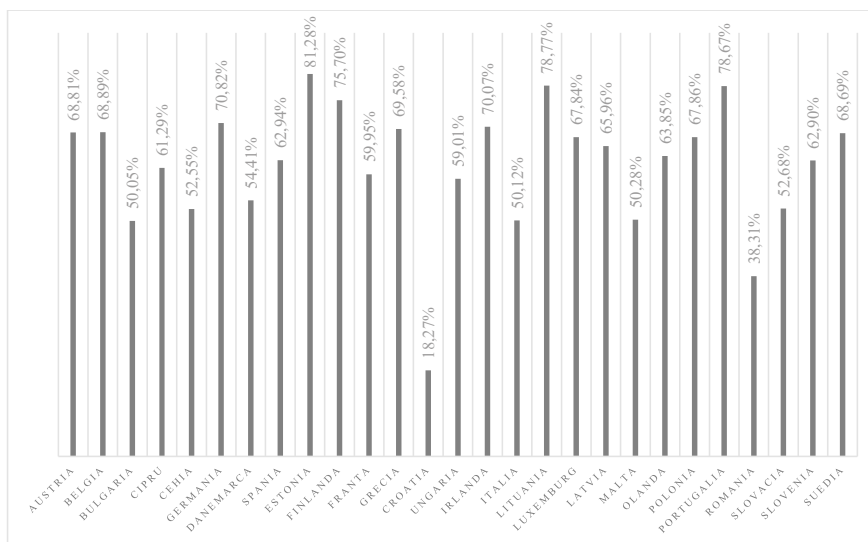
Variable	Description	Source	Expected Sign
GDPaverage	represents the average GDP growth rate of each state in the analyzed period and contributes to the evolutionary degree of GDP from year to year	World Bank, 2024	+
CPI	represents the current level of corruption in the analyzed period in each state based on an accurate evaluation by some experts and at the same time through an opinion poll, the main axis being the public sector. The index is measured inversely, meaning that the higher the index, the lower the degree of corruption	Transparency International, 2024	+
ESI	involves the perception of investors regarding the economic context and whether it allows the realization of investments or not, otherwise the economic level of a state can stagnate and even stop a potential economic recovery	European Commission, 2024	+
Infl	it essentially represents the devaluation of the national currency which fundamentally affects the price of goods and services, affecting in this case not only the amount of European structural funds allocated, but also their real value	World Bank, 2024	-
GE	it is directly related to the perception of the level of quality of public services offered by each state, along with which the level of independence from political pressures is taken into account, including the quality of formulating, implementing and respecting public policies	World Bank, 2024	+

Source: computed by authors

4 Results and Discussions

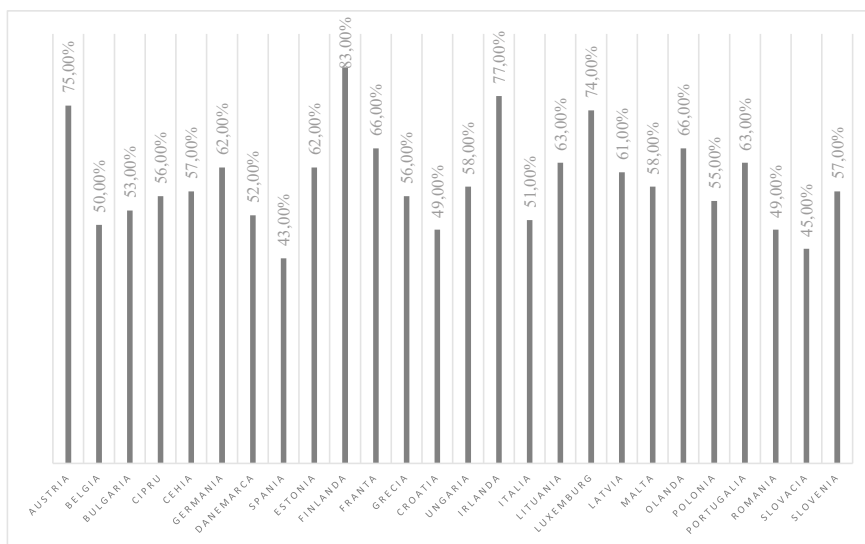
First, we will consider the degree of absorption of European funds at the end of each period, 2013 and 2020, respectively, to identify the difference in the absorption rate mainly between the states that joined before 2004 and, therefore, the states that joined after 2004 (Figures 1 and 2).

Figure 1. The absorption rate in EU member states during 2007–2013.



Source: computed by authors, based on the European Commission (2024) database

Figure 2. The absorption rate in EU member states during 2014–2020



Source: computed by authors, based on the European Commission (2024) database.

According to Figures 1 and 2, developing countries had a much lower absorption rate than developed countries at the end of the period 2007–2013, with the lowest values belonging to Croatia (18.27%) and Romania (38.31%). In the case of Croatia, such a rate is justified by the simple fact that the year of accession is the same as the year in which the financing period ended. An important aspect to mention is that Bulgaria, although it joined the EU at the same time as the Romanian state, managed to absorb approximately 50% of the total structural funds allocated. On the other hand, the states with the highest absorption rate at the end of the first analyzed period are Estonia (81.28%), followed by Lithuania (78.77%) and Portugal (78.67%).

It is important to state that in the papers carried out on the analysis of the 2000–2006 financing program (Tosun, 2013), they highlighted the fact that the degree of absorption in the period 2007–2013 of the new member states was higher than the absorption rate of developed states before subsequent waves of accession. This fact is even more evident if we refer to the later period, 2014–2020, where we can observe the fact that in the case of the states with the lowest rate of absorption in the previous period, in 2020, Croatia and Romania had a degree of absorption cumulatively 49.00% of the total allocated funds, while in the case of Estonia, Latvia, and Portugal, the rates decreased to 62%, 63%, and 63%, respectively.

Secondly, in an analysis of this type, a descriptive statistic (Table 2) must be included to identify the level of equality of the data distribution in the sample. Two data measurement methods, Skewness and Kurtosis, must also be used.

Table 2. Descriptive statistics of the absorption rate and economic and institutional indicators.

Variable	Obs.	Mean	Median	Std.Dev.	Min	Max	Skew.	Kurt.
<i>AbsR</i>	378	0.59	0.69	0.37	0.00	1.00	-0.34	1.48
<i>GDPaverage</i>	378	0.01	0.01	0.04	-0.14	0.24	-0.41	7.14
<i>CPI</i>	378	6.32	6.10	1.59	3.30	9.40	0.21	1.93
<i>ESI</i>	378	97.57	101.00	14.40	38.40	133.40	-1.06	4.66
<i>Infl</i>	378	1.82	1.50	2.07	-4.50	15.40	1.88	10.94
<i>EG</i>	378	1.07	1.03	0.58	-0.36	2.35	-0.19	2.45

Source: computed by authors using eViews.

Note: Skewness is a statistical method that measures the degree of asymmetry between the data within the sample, – meaning that the distribution is skewed to the left (Negative Skewness), and it follows that the median is likely to have a greater value than the mean, while + is skewed to the right (Positive Skewness) and it follows that the mean is more likely to have a greater value than the median. Kurtosis is a method of measuring data within the

sample that reveals the highest statistical point based on its frequency in the data distribution, $\text{Mesiokurtic}=0$, $\text{Platykurtic}<0$, $\text{Leptokurtic}>0$.

According to Table 2, we can observe through descriptive statistics that the average rate of absorption of European structural funds is only 0.59% within the 27 member states, with a minimum of 0% and a maximum of 1%. The reason why the average is so low is that, according to Figure 1 and Figure 2, the absorption rate is taken individually for each program, thus creating two distinct developments. This can also be demonstrated by the average of the independent variables, where the corruption perception index shows an average of 6.32, the economic indicator shows an average of 97.57, the inflation rate of only 1.82%, and implicitly the effectiveness of the government of 1, 07, the data in question not being taken individually for each program, but as an evolution from 2007 to 2020. However, the lowest average represents the increase in the gross domestic product (0.01%), given the fact that there is a series of determining factors of an evolution that can affect its growth, such as the crisis that appeared at the end of 2007 and that had effects over a long time on the economy or the pandemic period that manifested itself in 2020, the growth of the gross domestic product in these years being negative.

Referring to the Skewness measurement method, we can see that the data sample is tilted to the left in the case of the absorption of European funds (-0.34), the average growth of the gross domestic product (-0.41), the economic sentiment indicator (-1.06) and the government effectiveness indicator (-0.19). The positive trends were found in the corruption perception index (0.21) and the inflation rate (1.88). A left-skewed (or negatively skewed) distribution indicates disparities in the country's capacity for EU fund absorption, GDP growth, the economic sentiment indicator, and the government effectiveness indicator. This means that a majority of beneficiary countries are performing well in terms of fund absorption, GDP growth, and government quality, but there are countries (such as Romania, Bulgaria, etc.) that struggle with lower absorption rates, lower administrative capacity, and/or GDP growth. The economic sentiment indicator presents differences from country to country. In this context, policymakers may focus their efforts on understanding and addressing the implementation challenges faced by lower-performing countries.

Measuring the data using the Kurtosis method shows that all variables are on a generally positive curve, with the highest frequency found within the inflation rate ($10.94>0=\text{Leptokurtic}$). The Leptokurtic distribution implies heightened risk and potential volatility in how EU funds are used, which may complicate forecasts and planning for the next programs. This indicates a need for targeted interventions to support projects or countries with lower absorption rates, lower administrative capacity, and lower economic performance.

Understanding these distribution types combined (left-skewed distribution and Leptokurtic distribution) can guide governments and agencies in future resource allocation, ensuring that additional support is provided to countries where absorption is lacking. In this context, programs might be needed to

enhance the capacity of lower-performing countries to better absorb funds in the future.

However, the left skew and leptokurtic nature of EU fund absorption, GDP growth, and government effectiveness underscore the diverse performance levels among countries and suggest a need for targeted support and strategic policy adjustments to enhance overall effectiveness.

To validate the regression analysis by examining the link between the dependent variable (the absorption rate of European funds) and the independent variables, we created a correlation matrix to identify the significance of the connection between them.

Table 3. Correlation matrix between variables.

Variables	AbsR	GDPaverage	CPI	ESI	Infl	EG
<i>AbsR</i>	1.000000	0.073845	0.080551	0.434615	-0.503581	0.005287
<i>GDPaverage</i>	0.073845	1.000000	-0.008131	0.507630	0.123274	-0.038264
<i>CPI</i>	0.080551	-0.008131	1.000000	0.075038	-0.183419	0.924833
<i>ESI</i>	0.434615	0.507630	0.075038	1.000000	-0.409103	0.051303
<i>Infl</i>	-0.503581	0.123274	-0.183419	-0.409103	1.000000	-0.192350
<i>GE</i>	0.005287	-0.038264	0.924833	0.051303	-0.192350	1.000000

Source: computed by authors using eViews.

Thus, Table 3 shows a modest connection between the dependent and independent variables (GDPaverage=0.073; CPI=0.080; ESI=0.434; Infl=-0.503; GE=0.005). The strongest links are represented by the absorption rate and the economic sentiment index, which indicate a positive correlation, and the absorption rate and the inflation rate, which indicate an inverse correlation.

Although the correlation between the dependent and independent variables is not very strong, the results in question reveal that each independent variable can explain the evolution of the absorption rate of European funds in the analyzed financing periods.

At the same time, by analyzing the correlation, we can support that the connection is strong and direct between the independent variables whose indicators are economic (average GDP, economic sentiment indicator, inflation rate), which, about institutional indicators, the relationship is reduced and inverse. We find the same pattern in the case of the link between the institutional indicators, the relationship being direct and significant. The link tends to be inverse and relatively reduced regarding economic indicators.

The next step is the regression analysis between the variables, using the Ordinary Least Squares (OLS) method on three models. These models consider changing the dependent variable with an independent variable. Although

several studies contain a regression analysis on several models, such as Albulescu and Goyeau (2013), who carried out a regression at the level of all member states, at the level of old member states, at the level of new member states, at the level of taxpayers and the level of beneficiaries, a method of this kind has not yet been applied following our research. So, an approach of this kind represents the main innovative factor of our scientific work, and according to the results, there is an extremely strong significance within the three regression models.

One of the reasons why we chose to use such a method relates to the role that the European structural funds and implicitly their absorption have on societies. The European funds act in the form of objectives assigned individually or through collaboration with the main structural and investment funds. Based on their objectives assigned and thanks to a large number of research studies, we were able to identify that there are countless factors that positively or negatively influence the degree of absorption. However, European funds are also an instrument that positively or negatively influences the same economic and institutional factors (European Parliament 2023). According to this report, the absorbed European funds represent an economic stabilization tool. In our research, European funds can be an inflation stabilizer capable of developing the commercial market, diversifying the competition, and ultimately leading to the correct prices that respond to market competitiveness.

Numerous studies have highlighted corruption as a key factor contributing to low absorption rates (Incăltărău et al. 2020, Roman et al. 2023). At the same time, we consider that the degree of European funds' absorption can diminish corruption among member states.

We check for multicollinearity using the Variance Inflation Factor (VIF). According to the theory, VIF values between 2 and 5 suggest low evidence of multicollinearity, and values above 5 (or 10 in some cases) indicate a problematic level of multicollinearity. Our values are under 2, showing no multicollinearity.

According to the regression results, the probability (F-statistic) shows us a level of statistical significance at the level of the three models and implicitly of the entire regression analysis (0.000), demonstrating that the dependent variables within each model are significantly influenced by the independent variables at a 1% probability level. We identified running the three models that variables are highly statistically significant with a probability below 1% ($p < 0.01$), which proves the previously supported arguments, namely that the rate of absorption of European funds is not only significantly influenced by the independent variables, but that it is also influenced both by economic factors with a probability of 0.000 ($p < 0.01$) and by institutional factors with the same probability found. Thus, with model 2, we can conclude that the statistical link is significant and inverse between the dependent variable *Infl* and the independent variable *AbsR*, meaning that if the absorption rate increases by 1%, then the inflation rate will decrease by 1.783%. In the case of model 3, the influence of *AbsR* is not so great, but it shows a direct and positive statisti-

cal link, where if the absorption rate increases by 1%, then the corruption perception index will increase by 0.243% (*CPI* denotes a level of corruption less present as it increases, hence the positive result). Referring to the adjusted R-squared, we can reveal the fact that both models are statistically significant (model 2=0.51, model 3=0.77, where $p>0.50$ is statistically significant).

Table 4. Regression results.

Variables	Model 1 AbsR	Model 2 Infl	Model 3 CPI
<i>AbsR</i>		-1.783*** (0.000)	0.243*** (0.000)
<i>GDPaverage(-1)</i>	3.258*** (0.000)	20.262*** (0.000)	2.389*** (0.000)
<i>CPI</i>	0.160*** (0.000)	-0.646*** (0.000)	
<i>ESI</i>	0.011*** (0.000)	-0.071*** (0.000)	-0.007*** (0.000)
<i>Infl</i>	-0.053*** (0.000)		-0.034*** (0.000)
<i>GE</i>	-0.669*** (0.000)	-1.865*** (0.002)	0.907*** (0.000)
<i>C</i>	-0.766*** (0.005)	15.689*** (0.000)	5.959*** (0.000)
R-squared	0.617	0.557	0.806
Adjusted R-squared	0.578	0.515	0.778
Durbin-Watson stat.	0.588	1.272	0.696
F-stat.	0.000	0.000	0.000
N	334	334	334

Source: computed by authors using eViews.

Note: **** refers to how significant the statistical probability is that the dependent variable is influenced by the independent variable, *=10% where $p<0.1$, **=5% where $p<0.05$, ***=1% where $p<0.01$. To reveal the influence that the average growth of the gross domestic product has on the degree of absorption of funds, we used the lag function (-1), which shows the impact that the average GDP of the previous year has on the rate of absorption in the current year.

The first model and the most representative in this study shows us that the first hypothesis is confirmed by the simple fact that the increase in the average GDP strongly influences the increase in the absorption rate. According to the first model, if GDP increased by 1% in the previous year, then the absorption rate will increase by 3.258%, having a statistical probability of 1%, a similar result revealed in other studies (Albulescu and Goyeau, 2013), showing an

increase in the absorption rate through the GDP growth of the previous year of only 0.183%.

We can conclude the second hypothesis as also confirmed, where we can see that both the economic sentiment indicator (*CEI*) is statistically significant, as well as the inflation rate, the relationship is inverse in this case, both having a probability of 1%. Thus, if the *CEI* increases by 1%, then the absorption rate will increase by 0.011%, and if the inflation rate increases by 1%, then the absorption rate will decrease by 0.053%.

In the case of institutional indicators, we can see that the corruption perception index is statistically significant, having a direct relationship with the absorption rate, where if the *CPI* increases by 1%, then the absorption rate will increase by 0.160%. Conversely, government effectiveness although with a statistical probability of 1%, the relationship is significant but inverse, meaning that a 1% increase in government effectiveness leads to a decrease in the absorption rate of 0.669%. On the other hand, Achim and Borlea (2015) obtained a direct and significant result, the absorption rate in their case increasing by 9.41% at a statistical probability of 5%, thus resulting in the partial confirmation of hypothesis 3. An argument for which governance effectiveness can affect the absorption rate refers to the administrative activity that increases with the allocation and use of European funds, consequently leading to a burden on the administrative system by expanding the bureaucracy, thus causing delays regarding the approval of projects and in many cases the postponement to the following budget year, or the cancellation of the projects themselves, an argument supported and proven in the study by Marinaş and Prioteasa (2015).

This study has some limitations, considering it needed to fully explore the contextual association between the absorption of European funds, economic growth, and quality of governance. Therefore, further studies are required to address the gaps by incorporating more variables to establish the future absorption rate of European structural funds. Nevertheless, we aim to extend the research analysis over a much longer period of study, involving the 2021-2027 funding period, further identifying how economic and institutional indicators continue to influence the uptake rate and, at the same time, developing the database by adding new determinants to determine the future rate of absorption of European structural funds.

5 Conclusions

Our study aimed to identify the contextual association between the absorption of European funds, economic growth, and quality of governance. The discrepancies between countries regarding the absorption rate allowed us to identify both institutional and economic factors that can improve or worsen the degree of absorption at the level of the 27 member states of the European Union.

The premises of the study, more precisely the three hypotheses within the paper, were confirmed and verified through other research works, finally determining that both economic and institutional factors significantly influence the absorption rate. According to our results, the public policies require an improvement, along with the administrative capacity, strongly adapted to attract and use funds by proposing and implementing projects, as well as an economic environment that allows co-financing of each project at the state level, implicitly at the regional level.

The first hypothesis was confirmed, the growth coefficient of the gross domestic product for the previous year showing us that it leads to a significant increase in the rate of absorption of European funds for the current year at the level of each state, with a statistical probability of 1%.

The regression analysis results fully confirmed hypothesis number 2, with economic factors determining whether the absorption rate increases or decreases according to their nature. Although the relationship regarding inflation is inverse, European structural funds' absorption rate decreases because inflation directly valorizes the national currency, resulting in absorption with a reduced monetary value.

The last hypothesis of our research considered the significant link between institutional indicators and the absorption rate, this being partially confirmed within the corruption perception index, influencing the increase of the absorption rate under 1%. Government effectiveness, as the second half of this hypothesis, revealed a negative influence on the absorption rate, decreasing by 0.669% under conditions of a 1% increase in GE. In this sense, for the effectiveness of the government to contribute positively to the increase in the absorption rate of the European structural funds, it is necessary to prioritize the formation or even the reform of the institutional framework to have the necessary capacity to implement the proposed projects through the allocated funds. At the same time, it is necessary to create a regulatory framework designed to support the attraction of funds and, at the same time, to stimulate investments to increase the absorption rate.

Finally, the funds allocated for public administration reform should be a priority, especially in developing states. This represents one of the key factors that would lead to a high degree of structural fund absorption in Europe.

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The Use of Public-Sector Financial Reports: A Comparative Analysis of Different Information-User Groups

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ABSTRACT

Purpose: This paper investigates the extent to which different user groups in the public sector consult financial reports. Because these reports are prepared for a wide audience, we examine whether the intended recipients actually use them and explore variations in how—and why—they are used.

Design/methodology/approach: The study concentrates on politicians and public managers, adopting a quantitative design. A bespoke questionnaire was developed and administered by telephone across the Republic of Croatia between February and April 2022. Split-half factor analysis, *t*-tests and χ^2 tests were employed to identify differences in both the frequency of use and the reasons for use between the two groups.

Findings: Respondents reported that they both receive and actively consult financial reports. Public managers use the reports significantly more often than politicians. Nevertheless, financial reports are generally treated as secondary sources, whereas budget-execution reports are consulted more frequently. The analysis suggests that information relevance and the respondent's role are the principal determinants of use.

The reliance on a single questionnaire instrument constitutes a limitation, discussed in the cited literature.

Research limitations/implications: Future research could incorporate additional data-collection methods (e.g. interviews or document analysis) and extend the study to other jurisdictions to enhance generalisability.

Originality/value: The study adds empirical evidence to the international debate on the purpose of public-sector financial reporting and clarifies how specific factors shape report use or non-use.

Keywords: public-sector financial reports, usage intensity, politicians, public managers, questionnaire

POVZETEK

Uporaba finančnih poročil v javnem sektorju: primerjalna analiza kategorij uporabnikov informacij

Namen: Prispevek raziskuje, koliko različne skupine uporabnikov v javnem sektorju pregledujejo finančna poročila. Ker so ta poročila namenjena širokemu krogu naslovnikov, preverjamo, ali jih ciljni prejemniki dejansko uporabljajo, ter preučujemo razlike v tem, kako – in zakaj – jih uporabljajo.

Zasnova/metodologija/pristop: Študija se osredotoča na politike in javne managerje ter uporablja kvantitativni raziskovalni pristop. Prilagojen vprašalnik je bil pripravljen in od februarja do aprila 2022 izveden po telefonu po celotni Republiki Hrvaški. Za ugotavljanje razlik v pogostosti in razlogih za uporabo med obema skupinama so bili uporabljeni *split-half* faktorska analiza (metoda razpolovitve), *t*-testi in χ^2 -testi.

Ugotovitve: Anketiranci poročajo, da finančna poročila tako prejemajo kot jih tudi aktivno pregledujejo. Javni managerji jih uporabljajo precej pogostejše kot politiki. Kljub temu se računovodski izkazi praviloma obravnavajo kot sekundaren vir, poročila o izvrševanju proračuna pa se pregledujejo pogostejše. Analiza kaže, da sta glavna dejavnika uporabe relevantnost informacij in vloga anketiranca. Uporaba enotnega vprašalnika je omejitev, ki je obravnavana v citirani literaturi.

Omejitve raziskave/implikacije: Prihodnje raziskave bi lahko vključile dodatne metode zbiranja podatkov (na primer intervjuje ali analizo dokumentov) in razširile študijo na druge jurisdikcije, s čimer bi izboljšali posplošljivost ugotovitev.

Izvirnost/vrednost: Študija s svojimi empiričnimi rezultati prispeva k mednarodni razpravi o namenu finančnega poročanja v javnem sektorju in pojasnjuje, kako specifični dejavniki vplivajo na uporabo ali neuporabo poročil.

Ključne besede: finančna poročila v javnem sektorju, intenzivnost uporabe, politiki, javni managerji, vprašalnik

JEL: M41

1 Introduction

The reform processes that have been actively implemented in public sector accounting over the last four decades have been aimed at improving the quality of public sector management. The reforms also affected the financial reporting system (Ruiz, 2000). Systems that were previously quite closed became more open and started to provide the same information to different users such as politicians, public managers, citizens, control bodies, media and other users (Jorge et al., 2019). The reforms implemented influenced the academic community, which expressed the need for research on accounting information users and their information needs. Thus, research was conducted on the following topics: who the users of accounting information are, whether information is used at all, why it is used or why it is not used, what information is used, how it is used, what information is more useful for what purposes and under what circumstances (e.g. Buylen and Christiaens, 2016; Caruana and Faruggia, 2018; Liguori et al., 2014; Liguori and Steccolini, 2019; Raudla, 2022).

In democratic societies, the public sector financial reports (hereinafter: PSFRs) are expected to be used by politicians and public managers when making decisions and expressing their responsibility to citizens and higher levels of government (Guarini, 2016). However, previous research has shown that the use of financial reports is limited, and some authors still emphasize that this is an under-researched topic (Jorge et al., 2019; Van Helden and Reichard, 2019).

On the other hand, the budget is the most important financial instrument of the state for the executive and legislative authorities to ensure the supervision of financial operations and the implementation of various budgetary controls. When examining the use of budget execution reports and financial reports, it was found that budget execution reports are preferred (e.g. Moretti, 2016; Gomes et al., 2023).

Given that PSFRs are regarded as a crucial tool for accountability in the public sector, and that prior research has indicated they are used to a limited extent in an under-researched area, there is a clear need for further study. Specifically, it would be valuable to investigate the users, their use of financial reports, and the reasons behind this usage, to observe any potential changes over time. In addition, previous research has mostly focused on just one group of respondents. The aim of this study was therefore to carry out empirical research and involve different groups of information users to see if they use the reports, if there are differences in usage and what the reasons for using the reports are. The research was conducted with two groups of respondents, politicians and public managers. The findings confirmed that budget execution reports are still preferred over financial reports. However, all respondents indicated a high level of use of the reports. When comparing the responses, it was found that there is a difference in usage and reasons for usage in relation to the respondents' role. The responsibility of the respondents as well as the relevance of the information prove to be decisive for the use of the reports themselves. In addition, knowledge as a personal characteristic affects the use of the reports, i.e. the understanding of the reports themselves.

The high level of use implies that the key to more frequent use of reports by public sector entities lies in ensuring that reports fulfil the users' purpose.

The work is divided into five parts. The introduction is followed by the identification of the users of PSFRs and the development of the theoretical framework. The third part presents the research questions, and the fourth part contains the research approach and the research results. The fifth part develops the discussion and draws a conclusion based on the data processed.

2 Background

2.1 Definition of Users of PSFRs

Financial reports are considered to be important communication tools in the public sector (Cohen and Karatzimas, 2017). In public sector, the purpose of reports is to provide users with useful information on accountability and for decision making. Intended users and their information needs are critical to the form and the content of financial reports (Taggeson, 2015). In the case of public sector entities' reporting, the range of potential users can be very wide, as almost every person or business has some type of relationship or exchange with the public sector.

There are a number of studies that researched the users of public sector entities' reports (Mack and Ryan, 2007). During the 1970s and 1980s, many researchers focused on identifying the users to whom accounting information must be provided (Anthony, 1978; Drebin et al., 1981). This work continued for a couple of decades, until the 1990s. Most of the studies published during this period focused on external users (Patton, 1978). These empirical studies were conducted considering the needs of different users and uses of accounting information. Collins et al. (1991) investigated the use of local authorities' financial reports by local councils in Scotland. Their research showed that although local councils skimmed certain financial chapters of the reports, they did not consider them as a primary source of information. These authors concluded that the lower use of such information is influenced by the characteristics of information presented in the reports.

Internal users, i.e. public managers, were identified as users of financial reports in Brusca (1997) study. Following Brusca (1997) researchers tend to classify the potential users of financial reports in public sector as (Steccolini, 2004):

- a) external users,
- b) internal users.

External users include citizens, that is, citizens receiving public services and taxpayers, companies using public services, higher levels of government, regulators, auditors, other public entities, as well as foreign investors, banks, rating agencies and academic community. Internal users include council members in local governments and executive members in national or central gov-

ernments, public managers, civil servants and trade unions in the public sector (Steccolini, 2004).

PSFRs are prepared primarily to meet the needs for information of resource providers and service recipients who are not authorized to request specific information from public sector entities and that is necessary for their decision-making (IPSASB, 2014). Legislative bodies and parliamentarians or similar representative bodies are also considered as primary users of financial reports when they act as representatives of service recipients and resource providers (IPSASB, 2014).

2.2 Prior Empirical Research

Previous usage analysis examined the use of financial reports as well as the use of accounting information that included variety of reports and performance information (Buylen and Christianes, 2016; Caruana and Faruggia, 2018; Jorge et al., 2024; Pajković et al., 2023; Raudla, 2022; Saliterer et al., 2019). The results of these studies showed that the actual use of financial reports is low, and financial reports do not present a primary source of information in public sector. While some authors argue that both the characteristics of the information and the characteristics of the reports play key roles in the use of reports (Caruana and Faruggia, 2018; Jorge et al., 2019), other authors believe that the individual characteristics of the respondents influence the use (Yamamoto, 2008; Askim, 2009; Faber and Budding, 2022; Rogošić, 2021; Sinervo and Hapala, 2019).

Although the number of papers investigating the use and usefulness of PSFRs has increased in the last ten years, this area still remains an unexplored topic, especially in Southeastern European countries. Namely, previous papers have mainly focused on the analysis of budget and accounting bases and their relationship to financial reporting systems. For example, Poljašević et al. (2019) analyzed the application of budget and accounting bases and their relationship to financial reporting systems through a comparative study of three Southeastern European countries: Slovenia, Croatia, and Bosnia and Herzegovina (the entity of Republika Srpska). The analysis showed that budgetary reports based on the cash basis represent the primary source of information for decision-making, while financial reports based on the accrual/modified accrual basis are not the result of the information needs of decision-makers. Furthermore, the monograph (Vašiček and Roje, eds., 2019) provided a comprehensive overview of the practices and development of accounting, auditing and control systems in the public sector of seven Southeastern European countries. Each chapter analyzed the territorial organization, the scope of the public sector, budget formulation and execution, accounting and financial reporting reforms, and challenges in further development, but did not discuss the usefulness of the reports presented. One of the rare works that analyzed the usefulness of reports in selected countries of Southeastern Europe is the work by Poljašević et al. (2021). The authors conducted empirical research on the perceived usefulness of accounting in-

formation for public managers at local levels in Croatia and the Republic of Srpska. The research results showed that in both countries both budget and financial reports are considered very useful when making decisions, while their experience and education were not related to the perception of usefulness. Moreover, Rogošić (2021) conducted an empirical study to assess the level of use and usefulness of accounting information among public managers and governing politicians, but from the perspective of the accountants. The results of that study, conducted in the Republic of Croatia, show that public managers use more accounting information in decision-making than governing politicians. Pajković et al. (2023) investigated the extent to which politicians use financial statements and the perception of the usefulness of the statements. The results showed that politicians in Croatia use financial statements, but their perception of the usefulness of these statements is greater than their actual use. The main reasons for non-use were that they do not need the reports, that they are not in their area of interest, and that they contain too many technical terms. Research of Pajković (2023) was to determine the usefulness of financial statements prepared on a modified accrual basis from the perspective of public managers and accountants in the public sector of the Republic of Croatia. The research showed that financial statements do not fully meet the needs of public managers and reforms in public sector accounting are expected in the near future.

2.3 Theoretical Framework – Upper Echelons Theory

Most previous conducted and mentioned studies in this area have used questionnaires or interviews as the methodology, while very few previous studies have used any other observational methods. The analysis of previous literature on the use of PSFRs shows that a descriptive approach to the research problem is generally adopted, while theoretical arguments generally do not play an important role (Van Helden, 2016). Jethon and Reichard (2022) conclude that the use of public sector financial reports differs between politicians in the executive branch and public managers, due to different roles that those subjects hold, their different level of formal education and the experience they have as a council member. Jorge et al. (2016) conclude that a distinction between politicians and public managers in terms of their roles, work positions and scope of their responsibilities have explanatory power, as the public managers' and politicians' roles seem to be critical in the use of financial reports. However, more recent research (Faber and Budding, 2022) used the Upper Echelons Theory (Hambrick and Mason, 1984, as cited in Faber and Budding, 2022) as a theoretical framework, which originates from the private sector research. Faber and Budding's (2022) study focused on the extent to which the political role and the personal characteristics of users influence their use of information. Faber and Budding (2022) analysed the use of accounting information as well as other information during political debates. Although political role and personal characteristics influence the use, the differences in absolute numbers due to those characteristics were small. Their study has shown that politicians in parliament use less accounting in-

formation and other information compared to politicians in government. In addition, their study finds that representatives of the parties in the governing coalition use more accounting information than representatives of the opposition. Looking at the personal characteristics of the respondents, younger representatives use accounting data and other information more than their older colleagues, while more experienced representatives use less accounting data than representatives who have just started their political career.

3 Developments of the Research Problem

Despite efforts to bring accounting information closer to citizens through various reporting tools, it is reported that citizens are still a group of users who make limited or infrequent use of accounting information (Van Helden and Reichard, 2019). In a democratic society elected politicians represent citizens and are recognized as the main user group of accounting information (Van Helden and Reichard, 2019), including financial reports. This is due to their involvement in decision-making and their responsibilities for public sector programs and projects. Some authors believe that managers are the main users of financial reports, not the politicians, because they need the reports to also make decisions as well as hold politicians accountable (Brusca, 1997). However, previous studies have also shown that the use of reports by politicians and public managers is limited (Gomes et al., 2023; Jorge et al., 2019; Pajković et al., 2023; Yamamoto, 2008). Van Helden and Reichard (2019) define use as actual consultation, i.e. reading and analysing information in the reports by public sector entities in decision-making and accountability processes. Although an increasing number of empirical studies on the use of accounting information have been conducted, there is still a need for further empirical studies in this area. Previous studies have shown that there is a strong need to link different variables to the level of financial reporting use. Moreover, previous studies have mainly focused on one group of users. The aim of this study is therefore to examine the use of financial reports by two different groups of information users, namely politicians and managers, in one and the same environment to determine their specific use of the reports. In addition, this study also investigates the differences in use amongst these two different groups and what the reasons for their different use of the reports are. Furthermore, this paper aims to examine whether Upper Echelons theory can be applied to the public sector, specifically exploring whether the role and responsibilities of the information user affects the use of reports.

Therefore, based on previous research, research questions in this study are:

1. Do public managers and politicians use PSFRs, i.e. can we consider them actual users or only recipients of financial reports?
2. Are there differences in the use of PSFRs between public managers and politicians?
3. What are the reasons for using PSFRs and what influences their use and any differences in their use?

This study was conducted in the Republic of Croatia. The analysis of the existing reporting system by public sector entities in the Republic of Croatia revealed that there are two reporting systems currently in use in Croatian public sector. Budget execution reports are required, which are prepared semi-annually and annually. Additionally, financial reports are required to assess the financial position and performance. Regarding public sector reporting at the European Union level, the transition to accrual accounting is recommended, though there is currently no legal obligation for all member states to fully implement accrual accounting. Therefore, the Republic of Croatia as an EU member currently does not apply accrual accounting in their public sector. Public sector reports are instead prepared on a modified accrual basis. Croatia has shown in the last thirty years' significant progress in public sector accounting reforms, where there has been a significant shift from a full cash accounting basis to a current form of modified accrual accounting basis.

4 Research Approach and Research Results

4.1 Research Approach

To address the defined research questions, a telephone survey was conducted with two groups identified as recipients of information. To obtain a sample, the population was determined. For this study, we decided to include two groups of respondents. The first group consisted of politicians, members of representative bodies, while the second group consisted of public managers. In the sample of politicians included members of parliament and councilors of the county council, city council and local council. In the sample of public managers were included members of the Croatian Government, county prefects and their deputies, mayors of cities and their deputies, mayors of municipalities and their deputies, heads of public sector entities. The research was conducted on the territory of Croatia in the period from February to April 2022. Initially, databases were created based on publicly available data (websites of the Croatian Parliament, counties and local and regional self-government units, data from the State Electoral Commission, websites of the Croatian Government, websites of counties, cities and municipalities, and the Register of Budgetary and Extra-Budgetary Users of the Ministry of Finance) and 7,828 politicians and 3,942 public managers were identified. The aim was to achieve a quota sample of 500 respondents. Ultimately, 505 responses from politicians and 511 responses from public managers were collected through random selection. Unlike previous research that did not make a clear distinction between politicians and public managers (Jorge et al., 2019), in this paper we look at these two groups of respondents separately. Although they are sometimes equated, politicians are primarily members of the legislative and representative branches of government, while public managers are part of the executive branch with managerial responsibilities. Due to the differences in their roles and levels of responsibility, we believe it is justified to analyze them as separate categories.

For this research, a new measurement tool was created, namely a questionnaire containing mainly closed-ended questions and questions on a Likert-type scale from 1 to 5, with 5 indicating the highest level of agreement and 1 the lowest level of agreement. The questions for the questionnaire were based on a review of the previous research (e.g. Brusca and Montesinos, 2013, Caruana and Faruggia, 2018; Gomes et al., 2023; Guarini, 2016; Jorge et al., 2016; Jorge et al., 2019, Poljašević et al., 2021). Moreover, in creating questions an overview of the Croatian legal framework in relation to public sector accounting was observed too, as well as the structure and content of the required financial reports. The questionnaire was extensive and only selected questions were used for the purposes of this work. The remaining questions are a basis for other studies and the results of the remaining questions are or will be reported in other studies. As this was a new measurement instrument, it was necessary to determine the reliability and validity of the scales used. Reliability was measured using Cronbach's alpha coefficient, while validity was measured using a combination of exploratory and confirmatory factor analysis on a number of items relating to the use of financial reports and budget execution reports. The questions that were found in the factor analysis to be a valid and reliable measure of the use of the mandatory financial reports were averaged into a new variable. Appropriate statistical methods, including descriptive and inferential statistical analysis were used in processing and interpreting the primary data collected. The chi-square test was used to test the difference in the proportion of public managers and politicians using financial reports and the reasons given for their use, while the Welch t-test was used to test the difference in the frequency of use of financial reports and budget execution reports in relation to the respondent's role.

4.2 Sample Analysis

Personal characteristics of the respondents are presented in the Table 1 from which it is evident that the sample of politicians is dominantly male, while opposite is the situation with the sample of public managers, who were predominately female. Regarding education, among politicians, the highest percentage of politicians in the sample completed high school. In the sample of public sector managers, almost all respondents have completed higher levels of education, very small percentage have completed high school. In terms of educational background, most public managers in the sample hold degrees in the social sciences, while only a small portion have an educational background in economics. In the sample of politicians, most respondents have had education in other scientific fields unrelated to economics (such as technical sciences, construction, agribusiness, healthcare, IT sciences, tourism and various other professions). Respondents were also asked about years of experience in their current position. In contrast to the politicians in the sample, most of whom have held their current position for less than a year, only a small number of public managers are similarly new to their roles, suggesting that public managers generally have more experience in their positions.

Table 1. Personal characteristics of the respondents

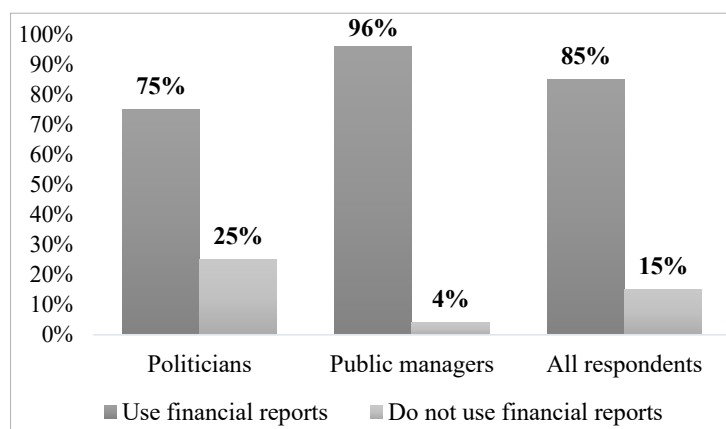
Gender	Politicians	Public managers
Female	33%	61%
Male	67%	39%
Level of education		
Elementary education	1%	0%
Secondary education	37%	6%
Bachelor's degree	17%	8%
Master's degree	36%	66%
Postgraduate education	9%	20%
Field of education		
Economics	21%	11%
Social sciences	21%	62%
Other field of sciences	58%	27%
Experience on the position		
Less than 1 year	47%	13%
1 – 5 years	26%	34%
6 – 10 years	15%	25%
11 – 15 years	6%	11%
More than 15 years	6%	17%

Source: Authors' elaboration

4.3 Research Results – The Use of Financial Reports

At the start of the survey, the respondents were asked whether they use PS-FRs. Figure 1 shows that the majority of respondents in the sample use financial reports, while a smaller proportion do not. However, when examining the samples of politicians and public managers separately, it becomes clear that public managers make more frequent use of financial reports than politicians, as anticipated. Respondents who in both samples stated that they do not use financial reports were excluded from further survey.

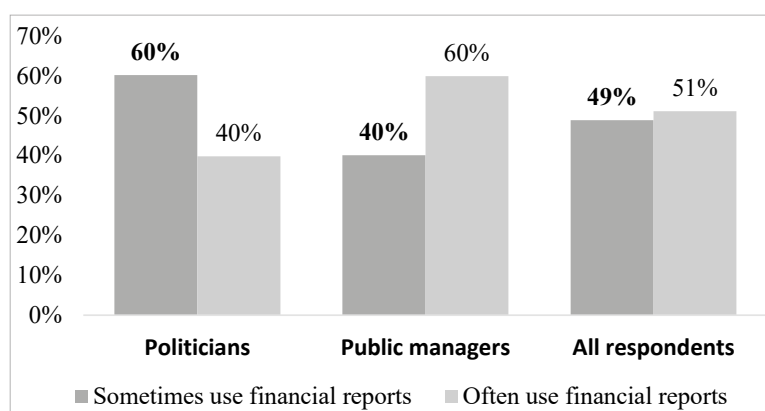
Figure 1. Use of PSFRs



Source: Authors' elaboration

Figure 2 shows that, in the overall sample, nearly half of the respondents sometimes use financial reports, while the remaining respondents use them regularly. In the sample of politicians, a larger proportion of respondents use financial reports occasionally, while among public managers, a greater number of respondents use them regularly. Furthermore, additional tests using the chi-square test were conducted to determine whether there are differences in the use of financial reports. The results of the chi-square test ($\chi^2 = 120.88$; $df = 2$) as well as the p-value ($p < 0.01$) provide evidence that there is a difference in the frequency of using financial reports.

Figure 2. Frequency of use of PSFRs



Source: Authors' elaboration

To further validate the results showing differences in usage between politicians and public managers, a dependent variable was defined. Since this was a new measurement instrument, it was essential to test the reliability and

validity of the scales used in the questionnaire. The reliability of the scales was tested using the Cronbach's alpha coefficient, and scales with a coefficient greater than 0.7 are considered reliable. Validity was tested by a combination of exploratory and confirmatory factor analysis on the particles used to measure the use and usefulness of the report. The split-half method was used. Exploratory factor analysis was conducted for half of the sample to determine construct and content validity, and the results of the exploratory factor analysis were further analysed for the other half of the sample to confirm the construct and convergent validity of the instrument used. If the average variance extracted (AVE) of the factor is greater than 0.5 and all factor saturations are significantly different from 0, convergent validity is confirmed (Fornell and Larcker, 1981). The sample was randomly divided into two parts. A factor analysis was conducted using the maximum likelihood method with oblique torsion. The first group of items asked about the use of financial reports and budget execution reports, while the second group of items related to the usefulness of financial reports and budget execution reports. Prior to factorization, the strength and significance of the associations between the items were tested. Bartlett's test for sphericity showed that the correlation matrix of the particles was not equal to the identity matrix (Pett et al., 2003). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy or KMO value was 0.85, which was high enough to justify the application of factor analysis to the observed set of particles (Hair et al., 1998).

The number of factors was determined by a combination of parallel analysis and inspection of the particle content. The results of the parallel analysis showed that the observed particles were grouped into five factors, which explained 71% of the variability of the particles. Of the five factors extracted, one (the fifth) was determined by a single particle, so the number of factors was reduced to four and such a solution was analysed. In this way, the high percentage of variability in particles (66%) is still explained and the interpretability of the obtained factor structure is facilitated. Factor 1 consisted of particles examining the frequency of use of mandatory financial reports, therefore Factor 1 was named Frequency of use of financial reports. In this paper, the results for two factors are presented and the other factors are not addressed. Factor 2 consisted of particles that examined the frequency of use of budget execution reports, so Factor 2 was called Frequency of use of budget execution reports. The factorial solution obtained was tested on the second half of the sample. Confirmatory factor analysis confirmed the factor structure obtained through exploratory factor analysis. Adjustment measures showed that the proposed factor structure was not statistically different from the observed factor structure. The results of the confirmatory factor analysis are presented in Table 2. According to the table, the factor saturations of all particles are significantly different from zero and the AVE value, i.e. the value of the average variance extracted, is greater than 0.50 for factor 1 (0.54) and factor 2 (0.89), which according to Fornell and Larcker (1981) is evidence of the convergent validity of the measurement instrument. The Cronbach's alpha coefficient was 0.89 for factor 1 and 0.95 for factor 2, which confirms the reliability of the measurement instrument.

Table 2. Results of factor analysis

	Factor 1	Factor 2
Factor 1 – Frequency of use of financial reports	1	
Factor 2 – Frequency of use of budget execution reports	0.62	1
Cronbach α	0.89	0.95
AVE	0.54	0.89
Mean	3.57	4.01
Standard deviation	0.82	0.92

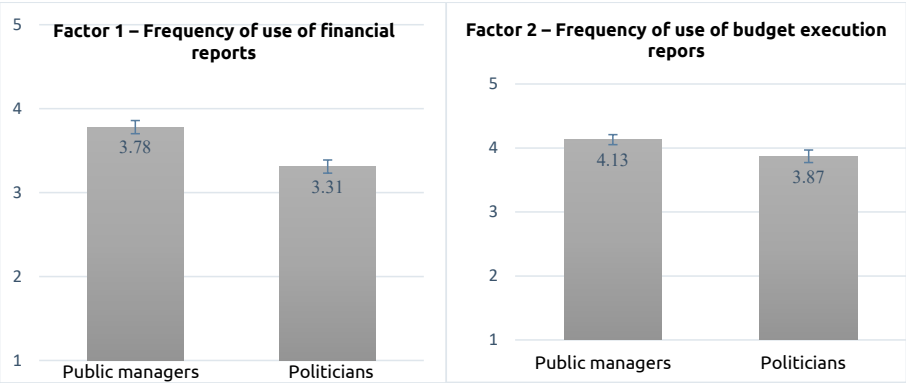
Source: Authors' elaboration

To test the difference, dependent variable was defined: The frequency of use of all financial reports, which was measured as the arithmetic mean of the responses to the questions on the frequency of use of each financial report on a five-point Likert scale. To test the difference in arithmetic means between two groups of users, Welch's t-test (for independent samples) was used, as differences in arithmetic mean are compared between two independent groups of subjects (Delacre et al., 2017). The results show that the two groups differ significantly in their use of financial reports. In the case of Factor 1 – Frequency of using financial reports, the t-test value was 8.48 (df=780.11). This was confirmed at a significance level of 1%, where the p-value was less than 0.01. As can be seen in Figure 3, respondents in the sample of public managers reported using financial reports (factor 1) significantly more often, as the mean is 3.78 and the standard deviation is 0.78. For politicians, the arithmetic mean is lower and is 3.31, while the standard deviation is 0.79. A difference was also found for Factor 2 – Frequency of use of budget execution reports. The t-test value is 4.11 (df=747.76) and the p-value was less than 0.05. As can be seen in Figure 3, the same direction of difference was observed in the use of the budget execution report. Namely, from the figure below it can be confirmed that public managers use the budget execution reports more frequently than politicians.

The analysis results indicate that both groups of respondents frequently use financial reports and budget execution reports. This finding provides support for the first research question regarding whether managers and politicians utilize financial reports. These results are not in line with previous studies that have shown that financial reports are only used to a limited extent by politicians (Caruana and Faruggia, 2018; Jorge et al., 2019; Yamamoto, 2008). In addition, results in this study show that there is a difference in use between the two groups of respondents. Public managers use financial reports more frequently than politicians. These findings are in line with previous studies that have shown that there is a difference in the use of reports depending on the role of the respondents. That is politicians in leadership positions, and public managers in leadership positions who tend to use financial reports more fre-

quently than for example, councilors (Faber and Budding, 2022; Jethon and Reichard, 2022; Rogošić, 2021). This results also provide evidence to support the Upper Echelons Theory. The findings are consistent with the assumptions of the Upper Echelons Theory, that the role of the respondents matters for the use of the reports. The findings confirm that the role of the respondents is one of the important characteristics when it comes to the use of financial reports.

Figure 3. The difference in the frequency of use of prescribed reports among different information users



Source: Authors' elaboration

4.4 What are the Reasons for Using PSRFs?

Questions about the reasons for use were asked in such a way that the respondents were offered 16 possible answers and they had to select the 3 most common reasons for using the PSRFs. The most common reason for using financial reports, cited by just over a quarter of respondents, was “to support financial decision-making.” A similar proportion of respondents indicated that they use financial reports to “compare achieved results with previous periods,” while others noted that they rely on them to “estimate the surplus/deficit of operations/activities.” About one in five respondents mentioned using financial reports for purposes such as “cash flow analysis,” “budget approval decisions,” and “financial performance analysis.” “In contrast, the least frequently cited reasons for using financial reports were “to determine changes in the value and volume of assets, liabilities, and own resources” and “to determine the responsibility of the individuals who compile financial reports,” which were selected in only a small number of cases. The correlation between the reasons given for using the prescribed financial reports was also tested, but none of the correlation coefficients exceeded the value of $r=-0.17$, so these results are not presented in this paper. In other words, the reasons given were not grouped together, and the selection of individual respondents’ choices depended largely on the individual respondent themselves.

We also examined the differences in the frequency of use of financial reports, with emphasis on the reasons for the use of financial reports by public manag-

ers and politicians. A series of chi-squares to analyse those differences were used and they are shown in Table 3. These results show that public managers use financial reports more than politicians in order “to estimate the surplus/deficit of operations” as well as “to analyse the cash flows of public sector entities”. Public managers are more likely to use financial reports “to analyse the financial position of public sector entities” and “to analyse the financial performance of public sector entities”. Public managers use financial reports more than politicians “as a support when making financial decisions”.

The responses also show that politicians tend to use financial reports more “to determine the cost of “a particular program, project or activity”. Politicians use financial reports “to determine the responsibility of the heads of public sector entities”. Politicians are more likely than managers to use financial reports “to compare results achieved with other public sector entities” or “to compare actual financial results with the adopted budget”. Politicians use financial reports more than public managers “when making decisions about budget approval and budget expenditure”. No differences were found for the other reasons.

As part of the question about the reasons for using the PSFRs, respondents were also asked an open question to indicate whether there are other reasons for using the financial reports that were not included in the list of answers offered. In the case of politicians, some of the additional reasons given are: “analysing revenues and expenditures compared to prior periods”, “analysing the financial reports for proposing amendments”, i.e., “using the financial reports during debates and council meetings” and “for the purposes of budget realignment”. Furthermore, politicians emphasize the use of financial reports to control and for establishing the legality of the public money spending as well as for transparency. The politicians explain that the financial reports are useful for preparing meetings and for applying for EU funds as well as for planning future projects. Some respondents from the public managers group pointed out that they use the financial reports for “revenue analysis and financial analysis and planning”. While some respondents highlighted that they use the financial reports for expenditure control and when “planning a new budget for the next year, planning future investments and investing in new projects”. Public managers pointed out that they use financial reports to monitor financial flows and compare realization, i.e. actual expenditure against planned expenditure. Like politicians, public managers also indicated that they use the financial reports for the control and evaluation of expenditure and for numerous analyses. Some public managers also gave the answer for the use of financial report as: “Legal obligation”. These results answer the third research question as to what are the reasons for using financial reports.

Table 3. Differences in the reasons of using financial reports

Reasons for use	χ^2	p	
To estimate the surplus / deficit of operations / activities	19.32	**1	Public managers > Politicians
For the analysis of cash flows	14.13	**	Public managers > Politicians
To analyse the financial position	9.77	**	Public managers > Politicians
To analyse the financial performance	9.95	**	Public managers > Politicians
As support when making financial decisions	7.14	**	Public managers > Politicians
In assessing the economy, efficiency and the effectiveness of operations	3.54	Not significant	Equally
To determine the changes in the value and volume of assets, liabilities and own resources	0	Not significant	Equally
To determine the costs of provided public services	0.75	Not significant	Equally
To assess the sources of funds, use and balance of current financial resources	1.3	Not significant	Equally
To compare the achieved results with previous periods	2.47	Not significant	Equally
To determine the responsibility of persons who compile financial reports	3.29	Not significant	Equally
To determine the costs of activity, project or particular program	5.69	**	Politicians > Public managers
To determine the responsibility of the heads of the public sector entities	5.89	**	Politicians > Public managers
To compare the actual financial results with the adopted budget	21.29	**	Politicians > Public managers
To compare the achieved results with other public sector entities	26.57	**	Politicians > Public managers
To make decision on approving the budget and budget expenditure	38.67	**	Politicians > Public managers

Source: Authors' elaboration

1 Significant.

The results of this study also suggest that the personal characteristics of the respondents influence the use of reports. These findings are in line with previous studies (Faber and Budding, 2022; Yamamoto, 2008). In general terms, public managers need timely and complete information for efficient decision-making, which is why they are likely to use financial reports for other purposes than politicians. This result of this study, unlike previous studies that have not distinguished between politicians and managers when it comes to the use of financial reports (Caruana and Faruggia, 2018; Yamamoto, 2008), provides evidence on the difference between politicians and public managers use. Their roles and responsibilities are not the same, and therefore the use of financial reports is also not likely to be the same.

5 Conclusion and Discussion

The results of this study demonstrate that managers and politicians are not only recipients of PSFRs but also active users of them. In fact, the findings show a high level of commitment to financial reports, with most respondents in the sample using the prescribed reports. The results of this study, however, confirm differences in the frequency of use of the prescribed financial reports. Politicians in the sample generally use financial reports less, and more than half of the respondents in this study answered that they only sometimes use financial reports. In the contrast, public managers responded that they use financial reports more frequently.

The results on the reasons for use also show a similar result. That is, PSFRs fulfil their basic purpose, as the most common reason for their use is “to assist in financial decision-making”. However, the study also shows that there are differences in the reasons for use between politicians and managers. While financial reports are primarily important to politicians for budgeting and budget execution and to determine costs and expenditures, they are important to public managers for analyzing financial performance and evaluating results as well as comparing results with previous periods. These results also indirectly lead to the conclusion that the budget is an expression of political priorities. This study also provides evidence to support the Upper Echelons Theory as the results confirmed that the role of the respondents is one of the important characteristics when it comes to the use of PSFRs.

Given that this research focused on politicians and managers—two groups that differ significantly in institutional context, goals, and accountability mechanisms—it is important to recognize that individual respondent characteristics may manifest differently across these roles and influence report usage. Since this study did not incorporate demographic indicators as factors affecting report use, the findings should be interpreted with caution. Future research could benefit from including such individual characteristics to offer deeper insights into the acceptance or rejection of Upper Echelons Theory.

The findings of this study lead to the significant conclusion that is relevant not only for Croatia but also contributes to the international academic and

practical discourse. These results highlight the fundamental purpose of PSFRs and the factors that influence their utilization or lack thereof. Specifically, the results suggest that to enhance the management of public sector entities, it is essential to strike a balance between considering the preferences of PSFR users and ensuring the provision of accurate and high-quality data in reporting. Merely changing the accounting basis or implementing other reform processes does not guarantee that the information in these reports will be used more frequently.

This research also has several limitations. Firstly, the results of the study refer only to a specific country, namely the Republic of Croatia, which may limit generalizability. Furthermore, the use of a questionnaire as the only way to capture all the variables also represents a limitation of this work. One of the main disadvantages of using questionnaires is that respondents are implicitly assumed to have some knowledge of accounting information and financial reports (Van Helden and Reichard, 2019). In addition, surveys can lead to the encouragement of desirable behavior, i.e. respondents tend to give socially desirable answers (Van Helden, 2016).

To overcome these limitations, future research is recommended. While the study conducted in Croatia serves as a valuable case study for other countries, further comparative studies involving additional nations would yield even more insightful results. Specifically, countries with similar characteristics, particularly within the Southeast European region, could offer effective platforms for comparison.

Additionally, this study could be expanded by exploring the perspectives of other users of financial reports beyond politicians and public managers. Conducting interviews to gain further insights into how various users utilize financial reports and the extent to which these reports meet their specific needs would also be beneficial. Such research could lead to new conclusions about the complex dynamics of financial report usage and the various factors influencing that usage.

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Perspectives on New Public Governance: A Term Worth Legitimizing?

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ABSTRACT

Purpose: New Public Governance (NPG) has gained significant attention in the public management literature, yet its precise nature and legitimacy remain unclear. This study assesses the status of NPG and examines whether its legitimacy as a concept, theory or paradigm has been established.

Design/Methodology/Approach: A two-pronged methodological approach is employed: the first prong comprises a thematic-realist review of legitimacy theory, situated in relation to the literature on NPG theory legitimacy; the second entails a bibliometric analysis, conducted as a semi-systematic literature review, to trace its scientific impact. The study explores whether the term 'NPG' indicates potential for practical application, the direction of its development and its classification within the 'concept-theory-paradigm' framework.

Findings: The research concludes that NPG is a distinct, contemporary strand with its own characteristics and potential for theoretical development. However, scientific clarity within the 'concept-theory-paradigm' triad has not yet been achieved, necessitating further research.

Academic contribution to the field: This study fills a research gap by positioning NPG within public management and assessing its potential for further substantive development. It contributes to discussions on the legitimacy and trajectory of NPG as an evolving framework.

Originality/Significance/Value: This is the first study to comprehensively assess whether NPG can progress towards becoming a fully established theoretical framework in public management. The findings encourage further scholarly exploration and conceptual development in this field.

Keywords: New Public Governance, NPG, legitimization of theory, public management, public administration, literature review

Perspektive novega javnega upravljanja: izraz, vreden legitimacije?

POVZETEK

Namen: Novo javno upravljanje (NJU) v literaturi o javnem menedžmentu uživa veliko pozornost, vendar sta njegova natančna narava in legitimnost še vedno nejasni. Članek ocenjuje status NJU in preučuje, ali je njegova legitimnost kot koncept, teorija ali paradigma že vzpostavljena.

Zasnova/metodologija/pristop: Uporabljena je dvotirna metodologija: (1) tematsko-realistični pregled teorije legitimnosti, postavljen ob bok literaturi o legitimnosti teorije NJU; ter (2) bibliometrična analiza (polsistematični pregled literature), ki sledi znanstvenemu vplivu NJU. Članek raziskuje, ali izraz »NJU« nakazuje potencial za praktično uporabo, smer njegovega razvoja in njegovo umeščanje v okvir »koncept-teorija-paradigma«.

Ugotovitve: Članek ugotavlja, da je NJU samostojna, sodobna usmeritev z lastnimi značilnostmi in potencialom za teoretični razvoj. Vendar znanstvena jasnost znotraj triade »koncept-teorija-paradigma« še ni dosežena, zato je potrebno nadaljnje raziskovanje.

Prispevek k stroki: Članek zapolnjuje vrzel v raziskavah, saj umešča NJU v javni menedžment in ocenjuje njegov potencial za nadaljnji vsebinski razvoj. Prispeva k razpravam o legitimnosti in razvoju NJU kot razvijajočega se okvira.

Izvirnost/pomen/vrednost: To je prva študija, ki celovito ocenjuje, ali lahko NJU napreduje do popolnoma uveljavljenega teoretičnega okvira v javnem menedžmentu. Ugotovitve spodbujajo nadaljnje akademsko raziskovanje in konceptualni razvoj na tem področju.

Ključne besede: novo javno upravljanje, NJU, legitimacija teorije, javni menedžment, javna uprava, pregled literature

JEL: H83

1 Introduction

New Public Governance (NPG) is a novel paradigm in public administration, particularly for the variety of stakeholders who eventually can feel and be involved in the creative process of management and creation of public policies (Jing, 2015; Sharma and Kumar, 2023). The involvement and the creative participation of others seem to be more than just a passing trend or recommendation but even a necessity for contemporary public organizations due to permanent changeability (Noone et al., 2021). In the pre-NPG realms, stakeholders were placed lower in the organization management paradigm, but now they can, within the spirit of collaborative governance and based on NPG, get involved in decision-driven policies made by the public organization

(Lindqvist, 2019). The potential of NPG is so impactful that it also influences others, such as the EDM approach (emergency disaster management) which, with the help of horizontal structures, finds applications of common and urgent health, climate or financial crises, so current in today's functioning of organizations (Hattke & Martin, 2020). A broad, deeper definition of NPG was undertaken by Brock (2020), who associated New Public Governance with governance through networks, with active stakeholder involvement, through the lens of values such as trust, transparency and mutual cooperation. The new paradigm is becoming increasingly recognizable and investigated by public management experts despite their relatively short 19-year experience by scientific standards. Insufficient understanding and development of the terminological foundations of New Public Governance led authors to conclude that NPG is perceived as a concept, in other cases, as either a theory or trend or even a managerial revolution or paradigm in public organizations. This research issue affects the recognition of a new concept for coordinating public administration in scientific terms.

The main motivation of the manuscript is to fill the scientific gap that is the contemporary understanding of the NPG concept, to determine its status in public management and its potential as a scientific term for the future. The authors note the considerable interest in New Public Governance in the literature and have the intention of assessing whether a scientific saturation of the terminology has taken place. The sources of the research efforts undertaken can also be found in the broader initiative aimed at expanding the principles of New Public Governance within academic discourse and public discussion. The innovativeness of the study is contained in both the substantive (clarification and contribution to the new concept of public management) and methodological (hybrid approach realized in thematic-realist way) layers.

Therefore, the objective of the paper is twofold. Firstly, it aims to examine whether New Public Governance has become a well-established scientific term that has obtained sufficient evidence for its constitution and legitimization.¹ On the other hand it strives to verify whether this legitimization has shifted towards capturing the NPG as a concept, theory or paradigm. Hence, the possible implication of such investigation is also settled on two complementary layers. The first is a philosophical one concerning the theoretical, scientific conditions of the NPG theme discerned as a concept, theory, or idea for transforming public administration. The second stratum is analytical, where we scrutinize the potential to anchor the NPG concept in the management sciences from a bibliometric perspective. However, considering the novelty of New Public Governance and the growing interest in this phenomenon, and therefore in the formation of novel theories, our research is presented as a short-form theoretical (perspective) paper, given the urge to propound

¹ For full clarification and understanding of the authors' purpose, legitimacy/legitimization is used in this article as a construct to explain the scientific consolidation, constitution and perpetuation of phenomena that become concepts, theories or paradigms through their impact on learning and development from terms. This process lays the groundwork for a given scientific concept to become an important contribution to science, to be utilitarian for prosumers and consumers of science, and to be worthy of further conceptualization.

the load-bearing and entrenched findings and the imperative to develop the theory in the chosen field further. The authors of this study take the position that the creation of the NPG theory still needs to be completed. Still, the research material accumulated so far makes it possible to undertake a scientific dispute. The NPG concept has yet to be investigated thoroughly in definitional terms. The motivation for addressing this topic is to reflect on new theories of public management, including NPG, as a response to the state of public administration. By design, they are expected to bring fresh, constructive solutions to public organizations. Therefore, it is essential to consider whether they have the necessary scientific background, research visibility, and scientific consideration to transport them toward decision-makers. This is especially relevant in the context of New Public Governance, which can potentially solve some of the sector's problems, particularly along the organization-stakeholder line (Sørensen and Torfing, 2017).

The authors pose the following research questions that guide this study:

- Does the use of the term NPG in literature indicate the potential for its further use in factual public management realms?
- In which direction is the development of NPG heading, and how can its potential be harnessed considering the identified trends?
- How to determine the status of New Public Governance in terms of concept, theory or paradigm?²

The above research questions are aimed to contribute to a stronger theoretical legitimization of NPG, providing valuable insights for its further development. Additionally, they will foster stronger connections and collaboration between various entities involved in public management.

2 Methodological Approach and Structure

This paper utilized a mixed two-pronged methodology that combines the advantages of qualitative and quantitative approaches to ensure a comprehensive and multidimensional analysis of the research problem. This kind of research strategy addresses the scientific challenges and research questions posed earlier in a more comprehensive, broader manner (McChesney and Aldridge, 2019). Therefore, this study employs a hybrid approach to the literature review, combining elements of both a semi-systematic and realist review. The semi-systematic review of literature, which we developed, is inspired by the PRISMA methodology (Page et al., 2021) and aims to broadly establish the relevance of the topic, synthesizing key trends in the literature rather than focusing on an exhaustive analysis of each individual study. This approach helps demonstrate the significance of the subject matter and provides a solid theoretical foundation. On the other hand, the thematic-realistic review (cf. Paré and Kitsiou, 2017) adopts a more interpretative and theory-driven perspec-

² The authors intentionally and interchangeably refer to New Public Governance as a concept, theory or paradigm to avoid repetition. This is a purely linguistic procedure, and is not meant, however, to dissect or decide what NPG is.

tive, delving deeper into selected works to highlight connections between them. This approach emphasizes the theoretical contributions and quality of the studies, allowing for a more nuanced understanding of the mechanisms at play, particularly in complex policy-making contexts (Greenhalgh et al., 2011). Thematic-realist review methodology was applied to explore the conceptual foundations of NPG, including: (i) the development of new theories in social sciences, (ii) the legitimacy of NPG as a scientific theory, and (iii) comparative positioning of NPG within governance models. By integrating both methods, this hybrid approach enables a comprehensive analysis that not only identifies key trends but also explores the theoretical core of the literature, while also proving the (ir)relevance of the given research area.

To achieve the paper's objective, we split the main part of the research (Section 3) into three subsequent segments. The first section (3.1) strives to highlight the timeliness and relevance of the NPG topic, which incorporates a semi-systematic literature review based on automated selective screening according to PRISMA guidelines (Page et al., 2021). Regarding the topic's relevance, the future direction of research in this area may be to conduct a comprehensive systematic review of the literature on NPG and its applicability with detailed bibliometric analyses. Incorporating this quantitative approach on the review of literature ensured that key publication patterns, along with co-occurrence keyword networks were identified. International bibliographic databases (i.e., Scopus and Web of Science), whose effectiveness in analyzing the literature has been scientifically proven (Wang and Waltman, 2016), were used as data sources. We conducted the analysis using the Bibliometrix package (Aria and Cuccurullo, 2017) to properly aggregate, and visualize bibliometric findings, as well to remove duplicates.

The second section (3.2) provides an umbrella review (more specifically, "theory about theory") and the basics of developing scientific concepts. This passage does not directly refer to New Public Governance but attempts to define the procedure for creating new theories and their constitution. The section was developed in line with the thematic-realistic review principles (cf. Paré and Kitsiou, 2017), while highlighting the aspect of the creation of new theories and verification of their status, deliberately omitting issues related to the philosophy of science, which is a separate and rich research topic. A literature review and research material search were conducted for keywords such as theory formation, theory legitimacy, legitimization of theory, new theories, concept, paradigm.

The third section (3.3) references previous considerations, especially from Section 3.2 to the NPG construct. The analysis focused on tracing how NPG has been framed, debated, and validated in academic discourse. It draws from Section 3.2 by emphasizing the grounding in considerations of theory creation and from Section 3.1 by accentuating the validity and timeliness of the research problem addressed. It is also a juxtaposition between the process of theory creation and the NPG concept to determine whether New Public Governance is an independently functioning, isolated, and scientifically supported

theory. To this end, a thematic-realist review of the literature regarding theory creation was again used. Thanks to the review, the authors join the debate on NPG conducted by an increasing number of scientists and analyze New Public Governance in terms of strong supporters of its functioning as a defined and well-established theory and other scientific trends. A literature review and research material search were conducted for keywords such as NPG legitimacy, legitimization of NPG, understanding of NPG, meaning of NPG.

To ensure theoretical rigor in sections 3.2 and 3.3, a two-step thematic coding process was applied: (i) inductive coding was used to identify recurring theoretical perspectives, and (ii) deductive coding was applied based on existing frameworks of theory development and legitimacy (cf. Paré and Kitsiou, 2017). Findings from the qualitative part of the study (theory formulation vs. NPG legitimacy) were juxtaposed in a meaningful way to undertake an assessment of the legitimacy status of the theory. The results of this part were supplemented with conclusions from the bibliometric part. All the collected research material was subjected to interpretation in order to make research conclusions, according to the adopted thematic-realistic methodology. Using the possibilities of the article's structure, authors synthesize the obtained information, add their comments to the topic, make their recommendations based on the collected research material, and enter into dialogue with other researchers with the orientation on the NPG concept in order to achieve the main goal of the article.

The sections of the paper, although methodologically different, constitute an inherent compendium that aims to achieve the objectives of the article and answer the research questions. In order to understand whether New Public Governance is viewed as a concept, theory or paradigm or otherwise (Section 3.3), the authors deliberately introduce the reader to the theoretical underpinnings of the legitimization of the theory, with reference to the concept and the paradigm (Section 3.2). The use of various methods (semi-systematic, and thematic-realist literature review) is intentional and aims to provide the broadest possible view of the subject under study. The paper culminates in Section 4, with conclusions, study's limitations, and directions for future research.

3 Legitimization of the NPG Term

3.1 Bibliometric Analysis

To explain the relevance of the NPG topic, we analyzed literature sources in a systematic manner in internationally recognized bibliographic databases: Scopus (Elsevier) and Web of Science (Clarivate Analytics). Records were retrieved from these databases on May 4, 2024. We decided to track how many sources correspond to the "new public governance" search query – abstracts, titles, and keywords were searched. Due to the ambiguity of the acronym "NPG," the occurrence of which is also common in material science, it was decided that this phrase would not be analyzed. The Scopus database searched for 346 such sources, while the Web of Science database searched for 282. To remove

duplicate records, the Bibliometrix library (based on the R language) was used for bibliometric analysis (Aria and Cuccurullo, 2017). The 211 duplicates were eliminated, and the ensuing merged results from these databases consist of 417 unique records, with NPG as the axis. Papers that solely focused on New Public Management (NPM) or other governance models without direct reference to NPG as a distinct framework were excluded. Criteria for further inclusion of sources were then determined; only the following sources were allowed: article, book chapter, conference paper, and the publication language was English. Using Microsoft Excel, sources that did not meet the inclusion criteria were filtered out, and thus, 353 records were admitted for further analysis. Due to the desire to illustrate the emergence of NPG topics in various scientific areas and the relatively small number of sources, it was decided to perform a bibliometric analysis on this dataset without further manual screening. The inclusion criteria proved sufficient to demonstrate the relevance of the subject matter using the automated part of the PRISMA methodology (Page et al., 2021), which was applied in this analysis of the literature sources. The process of identifying and admitting scientific sources for bibliography analysis is illustrated in Figure 1. Inclusion criteria are presented in Table 1. The analyzed Microsoft Excel file containing the sources (generated with Bibliometrix package utilization) is attached to the article as a Supplementary File.

Figure 1. The progress of bibliometric analysis in the Scopus and Web of Science databases

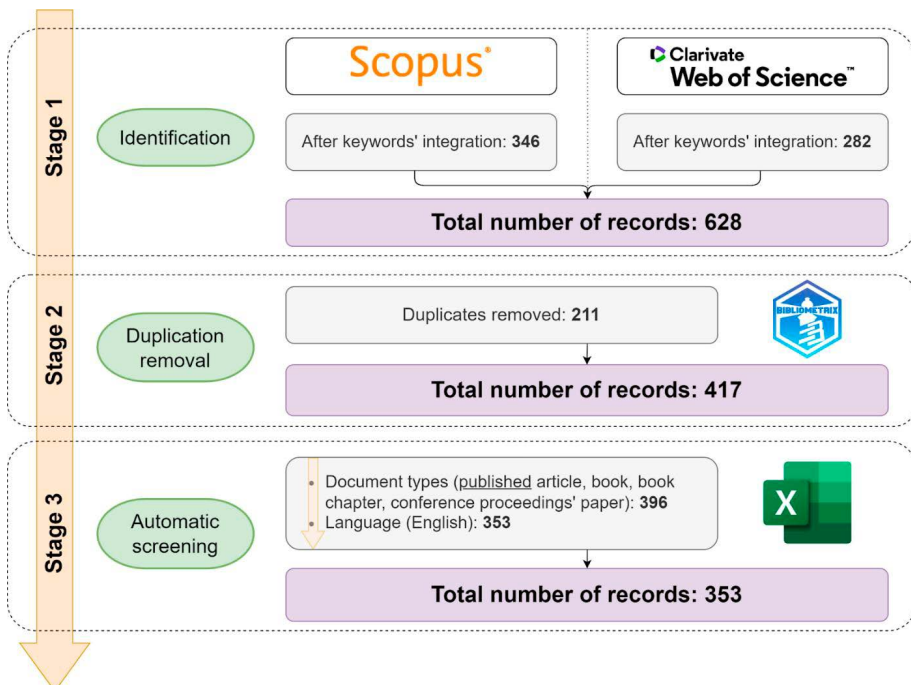


Table 1. Basic information about inclusion criteria and source retrieval process

Databases:	Scopus (Elsevier), Web of Science Core Collection (Clarivate Analytics)
Query:	– Scopus: TITLE-ABS-KEY (»new public governance«) – Web of Science: »new public governance«
Document types:	<u>Published</u> article, book, book chapter, conference paper*
Language:	English
Software used:	RStudio, Bibliometrix library (R language extension), Microsoft Excel
Date of sources’ retrieval:	May 4, 2024

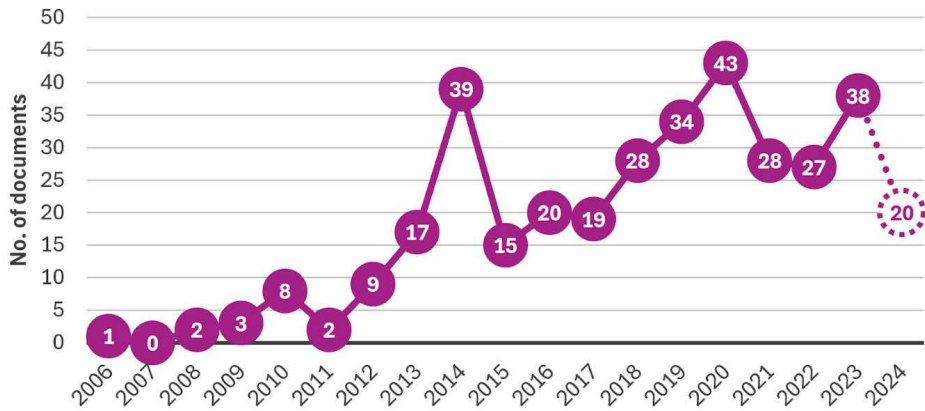
Note (*): Osborne’s articles from 2006 and 2009 (Osborne, 2006; 2009) were initially classified as editorials, but for the study’s purposes, they were assigned to the ‘article’ document type.

3.1.1 Publication Trends

The analysis consists of 353 papers published in 199 sources, whose time range of publication was from 2006 to 2024. The largest number published at the time of the analysis were scientific articles (229),³ book chapters were published slightly less (61), and the smallest number in bibliographic databases were conference papers on the theme of NPG (49). NPG books with 14 published titles were also submitted for analysis. By the time of the analysis, 642 unique authors had written on NPG, whose papers are indexed in Scopus and Web of Science databases. It should be emphasized that the average age of a paper is less than six years (more precisely, 5.76 years), indicating the subject matter’s timeliness. This is also confirmed by the high average citation rate per paper (more than 20 citations on average) and the annual growth of articles on NPG, which is almost 20 percent (precisely 18.11%; also including publications in 2024, where there were statistically fewer published papers at the time of the analysis held at the end of the first quarter of 2024). The growing trend of published articles on NPG is shown in Figure 2, where the distribution of articles published each year is illustrated. Table 2 shows general information about analyzed documents about NPG, while Table 3 illustrates the number of published documents according to their type.

3 The earliest occurring source that talks about NPG (and is somewhat credited with being the article giving life to the NPG concept) is Osborne’s 2006 article (Osborne, 2006), however, it is originally classified as editorial. For the purposes of this analysis, due to the relevance of this source, it will be assigned to the ‘article’ document type. A similar treatment was applied to Osborne’s (2009) article elaborating on NPG’s original thought, which was also classified as editorial.

Figure 2. Annual scientific production of NPG-related articles



Note. Data retrieved from Scopus and Web of Science databases on May 4, 2024. Data for 2024 is still incomplete.

Table 2. General information about analyzed documents about NPG

Timespan	2006:2024
Sources (Journals, books, etc.)	199
Documents	353
Annual Growth Rate	18.11%
Document Average Age	5.76
Average citations per doc	20.09
Authors	642

Table 3. Document types

article	229
book chapter	61
conference paper	49
book	14

Note: Osborne's articles from 2006 and 2009 (Osborne, 2006; 2009) were initially classified as editorials but were assigned to the 'article' document type for the study's purposes.

The chart above (Figure 2) shows the annual number of scientific documents created to treat New Public Governance. What emerges from it is a clear annual upward trend, which has been accelerating since 2013. Also, since then, the annual number of papers has doubled. This confirms the thesis that NPG

is of growing interest to scholars, who are increasingly studying the phenomenon of New Public Governance annually. Since 2011, it is possible to observe “pits” that are higher as the years go by, as well as the years in which most papers were produced (2020, 2014, 2023). The trend is upward, and by the current number of articles for 2024 at the time of writing this paper (20), one can conclude that it will continue.

The above Table 2 totals information on the unraveling scientific trend of New Public Governance. Noteworthy is the noticeable double-digit annual growth rate of scientific papers that study and analyze this topic. On the other hand, the average scientific article’s average period does not exceed six years, which means the relative pioneering of NPG as a scientific term. At the same time, the number of sources and authors writing about NPG allows more authors to enter this subject of public governance and, arguably, to find interesting scientific niches.

Table 3, seen above, shows the kinds of scientific documents dealing with the notion of New Public Governance. The most important finding from this source will be the claim that NPG is being analyzed using a wide range of scientific instrumentation through shorter scientific forms (scholarly articles) and chapters in monographs or entire monographs. The latter may be evidence of the thematic breadth, depth, and, at the same time, the need to provide a theoretical basis for New Public Governance through longer scientific forms for academia.

3.1.2 Most Globally Cited Documents

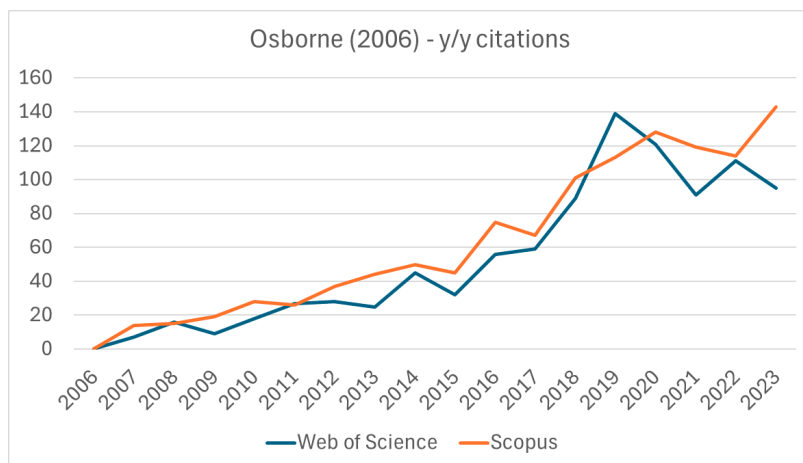
The bibliographic dataset analyzed includes 14 documents with the highest impact, i.e., those with at least 100 global citations or an average annual number of global citations of ten. Among them are four papers authored (or co-authored) by Stephen P. Osborne, two documents by Jacob Torfing, and two by Eva Sørensen. Table 4, presented below, shows the discussed source documents that can be referred to as the most influential and those that, over time, have been most readily used by researchers to analyze the NPG concept and its applicability. Figures 3-6 highlight the annual citation data from Table 4 for the four most-cited journal articles from Scopus and Web of Science (which are thus the most influential), underscoring the growing interest in NPG topics.

Table 4. Most cited documents on the NPG theme

Document reference	Type of publication	Total global citations	Total global citations per year
(Osborne, 2006)	journal article	1199	63.11
(Osborne et al., 2013)	journal article	507	42.25
(Osborne, 2010a)	book	461	28.81
(Klijn & Koppenjan, 2012)	journal article	274	21.08
(Torfing et al., 2019)	journal article	273	45.50
(O'Reilly & Reed, 2010)	journal article	155	10.33
(Sørensen & Torfing 2017)	journal article	146	18.25
(Torfing & Triantafillou, 2013)	journal article	145	12.08
(Fledderus et al., 2014)	journal article	137	12.45
(Sorrentino et al., 2018)	journal article	124	17.71
(Christensen & Lægreid, 2016)	book	124	10.33
(Osborne, 2010b)	book chapter	123	8.20
(Casady et al., 2020)	journal article	95	19.00
(Nesti, 2020)	journal article	62	12.40

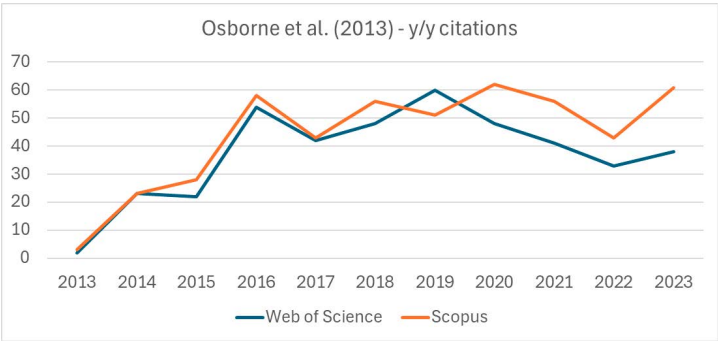
Note. Citations registered in Scopus and Web of Science databases (Google Scholar results are not included). Data as of May 4, 2024. Source: own elaboration with the use of Bibliometrix package

Figure 3. Annual citability of Osborne's (2006) article in Scopus and Web of Science databases.



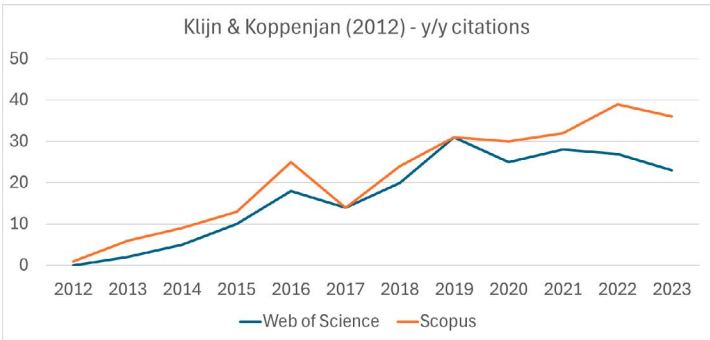
Note. Data as of May 4, 2024. Source: own elaboration

Figure 4. Annual citability of Osborne et al. (2013) article in Scopus and Web of Science databases.



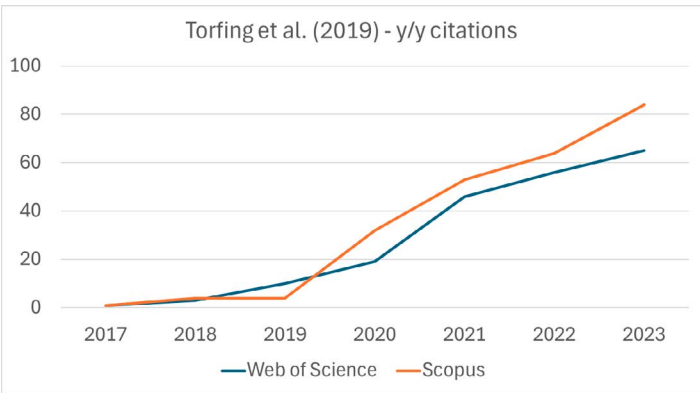
Note. Data as of May 4, 2024. Source: own elaboration

Figure 5. Annual citability of Klijn & Koppenjan (2012) article in Scopus and Web of Science databases.



Note. Data as of May 4, 2024. Source: own elaboration

Figure 6. Annual citability of Torfing et al. (2019) article in Scopus and Web of Science databases.

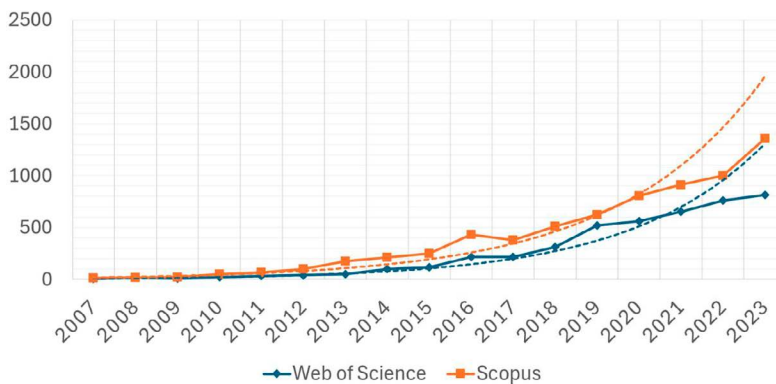


Note 1. Data as of May 4, 2024. Note 2. The article was published as an early view (online first) in 2017 but was assigned to the journal's 2019 issue. Source: own elaboration

Table 4 presents the most cited works on New Public Governance (over 2006 by year); four were identified as having the highest global citation rates, regardless of the year of publication. As a result of this procedure, two works by the creator of the NPG concept, Stephen Osborne (Osborne, 2006; Osborne et al., 2013), the work by Jacob Torfing, Eva Sørensen, and Asbjørn Røiseland (Torfing et al., 2019), and the work by Erik-Hans Klijn and Joop Koppenjan (Klijn and Koppenjan, 2012) were selected. Indicating the annual number of citations of these most influential works confirms the increase in the potential and thus interest in the concept of New Public Governance itself, with reference to the works that constitute a reference point for the entire theory. However, it should be observed that apart from Torfing et al.'s (2019) article, the remaining citations relating to three other works have been stagnant since 2020.

The above considerations are better visible if we consider the citations of all scientific works in which researchers analyze New Public Governance (Figure 7). In this approach, the total number of citations presented in years increases exponentially. A strong trend of annual citation growth is visible regardless of the scientific database. The slight difference between the dynamics of global citation growth and the dynamics of citation growth of the most influential scientific articles allows us to hypothesize that an increasing number of scientists are writing about NPG and that in their works, they use the knowledge of an increasing number of researchers.

Figure 7. Total year-by-year number of citations of NPG-related documents

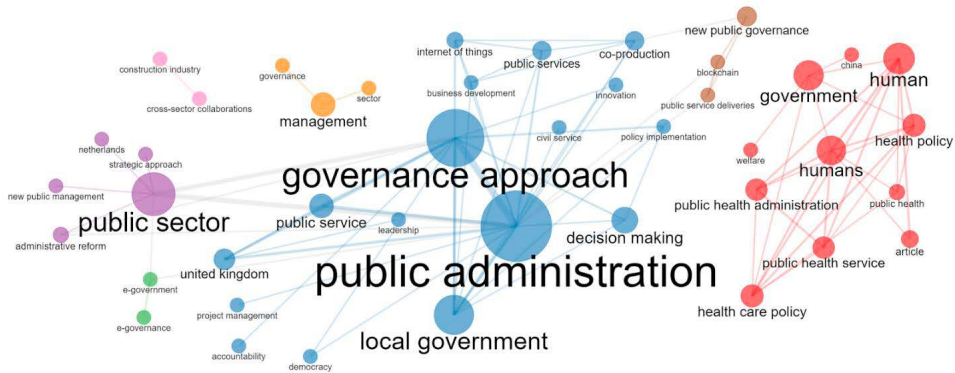


Note 1. Data as of May 4, 2024. Note 2. Dashed lines indicate exponential trend lines (R^2 values for Scopus and Web of Science are as high as 0.9502 and 0.9051, respectively). Source: own elaboration

3.1.3 Keywords' analysis

Based on the keywords of the documents to be analyzed, a network of their co-occurrence was created, as shown in Figure 8. According to its analysis, it is possible to discern current trends and pressing topics in NPG-driven public management.

Figure 8. Co-occurrence network of keywords in the analyzed NPG-related documents



Source: own elaboration – output from Bibliometrix package

Thematic analysis highlights frequent references to co-production and citizen engagement. This trend emphasizes the role of citizens not just as passive recipients of public services but as active participants in the design and delivery of those services (Grubb and Frederiksen, 2022). Research on co-production is expanding as governments seek to harness the potential of citizen involvement to improve service delivery, increase trust in public institutions, and create more responsive governance models (Fledderus et al., 2014).

The rise of public-private partnerships (PPPs) is another emerging trend, where governments collaborate with private sector entities to deliver public services. This aligns with the NPG emphasis on governance networks and the role of multiple actors in delivering public value. Papers discussing contracting, outsourcing, and service delivery partnerships highlight how NPG principles can guide the governance of these partnerships to ensure accountability, transparency, and the efficient delivery of services (Torfing and Triantafyllou, 2013; Casady et al., 2020; Casady and Peci, 2021).

The concept of collaborative innovation is prevalent in NPG-related studies, particularly in the context of network governance, where multiple stakeholders (i.e., governments, NGOs, private sector partners, and citizens) collaborate to develop innovative solutions to public challenges. Governance networks are increasingly being used to address complex, “wicked” problems (such as climate change, health pandemics, and social inequality), where traditional hierarchical governance models have struggled to find sustainable solutions (Chandra et al., 2022; Jayasinghe et al., 2020; Pinho de Oliveira and Hernández, 2023). Also, a shift toward outcome-based governance reflects a growing emphasis on achieving specific results in the public sector. NPG’s focus on public value creation aligns with this trend, as governments strive for measurable impacts through collaborative and network-based approaches (Greve, 2015).

Also, NPG has prompted a reevaluation of leadership styles within the public sector. New forms of adaptive leadership and network management are

necessary to support collaborative governance structures. Research explores how leadership needs to shift from hierarchical control to enabling network-based solutions (O'Reilly and Reed, 2010; Vallentin, 2022).

While digital governance was not explicitly dominant in keyword analysis, the recent focus in public management literature suggests that digital transformation is becoming an increasingly important theme in NPG. Governments worldwide are transitioning to digital platforms to deliver services more efficiently, and NPG's network-based governance model is well-suited to support this transition. Papers on smart cities (Broccardo et al., 2019), digital platforms (Davide, 2021), and e-participation (de Moraes et al., 2024) likely explore how NPG frameworks can be applied to manage complex governance challenges in the digital era.

The most recent publications demonstrate an emerging focus on how NPG can be applied to global governance challenges, such as sustainable development, climate action, and social justice. Sustainable governance frameworks are being linked to NPG's collaborative and networked approach, particularly in addressing global issues that require cross-sectoral cooperation and multi-level governance approaches (de Oliveira and Hernández, 2023; Osborne et al., 2014).

* * *

This concise bibliometric analysis clearly allows us to conclude that New Public Governance is a niche that attracts international attention among public management researchers. Regardless of whether one considers the number of citations or the authors' analysis, New Public Governance is a trend that is being increasingly studied globally and is becoming an enthralling trend for subsequent researchers. A more in-depth literature analysis, which focuses on a qualitative literature review of NPG theory formation using a thematic-realist approach, is illustrated in Sections 3.2 and 3.3. The considerations drawn from this bibliometric analysis also allow us to conclude that New Public Governance has an exploration potential for the coming years, which - looking at the data - has not exhausted its possibilities. This, in turn, proves that the NPG has a chance to establish its theoretical foundations further.

3.2 Foundations

Creating new theorems is the foundation of society's development, particularly in science. Even if different countries or civilizations may differ considerably from one another, new philosophical notions that arise from the globalization of knowledge become so prevalent that everyone experiences an impression of loyalty to them (Eubank, 1936). New ideas and theories ought to be established to advance scientific know-how and certain knowledge areas, address most contemporary and imminent challenges, and serve as a foundation for further investigation and evaluation in specific fields of study (Wacker, 1998). Organizational operations now take place in dynamic periods. Therefore, there is a need to observe new management approaches that

emerge and, above all, to research and analyze them. The primary motivation of scientists is to create knowledge that can turn into theory. It can be both well-defined and unambiguous.

On the other hand, a theory may be an idea or an attempt to redefine or extend current knowledge. In the theory-driven empirical research approach, the theoretical base is the basis for further continuous procedure of theory testing, so it does not have to be the final construct (Melnik and Handfield, 1998). One of the basic scientific tasks is the creation of theoretical structures, especially in traditional science (Stam, 1991).

A demanding challenge is to imagine the contemporary dimension of science without theories that serve as a guide to predicting the future. However, new theories should not replace old paradigms but complement new fragmented levels of knowledge into a single whole. Moreover, they should be assessed in terms of usefulness and effectiveness and in terms of proposing new solutions to old problems or new solutions to new problems. The change in the conditions of human functioning forces the development of new theoretical concepts adapted to different issues. Theories that are substantiated and prove their efficiency in economic practice deserve to continue to exist for development, as opposed to theories about which this cannot be said (Kurтины and Silverman, 1999).

When considering the attempt to establish a theory, it is worth referring to the definitional bases. Thyer (2001) reminds us that the traditional understanding of theory is comprehensive and covers everything related to every scientific procedure, including conjectures, models, assumptions, and hypotheses. There are four primary conditions for a theory: extraction of definitions, creation of a framework for analysis and substantive limitations, the ability to build relationships, and the ability to predict (Wacker, 1998). The notion of theory itself is highly convoluted, and the number of attempts to define it is as diverse as it would be the focus of various scientific studies. Depending on how the definition of "theory" is constructed, researchers have identified broad characteristics from this array that establish whether a particular scientific trend or set of scientific viewpoints qualifies as a theory. These include theoretical structure, functions, elements, and the relationship of research to theory. The study's authors reach a conclusion consistent with the above that there is no single coherent assessment of what is and is not a theory (Pedersen, 2007).

The theory-building process was much more rigorous in the past. Instead of conventional falsification tools that were the basis for legitimizing the theory, scientists strive to reveal all mechanisms and sources and reliable data about a given phenomenon that allows the theory to strengthen its foundations and theoretical ground (Lane, 1996). This view was criticized by the father of the scientific method, Karl Popper (2002), who created the concept of falsification – the need for testability of theories and deduction, because of which a concept appears: an idea, a mental construct or an untested theory that should be subject to scientific rigor. Popper also received substantive criti-

cism. For example, Paley (2006) argued that some untestable theories exist. This is because, by definition, no appropriate or applicable scientific apparatus could check them. However, there is no one right way to create a theory. It is a creative process that should not be subject to limitations, including methodological or logical ones, which can use various sources and thought bases. Nevertheless, the primary condition for new theories is the deductive process towards qualitative research (Bergdahl and Berterö, 2023).

There are many approaches to theory emergence. On the one hand, literature talks about a mechanical, deductive effort to create something with a new scientific basis. However, this approach leaves no room for creativity and mental freedom (Walker and Avant, 2005). Opponents disagree with the instrumental approach, claiming that science needs freedom that will lead to the essence of a given theory, undisturbed in any way by the research process and resulting from in-depth searches (Dahlberg, 2008). The literature also claims that a theory may consist of smaller concepts. We are talking about fragmented theorems, which, when put together into one logical sequence of thought, can constitute one whole, i.e., a new theory (Polit and Beck, 2017). A surprising conclusion is the claim that new theories do not have to be based on any single thought process, methodology, or method. Theories can arise from many different methods, approaches, and logic, the choice of which is up to the researcher (Reed, 2018, p. 30).

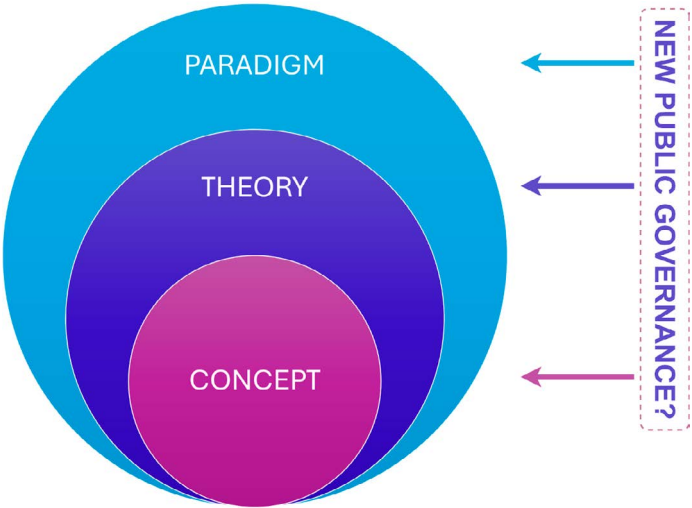
The differences between “theory” and “concept” shall now be highlighted. A concept is an ambiguous term, bridging the philosophy of science and linguistics. In basic terms, it is a word or expression that gives meaning to a phrase. As a rule, it needs a scientific explanation and underpinning. The concept’s ambiguity stems from the debate between logicians who categorize the concept according to its function. These philosophers distinguish between rules of inference and psychologists for whom the concept depends on internal representation (Rey, 1998). Concepts are techniques for using particular words, but more important from the perspective of this paper are their features, that is, their ability to classify and infer concepts (Glock, 2010). The leading researcher in this area was Ludwig Wittgenstein. However, some scholars believe that the term “concept” is too narrow (or understood too narrowly), extending it to the term “conception.” In their esteem, a concept inadequately describes the changes that are going on in science. Therefore, when considering conception, on the one hand, it can mean the same thing as a concept but, on the other hand, it means something unknown, but which allows further work towards knowledge by giving a scientific basis to the concept for understanding science or particular areas of science (Koshlakov and Shvyrkov, 2020).

And how does a paradigm relate to understanding theories and concepts? The notion of “paradigm” emerged in a groundbreaking way in 1962 with “The Structure of Scientific Revolutions” book. The author describes a paradigm as a way of legitimizing new scientific areas or research areas that are recognized by the scientific community and create new knowledge. Kuhn

recommended that researchers follow paradigms in their scientific work as guidelines in which they find acceptance among other scientists and meet their standards. (Kuhn, 1962). Paradigm is not just a scientific concept. This perspective stresses that paradigms are more than just theoretical entities; they represent shared worldviews that shape how practitioners read and interact with their field (Poulter, 2005). But paradigms are subject to constant change due to changes in the economic environment, approaches, society itself or the development of technology, although this is not a close list. In the social sciences, in which NPG undoubtedly fits, paradigms combine scientific and practical perspectives, indicate what is relevant today, and prove the comprehensiveness of research, which, after all, is not identical in the edition of different scientists (McGregor, 2019). Kuhn called this process “paradigm shifts,” or milestones, which are changes in the assumptions of an entire discipline. And these shifts are inherent in the nature of the concept of paradigms, which evolve with the development of science (Solesvik, 2018).

Thus, it seems that the scientific sequence from concept to conception to final theory or paradigms finds its justification, and this order for creating new theories may be correct. As can be seen, the study of science as a creative process aimed at creating theories is a non-obvious, multi-threaded process that evokes scientific emotions. It seems that in theory verification, there is a belief in the validity of qualitative rather than quantitative thinking. Figure 9 shows the generalization of the meaning of the concept, theory and paradigm. This representation developed by authors is meant to clarify the weight of terms, and to arrange them in a certain logic treating concept as the narrowest term and denoting single scientific characteristics, theory as an argued set of scientific characteristics, and paradigm as an enduring, and broad space of scientific beliefs.

Figure 9. Generalization of the concepts – a hierarchical approach



Source: own elaboration

3.3 General Validation

Based on the assertion that under the influence of new challenges, public administration must constantly innovate multifaceted aspects of operation (Van der Val and Demircioglu, 2020), it is not surprising that new approaches in the sector, such as New Public Governance, are emerging. NPG is a creation that consists of several characteristic features that distinguish it from other current trends in the transformation of public administration. These include striving to network public organizations, flattening the decision-making center and decentralizing power, actively participating stakeholders in decision-making, and creating policies; the common denominator is cooperation for the “production” of public goods. This set of features, tools, and characteristics or the emphasis on them may differ slightly from each other but is very similar in terms of the fundamental goals of the organization managed by the NPG and the tools used within this concept (Osborne, 2006; Osborne, 2010b; Torfing and Triantafillou, 2013). In general, in the theoretical layer of the NPG paradigm, scientists emphasize that all characteristics focus on the very citizen and their participation in implementing public goals. The trend is the newest theory or wave among other public management theories (Young and Tanner, 2023). One of the most influential public administration scientists, Joyce Liddle (2018), believes that the concept of NPG should be excluded from the broad trend called public governance. In the latest research on New Public Governance, it can also be read that this concept – apart from New Public Management and Neo-Weberian State – contains its own exclusive set of features, paradigms, tools, and distinguishing characteristics, which is sufficient to recognize its uniqueness and distinctiveness about other trends as a public reform (Krogh and Triantafillou, 2024). New Public Governance is frequently used instrumentally, named, and treated as a theory of interest to scientists and research procedures – in various contexts, not only public management but also the functioning of administration at various levels or sectors of the economy. However, there is no uniform spelling of the term “NPG” (and the resulting extension: “new public governance”) in the literature because it is written in capital letters occasionally and in lowercase letters other times (Bilhim and dos Santos, 2017; Salvador and de São Pedro Filho, 2023; Young and Tanner, 2023; Evans and Vesely, 2014; Evans and Wellstead, 2014).

However, numerous voices need to be made aware of the finalization of the New Public Governance theory, focusing on theoretical and practical shortcomings concerning previous trends. Torfing et al. (2012) states that NPG is not a complete trend but has only a supplementary function because it does not answer the question of how public managers should navigate the field of traditional hierarchy, market orientation, and the network, which is elaborated in this novel approach. Some scientists treat and describe New Public Governance in their research merely as a concept, not a well-established theory (Neves Pereira et al., 2017; Mierauskas and Smalskys, 2013; Weng and Christensen, 2019). Other researchers recognize the existence and applicability of New Public Governance as a new approach in management sciences that changes the perspective on public administration and shifts it toward the

citizen. However, they consider the analysis of only NPG as a theory to be an incomplete approach, suggesting that this concept has an umbrella nature, dividing it into other theories and grouping it into a new wave (Evans and Vesely, 2014). The same authors conclude that we are at an early stage of forming the NPG; therefore, the final shape of New Public Governance is still ahead of us.

There are also mixed approaches that do not decide on the status of New Public Governance as a concept or a clearly defined theory but approach this phenomenon differently, which only confirms, on the one hand, the lack of scientific transparency but also the ambiguity and advancement of NPG as a scientific construct. Stanica and Aristigueta (2019) multidimensionally examine the notion of New Public Governance in the trans-organizational (national) area. Researchers consider NPG in two dimensions: (i) a framework based on socio-political governance, public policy governance, administrative governance, contract governance, and network governance, which were initially proposed by the creator of Osborne's theory, and (ii) a set of practices which can be analyzed from many aspects, but overall in a sense they lower the foundations of the concept as a new theory. Some scientists understand NPG (tentatively called "New Governance") differently, i.e., concept meaning a transformation of the entire public sector, in which there will be less government responsible for all aspects of the organization's functioning and more management functions spread among other participants (Rhodes, 1996). Krogh and Triantafillou (2024) speak in a similar tone, treating NPG as an umbrella concept that has become a conglomerate of various tools, solutions, or ideas aimed at improving the functioning of the organization – mainly external ones, forgetting about the aspects of the organization's interior. The definitional incongruity also appears in other recent scientific works that do not exhaust the distinction between understanding NPG as a theory, concept, or paradigm (Popęda and Hadasik, 2024). This conscious or unconscious mixture proves terminological ambiguity and, at the same time, motivates the current considerations. The above scientific works only illustrate the common phenomenon of terminological freedom about New Public Governance. However, Osborne, being the originator of the New Public Governance, considers NPG to be a paradigm based on other theories, particularly network theory and organizational sociology (Osborne, 2010). The following Table 5 is intended to clearly explain the issue of the diversity of approaches to NPG at the conceptual and definitional level.

Table 5. Understanding and definitional classification of the NPG

Source	Understanding the NPG in the paper (core values of the term)	A general definitional approach to the NPG (theory / concept / paradigm / other)
Rhodes (1996)	management by self-organizing, inter-organizational networks, complementing market mechanisms	concept
Osborne (2006, 2010a, 2010b)	increased use of management networks and partnerships to improve public-private cooperation to deliver public value and solutions to complex problems	paradigm/framework
Torring et al. (2012)	multilevel interactive management with other social actors	trend
Mierauskas and Smalskys (2013)	decision-making process with active participation of stakeholders	concept
Torring and Triantafillou (2013)	empowered participation (of private and public actors), collaboration (between levels, sectors, and actors), new tools (for engaging stakeholders), multiple forms of accountability (based on organizational learning)	concept/conception
Evans and Vesely (2014)	transformation of public administration through collaboration, deliberation, and stakeholder engagement aimed at achieving consensus and sharing power	(umbrella) notion: theory or paradigm (related to other theories)
Evans and Wellstead (2014)	involvement of non-governmental organizations in creating public policies in the political process	theory
Bilhim and dos Santos (2017)	public administration based on co-decision, coordination and inter-organizational negotiations	theory
Neves Pereira et al. (2017)	promoting the common good as a central value, implementing consensus mechanisms with all stakeholders and actors, targeting collective rather than individual preferences	concept
Liddle (2018)	a set of approaches aimed at promoting the common good and delivering public services through interdependent interorganizational networks that regulate the processes of achieving public value	concept

Source	Understanding the NPG in the paper (core values of the term)	A general definitional approach to the NPG (theory / concept / paradigm / other)
Stanica and Aristigueta (2019)	management tool not only inside the organization, but also outside the organization, regulating the political and administrative context, striving for self-management of citizens	framework
Weng and Christensen (2019)	a type of cooperation based on a network of public and private entities in a spirit of partnership instead of competition	concept
Salvador and de São Pedro Filho (2023)	a participatory approach to management, based on network models, relational contracts, co-production and flexibility in the use of management tools	theory
Young and Tanner (2023)	increasing citizens' participation in the implementation of public goals, which leads to influencing the political process and solving the problem of fragmentation of the system	theory
Krogh and Triantafillou (2024)	increase the creation of public value by developing relationships and cooperation between different sectors and strata of society	umbrella term/ concept
Popęda and Hadasik (2024)	a new wave that is changing the relationship between citizen and government leading to the conundrum that both individualists and organizations are becoming consumers and co-producers in independent networks	concept/theory/ paradigm

Source: own elaboration

Given the above, it can be concluded that both the understanding of the NPG core and the attempts by researchers to classify it are varied and lack uniform progression. This is particularly evident along the concept-paradigm axis, where scientific approaches tend to shift indecisively between different perspectives. At the same time, the theoretical, albeit somewhat chaotic, interpretation of NPG aligns with values such as participation, networks, partnerships, shared power, and the public good. While a clear and unambiguous classification may not be achievable, a shared understanding (and consequently, the legitimization of NPG) remains possible.

4 Concluding remarks

New Public Governance is a widely acknowledged construct that is ardently debated in the academic community. Specific characteristics illustrating this

novel concept also emerged, focusing on ubiquitous decentralization, active participation of stakeholders, social participation, and network management. The emerging trends in NPG research point to an evolution of governance models that are more collaborative, citizen-centric, and innovative. These trends reflect the broader shifts in public administration towards networked governance systems capable of addressing complex, interdependent challenges in modern societies. As governments continue to face evolving challenges, NPG principles will likely remain central to shaping the future of governance practices. It is also worth noting not only the research of individual authors in the field of public management but also the progressive and lasting trend of popularizing NPG in terms of bibliometrics. In this sense, NPG is undoubtedly a scientific creation accepted and recognized by the academic community, particularly experts in the field of public management. Therefore, New Public Governance's progressive and significant legitimization process should be recognized.

On the other hand, the categorization of NPG still needs to be solved. As seen by some researchers, it is an umbrella concept that contains individual scientific sub-elements. According to others, New Public Governance is a full-fledged theory that should be separated from the general trends in public management theory.

In contrast to the above, however, some authors take away the privileges of the NPG theory by treating it as a concept and, therefore, a kind of idea that needs to become entrenched enough to be honored as a theory. However, as indicated in the main body of the manuscript, the process of developing this theory could be more transparent, and there is no single correct way to proceed in this area. It largely depends on the scholar apparatus (which is selected solely by the researcher) and the researcher (including their outlook, assumed objectives, etc.), who can lead to and prove a new theory with their creativity, new observations, and logic. Therefore, these categorical doubts should be alleviated with a constructivist approach, typical of qualitative research and recognized as a characteristic of this phenomenon that will undoubtedly change over time.

The most significant value of the paper for the modern discipline of public governance is to address the issue of the growing popularity of New Public Governance by identifying the theoretical framework and perceived scientific potential for the future of the concept. No previous study has measured the legitimacy of NPG. In addition, the authors make a pioneering attempt to place NPG in the "concept-theory-paradigm" triad and use an original research strategy by combining qualitative (thematic-realist review) and quantitative (bibliometrics) approaches, while referring to classical theories about the foundations of science. This comprehensive research approach contributes greatly to the understanding of a rather non-obvious concept such as New Public Governance. This paper also contributes to legitimizing the New Public Governance as a separate theory. In addition, the study contributes both to the development of the concept of New Public Governance itself but

also proves the plasticity and utility of mixed (hybrid) methods in the social sciences in studying new concepts.

As mentioned, NPG is an increasingly popular scientific term, which will result in a better understanding of the problem, a more significant number of studies and sources, and thus, ultimately, the entire establishment and legitimization of the New Public Governance theory. In summary, NPG is a recognized scientific construct that is well and dynamically on its way to fully consolidating its theoretical foundations.

4.1 Study limitations

This study carries several important limitations. The most significant of these is that this is the first holistic attempt to theoretically ground the term NPG, making it clear that there are no other reference points in such a field. Public governance researchers are recommended to deepen their work on the status of NPG and the various substantive aspects of the trend to understand it better. In addition, there is a great deal of conceptual noise (through similar meanings of terms) between “concept,” “conception,” “theory,” and “paradigm.” This causes a great deal of fragility in the attempt to ground the theory presented in the article. In addition, it should be noted that Section 3.2 is inexhaustible and more outlined in terms of the legitimacy of theories, including NPG, rather than the whole process of grounding all theories and analyzing the philosophical basis for the creation of science, thus requiring further scientific work. Also, while a structured coding process was applied, thematic analysis remains subject to researcher interpretation.

There are also several limitations associated with bibliometric research. First, the analysis covered only two databases (Scopus and Web of Science). Although comprehensive, they only cover some scholarly literature, potentially excluding relevant studies published in other databases or regional journals not indexed by these platforms. Moreover, citation counts, and other bibliometric indicators come only from these two content aggregators and may only partially reflect the impact or quality of research. Highly cited papers may not necessarily represent the most innovative or influential work in the field, and newer publications may still need to accumulate citations despite their potential significance.

4.2 Implications and further research

The most important implication of this research is to provide public management scholars with a theoretical foundation for further research on strengthening co-governance as a management thought. Although it is one of the newer management concepts, the uncertain environment, altering challenges, and the need for an organization to adopt a resilient posture means that public organizations require an ongoing scientific debate on how best to fulfill their role for societies. This research indicates that NPG has become a permanent fixture operating in public management sciences. The research re-

sults and the lack of unanimity in the theoretical view have revealed the need for further research and the potential for finding research niches. Future studies could triangulate findings with expert interviews or deliberate panels. On the other hand, the analysis has also presented progenitors of New Public Governance with whom it is worthwhile engaging in a dispute. Combining this with its relatively short existence in academia prompts researchers to take up the subject of new management concepts and the development of New Public Governance itself. At the end of this process, public administration practitioners face even more dynamic challenges and expect solutions that are effective and tested through the prism of various scientific problems.

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Exploring Consumer Behaviour and Perceptions: The Role of Enterprise Social Responsibility in Kosovo's Developing Market

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ABSTRACT

Purpose: This study examines consumer perceptions, attitudes, and behavioural responses to Enterprise Social Responsibility (ESR) within Kosovo's developing market.

Design/methodology/approach: Drawing on structured quantitative survey data (n = 182), the research analyses how demographic characteristics—in particular gender, age, education, and economic status—influence consumers' understanding and evaluation of ESR practices. Although there is broad conceptual support for socially responsible business conduct, actual consumer behaviour remains contingent on product-related factors such as quality, price, and availability.

Findings: The study identifies a significant attitude-behaviour gap, revealing a disconnect between ethical preferences and market actions. Furthermore, consumers display limited trust in selfpromotional ESR campaigns, favouring externally validated or regulatorydriven approaches. These findings underscore the critical role of transparency and authenticity in enhancing consumer trust and highlight the need for ESR strategies that are both contextsensitive and institutionally anchored.

Originality/significance/value: The study offers actionable insights for policymakers and practitioners seeking to strengthen corporate social responsibility frameworks and foster more sustainable consumer–enterprise relationships in transition economies.

Keywords: attitude-behaviour gap, consumer behaviour, corporate ethics, corporate social responsibility, enterprise social responsibility, sustainability, transparency

Raziskovanje vedenja in zaznav potrošnikov: vloga podjetniške družbene odgovornosti na razvijajočem se trgu Kosova

POVZETEK

Namen: Ta študija preučuje zaznave, stališča in vedenjske odzive potrošnikov na podjetniško družbeno odgovornost (*Enterprise Social Responsibility* – ESR) v okviru razvijajočega se kosovskega trga.

Zasnova/metodologija/pristop: Na podlagi strukturiranih kvantitativnih podatkov ankete ($n = 182$) raziskava analizira, kako demografske značilnosti – zlasti spol, starost, izobrazba in ekonomski status – vplivajo na potrošnikovo razumevanje in ocenjevanje praks ESR. Čeprav obstaja splošna konceptualna podpora družbeno odgovornemu poslovnemu ravnanju, je dejansko potrošniško vedenje pogojeno z dejavniki, povezanimi z izdelkom, kot so kakovost, cena in razpoložljivost.

Ugotovitve: Študija razkriva izrazito vrzel med stališči in ravnanjem, ki kaže na neskladje med etičnimi preferencami in tržnimi dejanji. Potrošniki izkazujejo omejeno zaupanje do samopromocijskih kampanj ESR ter dajejo prednost pristopom, ki jih potrjujejo zunanje institucije ali regulativa. Ugotovitve poudarjajo ključno vlogo preglednosti in pristnosti pri krepitevi potrošniškega zaupanja ter potrebo po strategijah ESR, ki so hkrati občutljive na kontekst in institucionalno zasidrane.

Izvirnost/pomen/vrednost: Študija ponuja uporabne napotke za oblikovalce politik in praktike, ki želijo okrepiti okvirje družbene odgovornosti podjetij ter spodbujati trajnejše odnose med potrošniki in podjetji v tranzicijskih gospodarstvih.

Ključne besede: vrzel med stališči in ravnanjem, vedenje potrošnikov, poslovna etika, družbena odgovornost podjetij, podjetniška družbena odgovornost, trajnost, preglednost

JEL: M14, M31, D12, L21

1 Introduction

Enterprise Social Responsibility (ESR) encompasses strategic initiatives adopted by companies aimed at minimizing negative societal impacts while maximizing positive contributions across economic, legal, ethical, and philanthropic dimensions (Carroll and Brown, 2018; Schwartz and Carroll, 2019). These initiatives typically include practices such as cause-related marketing, environmental sustainability, product safety, corporate philanthropy, and equitable employee treatment (Kotler and Lee, 2022; Matten and Moon, 2020). Companies strategically employ ESR to enhance their corporate reputation, build consumer trust, and differentiate themselves in highly competi-

tive and standardized markets (Peloza and Shang, 2021). Although ESR practices have become well-established in developed economies, they remain relatively novel and inconsistently applied within emerging markets like Kosovo. In these contexts, ESR adoption is predominantly driven by multinational corporations, often influencing local enterprises to adopt such initiatives primarily for promotional purposes rather than as integrated strategic elements (Jamali and Karam, 2021). Within Kosovo specifically, ESR adoption tends to be fragmented and superficial, frequently perceived as relevant only for larger organizations with substantial resources. Local businesses typically interpret ESR narrowly, associating it mainly with philanthropic or environmental activities rather than recognizing its strategic potential. Consequently, there is a notable gap in understanding how ESR can effectively confer strategic competitive advantages, particularly within developing market environments such as Kosovo.

This study aims to deepen understanding of consumer responses to ESR initiatives within Kosovo, with a specific focus on the influence of demographic variables including gender, education, age, and economic status. More specifically, this research investigates:

1. Kosovar consumers' conceptualizations of ESR and their attitudes toward its multiple dimensions.
2. Demographic influences-gender, education level, age, and economic conditions-on consumer perceptions of ESR.
3. The relationship between ESR perceptions and consumer purchasing behavior.

To achieve these objectives, a structured consumer survey was conducted, analyzing correlations among personal values, ESR awareness, attitudes, and behaviors. The following sections include a comprehensive literature review, detailed methodological explanations, empirical findings, critical discussions, and concluding remarks with practical recommendations and suggestions for future research.

2 Literature Review

Enterprise Social Responsibility (ESR) has become increasingly important within contemporary sustainable business practices, drawing significant attention from both academia and industry, particularly within emerging market contexts (Agudelo, Jóhannsdóttir, and Davídsdóttir, 2019). ESR initiatives enable companies to enhance corporate reputation, build consumer trust, and develop sustainable customer loyalty (Kim, Yin, and Lee, 2020). However, the effectiveness of ESR is influenced by cultural, economic, and regulatory conditions specific to each market (Sarkar and Searcy, 2021). Cultural dimensions significantly influence consumer expectations and acceptance of ESR initiatives. Park, Chidlow, and Choi (2021) emphasize that culturally embedded societal values guide consumers' prioritization of ESR activities. In collectivist societies emphasizing community welfare, ESR efforts focusing on social development

and humanitarian issues are more likely to resonate positively with consumers (Chung, Yang, and Kim, 2020). Thus, culturally tailored ESR strategies are critical for effective consumer engagement. Demographic factors, especially gender, are significant determinants of consumer perceptions and responses to ESR. Recent research identifies distinct gender differences, highlighting that women typically show greater responsiveness towards ethical and philanthropic ESR dimensions than men (Hur, Moon, and Kim, 2020; Chang and Cheng, 2021). This difference aligns with broader societal norms and expectations regarding empathy and social responsibility. Companies aiming for effective ESR implementation must thus consider demographic segmentation carefully in their strategic planning. Consumer skepticism regarding ESR presents considerable challenges, particularly in emerging markets characterized by limited regulatory oversight. Mazutis and Slawinski (2020) highlight that superficial ESR initiatives, commonly referred to as “greenwashing,” can significantly erode consumer trust and damage brand credibility. In contrast, authentic, transparent, and independently verified ESR practices significantly enhance consumer trust and loyalty (Nyilasy, Gangadharbatla, and Paladino, 2021). Hence, authenticity and credible verification are essential to mitigate skepticism and enhance corporate legitimacy. Moreover, regulatory environments play a significant role in shaping consumer perceptions of ESR authenticity. In markets with weak regulatory frameworks, voluntary adherence to international ESR standards and independent validation mechanisms become essential to ensure consumer trust and competitive differentiation (Crifo and Forget, 2021). Transparent reporting and external verification can substantially reinforce consumer confidence, particularly in contexts where regulatory oversight is perceived as insufficient. Given these complexities, businesses operating in emerging markets such as Kosovo must strategically integrate ESR practices aligned with local cultural, demographic, and regulatory conditions. Companies that successfully align ESR activities with consumer values and expectations are likely to gain sustained competitive advantages through enhanced corporate reputation and consumer loyalty.

3 Theoretical Framework on ESR and Consumer Behavior

The theoretical underpinnings of Enterprise Social Responsibility (ESR) have evolved significantly, highlighting its multifaceted role in corporate strategy and consumer engagement. Carroll’s foundational model categorizes ESR into four primary dimensions: economic, legal, ethical, and philanthropic responsibilities, advocating for balanced corporate attention across these aspects (Carroll, 1979). Building upon Carroll’s framework, Schwartz and Carroll (2019) advanced a three-domain model emphasizing the intersection of economic, ethical, and legal responsibilities, suggesting that corporate actions should reflect integrated strategic priorities rather than isolated obligations. Consumer responses to ESR initiatives are profoundly influenced by theories addressing consumer decision-making and behavior. According to the theory of consumption values developed by Sheth, Newman, and Gross (1991), consumer choices are shaped by a combination of functional, emo-

tional, social, epistemic, and conditional values. Functional value pertains to product performance and utility, economic value emphasizes affordability and cost-effectiveness, while emotional and ethical values reflect the consumer's alignment with corporate values and social responsibility (Sheth et al., 1991). Consequently, consumer decisions to support ESR initiatives often depend on balancing these diverse value perceptions, highlighting the importance of comprehensive consumer value analysis in ESR research. Significantly, research highlights a persistent "attitude-behavior gap," where positive consumer attitudes towards ESR do not consistently translate into actual purchasing behaviors (Carrington, Neville, and Whitwell, 2021). Factors such as economic constraints, availability of ESR-oriented products, consumer skepticism towards corporate motives, and informational asymmetries contribute to this discrepancy (Johnstone and Tan, 2020; Testa et al., 2021). The persistence of this gap underscores the necessity for companies to strategically address practical barriers through clear, credible communication and consistent, verifiable ESR practices. Furthermore, stakeholder theory emphasizes that corporate responsibility must address the expectations and values of diverse stakeholders, including consumers, employees, communities, and regulatory bodies. Effective ESR initiatives thus involve active engagement with stakeholder interests, ongoing monitoring of societal issues, and adaptive management practices to respond effectively to stakeholder demands (Freeman et al., 2020). Integrating ESR into corporate strategy requires an understanding of consumer behavior dynamics, stakeholder expectations, and strategic communication efficacy. Companies that successfully navigate these complex interrelationships are more likely to achieve sustained competitive advantages through enhanced consumer trust, brand loyalty, and reputational capital.

4 Methodology

Research Objective and Scope: The primary objective of this research is to systematically identify and analyze consumer-related factors that influence responses and behaviors concerning Enterprise Social Responsibility (ESR) initiatives within Kosovo's developing market context. Specifically, this study seeks to provide actionable insights enabling businesses to strategically align their ESR activities with local consumer expectations, attitudes, and prevailing societal values. The research scope includes an assessment of consumer perceptions, awareness, attitudes, and reported behaviors related to ESR, within the unique socioeconomic setting of Kosovo.

Research Questions: To guide a comprehensive and structured investigation, this research addresses several key research questions designed to capture the nuanced consumer perspective on ESR within Kosovo:

- RQ1: Perceptions of ESR – How do Kosovar consumers conceptualize Enterprise Social Responsibility? Specifically, do consumers predominantly associate ESR with corporate philanthropy, environmental stewardship, or broader ethical commitments?

- RQ2: Consumer Expectations – To what extent do Kosovar consumers expect businesses to engage actively and authentically in social and environmental initiatives beyond their basic economic and legal obligations?
- RQ3: Consumer Awareness of ESR Initiatives – How informed are Kosovar consumers about general ESR initiatives and the specific ESR activities of companies they engage with?

Research Design and Data Collection: To systematically address the outlined research objectives, a quantitative survey research design was employed, utilizing a structured questionnaire developed based on established ESR theories and relevant literature. The questionnaire design incorporated prior insights on consumer behavior, emphasizing cognitive and affective dimensions associated with ESR perceptions.

The questionnaire consisted of two main sections. The first section gathered demographic data, including respondents' age, gender, educational background, employment status, and income levels, enabling a detailed examination of demographic influences on ESR perceptions and behaviors. The second section comprised ESR-specific statements, where respondents indicated their agreement level on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). These statements assessed consumer awareness of ESR initiatives, perceived effectiveness of ESR efforts, attitudes toward ESR-related products, willingness to support ESR-aligned businesses, and trust in corporate ESR communications. Data collection was conducted through online channels, including social media platforms, targeted email distributions, and professional networks accessible to the research team. A convenience sampling method was adopted due to practical considerations and the exploratory nature of the study. The survey was disseminated in June 2024, resulting in 182 valid responses from approximately 500 distributed questionnaires, reflecting a response rate of 36%. This response rate aligns with typical standards for online survey research and is suitable for exploratory analyses. Rigorous data cleaning was performed to ensure the completeness, accuracy, and reliability of responses. Descriptive statistics were employed to summarize demographic profiles and responses to ESR-related statements, while Pearson correlation analyses (r) examined relationships among consumer values, awareness, attitudes, and purchasing behaviors. Statistical significance was established at $p < .05$.

4.1 Sample Characteristics

A summary of the demographic profile of the survey respondents is presented in Tables 1 and 2. It is important to note that while the sample of 182 participants does not fully represent the general Kosovar population due to the convenience sampling method and online data collection, it provides valuable insights into a demographic segment characterized by higher education levels and greater connectivity.

Table 1. Education Level of Respondents

Education Level	Frequency (n)	Percentage (%)
Primary education	2	1.1
Secondary education	42	23.1
College/university	87	47.8
Master/doctorate	51	28.0

Source: authors

As indicated in Table 1, nearly all respondents possess at least secondary education, with a substantial majority (75.8%) having obtained higher education degrees (college/university or postgraduate degrees). Specifically, 47.8% reported completing college or university-level education, and an additional 28.0% had achieved a master's or doctorate degree. This distribution significantly exceeds Kosovo's general population education levels, where approximately 17% hold higher education degrees. Consequently, this educational bias is a critical limitation, as it may skew the findings toward perceptions typical of more educated, informed, and potentially ESR-aware individuals, thus limiting generalizability to the broader, less-educated population.

Table 2. Demographic Profile of Respondents

Demographic Variable	Categories	Frequency (n)	Percentage (%)
Gender	Male	80	44.0
	Female	102	56.0
Age Group	17–24	29	15.9
	26–50	118	64.8
	Over 50	35	19.2
Marital Status	Married	102	56.0
	Single	80	43.9
Employment Status	Employed	141	77.5
	Unemployed	7	3.8
	Student	31	17.0
	Retired	3	1.6
Monthly Income per Capita	Up to 100 €	3	1.6
	100–250 €	14	7.7
	250–500 €	91	50.0
	500–750 €	49	26.9
	Over 750 €	25	13.7

Source: authors

Table 2 further details the demographic composition of the sample. The gender distribution was slightly skewed towards female respondents (56.0%), though still providing reasonable gender balance. The age distribution was predominantly within the range of 25 to 50 years old (64.8%), followed by those aged over 50 (19.2%), and younger adults aged 17–24 (15.9%). This distribution effectively captures a broad adult demographic, although the representation of older respondents remains somewhat limited. In terms of marital status, the majority of respondents (56.0%) were married, aligning closely with the prevalence of middle-aged respondents. Employment status data indicate a predominantly economically active sample, with 77.5% employed, 17.0% students, and a small proportion of unemployed (3.8%) or retired respondents (1.6%). Income levels further underscore this economically active demographic, with half of respondents (50.0%) reporting monthly incomes between 250–500 €, 26.9% between 500–750 €, and 13.7% earning above 750 €. Overall, the survey sample primarily represents urban, educated, economically active consumers who are likely more familiar with contemporary business practices such as ESR. Despite these advantages, the study acknowledges a notable limitation regarding generalizability due to underrepresentation of rural, lower-income, or less-educated segments. Consequently, results may reflect higher-than-average awareness and engagement with ESR issues compared to the broader Kosovar population. This limitation is addressed in greater detail in the conclusions section, emphasizing the importance of conducting broader, more representative future research. Nonetheless, the findings provide crucial preliminary insights into ESR perceptions and behaviors among Kosovo's emerging consumer class, discussed in detail in the following results section.

5 Results

5.1 Consumer Perceptions of ESR Dimensions

The study first explored consumer perceptions regarding various dimensions of Enterprise Social Responsibility (ESR). Participants rated the relevance of different ESR aspects, including ethical business conduct, legal compliance, strategic business success through fair stakeholder treatment, and engagement in social and humanitarian activities. Table 3 illustrates average consumer ratings for these ESR dimensions, measured on a 5-point scale (1 signifying the aspect is not at all a part of ESR, and 5 indicating it is very much part of ESR from the respondents' perspective).

Table 3 indicates that Kosovo consumers primarily perceive ESR through the lenses of ethics and legality. "Adherence to legal standards" achieved the highest mean score (3.40), reflecting a prevalent belief that legal compliance is foundational to ESR. The dimension of morality and ethical conduct followed closely, with a mean score of 3.26, reinforcing the notion that consumers significantly associate ESR with integrity and ethical behavior. These results emphasize consumers' prioritization of compliance and ethics as core

ESR components. Conversely, the strategic dimension of ESR-contributing to business success through stakeholder fairness-received a lower average rating (2.90), indicating that consumers less frequently perceive ESR as inherently strategic or directly related to organizational performance. Even more notably, engagement in social or humanitarian activities was least strongly associated with ESR (mean = 2.64). This surprising finding reveals a gap between consumer perceptions and corporate assumptions; companies typically highlight their philanthropic activities prominently, yet Kosovo consumers appear skeptical of such efforts or perceive them as peripheral to genuine ESR.

Table 3. Consumer Perceptions of ESR Dimensions

ESR Dimension	Description of Aspect	Mean Score (1-5)	Interpretation
Morality and Ethics in Business	ESR as ethical and moral practice	3.26	Moderate association with ethical business practice
Legal Compliance	ESR as adherence to legal standards	3.40	Strong association with legal compliance
Contribution to Business Success	ESR as fair treatment of stakeholders enhancing business success	2.90	Moderate-to-low strategic association
Social and Humanitarian Activities	ESR as involvement in social or humanitarian initiatives	2.64	Low association with social/humanitarian activities

Source: authors

5.2 Consumer Attitudes toward ESR

Consumer attitudes toward ESR were assessed using five key statements addressing product perception, willingness to pay premiums, acceptance of trade-offs in product quality, trust in corporate ESR marketing, and preferences for regulatory oversight. Table 4 provides detailed results, showing both the percentage of agreement and the mean agreement scores for each statement.

The data in Table 4 clearly indicate robust yet conditional consumer support for Enterprise Social Responsibility (ESR). A substantial majority (84.5%) exhibit a favorable perception toward products with ESR attributes, reflected in a strong mean score of 3.95, suggesting general consumer appreciation for ESR-linked products. However, consumer willingness to pay a premium for ESR benefits is more moderate (57% agreement, mean score of 3.60), revealing significant sensitivity to price considerations. Importantly, product quality remains a critical determinant in consumer purchasing decisions; only 25.6% of respondents indicated willingness to compromise on product quality for ESR attributes, resulting in a relatively low mean score of 2.80. Additionally, there is noticeable skepticism towards companies' self-promotional ESR activities, with a mere 22.56% expressing trust, producing a low mean score of 2.25. This

skepticism emphasizes the necessity for transparency and independent verification in ESR claims. Moreover, an overwhelming preference (93.2% agreement, mean score of 4.10) exists for regulatory oversight of ESR standards rather than voluntary corporate definitions. Collectively, these results highlight the crucial importance of aligning ESR initiatives with core consumer expectations-particularly quality and affordability-and underscore the need for credible validation to effectively build consumer trust and confidence.

Table 4. Consumer Attitudes Toward ESR

Attitudinal Aspect	Statement	Agreement (%)	Mean Score (1-5)
Legal Regulation of ESR	Legal frameworks should define ESR standards, not companies	93.2%	4.10
Trust in Companies' ESR Initiatives	Distrust towards companies that self-promote their ESR activities	22.56%	2.25
Positive Perception of ESR Products	It is good to buy products with ESR attributes	84.5%	3.95
Willingness to Pay More for ESR Products	Willing to pay more for products with ESR attributes	57.0%	3.60
Willingness to Accept Lower Quality for ESR	Would buy a product of lower quality if it has ESR attributes	25.6%	2.80

Source: authors

5.3 Knowledge and Beliefs about ESR

Consumer knowledge and beliefs regarding ESR were examined across three dimensions: general ESR awareness, specific knowledge of corporate ESR practices, and belief in consumer influence. Table 5 summarizes these dimensions, including mean scores and interpretations.

The results presented in Table 5 indicate a moderate level of overall awareness and understanding of ESR concepts among consumers (mean score of 3.29). Although consumers have a general familiarity with ESR, there is notable room for enhancing their understanding. Specific knowledge regarding individual companies' ESR practices is significantly lower (mean score of 2.81), highlighting a critical gap in detailed consumer awareness that could limit the strategic value of ESR initiatives. Additionally, the belief that consumers can meaningfully influence corporate ESR decisions through purchasing behaviors is moderately held (mean score of 3.06), suggesting that strengthening consumer empowerment and promoting transparency in ESR practices could further encourage responsible purchasing decisions.

Table 5. Knowledge and Beliefs about ESR

Knowledge and Beliefs Dimension	Measurement	Mean Score (1-5)	Interpretation
General Knowledge of ESR	Awareness and understanding of ESR concepts	3.29	Moderate awareness of ESR concepts
Specific Knowledge about ESR Practices	Knowledge about specific companies and products	2.81	Low specific knowledge of ESR practices
Belief in Consumer Influence	Belief that individual consumers can influence ESR	3.06	Moderate belief in consumer influence

Source: authors

5.4 Relationships among Social Values, Attitudes, and Behavior

Correlation analyses examined relationships among social values, consumer attitudes, and ESR-oriented behaviors, addressing hypotheses H1 and H3. Table 6 presents these correlations and their statistical significance.

Table 6. Correlation Analysis: Social Values, Attitudes, and Behavior

Correlation Relationship	Variables	r	p-value
H1: Social Values and Consumer Attitudes	Social values vs. attitudes toward ESR	0.241	0.012*
H2: Knowledge/Beliefs and Attitudes	ESR knowledge and beliefs vs. attitudes	-0.011	0.856 (n.s.)
H3: Attitudes and Buying Behavior	Attitudes toward ESR vs. buying behavior	0.062	0.362 (n.s.)

Source: authors

*p < 0.05 significant; n.s. = not significant.

The analysis strongly supports hypothesis H1, indicating a statistically significant positive relationship between consumers' social values and their attitudes toward ESR ($r = 0.241$, $p < 0.05$). This suggests that individuals with stronger societal values are more likely to hold positive views toward ESR. Conversely, hypotheses H2 and H3, were not supported, reflecting weak or negligible correlations. Specifically, ESR knowledge and beliefs do not significantly correlate with attitudes ($r = -0.011$, $p = 0.856$), and attitudes do not notably predict ESR-aligned purchasing behaviors ($r = 0.062$, $p = 0.362$). Additionally, social values show no meaningful relationship with ESR-driven behaviors ($r = -0.011$, $p = 0.856$).

The data clearly highlight an attitude-behavior gap, emphasizing the complexity of converting favorable attitudes toward ESR into concrete consumer actions. Economic constraints, limited availability of ESR-compliant products, and skepticism about corporate sincerity likely contribute to this gap. Thus, businesses should focus strategically on bridging these barriers, potentially through enhanced transparency, affordability, and product availability, to effectively leverage consumer support for ESR initiatives.

6 Discussion

The findings of this study provide a nuanced understanding of Kosovar consumers' interactions with Enterprise Social Responsibility (ESR), highlighting opportunities for businesses as well as critical challenges that require strategic navigation.

Demographic Differences in ESR Perceptions: Consumer responses toward ESR vary significantly across demographic segments, emphasizing the necessity for targeted strategies. Gender differences are particularly notable, aligning with established research. Female respondents emphasized legal, ethical, and moral dimensions of ESR, whereas male respondents showed greater concern for ESR's humanitarian and business-success aspects. These findings imply tailored marketing communications could effectively resonate by emphasizing ethical standards and compliance for female audiences and community or strategic success narratives for male audiences. Nonetheless, companies must implement such approaches carefully to prevent reinforcing stereotypes. Age-related differences also emerged prominently. Younger consumers (17–24 years) displayed heightened ESR awareness, likely influenced by global sustainability and ethics discussions facilitated by education and social media. This presents an opportunity to harness younger demographics as ESR ambassadors while simultaneously addressing awareness gaps among older consumers through community outreach and educational initiatives. Education level significantly impacted ESR understanding. Higher education correlated with deeper ESR knowledge, creating challenges in engaging less educated segments. Therefore, ESR communication must employ accessible language and practical examples relatable to broader populations, such as visibly demonstrating how ESR activities benefit local communities.

Alignment with Social Values: A positive correlation between social values and attitudes toward ESR suggests that Kosovar consumers hold strong societal values, such as community welfare, transparency, and environmental sustainability. Companies aligning their ESR initiatives with these values stand to enhance consumer favorability significantly. Authentic engagement in environmental conservation, community education programs, and transparent governance practices could foster substantial consumer goodwill. Authenticity is crucial, as superficial or insincere initiatives risk consumer skepticism.

The Empowered yet Skeptical Consumer: Consumers demonstrated paradoxical attitudes, expressing general support for ESR while simultaneously

exhibiting substantial skepticism toward corporate self-regulation and promotional practices. This skepticism underscores consumers' reliance on institutional frameworks for assurance of corporate responsibility, highlighting the necessity for clear regulatory standards and transparency (Siano, Vollero, Conte, and Amabile, 2021). Businesses should thus consider adopting widely recognized international standards, such as ISO 26000 and Global Reporting Initiative guidelines, coupled with independent certifications to substantiate their ESR initiatives (Crifo and Forget, 2021). Excessive self-promotion of ESR activities could trigger consumer backlash due to perceptions of insincerity; therefore, companies should emphasize verifiable and authentic ESR actions, ideally complemented by independent media coverage and credible third-party endorsements.

Conditional Support and the Attitude-Behavior Gap: Kosovar consumers displayed conditional support for ESR-oriented products, strongly emphasizing the importance of quality and affordability. This observation aligns with the global phenomenon of the attitude-behavior gap, where consumer support in principle often fails to translate into actual purchasing behavior (Carrington, Neville, and Whitwell, 2021). Consequently, ESR products must retain competitive standards of quality and pricing, utilizing ESR attributes as supplemental differentiators rather than replacements for fundamental product value (Testa et al., 2021). Practical barriers, including limited product availability, inadequate consumer awareness, and convenience issues, must be strategically addressed through clear labeling, informative marketing initiatives, and facilitated product trials, effectively bridging the gap between consumer attitudes and behaviors.

Trust and Authenticity as Cornerstones: Consumer skepticism, identified as a central theme both in the present study and broader ESR literature (Siano et al., 2021), emphasizes the critical importance of authenticity and accountability in ESR practices. Companies are advised to embed ESR authentically across all operational levels, transparently communicate both successes and shortcomings, and proactively engage with external scrutiny. Establishing collaborations with reputable NGOs or regulatory bodies can further enhance credibility, particularly valuable in regions characterized by evolving regulatory landscapes.

Implications for Businesses: The study outlines actionable insights for companies aiming to leverage ESR effectively:

- Integrate ESR with core product offerings, ensuring competitive quality and pricing.
- Tailor ESR communications according to demographic insights, simplifying messages for broader appeal.
- Prioritize transparency and third-party validation to enhance trust.
- Invest in consumer education and engagement initiatives.
- Establish feedback channels to reinforce consumer empowerment and continuous improvement.

Implications for Theory and Further Research: The confirmed attitude-behavior gap underscores the need to incorporate contextual barriers into consumer behavior theories. Further qualitative research could explore consumer motivations more deeply, while comparative studies across different markets could illuminate factors influencing ESR behaviors as market dynamics evolve.

7 Conclusion

This study offers valuable empirical insights into Kosovar consumers' perceptions, knowledge, and behaviors related to Enterprise Social Responsibility (ESR), within the broader context of a developing market. The findings reveal that while consumers express conceptual support for ESR, their actual engagement with socially responsible enterprises remains conditional. Product-related attributes-namely quality, price, and availability-continue to exert a decisive influence on purchasing behavior, often overriding ethical considerations. Critically, the study identifies a persistent attitude-behavior gap, whereby consumers' professed support for ESR does not consistently translate into purchasing decisions aligned with those values. This disjunction underscores the need for firms to not only communicate their ESR commitments effectively but also to address the structural and practical barriers that inhibit ethical consumption. Transparent communication, substantiated by third-party certifications or adherence to legal frameworks, is essential in overcoming consumer skepticism and enhancing trust. From a strategic standpoint, ESR holds considerable potential as a competitive differentiator for businesses operating in Kosovo. However, to realize this potential, firms must embed ESR authentically into their core business models rather than treating it as an ancillary or symbolic activity. Alignment with consumer values, especially in relation to transparency, fairness, and sustainability, is critical for fostering long-term brand loyalty and societal legitimacy. The study also acknowledges methodological limitations, particularly the urban and educational skew of the sample. Future research should broaden the demographic base to include underrepresented rural and lower-education populations, incorporate behavioral data (e.g., purchase history), and employ experimental or longitudinal designs to more accurately assess causal relationships and behavioral change over time. Additionally, examining the role of evolving regulatory frameworks and public policy in shaping ESR awareness and adoption in Kosovo would offer important contributions to both academic literature and policy discourse. In sum, ESR represents a significant opportunity for Kosovar enterprises to pursue sustainable, value-driven growth. Achieving this, however, necessitates genuine commitment, culturally attuned implementation, and consistent communication that bridges the gap between intention and consumer action-ultimately contributing to more ethical, resilient, and inclusive market development.

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