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PATTERNS OF BRIBERY ACCEPTANCE FOR CENTRAL AND EASTERN EUROPEAN COUNTRIES FROM CULTURAL AND RELIGIOUS TO HISTORICAL INFLUENCES

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Abstract

This article uses cross-country data to analyse the determinants of bribery acceptance across twenty-two Central and Eastern European countries. Particular attention is paid to cultural, religious, historical, geographical, economic, institutional, political and individual factors. After combining data from six waves of the World Values Survey (WVS) and applying logistic regressions, our results confirm the role of certain beliefs and individual characteristics. They validate that the long- and short-run influences of different prior institutional architectures are highly relevant for predicting the current incidence of bribery. Institutional quality, political and economic variables, and landlocked ness are significant predictors. These results can be a credible source of recommendations for the formulation of highly effective public policies to be implemented.

Keywords: bribery, corruption, historical legacy, religion, institutions

1. Introduction

Corruption is widespread in human societies. From the outset, we should emphasize that the traditional and direct form of bribery is a central element that characterizes corruption [1]. Therefore, it is irrefutable. The ethics of bribery have been analysed in detail in numerous studies [2, 3]. For example, it is considered that what is efficient is thus ethical [4]. On the other hand, despite the prevalence of such utilitarian ethics, other researchers tend to assess everything corrupt as unethical [5].

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The first evidence of corrupt behaviour dates back to the 13th century B.C. in the Assyrian Empire [6]. Even in the Bible, we can find it written: "Do not accept a bribe, for a bribe blinds those who see and twists the words of the innocent" (Exodus 23.8). Considered in the past a sin and an evil tool, today it intertwined with various elements that threaten the well-being of the individual and society, such as high transaction costs, low economic security, poor business performance [7], and in the end, low economic growth and welfare [8]. Huntington stated that "in terms of economic growth, the only thing worse than a society with a rigid, over-centralized, dishonest bureaucracy is one with a rigid, over-centralized, honest bureaucracy" [9].

Recently, many burgeoning studies have emphasized the causes and effects of corrupt behaviour [10] and deterrence policies to combat it [11]. However, in some research, the links between different types of variables are ambiguous, as the lack of specific data is the most important obstacle [12, 13]. Thus, the literature on corruption presents some evidence when identifying the strong triggers of this unethical behaviour [14-16]. However, there are also some limitations, primarily due to various empirical issues such as measurement error and limited access to data, the lack of a holistic theoretical framework capable of compiling different approaches and theories to fully understand this phenomenon, and reverse causality [17].

Analysis of long-term historical factors is understated and peripheral. Moreover, other perspectives considered are useful for the public policies that will follow them to combat and weed out the unwanted effects of this endemic problem. Historical factors are significant because history influences cultural norms, customs, mentalities and social capital. They may induce greater or lesser adherence to corrupt behaviours. Today, bribery practices seem more internalized in those human communities that have experienced long periods (e.g. hundreds of years) under the domination and rule of a former 'colonizer' usually seen as a corrupt and immovable extractive conglomerate - for example, the Ottoman Empire [18]. That is why we measure the level of dependency (expressed in many years) of our selected Central and Eastern European countries to long-gone Eastern (Russian and Ottoman Empires) and Western empires (Habsburg, Prussian, Swedish, or British ones). We distinguish between dominated nations and countries that never experienced external dominance (e.g. Russia).

The global scores for Corruption Perceptions Index 2022 from the Transparency International warrant our further analysis. Many Eastern European countries, such as Bosnia and Herzegovina, Albania, Serbia, Ukraine, and Russia, are outside the top 100 worldwide, thus registering very high levels of corruption. In addition, previous studies have documented that those former communist countries are more prone to corrupt behaviour [19]. We wanted to understand this complex phenomenon through various avenues that can generate and spur it, especially about the role of history in influencing current attitudes regarding corruption. To do so, in addition to the long-run remnants of historical determinants that may prevail in the power of more recent ones [20], we aim to

further investigate the short-term role played by the former socialist regime among the latter ones towards corruption. Some authors have documented that the socialist experience creates institutional weaknesses that bolster the current level of corruption-related [21]. But why are some of these countries more corrupt than others? Is the current corruption in the post-communist Central and Eastern European countries a vestige of the distant or near past? If so, are we witnessing a curse of the past that will forever doom the future? Related to these complex questions, we found particular predictors suggesting that the longer the influence exercised by former Russian and various Western Empires, the lower the current proclivity to accept bribes. The vice versa applies when it comes to the influences of the long-gone mixed Ottoman-Western regime and the socialist one. Landlocked countries, low ethnic homogeneity and spatial density of places of worship are more prone to create incentives to act corruptly. In addition, institutional and governance quality are essential pillars for mitigating corruption.

It is reasonable to consider that the legacy of the socialist architecture created the roots of a challenging transition to a free-market environment and the adoption of appropriate rules, norms, and regulations. Many of these countries had very little exposure to capitalism before the establishment of communism, so after the fall of communism, the consolidation of pre-1945 historical mindsets was decisive [22]. Compared to other previous studies, the originality of our work lies in a comprehensive analysis based on several new approaches: the role played by the combined influence of several long-gone empires operating on present-day countries, and not just the exclusive effect of one of them, usually considered extractive (e.g. the Ottoman Empire). Thus, we further propose Ottoman-Western and Russian-Western mixed influences, as in some cases, they acted simultaneously on a territory; chronologically, the influence of the communist period is included in the analysis; the role of geography in shaping an environment conducive or not to certain corruption-related behaviour is considered, just as the spatial density of places of worship, taken as an indicator of social cohesion, could affect corruption in society. The analysis from many complex perspectives (cultural, religious, economical, historical, political, institutional, geographical and individual) of such a phenomenon is an element of originality that will fill the gap detected in the literature.

Our contribution to the current body of literature is threefold. First, we extend the literature on the deep roots of corruption, providing a much broader perspective. Although our empirical results are limited to the post-communist countries of Central and Eastern Europe, the underlying mechanisms could reasonably be applied to other countries that have faced similar rulers and dominant influences throughout their history. Second, we provide evidence that certain historical legacies are responsible for providing specific rules, norms, traditions, and mind-sets that influence attitudes toward corruption today. Third, by controlling for various economic variables, we provide insights into the long-term consequences of various factors central to our analysis of corruption in post-communist European countries.

In methodological terms, this study is limited from the perspective of the variable selection procedures including the cross-validations based on only three considered socio-demographic criteria, the main regression models used (three) and the corresponding model performance indicators used.

2. Literature review

2.1. The relationship between historical factors and corruption

Significant attention is paid to the historical factors (combined Ottoman, Russian, and Western influences (e.g. the Habsburg Empire and, more recently, communist legacies) that facilitated and created conditions of corruption that may be responsible for the contemporary situation. Its usefulness in combatting current levels of corruption is not always clear, as it can be argued that history cannot be changed. But what matters most is that these long-gone empires and communism created more or less long-lasting extractive or inclusive political and economic institutions. Extractive institutions are believed to create vicious circles that condemn human societies to poverty and backwardness [23]. Understanding that history has left different institutional traces, depending on the nature and quality of the historical influences of former empires and political regimes, policymakers can employ a tailored arsenal of anti-corruption policies. A big mistake would be to consider corruption a uniform phenomenon, built and spread on universal assumptions. We will see enough arguments to assume that some regions are more prone than others to tolerate corruption.

The corruption within the Ottoman Empire is well-documented. For instance, in the 18th century, it was a usual practice that the position of judge (*kadi*) was often sold to the highest bidder [24]. In the next century, the situation did not change since all the steps to rationalize elite recruitment and promotion turned bureaucracy into a mighty patronage machine the sultan runs [25]. The institutional quality of the Ottoman Empire was weak. Property rights were poorly defined and often violated [26]. The corporate law did not recognize the private sector, remaining underdeveloped [27]. The civil society was immobile and silent. Therefore, it stimulates the rule-violating discretionary power of the government [28]. Finally, Bideleux and Jeffries stated some facts about the nepotistic officials and oligarchs in the Balkans [29]. They have learned all too well the ins and outs of political chicanery and corruption. Their Ottoman heritage and pattern of action was reflected in their behaviours.

In the 19th century, the Russian Empire appeared in many sources. They mentioned it as one that experienced many cases of abuse, corruption, and embezzlement. And this by its public bureaucracy. Numerous other ones presented efficient and powerful anti-corruption facts and reforms (e.g. higher standards of education and awareness among state servants) started by other officials, who got sustained by the public opinion [30]. In territories where the Russian Empire became dominant, the ruling elites extorted the locals and

promoted corruption [J. Rubin and E. Karaja, http://digitalcommons.chapman.edu/esi_working_papers/218/]. On the opposite side, the former Habsburg Empire appeared in numerous mentions as "fairly honest, quite hard-working, and generally high-minded" [31] and from these perspectives, better off than the Russian or Ottoman empires [32].

Moreover, it seems possible that the present-day level of corruption stands on past experiences, such as having been a communist country, the length of socialist rule and the quality of communist bureaucratic legacy. All are specific elements with considerable impact on actual acts of corruption [33].

The literature is ambivalent about the relationship between prior socialist experience and existing corruption. It is well-known that when corruption occurs in a country, its citizens are more likely to engage in such illegal behaviour [34]. And socialism was an example of a system that promoted widespread corruption. Libman and Obydenkova demonstrated a relevant fact about Russian regions with a higher share of Communist party members [35]. Two decades after the dissolution of the USSR (Union of Soviet Socialist Republics/Soviet Union), their corruption level is much higher than in other regions.

On the other hand, attribute specific pre-socialist historical legacies to current corruption [36]. The trademark characteristics of communist-era bureaucratic legacies based on change-reluctant mind-sets [37] still significantly impact today's institutions [38]. And that's because they stopped, aborted, or delayed the necessary administrative reforms and transition and therefore gave rise to negative consequences in terms of the weak rule of law, high corruption, public institutions where the aspect of political affiliation prevails merits, skills, and abilities [39].

2.2. The link between cultural and religious/geographical factors and corruption

Recently, interest in the relationship between ethnic fractionalization and corruption is showing increased focus [40] found that corruption is high in highly heterogeneous countries. An increased level of ethnic fractionalization, an element for gauging ethnic diversity, may generate a stronger willingness for local officials to act corruptly and discriminate against certain ethnicities [41]. Another reason stands on the hypothesis that divided societies cannot provide public goods efficiently, thus generating rent-seeking behaviours [42].

We took into account two variables related to the religious sphere (the number of congregations per 1000 inhabitants and the number of congregations of the major denomination per 1000 inhabitants), since the spatial density of church matters for numerous behaviours that, at least indirectly, can reduce the appetite for accepting bribes [43], agree that the spatial density of Churches and congregations could adequately measure social cohesion. In turn, it contains trust and solidarity, which threaten the corruption phenomenon [44]. Others point out that the number of churches is positively related to the neighbouring level among

residents [45]. Moreover, they document a significant positive effect of the number of churches on conventional values, especially in disadvantaged neighbourhoods. Finally, their analysis highlights that neighbourhoods with a higher spatial density of churches or congregations exhibit higher levels of informal social control, while other research [46] provides evidence of a significant link between churches and social ties.

Geography is considered a 'proximate' cause of corruption [47, 48]. Compared to those countries with access to the sea, the landlocked ones are more likely to record lower rates of bilateral trade, economic growth, and institutional, and governance quality [49-51]. Several scholars claim this type of country is relatively more corrupt than others [A.S. Kumara and W.S. Handapangoda, https://mpra.ub.uni-muenchen.de/54721; 52].

2.3. The relationship between economic and political factors and corruption

In addition to historical heritage, cultural, religious and geographical influences, we considered relevant economic variables. It is about the fact that low- and middle-income countries are more likely to become environments with increased levels of corruption [53]. This theory must be analysed carefully, not being an immutable panacea, because the historical legacy can generate institutional rigidities with negative consequences [28]. Along these lines, other scholars favour the greasing role of corruption for economic growth when these rigid regulations intervene [54]. Some authors have considered that increased GDP (Gross Domestic Product) per capita are associated with environments less conducive to corruption [55]. Paldam found a positive relationship between inflation and corruption in the short term, while a negative one between economic freedom and rent-seeking behaviour [56]. In addition, the comprehensive index of economic freedom appears to affect corruption. Higher levels of this index (increasing openness to market mechanisms) and those associated with human development are negatively correlated with bribery behaviours [57]. In the same vein, another empirical research emphasized some countries with high bribe-taking rates [58]. They are also the ones facing low economic freedom scores, democracy scores, human development scores, and those who do not have signatory status to be part of the OECD (Organisation for Economic Co-operation and Development) anti-bribery treaty.

Many debates favour the augmented role played by left-wing or right-wing governmental ideologies on overall perceived corruption. For example, empirical evidence points to a strong link between transparency and left-wing parties [59], while De Araujo and Tejedo-Romero found an incremental role played by right-wing parties towards transparency [60]. Furthermore, it appears that left-wing ideology is consistent in its role in augmenting the level of corruption. In this sense, Di Tella and R. MacCulloch prove that underdeveloped countries with left-wing parties in power are more corrupt [61]. Another approach supports previous findings that underline an affinity between the government size and left-wing

political parties in power [62]. Thus, it is well-documented that there may be a powerful positive connection between corruption and government size, the latter being augmented when left-wing governments are in power [63]. In contrast, more recent research documents that, for a sample of OECD countries from 1996-2015, right-wing governments before the onset of the Great Recession were more likely to be perceived as more corrupt than left-wing ones [64]. Moreover, according to Hessami, using a large sample of 106 countries covering the period 1984-2008, corruption in the public sector is more prone to occur when right-wing governments are in power and significantly more pronounced when the political system lacks democratic institutions and norms [Z. Hessami, 2011 ISNIE Meeting at Stanford University, 2011].

2.4. The role of institutional and governance quality on corruption

The role of institutional and governance quality is also analysed, as previous studies have shown conflicting results. Some have argued that larger, more regulated governments are conducive to corrupt behaviour [65]. In contrast, others such as [R. La Porta, F. López-de-Silanes, A. Shleifer, R. Vishny, https://www.nber.org/system/files/working_papers/w7428/w7428.pdf] found the opposite, considering this type of governance synonymous with better governance. Moreover, Bjørnskov underlined an ambiguous relationship between the improvement of institutional quality and the level of corruption [66].

Many scholars believe that government effectiveness alleviates corruption [67]. Moreover, several other studies have documented a strong positive influence of government effectiveness in fighting and combating this phenomenon [17]. Another proxy for institutional quality is voice and accountability. The literature emphasizes that an environment that promotes and defends various individual freedoms, such as expression, association, voting, etc., limits the perceived level of corruption [68]. One of the most substantial governance indicators is political stability and the absence of violence. The literature related to this topic often links low political stability with corruption [69]. In the same category as the regulatory quality or freedom of the press, this variable is an effective institutional weapon to fight against this phenomenon [70]. Another is the quality of regulation. Extensive research has found that, in general, there is a positive link between low quality and burdensome regulations and the level of corruption [71, 72]. The rule of law and control of corruption are other indicators that can define institutional quality. Different researchers have observed what happens when both variables experience a series of strong and sharper improvements. The result is a sustainable decrease in the size of the shadow economy in a country [73].

Significant components of public integrity are considered, with a strong institutional tenor. Thus, e-citizenship, a proxy for social accountability and, moreover, for citizen empowerment [74] exerts an astringent influence on corruption [75]. In addition, nations that experience a high degree of freedom of the press, ceteris paribus, are less corrupt [76]. Judicial independence is usually a

significant factor in combating and preventing corrupt behaviour [77], which, in turn, increases economic success [78].

After this comprehensive review of the specific literature, we will examine the hypothesis that historical (more or less distant), geographical, cultural, and religious factors play an important role in understanding the different levels of corruption today.

3. Data and methods

We used a time-series cross-sectional dataset from the World Values Survey (WVS), filtered by six waves (2 to 7) after 1989. Twenty-two European countries were covered, including Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Latvia, Lithuania, Moldova, Montenegro, North Macedonia, Poland, Romania, Russia, Serbia, Slovakia, Slovenia and Ukraine.

The list of explanatory variables, including the corresponding items from the original questionnaire and the external ones (Table 1) and the related descriptive statistics (Table 2) are available below. Their inclusion was motivated by the existing scientific literature.

We also considered the cross-sectional nature of the dataset, with responses from individuals of different ages and genders, from various countries, and at distinct moments in the survey. For this reason, we used additional robustness checks. We also relied on using melogit, an implementation of the mixed-effects modelling technique, for cross-validation with well-defined criteria (random effects on country, wave number and age categories) [79]. We used robust standard errors in all regressions to correct for any form of heteroscedasticity [80].

Moreover, we measured and reported the absolute values of the correlation coefficients for all predictors in different regression models (Max. Abs. Val. Correl. Coef. - Pred. Matrices) and ensured that all values were below or near the limit of 0.5 indicating a weak to moderate correlation [81].

In addition, the variables that are not present in the final models either lost their significance (individually or together with the others - Tables 3-6), did not pass the cross-validation tests, generated high collinearity (high VIF values and high correlation coefficients between predictors) or determined the change of the values of some performance indicators (decrease for R2 and AUCROC, and increase for AIC and BIC) significantly below those of the basic models (column 2, model 1 in Tables 4-6). We included this observation towards the end of the section dedicated to Data and methods.

Table 1. World Values Survey variables and additional items used in this study.

Code	Variable's name after processing	Item definition	Values†	Source
Questionnaire items				
A005	Important_in_life_work	Important in life: Work (1 - Very important ... 4 - Not at all important)	1-4 scale	World Values Survey
E027	Attend_lawful_peaceful_dem	Political action: attending lawful/peaceful demonstrations (1 - Have done ... 3 - Would never do)	1-3 scale	World Values Survey
F114A	Justif_gov_benefits_not_entitled	Justifiable: Claiming government benefits to which you are not entitled (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F116	Justifiable_cheating_taxes	Justifiable: Cheating on taxes (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F117	Justif_accept_bribe1_10	Justifiable: Someone accepting a bribe (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F117	Justif_accept_bribe_bin (OUTCOME)	Justifiable: Someone accepting a bribe (1 to 5 => 0; 6 to 10 => 1)	0 or 1	World Values Survey and own processing
F118	Justif_homosexuality	Justifiable: Homosexuality (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F119	Justifiable_prostitution	Justifiable: Prostitution (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F123	Justifiable_suicide	Justifiable: Suicide (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
F199	Justifiable_man_beats_wife	Justifiable: For a man to beat his wife (1 - Never ... 10 - Always)	1-10 scale	World Values Survey
Y011	Defiance_Welzel	Defiance - Welzel defiance sub-index	0-1 scale	World Values Survey
Y013	Relativism_Welzel	Relativism - Welzel relativism	0-1 scale	World Values Survey
X003	Age	Age	years	World Values Survey
X001	Female	Sex	0 = male, 1 = female	World Values Survey and own processing
Extra country-dependent items (cultural and religious)				
Country	Ethnic_fractionalization	Ethnic fractionalization index	0-1 scale, 1 = ethnic heterogeneity	[82]

† Most of the scales were borrowed as such from the source dataset providers.

	Congregations 1000 inhab	Number of congregations per 1000 inhabitants, 2010, taking into consideration the population of religiously affiliated	0-1 scale	World Religion Database
	Congregations major denom 1000 inhab	Number of congregations of major denominations per 1000 inhabitants, 2010, taking into consideration the population religiously affiliated	0-1 scale	World Religion Database
Extra country dependent items (economical)				
Country	GDP per capita PPP	GDP (Gross Domestic Product) per capita at purchasing power parity (PPP) in current international $, average 1990-last wave	thousands $	World Bank
Country	Inflation	Annual inflation, consumer prices, average 1990-last wave	Percentage	World Bank
Country	Index_economic_freedom	Index of economic freedom, average 1995-last wave	0-100 ranking scores, 100 = total economic freedom	Heritage Foundation
Extra country dependent items (historical)				
Country	Mixed_imperial_legacy_OW	Ottoman and Western Imperial Legacy	0 = no, 1 = yes	CEPII (2020), www.cepii.fr/CEPII/en/cepii/cepii.asp
Country	Mixed_imperial_legacy_RW	Russian and Western imperial legacy	0 = no, 1 = yes	CEPII (2020), www.cepii.fr/CEPII/en/cepii/cepii.asp
Country	SOCi	Number of years under socialist rule, divided by 100	0-1 scale	CIA The World Factbook
Extra country-dependent items (political)				
Country	Left_wing_government	Number of years for political parties with left-wing ideological orientation in power, divided by the total number of years between 1990-last wave	Percentage	The Database of Political Institutions 2017 (DPI2017); own updates
Country	Right_wing_government	Number of years for political parties with right-wing ideological orientation in power, divided by the total number of years between the 1990s wave	Percentage	The Database of Political Institutions 2017 (DPI2017); own updates
Country	Polity2	Autocracy-democracy index, average 1918-2018 (exception for Cyprus 1960-2018)	-10-10 scale, +10=strongly democratic	http://www.systemicpeace.org/inscrdata.html
Extra country dependent items (institutional)				

Country				
	Judicial_independence	"In your country, how independent is the judicial system from influences of the government, individuals, or companies?", 2019, only from countries included in WVS wave 7	1-7 scale, 7 = entirely independent	http://www.integrity-index.org
	E_citizenship	E-citizenship, 2019 (only from countries included in WVS wave 7)	1-10 scale, 10 = highest score	http://www.integrity-index.org
	Freedom_press	Freedom of the press, 2019 (only from countries included in WVS wave 7)	1-10 scale, 10 = highest score	http://www.integrity-index.org
	Voice_accountability	Voice and Accountability indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
	Government effectiveness	Government Effectiveness indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
	Political_stability	Political Stability and Absence of Violence/Terrorism indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
	Regulatory_quality	Regulatory Quality indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
	Rule_law	Rule of Law indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
	Control_corruption	Control of Corruption indicator, average 1996-last wave	-2.5-2.5, 2.5 = strong governance performance	Worldwide Governance Indicators
Extra country dependent items (geographical)				
Country	Landlocked	A country is landlocked	0 = no, 1 = yes	CEPII (2020), www.cepii.fr/CEPII/en/cepii/cepii.asp

Table 2. Summary statistics for the subset under consideration

Variable	N	Mean or Yes (1) share (%)	Std. Dev.	Min.	Max.
Important_in_life_work	65071	1.61	0.81	1	4
Attend_lawful_peaceful_dem	60808	2.3	0.72	1	3
Justif_gov_benefits_not_entitled	62990	2.84	2.58	1	10
Justifiable_cheating_taxes	62398	2.75	2.51	1	10
Justif_accept_bribe1_(1_10)	64741	1.92	1.91	1	10
Justified_accept_bribe_binary (dependent variable)	64741	6.70	-	-	-
Justif_homosexuality	61270	2.85	2.76	1	10
Justifiable_prostitution	63201	2.57	2.39	1	10
Justifiable_suicide	61088	2.3	2.28	1	10
Justifiable_man_beats_wife	29355	1.77	1.91	1	10
Defiance_Welzel	64632	0.31	0.19	0	1
Relativism_Welzel	63464	0.44	0.39	0	1
Age	66282	44.67	16.78	16	97
Female	66312	54.20	-	-	-
Ethnic_fractionalization	66346	0.35	0.16	0.09	0.63
Congregations_1000_inhab	66346	0.84	0.6	0.32	3.45
Congregations_major_denom_1000_inhab	66346	0.48	0.51	0.08	3.23
GDP_per_capita_PPP (Purchasing Power Parity)	66346	14.47	5.85	5.24	27.76
Inflation	62646	91.15	95.54	2.38	319.3
Index_economic_freedom	66346	55.92	7.84	40.88	74.07
Long_imperial_legacy	66346	2.97	1.43	1	5
Mixed_imperial_legacy_OW	64292	32.80	-	-	-
Mixed_imperial_legacy_RW	64292	18.54	-	-	-
SOCi (Number of years under socialist rule)	66346	0.51	0.18	0	0.74
Left_wing_government	66346	0.52	0.27	0	1
Right_wing_government	66346	0.32	0.29	0	1
Polity2 (Autocracy-democracy index)	66346	-2.57	3.28	-6.72	9
Judicial_independence	37100	4.86	1.33	2.87	8.38
E_citizenship	37100	5.68	1.16	3.69	7.94
Freedom_press	37100	5.29	2.58	1.77	9.3
Voice_accountability	66346	0.09	0.78	-1.47	1.08
Government_effectiveness	65046	-0.05	0.65	-0.91	1.24
Political_stability	65046	0.01	0.64	-0.97	1.06
Regulatory_quality	65046	0.11	0.73	-1.31	1.36
Rule_law	66346	-0.15	0.72	-1.09	1.01
Control_corruption	66346	-0.23	0.67	-0.99	1.04
Landlocked	66346	18.22	-	-	-

Source: Own calculations in Stata 16.0 MP (Multi Processing) 64-bit.

Although we did not perform skewness tests, skewness was not a concern because of the skewed logistic regressions (scobit) we applied. These have been shown to be reliable for perturbations of the normal or logistic distribution [83]. Same for endogeneity tests (e.g. whether accepting a bribe can affect other

attitudes). We did not focus our research on identifying primary causal effects or even isolating them. This is because such a study resolves even epistemological and ontological issues [84]. Just recall the relativity of even the temporal precedence and the usual need to suppress assumed causes or effects in controlled experiments. Alternatively, most scientists admit that the social sciences mostly cover the idea of quasi-experiments [85]. Therefore, even if we use some methods that suggest by name the idea of effects, we will only perform all interpretations and comments in terms of influences and not causal relationships.

4. Results and discussion

Table 3 shows which variables are most appropriate at the individual level. These correspond to those items in the World Values Survey that relate to the complex phenomenon of corruption. We performed logit, scobit, probit and various mixed-effects logistic regressions (depending on group variables such as country, wave and gender) to test the robustness of a set of five variables considered most important when trying to explain the binary dependent (*Justif_accept_bribe_bin*).

In this initiating context, all regressions indicate an increased likelihood of adopting and internalizing in one's behaviour the possibility of accepting bribes in various circumstances and for the following individuals: those who considered prostitution, suicide, or domestic violence by a husband against his wife to be justified, and those who reported that they would accept government benefits that were not theirs to receive. Somehow, one would expect that individuals who are usually more inclined to commit immoral or illegal acts would be more tempted to behave in other unethical ways. Specific literature already proves that organizational ethical climate [86] and personal moral deficiency [87] are relevant factors. These can generate various unethical traits or behaviours, as can corruption. Next, a specific demographic variable, namely age, was analysed. This is negatively associated with corrupt behaviour related to the acceptance of bribes.

We interpret the already existing results in the following way: younger individuals are more inclined to adopt and tolerate various immoral traits, such as accepting bribes, due to the fact that they seem to be more involved in various interactions with public officials [88] and show a poor understanding of these phenomena, or a cynical attachment and low trust towards state institutions [89]. Such a finding is consistent with previous research that equates younger ages with susceptibility to corruption [90].

Table 4 shows other logistic regression results. These emerge from the same primary set of individual predictors to which we have added different country-level economic and political variables that may shape attitudes toward corruption. *Ab initio*, consulting the literature, we chose from a large set of variables the ones we consider the most appropriate to explain such a complex phenomenon. To this end, we have analysed them and found various relationships that we have not

commented on below. Model (1) in Table 4 is a reference model. It is identical to the one in the second column of Table 3.

Table 3. Individual determinants of bribery behaviour as top five core predictors directly resulting from WVS.

Variable / Model	Logit	Scobit	Probit	Country random effects	Wave random effects	Gender random effects
Justif_gov_benefits_not_entitled	0.3481****	0.3605****	0.1763****	0.3467****	0.3473****	0.3481****
	(0.0100)	(0.0130)	(0.0051)	(0.0153)	(0.0185)	(0.0291)
Justifiable_suicide	0.0803****	0.0846****	0.0420****	0.0935****	0.0776****	0.0803****
	(0.0126)	(0.0132)	(0.0063)	(0.0243)	(0.0131)	(0.0080)
Justifiable_prostitution	0.2026****	0.2108****	0.1025****	0.2058****	0.2029****	0.2026****
	(0.0118)	(0.0133)	(0.0058)	(0.0165)	(0.0108)	(0.0001)
Justifiable_man_beats_wife	0.2818****	0.2970****	0.1543****	0.2581****	0.2800****	0.2818****
	(0.0112)	(0.0145)	(0.0058)	(0.0123)	(0.0371)	(0.0192)
Age	-0.0108****	-0.0111****	-0.0054****	-0.0102****	-0.0108***	-0.0108****
	(0.0019)	(0.0019)	(0.0009)	(0.0013)	(0.0036)	(0.0026)
Constant	-5.2945****	-5.1352****	-2.8096****	-5.3618****	-5.2774****	-5.2946****
	(0.1128)	(0.1404)	(0.0541)	(0.1800)	(0.1112)	(0.2970)
N (Number of Observations)	26764	26764	26764	26764	26764	26764
chi^2	3251.78	N/A	3686.0655	2081.5424	N/A	N/A
P	0.0000	N/A	0.0000	0.0000	N/A	N/A
Max. Abs. Val. Correl. Coef. - Pred. Matrices	0.4907	0.4907	0.4907	N/A	N/A	N/A
Max VIF (Variance Inflation Factor)	2.99	N/A	2.99	N/A	N/A	N/A
R^2 (Coefficient of Determination)	0.3890	N/A	0.389	N/A	N/A	N/A
AUROC (Area Under the Curve of Receiver Operating Characteristic)	0.8995	N/A	0.8993	N/A	N/A	N/A
AIC (Akaike Information Criterion)	8572.347	8571.5082	8572.6566	8479.0208	8559.8021	8564.3005
BIC (Bayesian Information Criterion)	8621.516	8628.8719	8621.825	8536.3845	8584.3865	8580.6899
chi^2GOF (Goodness of Fit)	11618.42	N/A	11350.00	N/A	N/A	N/A
pGOF	0.3563	N/A	0.9200	N/A	N/A	N/A

Source: Own calculations in Stata 16.0 MP 64-bit. Notes: Standard errors in parentheses, *** and **** indicate significance at 1% and 1‰. Coefficients above parentheses are raw coefficients from regressions.

Table 4. Top five core predictors together with some political and economic influences of corruption in Western countries.

Variable / Model	1	2	3	4	5	6	7
Justif_gov_benefits_not_entitled	0.3481****	0.3492****	0.3432****	0.3412****	0.3385****	0.3463****	0.3423****
	(0.0100)	(0.0100)	(0.0101)	(0.0102)	(0.0101)	(0.0101)	(0.0101)
Justifiable_suicide	0.0803****	0.0824****	0.0798****	0.0830****	0.0902****	0.0862****	0.0878****
	(0.0126)	(0.0127)	(0.0127)	(0.0127)	(0.0130)	(0.0127)	(0.0127)
Justifiable_prostitution	0.2026****	0.1971****	0.1984****	0.2019****	0.2088****	0.2043****	0.2004****
	(0.0118)	(0.0120)	(0.0119)	(0.0119)	(0.0119)	(0.0119)	(0.0119)
Justifiable_man_beats_wife	0.2818****	0.2779****	0.2774****	0.2775****	0.2608****	0.2790****	0.2755****
	(0.0112)	(0.0113)	(0.0113)	(0.0113)	(0.0118)	(0.0112)	(0.0112)
Age	-0.0108****	-0.0113****	-0.0108****	-0.0110****	-0.0110****	-0.0104****	-0.0106****
	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)
Left_wing_government		0.6934****					
		(0.1364)					
Right_wing_government			-0.8632****				
			(0.1396)				
Polity2 (Autocracy-democracy index)				-0.0371****			
				(0.0095)			
GDP_per_capita_PPP (Gross Domestic Product per capita at Purchasing Power Parity)					-0.0413****		
					(0.0056)		
Inflation						0.0019****	
						(0.0003)	
Index_economic_freedom							-0.0292****
							(0.0042)
Constant	-5.2945****	-5.6201****	-5.0185****	-5.3266****	-4.5957****	-5.4862****	-3.6275****
	(0.1128)	(0.1316)	(0.1204)	(0.1131)	(0.1457)	(0.1179)	(0.2586)

N (No. of Observations)	26764	26764	26764	26.764	26764	26764	26764
chi^2	3251.78	3232.81	3283.22	3287.5	3269.71	3307.79	3314.30
P	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max. Abs. Val. Correl. Coef. - Pred. Matrices	0.4907	0.4906	0.4907	0.4907	0.4907	0.4907	0.4907
Max VIF (Variance Inflation Factor)	2.99	4.61	3.07	2.99	5.35	3.00	9.79
R^2 (Coefficient of Determination)	0.3890	0.3908	0.3919	0.3903	0.3934	0.3914	0.3926
AUROC (Area Under the Curve of Receiver Operating Characteristic)	0.8995	0.9010	0.9016	0.9006	0.9014	0.9007	0.9013
AIC (Akaike Information Criterion)	8572.347	8548.293	8533.665	8555.207	8512.233	8540.414	8523.944
BIC (Bayesian Information Criterion)	8621.516	8605.657	8591.029	8612.571	8569.597	8597.777	8581.308
chi^2GOF (Goodness of Fit)	11618.42	16758.95	16812.13	16852.38	17158.97	17073.44	17209.80
pGOF	0.3563	0.8207	0.8668	0.2724	0.5202	0.6960	0.4115

Source: Own calculations in Stata 16.0 MP 64-bit. Notes: Standard errors in parentheses, *** and **** indicate significance at 1% and 1‰. Coefficients above parentheses are raw coefficients from regressions.

All sit on logistic regression with robust standard errors and raw coefficients. Its inclusion in Table 4 is due to the need to support robustness checks and comparisons.

The following regression (2) highlights an important finding: the more years that left-wing ideological orientation of political parties have been in power (relative to the overall period between 1990 and the last wave in which we can find each country), the greater the perception that corruption is justified. Similar results by other researchers appear in various studies in the literature on corruption [61].

Model (3) brings into light the positive role of the duration in the power of right-wing political parties based on right-wing ideology regarding corrupt behaviour. The results show that the longer the duration in power, the lower the tendency to create institutions and an environment conducive to attitudes and behaviours associated with bribery or, more broadly, corruption. This finding confirms a significant part of the literature on such a topic, how right-wing governments are averse to corrupt behaviour [60].

In addition, we include in the analysis the influence of Polity2 in the long term (Model (4)). We find that it is highly significant and negatively related to the dependent variable, suggesting that countries more inclined to consolidate democratic regimes in power (in the last 100 years) have a strong negative impact on the current bribery attitude inflated. We contend that this finding is plausible and is consistent with other previously documented research [91].

Model (5) emphasizes that GDP per capita expressed in PPP is a significant explanatory variable for justifying corrupt attitudes and behaviour. We considered this variable for a simple reason. It is one of the most appropriate proxies for quantifying the level of development. Unexpectedly, its negative influence is equivalent to the following idea: the higher the GDP per capita (PPP) level, the lower the decision to engage in corrupt actions. This finding validates many previous studies [92].

Model (6) highlights that those countries with higher levels of inflation may act as more favourable environments for an appetite for corrupt attitudes and behaviours. This finding is echoed in other studies that previously emphasize a positive relationship between high inflation and corruption [56].

Finally, we bring out the impact of the role of the index of economic freedom (Model (7)) in relation to our dependent variable. It turns out that countries whose index is high are less likely to create auspices for their citizens to act corruptly in different situations. Our results confirm those of various other studies [58, 93, 94].

Table 5 underlines the results of logistic regressions based on the same set of individual predictors. Moreover, it adds different country-level institutional variables that may influence attitudes towards bribery.

Model (1) (Table 5) is the baseline model (Table 3, column 2). Model (2) provides evidence that those communities defined by individuals who believe that the judiciary is free from external interference (*judicial independence*) are less

likely to create environments in which WVS respondents may state that bribery might be acceptable. This result is similar to other research emphasizing the positive role of judicial independence in combating corruption [77].

Model (3) demonstrates that countries with higher e-citizenship scores can shape the environment in a way that does not foster corruption at the individual level, a result that is consistent with several previous findings [75]. From this perspective, we agree that greater access to online resources means greater citizen empowerment and, while not a panacea, can be an effective strategy to combat and deter corruption or rent-seeking behaviour. We also agree with the rational argument that vigilant and well-informed citizens are much harder to manipulate. They can reveal corrupt behaviour observed in the public space and thus be proactive in fighting corruption. When we include the variable related to press freedom (model 4) in the regression, as previously reported by other researchers [70], the results highlight its strong role in measuring and combating bribe acceptance.

The following six models in Table 5 aim to test the influence of governance indicators on the dynamics of the current perceived level of corruption (augmentation or decrease). Model (5) emphasizes that voice and accountability curb the level of corruption, as previously demonstrated by other studies [68]. The next (model 6) indicates the positive influence of high and forceful government effectiveness within a society and the perceived level of corruption. This result is highly consistent with previous research in the literature [67].

Model (7) focuses another variable, namely political stability and the absence of violence in society. The corresponding results confirm that increased political stability in a societal environment plays a significant role in creating fighting attitudes and combating corrupt behaviour. This finding validates other research on this specific type of institutional and governance relationship [70].

Model (8) emphasizes that better regulatory quality usually diminishes any behaviour associated with bribe-taking. Other researchers also confirm this finding [71].

The last two regressions (models (9) and (10)) associate a clear and vigorous rule of law, along with better and more active control of corruption, with a much lower propensity to accept or pay bribes. These findings are consistent with various research investigating such topics [73].

Table 6 supports the results of logistic regressions based on the same set of individual predictors and various historical, cultural, religious, and geographical variables that may affect current attitudes toward corruption.

Model (1) in Table 6 is the same baseline model, i.e. identical to the one in the second column of Table 3. Interestingly, model (2) suggests that ethnic heterogeneity (or an increased level of ethnic fractionalization) may act as an incentive for current corrupt behaviour. This evidence is consistent with several previous studies [41, 42].

Table 5. Top five core predictors, together with some institutional influences of corruption in Central and Eastern Europe.

Variable / Model	1	2	3	4	5	6	7	8	9	10
Justif_gov_benefits_not_entitled	0.3481****	0.3529****	0.3493****	0.3480****	0.3375****	0.3375****	0.3382****	0.3372****	0.3355****	0.3363****
	(0.0100)	(0.0118)	(0.0118)	(0.0118)	(0.0102)	(0.0101)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
Justifiable_suicide	0.0803****	0.1007****	0.1093****	0.1080****	0.0904****	0.0915****	0.0840****	0.0902****	0.0897****	0.0883****
	(0.0126)	(0.0149)	(0.0151)	(0.0149)	(0.0128)	(0.0129)	(0.0127)	(0.0129)	(0.0129)	(0.0128)
Justifiable_prostitution	0.2026****	0.1839****	0.1953****	0.1905****	0.2039****	0.2057****	0.2058****	0.2020****	0.2049****	0.2062****
	(0.0118)	(0.0144)	(0.0145)	(0.0143)	(0.0119)	(0.0119)	(0.0118)	(0.0119)	(0.0119)	(0.0118)
Justifiable_man_beats_wife	0.2818****	0.2758****	0.2775****	0.2823****	0.2704****	0.2658****	0.2708****	0.2657****	0.2648****	0.2676****
	(0.0112)	(0.0134)	(0.0133)	(0.0132)	(0.0113)	(0.0115)	(0.0114)	(0.0115)	(0.0115)	(0.0115)
Age	-0.0108****	-0.0110****	-0.0106****	-0.0108****	-0.0103****	-0.0107****	-0.0105****	-0.0105****	-0.0105****	-0.0106****
	(0.0019)	(0.0022)	(0.0022)	(0.0022)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)
Judicial_independence		-0.2362****								
		(0.0313)								
E_citizenship			-0.2452****							
			(0.0308)							
Freedom_press				-0.0888****						
				(0.0132)						
Voice_accountability					-0.2644****					
					(0.0369)					
Government_effectiveness						-0.3636****				
						(0.0503)				
Political_stability							-0.2370****			
							(0.0442)			
Regulatory_quality								-0.3336****		
								(0.0428)		
Rule_law									-0.3077****	
									(0.0416)	
Control_corruption										-0.3005****
										(0.0424)
Constant	-5.2945****	-4.2657****	-4.0836****	-4.9964****	-5.2705****	-5.2668****	-5.2750****	-5.2218****	-5.2999****	-5.3294****
	(0.1128)	(0.1986)	(0.2113)	(0.1483)	(0.1128)	(0.1126)	(0.1127)	(0.1130)	(0.1128)	(0.1128)

N (No. of Observations)	26764	19646	19646	19646	26764	26764	26764	26764	26764	26764
chi^2	3251.78	2580.86	2630.12	2612.76	3301.59	3297.14	3273.7	3276.13	3291.64	3307.38
p	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max. Abs. Val. Correl. Coef. - Pred. Matrices	0.4907	0.5262	0.5262	0.5262	0.4907	0.4907	0.4907	0.4907	0.4907	0.4907
Max VIF (Variance Inflation Factor)	2.99	7.03	9.13	4.20	3.02	3.04	3.01	3.02	3.02	3.02
R^2 (Coefficient of Determination)	0.3890	0.4353	0.4356	0.4339	0.3926	0.3933	0.3910	0.3934	0.3932	0.3928
AUROC (Area Under the Curve of Receiver	0.8995	0.9169	0.9170	0.9163	0.9008	0.9010	0.8999	0.9010	0.9009	0.9010
AIC (Akaike Information Criterion)	8572.347	6105.683	6102.543	6120.942	8523.156	8514.34	8546.035	8511.86	8515.635	8520.961
BIC (Bayesian Information Criterion)	8621.516	6160.883	6157.743	6176.142	8580.52	8571.704	8603.398	8569.224	8572.998	8578.325
chi^2GOF (Goodness of Fit)	11618.42	11470.11	11549.61	11709.94	17397.43	17459.06	17400.13	17406.45	17233.87	17223.24
pGOF	0.3563	1.0000	1.0000	1.0000	0.1092	0.0594	0.1065	0.1004	0.1180	0.1297

Source: Own calculations in Stata 16.0 MP 64-bit. Notes: Standard errors in parentheses, **** indicates significance at 1‰. Coefficients above parentheses are raw coefficients from regressions.

Table 6. Top five core predictors, together with some cultural and religious, geographical, and historical influences of corruption in Central and Eastern Europe.

Variable / Model	1	2	3	4	5	6	7	8
Justif_gov_benefits_not_entitled	0.3481****	0.3437****	0.3418****	0.3416****	0.3467****	0.3504****	0.3526****	0.3415****
	(0.0100)	(0.0102)	(0.0101)	(0.0102)	(0.0100)	(0.0102)	(0.0102)	(0.0103)
Justifiable_suicide	0.0803****	0.0807****	0.0778****	0.0800****	0.0780****	0.0874****	0.0867****	0.0819****
	(0.0126)	(0.0127)	(0.0126)	(0.0126)	(0.0127)	(0.0130)	(0.0128)	(0.0126)
Justifiable_prostitution	0.2026****	0.2031****	0.2041****	0.2054****	0.2004****	0.2037****	0.1995****	0.2031****
	(0.0118)	(0.0119)	(0.0119)	(0.0118)	(0.0119)	(0.0122)	(0.0121)	(0.0118)
Justifiable_man_beats_wife	0.2818****	0.2733****	0.2763****	0.2775****	0.2717****	0.2690****	0.2775****	0.2800****
	(0.0112)	(0.0116)	(0.0112)	(0.0112)	(0.0117)	(0.0119)	(0.0115)	(0.0112)
Age	-0.0108****	-0.0111****	-0.0105****	-0.0106****	-0.0112****	-0.0114****	-0.0110****	-0.0107****
	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)	(0.0019)
Ethnic_fractionalization		0.6374***						
		(0.2010)						
Congreg_per_1000_inhab			-0.2512****					
			(0.0595)					
Congreg_maj_denom_per_1000_inhab				-0.2455***				
				(0.0770)				
Landlocked					0.3608****			
					(0.0888)			
Mixed_imperial_legacy_OW						0.3136****		
						(0.0646)		
Mixed_imperial_legacy_RW							-0.2216***	
							(0.0794)	
SOCi (Nr. of years under socialist rule)								0.4861****
								(0.1460)
Constant	-5.2945****	-5.4457****	-5.0726****	-5.1660****	-5.2749****	-5.4051****	-5.2832****	-5.5250****
	(0.1128)	(0.1218)	(0.1244)	(0.1199)	(0.1135)	(0.1177)	(0.1179)	(0.1317)

N (No. of Observations)	26764	26764	26764	26764	26764	25826	25826	26764
chi^2	3251.78	3232.10	3280.71	3287.04	3176.52	3102.72	3121.11	3294.93
p	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max. Abs. Val. Correl. Coef. - Pred. Matrices	0.4907	0.4907	0.4907	0.4907	0.4907	0.4909	0.4909	0.4907
Max VIF (Variance Inflation Factor)	2.99	4.23	3.20	3.06	3.00	2.98	2.98	3.99
R^2 (Coefficient of Determination)	0.3890	0.3897	0.3904	0.3900	0.3902	0.3968	0.3956	0.3898
AUROC (Area Under the Curve of Receiver	0.8995	0.8997	0.9007	0.9004	0.9004	0.9030	0.9026	0.9002
AIC (Akaike Information Criterion)	8572.347	8564.384	8554.197	8560.257	8557.54	8099.671	8115.404	8562.279
BIC (Bayesian Information Criterion)	8621.516	8621.747	8611.560	8617.62	8614.903	8156.785	8172.518	8619.643
chi^2GOF (Goodness of Fit)	11618.42	17082.71	17010.20	17076.97	12331.68	12689.76	12426.85	16789.11
pGOF	0.3563	0.6783	0.8040	0.6893	0.5321	0.5290	0.6905	0.2780

Source: Own calculations in Stata 16.0 MP 64-bit. Notes: Standard errors in parentheses, *** and **** indicate significance at 1% and 1‰. Coefficients above parentheses are raw coefficients from regressions.

Models (3) and (4) confirm two indicators that damage current attitudes towards corruption. These are the number of congregations per 1000 inhabitants and the corresponding number of major denomination parishes per 1000 inhabitants. The higher the spatial density of churches and parishes, both as a whole and only those belonging to the major religion, the lower the behaviour associated with bribery. This finding is in line with previous research [44].

Furthermore, we tested geography to see if it matters for the influences of corruption. We found (model (5)) that being a landlocked country has a strong positive influence on generating more corrupt behaviour, a finding that is compatible with another research [https://mpra.ub.uni-muenchen.de/54721].

Models (6)-(8) show the influences of different long- and short-run historical variables. Although the results are significant, they should be considered with caution since their influence may indirectly influence the phenomenon of corruption through action on current economic development [28].

In model (6), we found a robust positive influence exerted by the variable related to the length of time a country spent under mixed imperial influence (conquest and control of the Ottoman and Western Empires, e.g. Romania, Bosnia and Herzegovina, Croatia, Serbia) towards current corruption. The longer this domination goes on, the more justified is the current perception of corruption. This explication aligns with other studies that postulate the positive relationship between former predatory institutions and corruption [28].

Model (7) presents a provocative finding. The longer the period of mixed rule and domination of the Russian Empire and Western Empires (e.g. Poland, Estonia), the less favourable the current attitude towards corruption. This result confirms many other studies on the positive role of historical Western affiliation (e.g. the Habsburg Empire) in reducing the current level of corruption when interacting with courts and police [18].

In model (8), we found that a long exposure period to socialism in Central and Eastern Europe predicts and confirms, as expected, a current friendly and justifiable attitude towards bribery. This finding validates previous studies [35]. This means that current attitudes towards bribe acceptance in former communist countries in Central and Eastern Europe seem to be negatively affected by the legacies of the former socialist regime. Moreover, it appears that prolonged exposure to it over time created a situation in which 'nomenklatura' has intervened much more in the newly established capitalist environment through its networks of connections and power, thus generating increased levels of corruption [33].

In terms of marginal effects, for a proper comparison between each historical variable, we found that the traces left by the socialist regime (*SOCi*) are more than 1.5 times stronger than the mixed influence of long-gone Ottoman and certain Western Empires (*Mixed_imperial_legacy_OW*) and 2.2 times stronger than the mixed Russian and Western Empires (*Mixed_imperial_ legacy_RW*). Overall, as expected, the former socialist domination left a strong imprint in terms of bribery justification (almost six times higher) than the impact generated by different former long-term imperial legacies (*Long_imperial_ legacy*). This is not

an unexpected result, as specific literature documents that, as time passes, historically established rules or institutions show a natural tendency to decay. Moreover, it is a fact that socialism has done more damage in terms of mentalities than the former empires [28]. The same author concluded that, regardless of their relative magnitude, parameter estimates suggest that history can be a difficult hurdle to overcome in order to bring about the institutional changes needed at certain times [28].

Economic development creates new incentives and opportunities to strengthen and reinforce the rule of law and eliminate corruption, as emphasized by the fact that richer countries are less corrupt. However, all other things being equal, countries with a worse historical legacy tend to remain relatively more corrupt even when they develop economically. This disadvantage will disappear if historically inherited routines degrade and eventually disappear, allowing other influences to manifest themselves naturally.

5. What anti-corruption policies could be effective?

As we have introduced in previous sections, it is already a truism to say that corruption is widespread in all countries. Certain packages of regulations, rules, norms and laws are necessary in the fight against this pervasive phenomenon.

In light of the results presented in Table 4, where Polity2 is significant and negatively connected to this negative phenomenon, we believe that a comprehensive strategy to strengthen (where necessary) and further implement and enforce democratic reforms and institutions is mandatory. Especially in the political arena, national policymakers should prevent democratic slippages by parties in power, including changes to laws and constitutions that may legitimize the emergence and consolidation of autocratic, anocratic, or other political regimes hostile to the idea of democracy and the rule of law.

The results in Table 5 indicate the importance of democratic improvements at the societal level. It is therefore, essential to preserve and, where this element is completely neglected - to enforce the independence of the national judiciary from various types of interference from state actors to private firms with the act of justice. This strong condition is needed to ensure the integrity and independence of those who must condition a transparent and fair justice, free from corrupt practices and acts. Moreover, as the results have emphasized, the importance of a free press in combating or reducing corruption is essential in modern society.

Public authorities should strengthen the active role of the free and independent press (watchdog role in modern society), as it has the primary initiative in exposing and criticizing corruption and illegalities. It also has a role in ensuring that government officials are held accountable for their decisions and actions. A free press guarantees that an omniscient leader or political power does not manipulate or control information and news to stay in power indefinitely and is not a front for endemic corrupt activities that further weaken democracy and the rule of law. In the same vein, more generally, public institutions should regulate

non-discriminatory and free access for citizens to participate in political elections, together with the ability to create incentives to promote freedom of expression or association for them. As the statistical results underline, state authorities must enforce and protect the ability and freedom of citizens to actively and successfully fight corruption.

National authorities need to stimulate digital citizenship at institutional level strongly. As explained above, improving digital technologies and infrastructure could move citizenship practices from the formal to the informal institutional environment, thus making them more transparent, easier to carry out (albeit through lower transaction costs) and, most importantly, more democratic. This empowerment helps citizens to detect, address and control corruption.

Public authorities need to promote a high level of government effectiveness and transparency to reduce corruption at regional and national levels. This information should be provided to the public to examine the credibility of governments and public institutions and their commitment to the previously promised policies. Moreover, they must vividly convey to citizens that their anti-corruption campaigns and agencies are aggressive, effective, and decisive at all costs. Therefore, providing public education and campaigns on the risks of tolerating corruption could be successful. Similarly, this goal of deterring corruption could only be achieved in healthy, stable and peaceful social environments.

Governments should promote sound, market-friendly policies and regulations, reform old ones, to create predictable platforms for such incentives to be active. The need to overcome the difficulties of inconsistent, unclear, and divergent ones is mandatory. For instance, in this direction, authorities should provide easily accessible public information and level of implementation.

As shown in Table 4, where a high GDP per capita and a high index of economic freedom together with a low level of inflation are significant and negatively related to this pervasive phenomenon. We believe that the state should promote a lower level of interference in the decisions of private firms (e.g. less regulation, lower taxation, etc.). Governments should also strive to avoid distortions and depreciation of price mechanisms, through monetary and fiscal policies that can still have a negative impact on the level of inflation. This combination puts great pressure on the level of corruption, as inflation is linked to uncertainty, and uncertainty generates fear, lack of predictability, and anxiety which, in addition, can generate incentives to behave corruptly.

The cultural and religious determinants of corruption identified could help in the creation of anti-corruption policies. For example, current tools and instruments are effective in regions with high ethnic homogeneity or high congregational spatial density (e.g. churches), but new insights are needed to reconsider the mix of anti-corruption mechanisms, especially in communities with high ethnic heterogeneity and low density of places to worship. Policy makers should pay more attention to anti-corruption policies in those historical regions that the former Ottoman Empire once ruled. Finally, landlocked countries and

those that have experienced socialist rule for decades in the past should be careful in tackling corruption.

6. Conclusions

This paper explores the link between cultural, religious, economical, historical, political, institutional, geographical, and individual factors and the acceptance of bribery, a relevant proxy for corruption, among people in Central and Eastern European countries. We argue that this phenomenon indicates the joint relevance of a set of explanatory variables under specific conditions and influences.

The determinants of bribe-taking come from different directions in the case of Central and Eastern Europe. First, we find something related to higher GDP per capita PPP, a higher value for the index of economic freedom, and lower inflation levels. All these seem to mitigate the perception of this phenomenon. Second, the longer the duration of left-wing governments in power after the fall of communism, the more it affects the fight against corruption. It also seems that the right-wing political parties in power give a strong impetus to the fight against this pervasive phenomenon. Thirdly, the democratic regimes consolidated in power (over the last 100 years) are now significant barriers to corruption. Fourth, the results strongly confirm that institutional and governance quality matters in the fight against this scourge in a sense that sound, solid and transparent institutions help to mitigate corruption-related activities and behaviours. Actually, the variables corresponding to this category generated models with the highest accuracy of classification (largest AUC-ROC values of more than 0.915), added information and fit (lowest AIC and BIC values of less than 6200).

In addition, our results clearly highlight that history, geography and culture matter for current levels of corruption in Central and Eastern Europe. The variables related to these three dimensions above are highly significant. First, landlocked European countries are more prone to corruption than those without access to the sea. Second, nations with high ethnic homogeneity and high spatial density of churches belonging to both the mainline denomination and other officially recognized religious cults are less prone to corruption. Third, and most importantly, according to our findings, the longer the mixed influence of the former Tsarist and certain Western empires, the lower the incidence of actual corruption. Then, both the long-gone Ottoman-Western mixed regimes and the more recent socialist regimes exert a strong role in augmenting the current level of corruption. It is interesting to note that the explanatory power of long-term historical influences on bribery behaviour is less than short-term ones, indicating dilution over time despite its persistent significance.

To fully understand and measure the role of historical legacies in predicting current levels of corruption, we analyse whether or not there are salient influences, taking into account the actual levels of GDP per capita in PPP. Thus, we found that landlockedness and some historical influences fade, in some cases to the point

of complete lack of significance, thus having less power to explain the phenomenon. In this sense, the results indicate that both the long-gone Ottoman-Western mixed regime and the socialist one is losing significance. This did not happen when taken one by one and without any reference to the current level of development. What is striking is that the long-gone Russian-Western influences continue to be highly significant in predicting behaviours associated with accepting bribes and are greater than those taken alone.

Moreover, current levels of economic development potentiate its influence. This result confirms that history matters in understanding corruption. And this is especially true for certain kinds of imperial determinants, even when actual economic development is increasing, indicating that policymakers should understand that anti-corruption mechanisms do not just go down when the economic development button is pushed. In addition, other imperial legacies do not persist over time due to rapid economic and institutional change.

The above findings provide a number of theoretical and policy implications. When controlling for economic variables, some historical (either long- or short-term) and geographic factors lose their statistical significance, indicating that corruption is related, to some extent, to economic underdevelopment. Therefore, anti-corruption policies should focus more on creating the seeds for accelerating the level of economic development. It also seems that some of these deep historical, cultural, religious, and geographical influences in the growth of corruption should not be seen as an unending curse. In some cases, these informal institutions can be reformed and transformed using improvements in economic, legal, and political status quo. Regardless of whether these informal legacies still play an important role in corruption, it must be stated that what needs to be done now and, in the future, must concern politicians.

Further research needs to understand and elucidate the role of religion, culture, or geography. Moreover, it is meaningful to understand the long- and short-term historical determinants of corruption in other countries. In addition, let's figure out how the transmission mechanism of these dimensions works in depth.

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