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Public Procurement Practices, Corruption Perception, and Service Delivery in the EU: An Empirical Analysis of Financial Accountability and Predictive Roles

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Abstract

The study examined the predictive role of public procurement practices, corruption perception, and service delivery in the EU. A descriptive research design was utilised to collect cross-country data for 27 EU member states. Both descriptive and inferential statistics were deployed using SPSS (version 23.0). The findings indicated that the mean scores for public procurement practices (PPP = 60.26), corruption perception (CPI = 43.00), and service delivery (RQI = 58.14) were significantly higher than the global averages. Statistical tests confirmed these differences: PPP, $t(26) = 5.74$, $p < .001$; CPI, $t(26) = 6.98$, $p < .001$; and service delivery, $t(26) = 4.97$, $p < .001$. Further, regression analysis revealed that changes in PPP and CPI combined could explain 75% ($R^2 = .75$) of the variation in service delivery. The study supported the Counterfactual Theory of Causation, as articulated in the CPC service delivery model, which establishes a direct link between corruption perception and service delivery. The study argued that persistent corruption will continue to fuel fraudulent procurement practices, ultimately compromising service delivery. This pattern is observed in some EU member states, including Bulgaria, Croatia, and Romania, due to many predictors such as weak AOI and FAM.

Keywords: Audit Oversight, Financial Accountability, Public Procurement Practices, Corruption Perception, Service Delivery

Introduction

Public procurement (PP) is a fundamental aspect of government operations, serving as a primary mechanism for delivering goods and services to citizens. It plays a crucial role in ensuring economic stability and sustainable growth. Public procurement has a significant impact on both national and international economies. According to the Open Contracting Partnership (2020), public procurement expenditures total approximately US$13 trillion annually, with over $10 trillion spent by just 16 major economies, including several EU member states like France, Italy, the Netherlands, and Spain. Public procurement of goods and services in the European Union (EU) was valued at approximately €2 trillion in 2017, or 13.3% of the region's GDP (European Commission, 2017). Managing such vast financial resources while minimising inefficiencies, mismanagement, and corruption presents a significant governance challenge. As a supranational political and economic union, the EU has developed a unified legal and policy framework for public procurement to address these concerns. Through Directive 2014/24/EU, the Treaty on the Functioning of the European Union (TFEU) mandates that public contract awards adhere to key EU principles, such as the free movement of goods, the freedom to provide services, non-discrimination, equal treatment, mutual recognition, transparency, and proportionality.

A fundamental feature of the EU's procurement framework is its emphasis on financial accountability mechanisms, particularly through modern public procurement rules implemented in the 21st century. Public procurement is recognised as an essential market-based tool for promoting sustainable, inclusive, and smart growth as part of the Europe 2020 Strategy. It also ensures value for money (VFM) when public funds are used efficiently (European Commission, 2010). However, despite these regulations, Directive 2014/24/EU grants member states discretion over certain procurement decisions, particularly in cases involving sensitive goods and services, national security, and defence contracts. This flexibility, while allowing for strategic autonomy, also creates opportunities for fraudulent procurement practices, undermining transparency and accountability in service delivery. In addition, many EU member states have their own independent procurement platforms in addition to the EU tendering system, which makes it harder to monitor and enforce regulations. According to the European Commission's Migration and Home Affairs 2022 report, corruption remains a persistent problem impacting the effectiveness and efficiency of public service delivery in several EU member states.

Considering these challenges, this study examined the dimensions and impact of public procurement practices, corruption perception, and service delivery in the EU. To improve public sector service delivery's

transparency, accountability, and efficiency, it is essential to comprehend these relationships to identify policy gaps and strengthen procurement mechanisms. The EU has demonstrated a robust audit oversight and regulatory framework, but some member states appear to have ingrained practices (Mineva et al., 2022; Persson et al., 2024). This study examined how audit oversight institutions, financial accountability mechanisms, and accounting professionals are positioned to protect or facilitate the procurement practices. These premises also question whether the design and execution of accountability mechanisms are adequate to prevent fraud and ensure quality service delivery.

A growing consensus showed that addressing corruption in EU public procurement will need more than legal compliance, which means a working accountability system needs to be activated at all levels of activities related to accounting professionals, audit bodies, and functional financial controls. The study reiterates the need to examine these components not in isolation but as interdependent frameworks within broader public governance. Hence, the study seeks to ask the following research questions:

RQ1: How can public procurement practices, corruption perception, and service delivery be assessed in the European Union?
RQ2: What is the relationship between public procurement practices and service delivery in the study area?
RQ3: What is the relationship between corruption perception and service delivery in the study area?
RQ4: What is the predictive role of public procurement practices and corruption perception in service delivery in the study area?
RQ5: To what extent are accounting professionals and audit oversight institutions complicit in sustaining corruption in procurement and undermining service delivery in the EU, despite formal financial accountability mechanisms?

However, the broad objective of the study is to analyse the predictive role of public procurement practices and corruption perception in service delivery. The specific objectives are to assess public procurement practices, corruption perception, and service delivery in the EU; analyse the relationship between public procurement practices and service delivery in the study area; analyse the relationship between corruption perception and service delivery in the study area; and analyse the predictive role of public procurement practices and corruption perception in service delivery in the

study area. This study also aimed to expand the horizon of public policy and ethics by operationalising accounting terminologies. To this extent, this adds to the broad objectives which include an examination of the roles, limitations, and ethical dilemmas that are inherent in the activities of the Accounting Professionals (AP), Audit Oversight Institutions (AOI), and Financial Accountability Mechanisms (FAM) which may likely influence procurement, corruption perception and service delivery in the study area (EU).

Synopsis of the EU Public Procurement Directives – Review of Literature

The origins of the EU public procurement directives date back to the 1970s. However, early directives were largely overlooked (Bovis, 2012). It was not until the mid-1980s that significant regulatory efforts began, culminating in the EU Directive 2004/18/EC, which mandated that all suppliers must tender through invitation (De Mars, 2011; Martinić & Kozina, 2016). This directive was later replaced by the EU 2014 Directives (Domínguez Olivera, 2015). Public procurement has remained a key political and economic issue in Europe, leading to multiple regulatory reforms. Major revisions occurred in 2004 and 2014, but a particularly notable reform was the 2009 directive, which introduced provisions for defence procurement; the first supranational legislation. Article 346 of the Treaty on the Functioning of the European Union (TFEU) is central to defence procurement, allowing member states to withhold sensitive information involving defence under common treaties (Blanke et al., 2013). This provision shields European security industries from competition by implementing various protectionist measures.

Additionally, the directives mandate that all tenders exceeding certain thresholds must be advertised in the Official Journal of the European Community and the TED database. These regulations governed public procurement practices. Specifically, contracts exceeding EU thresholds must be advertised EU-wide on Tenders Electronic Daily (TED) to foster market integration and ensure better value procurement. The 2014 Directives emphasised key principles such as equal treatment, impartiality, and transparency. E-procurement, strategic procurement, improved access for SMEs and cross-border trade, transparency, the professionalisation of procurement, and the European Single Procurement Document (ESPD) were among the simplified and more adaptable procedures included in the reform. The EU 2014 Directives introduced significant regulatory elements to enhance transparency, competition, and efficiency in public procurement, which was the focus of the Unit Public Finance Scrutiny (2016). Including small and medium-sized businesses (SMEs) as one of the major provisions

ensured they had better access to public contracts. The directive also strengthened the selection criteria for suppliers, making it clear that suppliers with a history of poor performance on previous contracts could not be included.

In addition, e-procurement was emphasised, which mandates that all pertinent documents be kept and made accessible to guarantee accountability. The directive required that sustainable development be given priority in public contracts, so sustainability played a crucial role in contract awards. Contracts could also be specifically reserved for public service entities. Agreements on procurement frameworks are also permitted by contracting authorities to engage pre-selected suppliers while maintaining transparency in procurement procedures. Contracts covered by the directive are required to be advertised in the Official Journal of the European Union (OJEU) to increase transparency. The directive outlined five procurement procedures that could be applied in different circumstances, ensuring fair competition. These comprised the:

I. open procedure, allowing all interested parties to respond to a notice published in the OJEU;
II. restricted procedure, where only those who responded to the notice were invited to tender;
III. competitive dialogue procedure, enabling contracting authorities to engage with potential bidders to develop tailored solutions before inviting formal bids;
IV. competitive procedure with negotiation, allowing authorities to seek improved offers from selected tenders after an initial selection process; and
V. innovation Partnership Procedure, encouraged bidders to propose innovative solutions for needs that existing products or services could not meet.

To avoid unfairly excluding any potential bidder, requirements for goods and services needed to be clearly defined at the specification stage. During the selection stage, suppliers with past convictions or a record of poor service could be disqualified. A financial assessment ensured that only bidders with strong financial standing could qualify, while a technical assessment verified that suppliers had the necessary equipment and capacity to execute contracts. The Most Economically Advantageous Tender (MEAT) method was used to award contracts, considering cost, quality, social, and environmental factors. Additionally, the directive mandated authorities to investigate any bids that appeared suspiciously low to prevent

violations of social or environmental standards. The directive also included provisions to flag unusually low tenders.

In addition, a mandatory standstill period was implemented to allow unsuccessful bidders time to evaluate their choices before contract signing. Contracts could be terminated without favouritism when suppliers broke procurement laws, and affected parties had the right to sue for compensation. The goal of these comprehensive measures was to establish a public procurement system that was more open, fair, and competitive across the EU's member states, bolster integrity, and guarantee value for money (VFM) in public spending. The legislative framework for e-procurement in the EU is well-developed and designed to minimise human error, favouritism, and corruption. The EU has continuously refined its regulatory framework while encouraging member states to align with international best practices, recognising the significance of strengthening public procurement laws. Consequently, most, if not all, EU members are working together to meet these requirements. In the public sector, public procurement procedures play a strategic role in ensuring value for money.

Numerous scholars have explored the relationship between procurement practices and service delivery, yielding diverse findings. For instance, Moses and Kalu (2018) examined the impact of procurement practices on public service delivery and found a positive correlation, concluding that public-private partnerships significantly enhance service delivery. Similarly, Anane (2019) reported a strong and significant positive relationship between public procurement practices and service delivery outcomes.

In developing economies, where it accounts for a significant portion of government spending, public procurement is increasingly being recognised as a fundamental means of providing essential services. Davis (2014) and Mdemu (2013) contend that poor service delivery is caused by inadequate procurement procedures. However, contrasting perspectives exist. For example, Manyathi (2019) conducted an extensive literature review and suggested that defective procurement practices negatively impact service delivery, implying an inverse relationship. In contrast, Marius (2017) demonstrated the complexity of the relationship between public procurement practices and service delivery by finding only a weak correlation. Serving as a major barrier to service delivery, corruption persists. Iñaki and Marie (2017) described its effects as catastrophic, leading to deteriorating infrastructure, substandard medical supplies, and other deficiencies in public services. When corruption is left unchecked, it deprives citizens of essential services and weakens the state's ability to fulfil its obligations. Kayode et al. (2013) emphasised that public sector corruption significantly impedes effective service delivery.

Empirical evidence further supports this claim; for instance, Mbate (2018) found that corruption lowers the quality of service delivery, while Naher et al. (2020) argued that corruption is particularly detrimental to the procurement of goods and services. Although corruption is a global challenge, its severity varies across countries (Skenjana, 2019). It poses a serious threat to economic growth and governance by eroding transparency and stability, ultimately damaging democratic institutions (Skenjana, 2019; Dikmen & Çiçek, 2023). Furthermore, corruption perception has been shown to influence public procurement practices in the public sector (Moldogaziev & Liu, 2021).

The majority of studies focus on performance analysis, although there is a lot of literature on public procurement practices, perceptions of corruption, and service delivery in the EU. However, statistical correlations and regression analysis have not been used to examine the relationship between these variables within a supranational political framework. In addition, only a small number of studies have used extensive theoretical frameworks to back up their findings. This study aims to fill this gap by comparing public procurement practices, perceptions of corruption, and service delivery across EU member states and comparing them to global standards. The study will also introduce a proposed Corruption Predictive Causation Model of Service Delivery, integrating the Counterfactual Theory of Causation and David Easton's System Theory of Political Analysis to offer a more holistic perspective.

Financial Accountability Mechanism in the EU's Public Procurement Practices

Audit oversight institutions such as the European Court of Auditors (ECA) and National Audit Institutions are pivotal to addressing the issue of corruption in public procurement. However, there is a significant gap between the detection of corruption and the enforcement of rules and regulations (Omelchuk et al., 2022). Mineva et al. (2023) pointed out that misallocation, procurement irregularities, and inadequate follow-up at various levels are predictors or causes of such a gap. In practice, rules and regulations governing procurement should be directly proportional to the goods and services procured, which would be corruption-free. Moosa (2023) opined that AOI is not fully independent, especially in countries where the rule of law is not fully upheld. Similarly, Bellacosa and De Bellis (2023) noted that the synergistic effect of the EU with other national agencies in some member states is not always consistent; this could affect cross-border corruption investigations. This could reduce the general impact of AOI and allow corruption in procurement to persist.

From the foregoing, AP plays a strategic role in enforcing financial accountability (Modlin, 2024); it ensures that procurement processes are free of irregularities, justified, and documented. However, there is a worrying uncertainty in the function of AP (Paraskeva & Tsoulfas, 2025). While AP is positioned as an ethical regulator (Zhou & McGee, 2024), sometimes it is caught between professional obligations and political pressures (Rhode, 2019). In many EU member states, accountants in the public sector do not have all the training and institutional support needed to fully challenge and counter fraudulent procurement practices (Persson et al., 2024). Yet, protections for whistleblowers remain poor or weakly implemented; this could discourage the reporting of corruption and misconduct (Baljija & Min, 2023). In a politically motivated environment, AP may become complicit unintentionally or otherwise in a toxic environment that involves concealment and manipulation of procurement irregularities (Sargiacomo et al., 2024).

Considering the extent of FAM, EU member states are expected and required to strictly adhere to the Public Financial Management (PFM) systems, including annual financial reporting, internal audit units, and expenditure frameworks. Yet, authorities do not fully comply (Sargiacomo et al., 2024). While many states strictly adhere to the EU financial rules, enforcement of such is selective (Lacny, 2021; Blanchard et al., 2021), especially where political elites take benefits from procurement practices that take place in the secret box (SB), and this is explained later in the final pathway to the proposed corruption predictive causation model of service delivery. Further, discrepancies have been identified in what is obtainable in substantive accountability (actual enforcement and consequences) and what is documented in formal accountability (the existence of rules) (Fazekas & Blum, 2021; Prier et al., 2021). For instance, Bulgaria and Romania have adopted FAM that aligns with the EU accountability systems, yet they scored low on the corruption perception index; they also have high rates of fraud in public procurement practices (Mutascu, 2024). On the other hand, member states like the Netherlands and Sweden have trusted financial institutions with better efficient services that are widely linked to strong FAM (Aydin, 2024).

Theoretical Framework and Hypotheses Development

Theory plays a fundamental role in administrative science, yet little is known about the nature and scope of theoretical frameworks in public procurement (Flynn & Davis, 2014). As the field continued to evolve, exploring theories that explain public procurement practices became increasingly relevant. This study examined the counterfactual theory of causation, incorporating elements of probabilistic causation, but not in its

entirety. The fundamental premise of Counterfactual Theories of Causation (CTC) is that causal relationships can be expressed as counterfactual conditionals, such as statements about what would have happened under different circumstances. This is captured in the form: "If A had not occurred, C would not have occurred" (Rohlfing & Zuber, 2021). David Lewis is widely recognised as the leading proponent of CTC. In 1973, he introduced the theory, grounding it in determinism and the assumption that events follow a structured causal order (Rips, 2010). Lewis formulated the concept of causal dependence (CD), a relationship that, while sufficient to establish causation, is not necessarily required in all cases. This means that:

> CD of an event (E) causally depends on the event (C) just in the circumstance that C and E occur, at times (t1) and (t2) respectively. At time t1, x was the probability of E. If event C had not happened, then at time t1 the probability of E would have been recorded ≤ y. The counterfactual in (iii) is silent in terms of imaginable worlds: it expresses that in the closest imaginable realm(s) where C does not exist, the probability of E ≤ y, so it is not necessary to a single value of that probability; it can take on values that are different nearest imaginable worlds, provided that all those values are ≤ y. On this note, the applicable notion of raising probability is not comprehended in terms of conditional probabilities, only in the idea of unconditional probabilities in imaginable worlds that are different. (Menzies, & Beebee, 2001).

David Lewis defined actual causation as the residual of causal dependence. In other words, event C causes event E if and only if there exists a sequence of events D1, D2, …, Dn, such that D1 causally depends on C, D2 causally depends on D1, and so forth, until E causally depends on Dn. This establishes causation as a transitive process: if C leads to D, and D leads to E, then C leads to E. This modification of causal dependence is useful for predicting certain forms of anticipation. Building on Lewis's framework, Lewis et al. (2001) positioned counterfactual relations at the core of causation. However, counterfactual theories sometimes blur the distinction between causality itself and the logic of counterfactual reasoning. This approach is similar to David Hume's causal relation, which suggests that if the first event had not occurred, then no subsequent event would have taken place (Epstude & Roese, 2008). According to this perspective, event E causally depends on C if and only if:

I. If C had happened, then E would have happened
II. If C had not happened, then E would not have happened

As a result, counterfactual causation is regarded as a causally dependent chain of events. Paul (2010) referred to this sequence as a mechanistic effect, where each event in the chain is dependent on the preceding one. At its core, CTC explains that if one event had not occurred, another would not have followed (Reutlinger, 2018). Since its development in the 1970s, CTC has gained traction, particularly in analysing causal relationships within world semantics and counterfactual reasoning. The application of related theories like the causal modelling framework (Henne et al., 2020) has grown even more. Understanding why some nations fail to meet international standards for public procurement and service delivery is especially helpful with CTC. However, despite its contributions, CTC has faced criticism, even from its proponents, particularly regarding preemption and probability.

This study relies on the CTC to explain the predictive role of public procurement practices and perceptions of corruption in service delivery within the European Union, based on the theoretical premise. According to the study, CTC provides a useful framework for comprehending the reasons why some nations do not meet international standards for public procurement and service delivery. The counterfactual theory has been criticised for its difficulties in dealing with preemption and probability-raising non-causes, despite its widespread acceptance. CTC posits that causal claims can be framed as counterfactual conditionals, such as: "If fraudulent procurement (A) had not occurred, poor service delivery (C) would not have occurred" (Rohlfing & Zuber, 2021). The most well-known proponent of CTC, David Lewis, presented the theory for the first time in 1973, relying on determinism and event-based assumptions (Rips, 2010). He defined causal dependence (CD) as a relation that is sufficient but not necessary for causation (Menzies & Beebee, 2001). This implies that poor service delivery (E) causally depends on fraudulent procurement (C) if and only if:

I. C and E occur at times t1 and t2, respectively
II. At time t1, the probability of E was x
III. If C had not occurred, then at time t1, the probability of E would have been $\leq$ y.

Building on this, Lewis defined actual causation as the residual of causal dependence, meaning that C causes E only if there exists a sequence of events (D1, D2, … Dn) such that D1 causally depends on C, D2 depends

on D1, and E ultimately depends on Dn (Menzies & Beebee, 2001). This establishes the transitivity of causation:

I. If fraudulent procurement leads to poor service delivery (D)
II. And D leads to citizen dissatisfaction and poor government ratings
III. Then, fraudulent procurement ultimately leads to poor government ratings.

This transitive nature of causation is useful in predicting certain policy outcomes. The study further expands on this concept by proposing the Corruption Predictive Causation Model (CPC-Model) of Service Delivery. This model suggests that if public procurement practices are strict and transparent, fraudulent activities will be minimised, resulting in more effective and efficient service delivery. Additionally, the study introduces the concept of the Secret Box, which places purchasing authorities, including governments, at the centre of the causation process. The term "Secret Box" reflects the opacity of procurement dealings, where negotiations and decisions occur behind closed doors among procurement stakeholders, ostensibly on behalf of citizens. However, the outcomes, whether positive or negative, are only revealed to the public after the decisions have been made. Applying counterfactual reasoning, this study underscores the need for greater transparency and accountability in public procurement to improve service delivery and governance outcomes. Thus, at the initial pathway of the model, the study tests the following hypotheses as highlighted in Figure 1 below:

H01: There is no significant relationship between public procurement practices and service delivery
H02: There is no significant relationship between corruption perception and service delivery
H03: Public procurement practices have no significant predictive role in service delivery
H04: Corruption perception has no significant predictive role in service delivery.

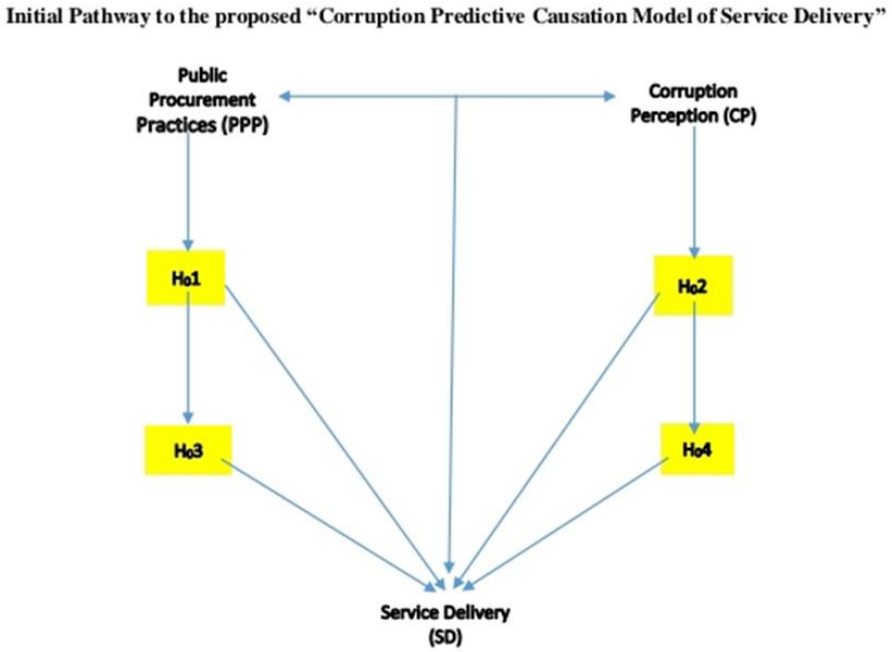

Figure 1: Initial Pathway to the proposed Corruption Predictive Causation Model of Service Delivery

Methodology

This aspect explained the materials and methods to achieve the research objectives stated.

Study Area

The study area includes the member states of the European Union. The EU has 27 member states, including Belgium, France, Germany, Italy, Luxembourg, the Netherlands, Denmark, Ireland, and Greece. Others are Portugal, Spain, Austria, Finland, Sweden, Cyprus, Czechia, Estonia, and Hungary. The rest are Latvia, Lithuania, Malta, Poland, Slovakia, Slovenia, Bulgaria, Romania and Croatia. The United Kingdom exited in 2020.

Research Design

The study employs a descriptive research design, utilising data from a cross-country database. This approach enables a comparative analysis of public procurement practices and service delivery within and outside a specific economic region, such as the European Union (EU). Relying on quantitative indicators, the study ensures objective measurement of

procurement practices and service delivery, facilitating the comparability of results over time and enhancing the relevance of the findings.

Variables and Measurement

The study considered three major variables. Public procurement practices and corruption perception constitute the independent variable (causal), while service delivery constitutes the dependent variable (effect). Public procurement practices (PPP) [independent variable I] are measured with four main indicators, including procurement steps, time taken to complete the steps, e-procurement deployment, and regulatory framework (procurement policy). Independent variable II is Corruption Perception, which is measured using the Corruption Perception Index (CPI). However, the dependent variable is the service delivery. Although the study acknowledged various services provided to the citizenry by the governments, the study chose road construction and maintenance contracts because road construction or maintenance is common in most countries. The Road Quality Index (RQI) is used in measuring road contracts, hence referred to as the SD. These variables and measurements were used by Nogues Comas & Mendes Dos Santos (2021) in their study titled "Measuring Public Procurement Rules and Practices," which was a product of the World Bank Group, Development Economics Global Indicators Group (May 2021).

Further, on the measurement of variables and measurement, PPP is measured from the steps involved in procurement (722.8 global average), Time (17.7 global average), Law or legal framework (9 global average), E-procurement index (3.8 global average); RQI: the average for 2019 based on 141 countries was 4.07 points; and CPI is measured on a scale of 0-100 scale, 0 is "highly corrupt" while 100 is "very clean." To ensure that the data obtained operates on the same base, the data not presented on the scale of 0-100 by the database were transformed to the scale (0-100). The average for PPP from the four indices was calculated using the score of each observation (country) following a simple mathematical operation on an Excel worksheet (s = cp/hp multiplied by 100) where s = the new score on the scale of 0-100 (in other words percentage), cp = the country performance, and hp = highest performance in the 190 economies (countries) presented by the cross country database (detailed in the data source). This operation was similarly performed on RQI to attain a scale of 0-100. Hence, the overall global average for PPP is 60.26, CPI is 43.00, and RQI is 58.14 (see the appendix for the raw performance and Excel calculation output). To address RQ5, the study also utilised secondary data that were analysed following the critical analysis of peer-reviewed literature.

Data Source

The study used cross-country data, collected from the World Bank Group – Doing Business, the World Economic Forum, and Transparency International (TI). Data for public procurement practices is obtained from the World Bank – Doing Business (2020). It includes procurement steps, time to complete steps, e-procurement, and a regulatory framework. Doing Business provides information on business regulations for local firms in 190 economies. Doing Business is a World Bank Group flagship publication on a series of yearly studies that measure the regulations that enhance business activity and those that constrain it. Doing Business presents quantitative indicators on business protection and regulations on property rights that can be compared across 190 economies.

The Corruption Perception Index (CPI) is obtained from Transparency International. The CPI is an indicator with at least three sources used per country to calculate the score. For some countries, the sources provide very similar ratings, while for others, the sources provide a wider range of ratings.

Data on the Road Quality Indicator were obtained from the Global Competitiveness Index published annually by the World Economic Forum (WEF, 2020).

Techniques of Data Analysis

The study deployed both descriptive and inferential statistics. Following the data entry, an Excel worksheet was used to obtain a uniform scale (percentage), and the four indices of procurement practices were merged to form a single score via summations and averages. Data set on an Excel worksheet was exported to the data tray of version 23.0 of the Statistical Package for Social Sciences (SPSS), where a sample t-test was deployed to achieve objectives I, Pearson Correlation to achieve objectives II and III, and Multiple Regression to achieve objectives IV.

Result

This aspect of the study presents the data, analyses, and interpretations.

Measurement/benchmark against the global average

The first objective of this study is to assess PPP, CPI, and SD. To achieve this, one sample t-test is deployed. This holds that the mean of the individual group is compared with the global average. Table 4.1.0 showed that the Mean score of public procurement practices (PPP) (68.66 ± 7.59) was greater than the global average of 60.26. Also, the Mean score of the corruption perception index (CPI) [63.39 ± 15.17] was greater than the

global average of 43.00, and the Mean score of the Road Quality Index (SD) [70.14 ± 12.54] was equally greater than the global average of 58.14. However, $p < .05$ in all three observations ($p = .000$, $p = 0.000$, and $p = 0.000$ for PPP, CPI, and SD, respectively). Therefore, it can be concluded that the means of the population are statistically and significantly higher than the global averages (PPP = 60.26; CPI = 43.00; and SD = 58.14) tested respectively. Hence, for PPP $t(26) = 5.74$, $p = .000$), CPI $t(26) = 6.98$, $p = .000$), and RQI $t(26) = 4.97$, $p = .000$).

Table 4.0: Adjusted data for PPP, CPI, and SD in the European Union (2010 - 2020)

S/N	Country	PPP	C. P. I.	SD
1	Sweden	71.38	87.73	82.10
2	Spain	63.89	60.18	76.60
3	Slovenia	70.55	60.09	69.62
4	Slovakia	70.48	47.91	59.80
5	Romania	80.94	43.91	42.18
6	Portugal	67.64	62.27	80.05
7	Poland	70.04	58.73	55.47
8	Netherlands	67.87	83.82	86.44
9	Malta	67.37	55.64	58.57
10	Luxembourg	59.80	81.91	82.63
11	Lithuania	80.54	56.67	70.03
12	Latvia	72.91	53.09	57.12
13	Italy	72.32	45.91	61.04
14	Ireland	68.08	73.73	74.32
15	Hungary	79.70	51.91	59.85
16	Greece	53.24	42.64	58.98
17	Germany	70.21	79.82	82.30
18	France	69.69	69.82	83.11
19	Finland	58.37	86.36	86.51
20	Estonia	79.97	69.36	68.24
21	Denmark	52.99	90.18	84.85
22	Czech Rep.	68.65	52.27	62.11
23	Cyprus	72.78	60.45	74.41
24	Croatia	70.01	46.73	69.94
25	Bulgaria	73.18	40.73	47.33
26	Belgium	65.48	75.18	75.56
27	Austria	55.82	74.73	84.73
Global Average		**60.26**	**43.00**	**58.14**

Table 4.1.0: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
PPP	27	68.6630	7.59851	1.46233
CPI	27	63.3989	15.17258	2.91996
SD	27	70.1441	12.54575	2.41443

Author's Computation

Table 4.1.1: One-Sample Test

Test Values = **PPP** 60.26; **CPI** 43; **SD** 58.14						
					95% Confidence Interval of the Difference	
	t	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Lower**	**Upper**
PPP	5.746	26	.000	8.40296	5.3971	11.4088
CPI	6.986	26	.000	20.39889	14.3968	26.4010
SD	4.972	26	.000	12.00407	7.0411	16.9670

Author's Computation

Relationship between PPP/CPI and SD

The second objective of the study is to analyse the relationship between public procurement practices and service delivery, and the relationship between corruption perception and service delivery. To achieve this, two hypotheses were tested. In Table 4.2.1, the interest is focused on the 2-tailed significance value, which in this case is .01 (less than the standard alpha value of .05, which means that the correlation is statistically significant. The study failed to accept the null hypothesis, hence the alternative, which means a significant relationship between public procurement practices and service delivery (PPP and SD), but negatively (r = -0.48). Further, in table 4.2.2 the 2-tailed significance value – which in the case of CPI and SD is .01 (lesser than the standard alpha value of .05, which also means that the correlation is highly significant statistically and positively. The study failed to accept the null hypotheses, hence the alternative, which means a significant relationship between corruption perception and service delivery (r = 0.87).

The PPP having a relationship with SD (service delivery) in a negative direction does not mean any effect, thus, this is not investigating the effect but indicates there is a relationship between the variables under study. The implication of the Pearson correlation statistical value obtained for CPI and SD suggested that CPI is very relevant in shaping service delivery. It implied that the lesser the corruption in procurement procedures the more quality service delivered to the citizenry, hence it is suggested that corruption perception is capable of predicting the relationship between public procurement practices and service delivery (to prove this, the theoretical framework is triangulated later on in this study).

Table 4.2.1: Correlations (PPP and SD)

		PPP	SD
PPP	Pearson Correlation	1	-.489**
	Sig. (2-tailed)		.010
	N	27	27
SD	Pearson Correlation	-.489**	1
	Sig. (2-tailed)	.010	
	N	27	27

**. Correlation is significant at the 0.01 level (2-tailed).

Author's Computation

Table 4.2.2: Correlations (SD and CPI)

		SD	CPI
SD	Pearson Correlation	1	.857**
	Sig. (2-tailed)		.000
	N	27	27
CPI	Pearson Correlation	.857**	1
	Sig. (2-tailed)	.000	
	N	27	27

**. Correlation is significant at the 0.01 level (2-tailed).

Author's Computation

The Predictive Role of PPP and CPI in Service Delivery

The third objective of the study is to analyse the predictive role of public procurement practices and corruption perception in service delivery. To achieve this, multiple regression analyses are deployed to test the two relevant hypotheses formulated. The first one tests if PPP carries a predictive impact on SD. The independent variable PPP is regressed on the predictor variable SD. From Table 4.3, it was observed that PPP did not significantly predict RQI statistically, $F(1, 26) = 37.28$, $p > 0.05$, which indicates that PPP may not be playing a statistically significant role in shaping service delivery ($b = -.266$, $p > 0.05$). Since the p-value is greater than 0.05, the study failed to reject the third hypothesis, hence supporting the alternative hypothesis, which states that public procurement practices have no significant predictive role in service delivery.

However, to test if CPI carries a predictive impact on service delivery (RQI). The independent variable, CPI, is regressed on the predictor variable SD. From Table 4.3, it was observed that CPI significantly predict SD statistically, $F(1, 26) = 37.28$, $p < 0.05$, which indicates that CPI may be playing a statistically significant role in shaping service delivery ($b = .654$, $p < 0.05$). Since the p-value is less than 0.05, the study failed to accept H0iv, hence the alternative which states that corruption perception has a significant predictive role in service delivery. Moreover, the $R2 = 0.75$ implies that 75% of changes observed in the predictive variables (PPP and CPI) are responsible for any change observed in service delivery.

Table 4.3: Regression

Hypotheses	Regression weighs	R^2	df	F	t - value	Beta Coefficient	Sig. ANOVA[a]	Sig. Coefficients[a]	Hypothesis supported?
$H_0$3	PPP–SD	0.75	26	37.28	-1.455	-.266	0.00	.159	**No**
$H_0$4	CPI–SD				7.140	.654		.000	**Yes**

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The roles, limitations, and ethical dilemmas that are inherent in Financial Accountability Mechanisms of the EU's Public Procurement Practices

Based on the critical analysis of freely available related literature, policy documents, case studies, and indexes such as Transparency International, and the reports of the European Court of Auditors, the findings showed that AOI has limited independence and enforcement in some member states considering their weak implementation of audit recommendations further compounded by political restrictions on audit bodies in some cases. The AO faced ethical dilemmas; the professionals sometimes became complicit because of undue systemic pressure that sometimes stems from inadequate training and protections for whistleblowers. However, this may lead to the normalization of action or inaction of the constituted authorities. Though the FAM in the EU are always strong in theory the findings of this study revealed that such mechanisms are weak in the study because of the settings of the political influence. Also, FAM is not fully yielding the expected result because of inadequate integration between the EU and the national systems of individual member states. However, it is important to note that Northern EU member states have better results in FAM considering their strong institutional framework.

Discussion and Conclusion

The result so far showed that the EU as a formal, supranational political and economic union performed significantly beyond the global benchmark as measured. This reiterates the worldwide perception towards the standard set by the EU as a supranational political-economic. However, the standard set by the EU is a good lesson for another economic union to embrace. Apart from the meritocracy observed on average in terms of procurement practices and services, the region, according to the EU 2014 Directives, possesses a single (common) website that all the member states use in carrying out procurement procedures. Despite all the transparent responsibilities and procurement obligations in the EU, some member states are still falling short of standards. For instance, Romania's performance was the highest in the area of PPP (80.94), but it consequently had the lowest performance in service delivery. Similarly, Bulgaria performed so well

above the global average in the area of PPP (73.18), but performed below the average in corruption perception and service delivery.

Surprisingly, Denmark, with the lowest performance in the area of PPP (52.99) came out to be the most corruption-free member state of the EU and even third place to Sweden and Finland, 87.73 and 86.51 respectively in the measurement used by this study. These dramatic findings could further explain why the correlation observed between PPP and SD is negative and even moderate. This means that the PPP is not operating in the same direction as service delivery, hence, the PPP could not have a serious impact on service delivery. Another reason for Denmark to be performing so low below average, even lower than Rwanda and Namibia, which are developing economies, could be because most of the EU member states have been performing procurement in more traditional ways before the 21st century, before the latest indicators introduced by the world bodies, and the ISO.

This is similar to the observation of Nogues and Mendes (2021), who explain that the comparison of legal indices across regions showed that the best-performing countries are economies in Europe, Sub-Saharan Africa, and Central Asia, including the high-income OECD. The good performance of Sub-Saharan Africa to the extent of even scoring than some countries in the EU in the area of PPP might be a result of two factors (Nogues and Mendes (2021: 20). First since countries in SSA did not have a government procurement regulations or laws until the 21st century, they were able to accept the most recent best internationally recognized good practices from the very start. Second, the world bodies have had a fundamental role in shaping public procurement laws in Africa, thus, the regulations in this region are more aligned with the recommended standards in the WBG Procurement Framework.

Yet, Bulgaria, Greece, Cyprus and some others are to be watched closely. Corruption perception in these countries is undermining their service delivery. Considering the SD analysed, the performance should be far beyond average, as the EU is becoming a role model for most developing economies. A slight change in the corruption perception downward will override the EU's image projection to the world, especially to the global south. The corruption in those countries mentioned should be carefully managed, as 34% of contractors in the EU see corruption as a big problem. This perception is the position of the EU 2022 Corruption Barometer, which observed that the highest proportion of contractors for which corruption is a big issue is observed in Greece (75%), Cyprus (78%), and Romania (70%), while the lowest ones are observed in Ireland (8%), Denmark (7%), and Estonia (9%) (European Commission, 2022).

The results of this study indicate that public procurement practices (PPP) do not significantly predict service delivery in a statistical sense. This

aligns with the findings of Manyathi (2019), who also observed an adverse correlation between public procurement practices and service delivery. However, further analysis suggests that changes in service delivery are influenced by a combination of both PPP and corruption perception (CPI), accounting for 75% (R^2) of the observed variations (see Table 4.3).

These findings supported the counterfactual theory of causation, as reflected in the CPCM of Service Delivery. The model closely aligns with David Easton's System Theory (1965). Like a system, the CPC model emphasises the interdependence of various entities, each playing a critical role in shaping service delivery outcomes. The effectiveness of service delivery serves as an indicator of the level of corruption within an economy. When procurement laws and regulations are compromised, the system becomes fallible, leading to inefficiencies and poor service delivery. Conversely, in economies with lower levels of corruption, procurement procedures are more transparent, resulting in effective and efficient service delivery. The model also suggests that an equilibrium or an average level of service delivery can be attained depending on the degree of corruption in the procurement process. A key proposition of the model of Service Delivery is that the relationship between procurement practices and corruption is reversible. The direction of the outcome, whether towards fraudulent procurement or efficient service delivery, depends on the catalyst, which the model later identifies as the "Secret Box" in the completed pathway of the model presented in Figure 2 below.

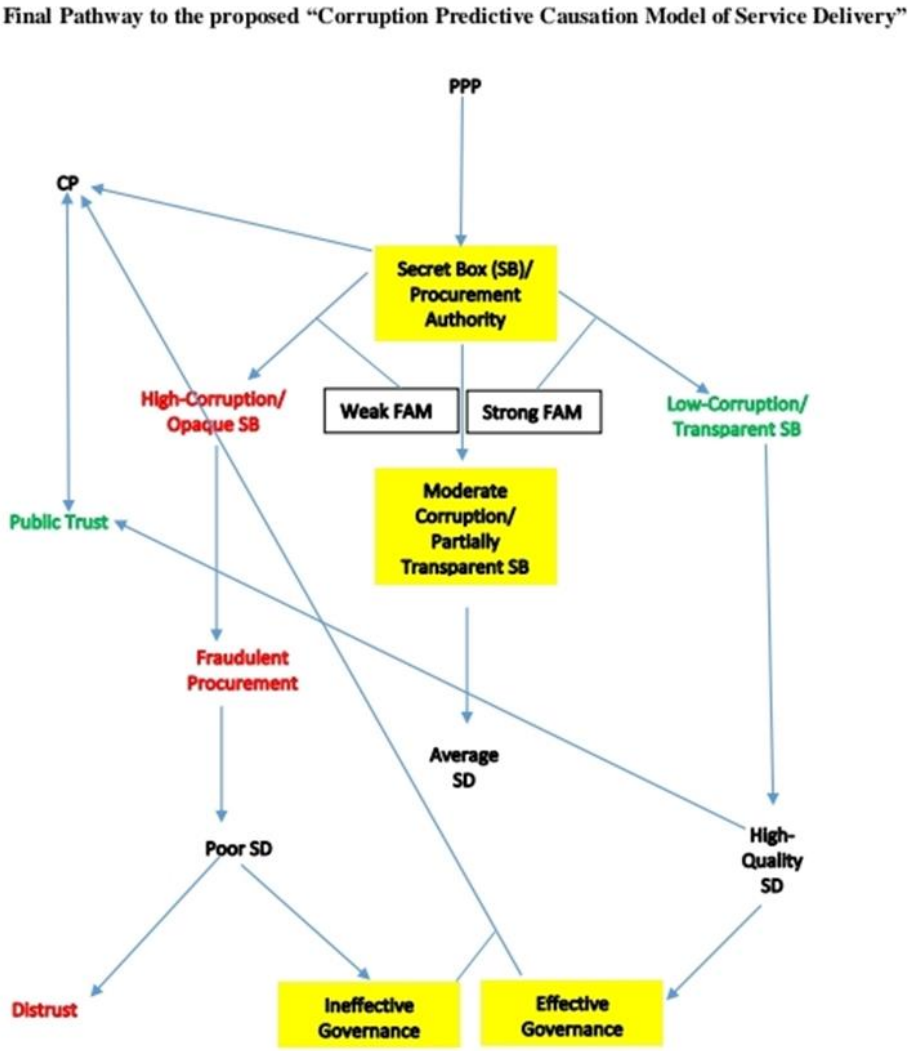

Figure 2: Final Pathway to the proposed Corruption Predictive Causation Model of Service Delivery

It is important to note that:

I. If the Secret Box is corrupt, it facilitates fraudulent procurement, leading to poor service delivery.
II. If the Secret Box is clean and transparent, it ensures an efficient procurement process, resulting in high-quality service delivery.
III. If the Secret Box maintains an average level of corruption control, the quality of service delivery will also be moderate.

According to the theoretical framework, there is a direct link between how people perceive corruption and how services are provided. This suggests that persistent corruption in an economy eventually leads to fraudulent public procurement, which reduces the efficiency of service delivery. To put it another way, corruption in procurement systems can significantly hinder governments' ability to provide high-quality public services, even though sound procurement practices on their own may not guarantee improved service delivery. This pattern is especially evident in certain EU member states like Bulgaria, Croatia, and Romania, where low FAM and a high perception of corruption coincide with poor service delivery outcomes. These nations struggle to translate procurement efficiency into tangible service enhancements despite having procurement frameworks that are in line with EU standards. This suggests that improving procurement regulations alone will not guarantee efficient service delivery. Instead, corruption must be eradicated because it continues to be a significant obstacle to the implementation of public procurement policies.

The argument that corruption undermines not only procurement efficiency but also the quality of public services is further supported by the findings. While the EU, as a supranational entity, has established robust procurement regulations and a unified digital platform for transparency, variations in corruption levels among member states continue to affect service delivery. This underscores the need for targeted anti-corruption measures alongside procurement reforms to enhance public service outcomes across the EU.

Recommendations

Though no country is immune to corruption, but this paper argues that it would be retrogressive for an economy to degrade from the global stage losing recognition as this may affect the volume of foreign direct investment (FDI). Consequently, it is recommended that the EU should not lose focus, especially in this time of conflict between Russia and Ukraine as some weaponry procurement steps and practices might have been skipped or bypassed due to sensitivity and pressure. And the supranational political block should not sacrifice their meritocracy for political gain or some international political interest concerning the accession of Ukraine as some of the countries that joined the block after the millennium still fall short of global standards in the area of corruption and service delivery.

Based on the findings, professional ethics and accountability training should be enhanced for proper accountability, while whistleblower systems should be strengthened across all EU member states. It is strongly recommended for the EU to prioritise performance-based procurement infused with digital transparency tools such as blockchain.

Limitations and Suggestions for Further Studies

From the foregoing, this study acknowledges certain limitations, primarily related to financial constraints and restricted access to classified data. Some information on public procurement practices is not readily available online, as certain EU member states maintain secondary websites separate from the official uniform procurement platform. The inadequate transparency presents challenges in obtaining comprehensive data, particularly on sensitive issues such as defence procurement.

Considering these limitations, future research should adopt a more advanced approach, incorporating high-level focus group discussions and structured interviews with EU authorities. Such qualitative methods would provide deeper insights into procurement practices, particularly in areas where data is scarce or classified. This would be especially valuable in understanding the nuances of weapon procurement procedures since the onset of the Russia-Ukraine conflict, where security concerns may have led to deviations from standard procurement protocols.

Nevertheless, this study has relied on a cross-country database to achieve its research objectives. Utilising publicly available datasets remains a valid and widely accepted approach in research method, ensuring the results are based on systematically collected and verifiable information. While this approach has some limitations, it provides a solid foundation for understanding the relationship between public procurement practices, corruption perception, and service delivery within the EU framework.

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Appendix A: Public procurement practices

Economy	**Total Steps**	**Total Time**	**Total score for procurement framework**	**Total score for e procurement adoption**
Austria	13	594	10	3
Belgium	17	661	12	4
Bulgaria	19	560	16	3
Croatia	18	650	14	4
Cyprus	20	588	12	5
Czech Republic	18	571	14	3
Denmark	18	443	6	1
Estonia	19	523	12	8
Finland	17	330	6	3
France	14	629	12	7
Germany	15	506	12	6
Greece	17	1120	10	3
Hungary	21	476	13	6
Ireland	14	502	13	5
Italy	17	815	13	7
Latvia	14	340	13	6
Lithuania	16	331	13	8
Luxembourg	15	556	9	4
Malta	17	660	10	6
Netherlands	16	538	10	6
Poland	20	496	11	4
Portugal	18	706	13	4
Romania	20	694	15	7
Slovak Republic	19	665	12	5
Slovenia	18	396	12	4
Spain	17	771	12	4
Sweden	14	338	12	6

Source: The World Bank (IBRD.IDA)

Appendix B: Corruption perception score

Countries	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**
Austria	76	77	76	75	75	76	72	69	69	78	79
Belgium	76	75	75	75	77	77	76	75	75	75	71
Bulgaria	44	43	42	43	41	41	43	41	41	33	36
Croatia	47	47	48	49	49	51	48	48	46	40	41
Cyprus	57	58	59	57	55	61	63	63	66	63	63
Czechia	54	56	59	57	55	56	51	48	49	44	46
Denmark	88	87	88	88	90	91	92	91	90	94	93
Estonia	75	74	73	71	70	70	69	68	64	64	65
Finland	85	86	85	85	89	90	89	89	90	70	92
France	69	69	72	70	69	70	69	71	71	70	68
Germany	80	80	80	81	81	81	79	78	79	80	79
Greece	50	48	45	48	44	46	43	40	36	34	35
Hungary	44	44	46	45	48	51	54	54	55	83	47
Ireland	72	74	73	74	73	75	74	72	69	75	80
Italy	53	53	52	50	47	44	43	43	42	39	39
Latvia	57	56	58	58	57	56	55	53	49	42	43
Lithuania	60	60	59	59	59	59	58	57	54	48	50
Luxembourg	80	80	81	82	81	85	82	80	80	85	85
Malta	53	54	54	56	55	60	55	56	57	56	56
Netherlands	82	82	82	82	83	84	83	83	84	89	88
Poland	56	58	60	60	62	63	61	60	58	55	53
Portugal	61	62	64	63	62	64	63	62	63	61	60
Romania	44	44	47	48	48	46	43	43	44	36	40
Slovakia	49	50	50	50	51	51	50	47	46	40	43
Slovenia	60	60	60	61	61	60	58	57	61	59	64
Spain	62	62	58	57	58	58	60	59	65	62	61
Sweden	85	85	85	84	88	89	87	89	88	93	92

Source: Transparency International

Appendix C: Road Quality Index

Countries	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Austria	6.32	6.24	6.3	6.22	6.27	6.14	6	6	6.1	6
Belgium	5.47	5.36	5.47	5.39	5.25	5.14	4.9	4.5	4.4	4.4
Bulgaria	2.08	2.11	2.54	2.95	3.14	3.28	3.4	3.4	3.5	3.4
Croatia	5.29	5.43	5.33	5.51	5.62	5.57	5.5	5.5	5.5	5.6
Cyprus	5.59	5.71	5.64	5.4	5.31	5.03	4.9	5.1	5.2	5.1
Czechia	3.55	3.61	3.73	3.72	3.7	3.97	4.1	4	3.9	3.9
Denmark	6.17	6.29	5.73	5.45	5.43	5.59	5.7	5.5	5.5	5.6
Estonia	4.53	4.49	4.22	4.2	4.39	4.53	4.7	4.7	4.7	4.7
Finland	5.86	5.83	6.09	6.1	5.87	5.78	5.7	5.4	5.3	5.3
France	6.6	6.56	6.48	6.4	6.17	6.08	6	6	6	5.4
Germany	6.42	6.15	6.09	6.01	5.88	5.72	5.7	5.5	5.5	5.3
Greece	4.13	3.98	3.98	4.21	4.32	4.28	4.3	4.5	4.7	4.6
Hungary	4.05	4.03	4	4.01	4.25	4.22	4.1	4.1	3.9	4
Ireland	4.32	4.81	5.38	5.29	5.27	5.27	5	4.6	4.5	4.4
Italy	4.22	4.2	4.34	4.37	4.26	4.42	4.6	4.5	4.4	4.4
Latvia	3.11	3.1	3.16	3	3.09	3.31	3.2	3	3.5	3.6
Lithuania	5.27	5.23	5.17	5.02	4.94	4.96	4.9	4.7	4.7	4.8
Luxembourg	5.9	5.89	5.89	5.79	5.71	5.57	5.6	5.5	5.3	5.5
Malta	2.83	2.99	3.06	3.43	3.65	3.37	3.2	3.2	3.2	3.3
Netherlands	5.45	5.65	6.01	6.05	6.14	6.22	6.1	6.1	6.2	6.4
Poland	2.23	2.33	2.62	3.05	3.55	3.81	4	4.1	4.1	4.3
Portugal	6.17	6.29	6.39	6.35	6.34	6.16	5.9	6	5.9	6
Romania	2.11	2.1	1.94	2.08	2.75	2.75	2.6	2.7	3	3
Slovakia	3.88	3.59	3.7	3.62	3.69	4.03	4.1	4	4	4
Slovenia	4.84	4.68	5.01	5.08	4.9	4.65	4.4	4.4	4.7	4.9
Spain	5.68	5.91	5.93	5.95	5.91	5.8	5.5	5.5	5.6	5.7
Sweden	5.71	5.66	5.58	5.52	5.5	5.36	5.3	5.5	5.6	5.3

Source: The GlobalEconomy.com; World Population Review; and World Economic Forum