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Three-Dimensional Corruption Metrics: A Proposal for Integrating Frequency, Cost, and Significance

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Abstract

Despite a lack of consensus on the most effective methods for measuring corruption, a variety of initiatives have been launched over the past decade. This paper contributes to the evolving field by arguing for the integration of frequency, cost, and local significance, into a three-dimensional approach for the development of enhanced metrics. After revisiting the history of corruption measurement, each proposed dimension is discussed by reference to past initiatives and the relevant literature. While the frequency and cost of corruption are discussed based on the varying degrees of attention received over the years, I propose that “significance” represents a third and necessary dimension, capturing the moral severity of corruption within different societal contexts. Taken as a unified whole, the proposed multidimensional approach is argued to have the potential for a more accurate depiction of corruption, enhancing also the clarity and accountability of corruption metrics. By accounting for frequency, cost, and significance, three-dimensional metrics are expected to lay the groundwork for more effective policy responses and deepen our understanding of the complexities inherent in the corruption phenomenon.

Keywords Corruption measurement · Multidimensional approach · Corruption tolerance · Methodological approach · Evidence-based policy

1 Introduction

Perhaps more than most other phenomena in the social sciences, the measurement of corruption continues to represent one of the most significant challenges to a field that, although rather young, has become increasingly recognized as pivotal for a broad variety of international efforts. At its core, corruption would appear to share the same struggles that other contentious concepts in the social sciences have faced. For example, there remains ample debate concerning the specific attributes of “democracy” beyond a few core ele-

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ments (Munck, 2016; Coppedge, 2011), and although the indices by Varieties of Democracy (V-Dem) have garnered general approval (Boese, 2019), scholars remain divided on the measurement of related phenomena such as support for democracy (Claassen et al., 2024). In a similar vein, the definition of corruption—and, consequently, its basic components or dimensions—remains disputed (Rose, 2018), with a minimal consensus forming around “the abuse of entrusted power for private gain” (Pozsgai-Alvarez, 2020), but serving more practical purposes than truly enjoying widespread support from practitioners and scholars alike. Its nature, too, is contested, as corruption is used to describe specific behaviors, systemic conditions, moral deficiencies, or all three together. Adding to these problems, there is also the too frequent confounding of corruption with associated terms such as bribery, collusion, favoritism, etc., with little care given to the consistent adoption of terminology even within the same discussion.

Given the conceptual challenges and confusion, it would appear unsurprising that corruption lacks formal and widely accepted metrics. Having only emerged as a proper field of academic and international interest in the middle of the 1990s—as a result of changing priorities concerning global trade and developmental aid, depoliticizing the problem and paving the way for a legal framework built around it—it is understandable that the basic outline of the phenomenon would need to be established before we could move on to its quantification. Yet, at least three arguments make that position problematic. First, the recognition of corruption as a phenomenon demanding global attention was brought about precisely through its measurement. In 1995, the Berlin-based NGO Transparency International launched the inaugural edition of its now famous Corruption Perception Index (CPI), which ranked forty-five countries according to the perceived level of corruption affecting their public sector and was promptly adopted as the battle cry for a new wave of advocacy and research. Thus, rather than leading to the development of proper metrics, anti-corruption as an industry and a field of study actually arises from the application of a measurement approach (however deficient it may be considered; for a critical perspective, see Gilman, 2018). Second, the history of the CPI elucidates a more immediate reality: corruption denotes deviance, bringing it closer to concepts such as terrorism rather than democracy, thus imposing a sense of urgency. In other words, the phenomenon of corruption demands a public response, and the CPI catalyzes this condition by forcing stakeholders to recognize the magnitude of the challenge. By offering a scale against which to compare one’s country to others, it facilitated the creation of public discourse around the problem and the mobilization of anti-corruption reformers, who then could offer the goal of reducing corruption—or, to be more precise, their country’s CPI score—as part of a meaningful political, administrative, and economic agenda. This perspective could be summarized in the maxim ‘what gets measured gets done’. Third, the availability of quantitative data—again, regardless of how limited it may be in terms of construct validity—gave scholars the means to finally begin testing some of the theories that had emerged in decades past. Being able to statistically test the causes and consequences of corruption provided the basis for a nascent industry dedicated to policy development, advocacy, and evaluation. The provision of evidence-based strategies to deal with corruption is reflected in the first wave of the international anti-corruption movement that took place in the 1990s, characterized by the setting of legal standards and monitoring compliance with them (Guerzovich, 2012). Thus, the increasing demand for metrics to guide the allocation of public budgets and commercial

investments almost immediately overtook the capacity of this research field to supply conceptual clarification at a similar pace.

As a result of the conditions described above, over the past three decades, the measurement of corruption has both been hindered by and exacerbated a fragmented field. Measurement efforts are launched based on new technologies and the approaches they facilitate, while core questions regarding the target phenomenon remain underdeveloped (e.g., corruption as a moral or pragmatic decision in different contexts) or largely disputed (e.g., the comparability of events across historical periods and cultures). This is not to suggest that progress has not been made—on the contrary, the landscape of corruption measurement today presents a rich tapestry of approaches that reflect the current awareness of the complexity of corruption. However, this heterogeneity has not done away with the need to find a consensus regarding the proper way to measure corruption for different policy-related purposes and across significantly different contexts.

The goal of this paper is to argue for a multidimensional view of corruption measurement, proposing the integration of frequency, cost, and significance of corruption as equally intrinsic elements of future corruption metrics. This is carried out through a thorough literature review and theoretical discussion of the different methodologies developed over the years for the measurement of corruption, framed within the “three-dimensional” approach proposed here. I argue that while frequency has been the target of most measurement efforts in the past, the cost of discrete corruption events is seldom taken into consideration, and the significance of those events for the individuals and groups affected by them has so far been entirely ignored by corruption metrics. By exploring each dimension in turn and bringing them together, the three-dimensional approach proposed here aims to bring attention to important challenges that, although rarely recognized, inevitably limit the capacity of corruption metrics to ever represent reality as it truly is.

Before discussing the three dimensions of concern, Sect. 2 reviews the evolution and current state of corruption measurement, describing the last three decades as a progression across different perspectives on how metrics can be developed and what they should ultimately reveal. After having clarified the current situation, Sect. 3 delves into the first dimension—frequency—, providing an overview of how the probability of corruption has been at the center of most past measurement initiatives, and how this feature is found in other crime indices. However, just as criminologists have long recognized a hierarchy among criminal activities, Sects. 4 and 5 propose that two more dimensions are required to fully describe the magnitude to which corruption is actually experienced—cost, reflecting the observable effects created by discrete corruption events, and significance, reflecting the meaning of those events and effects for various stakeholders. Finally, Sect. 6 concludes the paper by bringing all the pieces together and summarizing the main characteristics of a three-dimensional approach for the development of corruption metrics. The approach is discussed in relation to past initiatives and potential ways for its practical implementation, including a few caveats.

2 The Evolving Landscape of Corruption Measurement

Without a doubt, the availability of corruption metrics today offers a dramatic contrast to the situation only thirty years ago. As if to emphasize these changes, in 2023 the United Nations Office on Drugs and Crime (UNODC) released its *Statistical Framework to Measure Corruption*, composed of 146 indicators resulting from several years of consultation with experts and stakeholders. On January 31st of the same year, Transparency International released its 28th annual Corruption Perceptions Index, a ranking that provides a single score for each of the 180 countries and territories assessed, the scores themselves being a composite of thirteen different data sources built primarily from expert opinions.¹ While each of the two approaches to corruption measurement has a different purpose, their differences provide a glimpse into the spectrum of possibilities previously proposed and/or currently offered, with many more instruments fitting between these extremes. Focusing solely on those metrics that made it to the “market,” their proliferation itself has been a subject of discussion, often organizing their discussion along the categories of objective versus subjective approaches (Bello y Villarino, 2021).

Concerning their evolution, Tonn (2023) summarizes the different approaches to corruption measurement as having taken place across three waves: measuring corruption (1995-present), measuring anti-corruption and integrity (2004-present), and assessing anti-corruption ecosystems (2011-present). A somewhat different description is provided by Hlatshwayo et al. (2018), who also divide this history into three “generations” but keep them grounded to the specific construct being measured and the nature of the data collected. Hlatshwayo et al.’s suggestion of three generations is adopted below to describe this evolving landscape.

2.1 First Generation

The first generation is represented by a focus on the *perception* of corruption as a way to approach a phenomenon often referred to as taking place in the shadows. The recognition of corruption as an activity whose participants have an interest in keeping hidden, and where its victims often remain unaware of the specifics—and, therefore, are not capable of providing much information on discrete events—made quantification along a Likert scale and based on informed opinions rather than empirical evidence an appealing proposal.² Perception-based measurement was first championed internationally through the Corruption Perception Index³ in 1995 and soon followed by the World Bank’s Control of Corruption⁴ (part of the Worldwide Governance Indicators); but it has now become ubiquitous in national and international surveys. For instance, in the 7th wave (2017–2021) of the World Value Survey,⁵ respondents were asked to place their views on corruption in their countries along a 10-point Likert scale, where 1 meant there was no corruption and 10 meant corruption

¹ The entire list of sources and the construct evaluated can be found in: https://transparencia.org.es/wp-content/uploads/2023/01/CPI2022_SourceDescription-1.pdf.

² For a comprehensive review of the literature on perceptions of corruption, see Gouvêa Maciel et al. (2022).

³ This metric is available at <https://www.transparency.org/en/cpi/1995>.

⁴ This metric is available at <https://databank.worldbank.org/source/worldwide-governance-indicators>.

⁵ The World Values Survey Wave 7 is available at <https://www.worldvaluessurvey.org/WVSDocumentationWV7.jsp>.

was abundant.⁶ A follow-up question asked them to roughly estimate the number of people (none, few, most, or all) among state authorities, business executives, local authorities, etc., who were believed to be involved in corruption. Other large projects have also found it useful to incorporate perception-based corruption metrics in the assessment of their target phenomena, further allowing for a degree of granularity previously neglected, as in the case of the World Justice Project's (WJP) Rule of Law Index and its Absence of Corruption factor,⁷ which asks citizens and experts alike if government officials across the executive, legislative, and judicial branches, as well as in the police and military, abstain from using their public office for private gain. The quantification of corruption in a given location or group through citizens' and experts' opinions has proven invaluable for advocacy purposes (which has been Transparency International's goal from the CPI's inception), but it has also proven significantly contentious. Aside from the frequent criticism levied by the leaders of countries that find themselves shamed by such international rankings, researchers have proven themselves adept at pointing out the deficiencies of proxy indicators based on non-factual evidence. Two issues stand at the core of the problem. First, experience and perception need not be correlated, thus casting doubt on the actual capacity of the latter to reveal the extent of the former (Gutmann et al., 2020). Second, perception may be subjective and biased, reflecting personal preferences and cognitive limitations, thus limiting the reliability of even expert accounts (Navia et al., 2020).

2.2 Second Generation

The second generation reflects the field's response to the limitations of a perception-based approach, turning now to empirical data from two distinct sources: victimization surveys and institutional capacity evaluations. Transparency International again played a crucial role during this stage with the development of its Global Corruption Barometer⁸ (GCB). First launched in 2003, the GCB data was originally a subset derived from Gallup International's Voice of the People survey that asked respondents about their views on corruption; in 2004 the questionnaire was expanded to cover the actual experience of corruption—or at least one specific form of corruption, as participants were asked if they or anyone living in their household had paid a bribe over the previous 12 months.⁹ However, the survey item itself could already be found at least since the 1996 International Crime Victims Survey¹⁰ (ICVS), in which respondents were asked if any government official had asked them or expected them to pay a bribe during the previous year.¹¹ Regardless of its origin, the quantification

⁶ The precise question read: "Q112. Now I'd like you to tell me your views on corruption – when people pay a bribe, give a gift or do a favor to other people in order to get the things they need done or the services they need. How would you place your views on corruption in your country on a 10-point scale where "1" means "there is no corruption in my country" and "10" means "there is abundant corruption in my country". If your views are somewhat mixed, choose the appropriate number in between."

⁷ This metric is available at <https://worldjusticeproject.org/rule-of-law-index/>.

⁸ This metric is available at <https://www.transparency.org/en/gcb/global/global-corruption-barometer-2003>.

⁹ The precise question read: "5. In the past 12 months, have you or anyone living in your household paid a bribe in any form?" Respondents could choose to answer Yes, No, or Don't know / Don't answer.

¹⁰ The International Crime Victims Survey is available at <https://www2.unil.ch/icvs/index.html>.

¹¹ The precise question read: "41. In some areas there is a problem of corruption among government or public officials. During 1995, has any government official, for instance a customs officer, police officer or inspector in your own country, asked you or expected you to pay a bribe for his service?"

of corruption victimization has also become widespread over the past decades, found in the 2004 AmericasBarometer,¹² the Afrobarometer's Round 2,¹³ the Eurobarometer 64.3¹⁴ of 2005, and many others, finally being adopted as indicators 16.5.1 and 16.5.2 of the Sustainable Development Goals (SDGs): "Proportion of [persons/businesses] who had at least one contact with a public official and who paid a bribe to a public official, or were asked for a bribe by those public officials, during the previous 12 months."¹⁵ The measurement of corruption victimization along these lines has proven a valuable source of information for policymakers, providing empirical data that can be easily disaggregated at the subnational and sectorial levels. Yet, important caveats remain. First, despite its common label, metrics have tended to consider exclusively the incidence of bribery, neglecting other forms of malfeasance (such as nepotism) or simply recognizing that victimization surveys cannot measure events beyond the lower bureaucratic levels (for example, political corruption). Second, the self-report nature of victimization surveys makes some degree of response bias inevitable (Agerberg, 2022), leading to potential underreporting due to mistrust or the fear of stigma or reprisal.

Besides victimization surveys, the second generation of corruption measurement is also represented by the popularization of institutional capacity or performance indicators. From 2006 to 2010, the Global Integrity Index pioneered this approach by focusing not on the assessment of corruption levels but on the presence and quality of conditions that were commonly considered to limit corruption. The index provided country scores based on approximately three hundred indicators, quantifying the existence of formal mechanisms, their effectiveness, and their accessibility to citizens (IDB, 2006). In essence, it was an attempt to approximate corruption measurement by evaluating the capacity of states to control it, offering decision-makers a clearer path to anti-corruption reform. A more recent example of this approach is the Index of Public Integrity,¹⁶ based on the evaluation of country-specific opportunities for corruption—administrative burden, trade openness,¹⁷ and budget transparency—and constraints—judicial independence, e-citizenship, and freedom of the press (Mungiu-Pippidi & Dadašov, 2016). Other initiatives have also incorporated this approach, such as the Global Corruption Index¹⁸ (GCI) (by the Swiss company Global Risk Profile), which includes information about citizen's voice and transparency, government functioning and effectiveness, legal context, and political context, alongside perception and/or victimization metrics. Significantly, capacity evaluations have made strides in allowing users to explore data with a level of granularity often missing in alternative approaches. The OECD Public Integrity Indicators¹⁹ currently allows users to explore country results across three components—quality of anti-corruption and integrity strategic framework, accountability

¹² The 2004 AmericasBarometer is available at <https://www.vanderbilt.edu/lapop/raw-data.php>.

¹³ Afrobarometer's Round 2 is available at <https://www.afrobarometer.org/surveys-and-methods/survey-re-sources/>.

¹⁴ The Eurobarometer 64.3 is available at https://search.gesis.org/research_data/ZA4415.

¹⁵ All SDG indicators can be found in: <https://unstats.un.org/sdgs/metadata/?Text=&Goal=16>.

¹⁶ This metric is available at <https://corruptionrisk.org/integrity/>.

¹⁷ Since 2021, IPI's methodology, replaced administrative burden and trade openness with administrative transparency and online services. Administrative transparency itself draws from a subset of a sister metric, the *T-Index* (Mungiu-Pippidi, 2023).

¹⁸ This metric is available at <https://risk-indexes.com/global-corruption-index/>.

¹⁹ This metric is available at <https://oecd-public-integrity-indicators.org/>.

of public policy making, and effectiveness of internal control and risk management—with additional components—integrity and effectiveness of the justice system, strength of external oversight and control, and meritocracy of the public sector—scheduled for 2024–2025. Furthermore, each component can be further explored along its multiple constitutive dimensions. A similar effort is made in the TRACE Bribery Risk Matrix²⁰ (originally developed in collaboration with RAND Corporation), where components such as transparency are constructed from sub-components such as processes (e.g., “Transparent laws with predictable enforcement”) and interests (e.g., “Government powers are effectively limited by independent auditing and review”). However, these initiatives also face challenges, the two most significant being that the adoption, implementation, and enforcement of anti-corruption measures do not need to translate to an effective reduction in the incidence of corruption (which would still need to be quantified using a different sort of metric) (Mungiu-Pippidi & Dadašov, 2017); and, while formal aspects such as criminalization and creation of administrative systems can be objectively established, the effectiveness of those measures still relies on perception-based assessments.

Incidentally, the measurement of anti-corruption enforcement deserves a special mention, as it reflects the more traditional forensic approach to measurement, focused on the analysis and quantification of legal cases, criminal investigations, trials, sentences, and criminal actors and organizations, far predating the second generation of corruption metrics. Although not explicitly described as such, one of the earliest examples of the quantification of corruption in academic work can be found in Peters and Welch (1980), who collected data on allegations of corruption against congressional incumbents between 1968 and 1978 to study their impact on voter turnout and electoral support. Since then, researchers have used public data on corruption cases in a variety of ways, most often focusing on the frequency distribution of corruption prosecutions and/or convictions across jurisdictions and the insights they provide on various causes and consequences (Meier & Holbrook, 1992; Boylan & Long, 2003; Hossain et al., 2021). Yet, forensic data of this kind has not made a significant impact on international corruption metrics, due to theoretical and empirical concerns regarding the validity of legal cases as a proxy for actual corruption. As Boylan and Long (2003: 431) find in their statistical analysis of corruption in American states, “the number of federal prosecutions alone may be a poor surrogate measure of state-level corruption because prosecutions are affected by both corruption and prosecutorial effort, not just corruption. An idiosyncratically aggressive federal prosecutor could skew such a measure.” Indeed, a higher rate of investigations and prosecutions may indicate an increase in the incidence of corruption, an increase in the state’s capacity to detect and punish corruption, or both. As a result, it is primarily collected by national statistical offices as one among many other metrics of interest.

2.3 Third Generation

The third generation is the least coherent one, representing a mixed bag of approaches only brought together by the shared use of online resources. Originally referred to as ‘big data approaches’ by Hlatshwayo et al. (2018:8), they encompass data from crowdsourcing projects, public procurement databases, and media sources.

²⁰ This metric is available at <https://www.traceinternational.org/trace-matrix>.

Crowdsourcing for corruption metrics was first popularized through the *I Paid a Bribe* project, a web-based tool developed by the non-profit organization Janaagraha Centre for Citizenship and Democracy, based in India. Through *I Paid a Bribe*,²¹ users are able to report incidents (or attempts) of petty bribery in which they have been involved, providing information on the government sector, location, date, amount, and reason—with encouragement to provide even the name and designation of the officer(s) involved. As of December 2023, the project has received over 198 thousand reports totaling 30.01 billion Indian Rupees. Inspired by its success, over a dozen countries launched similar initiatives, including Indonesia, Pakistan, and Kenya (Ryvkin et al., 2017). However, as Ang (2014) pointed out in the case of China, such bottom-up initiatives are unlikely to succeed in environments lacking a history of free civil society activism. Beyond organizational challenges, it is evident that crowdsourcing carries the same limitations of crime victimization statistics pointed out earlier.

Top-down initiatives have also multiplied over the past decade, with a particularly impressive proliferation of public procurement platforms around the world. These platforms operationalize public transparency requirements (often required by national law and international conventions) through the online publication of key information from the various stages of public tendering, contracting, and goods/service/project delivery or implementation. The precise structure of the data provided by state agencies is highly volatile, varying across time and jurisdictions, a problem that has been the focus of efforts by organizations such as the Open Contracting Partnership (OCP) and its Open Contracting Data Standard.²² Despite this heterogeneity, available data from procurement processes have been the focus of increasing international attention for their potential to reveal corruption risks in the disbursement of public budgets. Among the assessment methods available, the framework introduced by Fazekas et al. (2016)—and later developed through various iterations over the years—currently enjoys wide recognition. Based on the identification of key indicators—e.g., single bidder contract, length of submission period, contract modification, etc.—that are theoretically assumed to represent red flags in the management of public contracts at various stages, the approach has been employed to measure the risk of corruption as well as its potential cost (Fazekas & Tóth, 2018). Confirming its international reception, the World Bank launched an expanded version in 2023 under the title of the Governance Risk Assessment System (GRAS). GRAS (World Bank, 2023:6) covers “60 red flags, linked to 23 broad risk patterns along 4 dimensions”: procurement cycle, collusion among bidders, supplier characteristics, and political connections. This wave of procurement-related frameworks had been somewhat anticipated a decade earlier by Golden and Picci (2005) and Olken (2007). In both instances, the studies measured discrepancies between project-specific expenditure and the amount of public works carried out, attributing the identified differences to corruption. This “objective” approximation to corruption measurement became the foundation to think in terms of identifying red flags in the various sub-processes of public procurement (Gnaldi & Del Sarto, 2023), with the sole caveat that risks can also be attributed to conditions other than corruption, such as particularities of the industry or the service contracted, time-sensitive demand, and others. Thus, public procurement analysis can only be considered a risk assessment tool, not a full-fledged proxy for corruption measurement.

²¹ This platform is available at <http://www.ipaidabribe.com/>.

²² The standard is available at <https://standard.open-contracting.org/latest/en/>.

The last major approach of this generation involves the quantification of corruption-related events as reported by media sources—i.e., corruption news. The study conducted by Hlatshwayo et al. (2018) is itself an example of such a kind of initiative. In what they termed the News-Flow Index of Corruption (NIC), the authors conduct an algorithmic search of corruption-related keywords across a news aggregator, identifying all relevant articles and using their frequency distribution across time and location to assess the impact of corruption “shocks” to economic outcomes. This approach was later revised to apply sentiment analysis for the detection and evaluation of news articles (Cao et al., 2021), further automating the process and extracting insights from vast amounts of data. Given the size of potentially available data and their collection and processing requirements, it is unsurprising that other authors have also begun experimenting with more advanced methods, such as neural networks (López-Iturriaga & Sanz, 2018); but more traditional methods for the compilation and analysis of corruption news coverage—including its correlation with other phenomena of interest—are also common (Tella & Franceschelli, 2011; Costas-Pérez, 2012; Zhu et al., 2013). One can see the appeal in this approach: many forms of high-level corruption cannot be approximated through citizen or business surveys, and what experts know about them derives largely from investigative journalism and the news coverage of civil and criminal investigations. Therefore, measuring the frequency of corruption news may bypass important constraints and biases affecting other approaches. Indeed, the interest in corruption events as publicly communicated is not limited to data from mass media. For example, Goel et al. (2012) measured the volume of country-specific online searches for the terms “corruption” and “bribery” on the search engines Google and Yahoo, in what they called their “measure of internet corruption awareness” (2012: 66). Similarly, Saiz and Simonsohn (2013) rely on Google’s now-defunct internet search volume index, Google Insights—similar to Google Trends, which remains available as of December 2023—to create a “first index of corruption for US cities” (2013: 139). While online activity may be better linked to corruption perception (Charron & Annoni, 2021) than reality, and therefore only represent an indirect metric of publicly known corruption events, the measurement of corruption through news articles is not without challenges of its own. Hlatshwayo et al. (2018) explicitly address two of them. First, coverage of corruption assumes some degree of press freedom, so this approach might not be a good representation of reality in countries without independent media (Solis & Antenangeli, 2017; Hong & Yang, 2022). Second, the frequency and content of corruption-related news are heavily influenced by external conditions, including electoral cycles (Le Moglie & Turati, 2019) and the characteristics of the media market (Hajdu et al., 2018), so that the same type of event might receive little attention in one country but ample coverage in another. To these two, a third might be added: there are important questions that remain unanswered concerning the exact phenomenon being measured, as news may involve opinion pieces, cases of mismanagement, integrity violations, corruption allegations, stories of venality in public office, coverage of non-corrupt criminal conduct, and other events that must be discriminated from proper corruption news.

Having reviewed the evolution of corruption measurement over the past three decades, it is evident that while significant progress has been made, the field remains in a state of confusion regarding the specific purpose of different approaches and the way they fit (or not) together to provide a comprehensive assessment of corruption across jurisdictions. That being said, the history of these three generations reveals a narrative preference for the quantification of discrete events and the individuals/processes/organizations engaged in them.

CPI sources include questions such as “Are public funds misappropriated by ministers/public officials for private or party political purposes?”²³ The GCB asks about “how often, if ever, did you have to use personal connections to get assistance or services” and “pay a bribe, give a gift, or do a favor”²⁴ GRAS defines its first indicator of non-competitive procurement processes as the “percentage of contracts won in high-risk, non-competitive procedure types... compared to all contracts won in a given time period” (Ortega Nieto et al., 2023). This preference for counting actions or situations rather than some other aspect of corruption reflects the ongoing dominance of a particular view of corruption measurement, referred to as the “frequency” dimension here. The quantification of frequency is a fundamental methodological decision that must be recognized and discussed, for it establishes what is and is not considered relevant in estimating the magnitude of the problem.

Thus, instead of adding to the cacophony of voices about *how* to measure corruption, in the next section, I begin exploring a question that should have been answered before considering finer methodological issues—namely, *what* should a corruption metric actually tell us?

3 First Dimension: Frequency

On the surface, it would appear almost self-evident that the way one measures something should be based on what one intends to measure. While the three generations of corruption metrics described in the previous section may differ in their precise approach—be it citizen or expert opinions, victimization rates, mediatized cases, etc.—they all purportedly quantify the phenomenon referred to as “corruption”. However, what precisely is understood by that term is not usually clarified. While a lack of consensus around its definition is clearly an issue (Rose, 2018), the larger problem lies in the seeming unwillingness to build indicators around actual behavioral types rather than contested abstractions. The construction of corruption typologies through dichotomies has a long history, with authors differentiating between grand and petty corruption (e.g., Mashali, 2012), political and bureaucratic/administrative (Caiden, 1981), public and private (Argandoña, 2003), and individual and organizational (Jávora & Jancsics, 2016). Some typologies apply specifically to transactional forms of corruption, such as bribery—e.g., active versus passive (Capasso & Santoro, 2018) and collusive versus extortive (Khalil et al., 2010).

The fact that corruption is an “umbrella” term covering a variety of activities (Varraich, 2014) did not escape the drafters of the United Nations Convention Against Corruption (UNCAC). In its chapter on criminalization and law enforcement, the UNCAC explicitly dedicates articles to addressing bribery, embezzlement, trading in influence, abuse of functions, and other criminal activities; but corruption is only mentioned in relation to its consequences (articles 34 and 35) and the law enforcement agencies charged with its control (article 36). In other words, for purposes of its legal standing, corruption as such is not an applicable behavior. Echoing legal practice, many scholars have also moved beyond discussing corruption as a monolithic concept when dealing with its quantification. For example, D’Agostino and Pironi (2019) produce a ranking of countries in Eastern Europe

²³ Economist Intelligence Unit Country Risk Service 2023. The CPI methodology is available at <https://www.transparency.org/en/news/how-cpi-scores-are-calculated>.

²⁴ Global Corruption Barometer, 10th Edition, European Union Codebook. The full methodology is available at <https://www.transparency.org/en/gcb/eu/european-union-2021>.

along three latent classes of corruption: (a) political corruption, (b) administrative corruption linked to public inspections, and (c) administrative corruption linked to public contracts, licenses, taxes, and regulations. Even the more traditional approach to corruption measurement—i.e., the number of prosecutions—has shown ample capacity for granularity, as demonstrated by studies such as Cordis and Milyo (2016) and Albanese et al. (2019). When it comes to international metrics, however, corruption is commonly measured by reference only to specific bodies or processes—e.g., judiciary, parliament, procurement—and not behaviors, thus creating ample confusion for any sort of meta-analysis, as the same label is used for different empirical phenomena. Even moving beyond the public sector has proven challenging, with private sector-specific indicators rarely developed (Gutmann & Lucas, 2018) and the main international measurement effort—Transparency International’s Bribe Payers Index²⁵ (BPI)—getting discontinued in 2011. In the cases where corruption is explicitly linked to specific activities, it is then simply operationalized as bribery (as best shown by the SDG indicators). Measuring corruption by reference to any single activity effectively limits the degree to which metrics may capture reality as experienced in diverse contexts.

A related problem involves the necessity to measure activities at all. In addressing the frequency of corruption, international metrics tend to focus either on its probability—e.g., WJP’s question, “How frequently do people have to pay bribes, informal payments, or other monetary inducements to [obtain a public service]?” (Botero & Ponce, 2011)—or in the number of people involved—e.g., GCB’s question, “How many of the following people do you think are involved in corruption...?”²⁶ While individuals and events are necessarily connected and both tell us something about the level of corruption, the unit of analysis selected has important implications for the interpretation of results, as it has been abundantly clear in the field of criminology. In dealing with crime rates, the quantification of incidence—“the number of incidents in a given area” (Sunder & Birks, 2004: 52)—and prevalence—“the number of victims in a given area” (Sunder & Birks, 2004: 52)—provide two equally valuable figures that, in combination, can best direct policing resources. Similarly, it is evident that measuring the prevalence of corruption is crucial in at least three ways. First, the prevalence of corruption among decision-makers such as politicians has been suggested to increase the popular perception that corruption cannot be curbed and, consequently, raise their tolerance of malfeasance (Pavão, 2018). Second, a measurement of prevalence also directs attention toward the identification and mapping of corrupt networks, an area that has shown promise over the past few years (Luna-Pla & Nicolás-Carlock, 2020; Gawthorpe & Pozsgai-Alvarez, 2023). Third, thinking in terms of the prevalence of corruption within an industry or across a sector has encouraged research on innovative policy approaches, such as “integrity pacts” (Prateepornnarong, 2022) and “islands of integrity” (Zúñiga & Chêne, 2018). However, the way prevalence is being discussed here contrasts with ordinary crime rates, as we turn away from victimization to focus on the victimizers. Indeed, when it comes to corruption, metrics have consistently paid attention to the spread of corruption among individuals in positions of power, thus creating the illusion that corruption is a condition or state—that an official either is or is not corrupt. Setting aside the moral

²⁵ The Bribe Payers Index 2011 is available at <https://www.transparency.org/en/publications/bribe-payers-index-2011>.

²⁶ Global Corruption Barometer (GCB) for Africa, 10th edition, Question 1. Methodology available at <https://www.transparency.org/en/gcb/africa/africa-2019>.

philosophy of it, the fact of the matter is that it remains crucial for measurement purposes to know *how much* corruption officials engage in, lest we count incidental bribees as equal to members of a criminal organization. Consequently, the value of measuring the prevalence of corruption (how widespread it is) hinges on understanding its incidence (how often it occurs). This point is reflected in the significance of corruption scandals for perceptions of corruption (Solé-Ollé & Sorribas-Navarro, 2018) and the experimental finding that voters may not be affected by the prevalence of corruption when considering electoral punishment against specific wrongdoers (Vera, 2020). Indeed, the insights provided by incidence data suggest that its capacity to support key corruption metrics—especially once the relevant population size is accounted for—might precede the inclusion of prevalence data.

Regardless of their order of priority, prevalence and incidence may be further explored by thinking in terms of data structure—that is, the description of an item through its various attributes. In measuring corruption, an individual actor would be represented by several features, such as their organizational affiliation, role, participation in one or more corrupt events, total benefits extracted, and others. On the other hand, a discrete event would be represented by its geographical and organizational location, monetary and non-monetary costs, the actors involved, and others. While these two structures necessarily lead to one another, they both reflect the importance of measuring corruption with a sufficient degree of detail or *granularity* in order to be actually useful. While indices like the Corruption Perception Index and the World Bank's Control of Corruption remain popular due in large degree to their simplicity, providing a single score that encapsulates the assessed level of corruption in a country, this reduction does not serve national policymakers as much as it may international observers. This leads Andersson (2017) to observe that “standard corruption measurements implicitly treat corruption as a one-dimensional phenomenon (measured by a single score)”. Other approaches to measurement fare better, such as victimization surveys—which usually capture the type of public service—and procurement data—which capture both the contracting entity and its location—, but necessarily at the expense of comprehensiveness. The balance between covering the various forms of corruption while preserving detail has been previously proposed by authors like Bland (2014), who suggested sixty indicators across nine components of public administration and governance at the sub-national level. In practical terms, metrics such as the Global Corruption Index reflect this sort of ambition by using data triangulation, and the Rule of Law Index's Absence of Corruption factor provides scores at the level of government branch; however, the sub-national level remains mostly forsaken.

The deficit in granularity inevitably leads to gaps in our knowledge concerning the events being purportedly measured. Where are they taking place? What organizations are being affected? Who is involved? On the other hand, increasing granularity in the description of corruption events introduces a relational problem, as several events may also be found hierarchically linked in ways that make even basic quantification a more complex task than originally imagined. In collecting forensic or news data on corruption cases, researchers are called to devise ways to represent primary events—i.e., the larger corruption event being investigated—as well as tributary events—i.e., the specific corrupt acts perpetrated in the commission of the larger corruption event—without creating duplicate measurements. These issues are relevant insofar as they describe the data being collected, but we can successfully quantify corruption simply by selecting the level of aggregation and acknowledging its intrinsic limitations.

A more serious challenge emerges when we attempt to compare the level of corruption between different *types* of corruption. For example, we may ask ourselves: Do ten cases of political corruption in the Ministry of Agriculture represent the same level of corruption as, say, ten cases of petty bribery in the Tax and Customs Administration? A similar question may be raised at a higher level of aggregation: Is the level of corruption in a country marred with scandals of political malfeasance equal to another where informal payments to street-level bureaucrats are the norm? To offer a possible answer to these questions, I turn now to consider a second dimension for corruption metrics—cost.

4 Second Dimension: Cost

While measuring the frequency of an event in a given location during a given period makes intuitive sense, knowing that something is happening n times does not in itself tell us how important it is to deal with it. After all, Klitgaard (1988) had already provided something of a truism over thirty years ago concerning the possibility of reducing the level of corruption: given that “policies to crack down on corruption have costs in terms of the organization’s effective performance of its primary mission” (1988: 195), the optimal level of corruption cannot be zero. Simply put, at some point the amount of resources needed to reduce the frequency of corruption even by one instance would be higher than the amount of resources being lost to said corruption event, effectively making it more costly for the organization to fight malfeasance than to simply allow it. This idea can be translated to our discussion by recognizing that the measurement of corruption must necessarily also capture its costs, not merely its frequency. Evidently, the two are not independent from one another—all else being equal, repeated events will necessarily impose higher costs than a single instance. This inherent connection between frequency and cost allows for the possibility of treating the former as a proxy measure for the latter. Yet, once we are reminded of the heterogeneous forms that corruption can take, the frequencies of two different types of corruption, or of the same type in different settings, cannot be adequately compared in a way that would elucidate their respective costs. Therefore, the size of a corruption event and the frequency with which it occurs are two complementary but ultimately distinct dimensions that will better reflect the level of corruption in a given context and inform ways to redress it.

Certainly, the importance of considering costs in the study of corruption is not new. During the 1960s and 1970s, a significant perspective portrayed corruption as a necessary component of the modernization process. Prominent scholars like Huntington (1968) and Leff (1964) famously described corruption as the “grease in the wheels” that could function as a facilitator of development by bypassing bureaucratic inefficiencies. In this sense, the impact of corruption could be explored in terms of costs and benefits, with Nye (1967: 421) providing examples of the former as “economically wasteful, politically destabilizing, and destructive of governmental capacity.” However, the economic study of corruption (whether “functionalist” or otherwise) did not focus on systematically quantifying its costs until much later, only beginning when other fields started to take an interest as well. As Johnson (2015) points out, risk assessments of the type conducted by business organizations are normally based on estimating the probability of an event and multiplying it by its expected impact, an exercise that can be equally applied to assessing the magnitude of corruption risks. From the perspective of criminal justice, we can also consider corruption a crime against public

administration and attempt to measure it by reference to its seriousness—that is, by assessing its harm (i.e., “the consequences of the offense for the victim”) or wrongfulness (i.e., “the moral gravity of committing the act”) (Warr, 1989: 796).

Calculating the harm caused by a discrete corruption event is easier said than done, however, and estimating the aggregate value of corrupt transactions remains something of an illusion. An often-cited number puts the global size of corruption between US\$600 billion and US\$1.5 trillion (Kaufmann, 2005) (with the ‘US\$1 trillion’ estimate being ubiquitous in international discourse). While these numbers are meant to be only an approximation, several efforts have been made over the years to provide a more precise estimate by narrowing the target to the average value of a bribe.

As in other aspects, the GCB was an early adopter of measuring costs. In its 2005 edition,²⁷ the survey asked “What was the approximate amount of money paid overall in bribes by your household in the past 12 months?”, with answers being converted into USD or euros and coded within specific ranges (1–29, 30–49, 50–74, etc., up to US\$1000+). The 2006 iteration²⁸ changed this approach and, instead, inquired about the cost of the last bribe paid and the number of times it had happened over the previous 12 months (the frequency dimension was not included in subsequent years). In 2009, GCB²⁹ reverted to a previous format, asking once again for the ‘overall’ amount paid over the period—but added a follow-up question to estimate the amount “in terms of percentage of the household income”. Unfortunately, the GCB’s interest in these data came to an abrupt halt and the approach was dropped from its 2010 questionnaire, a situation that successive survey rounds have not corrected. However, other region- and country-specific studies have followed in its footsteps. The 2013 Special Eurobarometer on corruption³⁰ asked participants to report the amount paid (or expected to pay) as a bribe in various instances,³¹ with possible responses provided in the ranges of 1–50, 51–100, 101–200, and 200+ euros. Albeit the number of positive responses was small (only three cases received a hundred or more responses), the survey found that a payment of 1–50 euros was most common in contacts with the healthcare system (13%) and the police/customs (34%), while bribes to private companies more commonly (22%) cost 200 euros or more. Similarly, data from individual national surveys in the western Balkan region placed the average bribe at 133 euros (calculated on the amount of the last bribe paid) and a frequency of 5 times over the previous 12 months, mostly to “receive better treatment” (27.7%) and “speed up procedure” (27.7%) (UNODC, 2011, 56). The cost varied significantly across the region, with Albanians paying an average bribe of 43 euros and North Macedonians 470 euros. Concerning specific industries/services, Olken and Barron (2009) find that the cost of a bribe paid by Indonesian truck drivers was between US\$0.55 and US\$1.10, for a total of US\$42.25 during a one-way trip; a similar study by Foltz and Opoku-Agyemang (2015) finds that truck drivers pay an average bribe of US\$4.48

²⁷ The Global Corruption Barometer 2005 report is available at <https://www.transparency.org/en/publications/gcb-2005>.

²⁸ The Global Corruption Barometer 2005 report is available at <https://www.transparency.org/en/gcb/global/global-corruption-barometer-2006>.

²⁹ The Global Corruption Barometer 2005 report is available at <https://www.transparency.org/en/gcb/global/global-corruption-barometer-2009>.

³⁰ The Special Eurobarometer 397: Corruption report is available at https://www.stt.lt/data/public/uploads/2019/11/d2_ebs_397_en.pdf.

³¹ The precise question read: “QB9c How much of a bribe was asked for or expected by your contact in/with...”.

in Burkina Faso and US\$1.00 in Ghana. In Latin America, a survey conducted in 2010 by Transparencia Mexicana³² found that Mexican households spent on average 14% of their monthly income on bribes. In terms of precise amounts, Hunt and Laszlo (2012) report on the Peruvian *Encuesta Nacional de Hogares* survey, finding the average household bribe to be equivalent to US\$23.

As observed in the above studies, the average cost of at least one type of corruption—more specifically, bribery—can be effectively measured with some degree of granularity. We can somewhat observe this capacity too in studies of procurement corruption, which provide an estimation of the inflationary consequences of corruption risks on public contracts (Fazekas & Tóth, 2018). Moreover, the possibility of capturing both cost and frequency using the same instrument has also been tested (although not without difficulty, as we must consider the aggregate value of repeated events or the specific value of each independent event, two equally impractical options). However, the definition of the measured construct and the way it reflects the underlying dimension of “cost” is a challenge that has yet to be given proper consideration. Instead of capturing the amount of money paid as a bribe, we may choose to quantify the value of the benefits received or resources compromised. For example, while the cost of corruption in procurement may be estimated through kickbacks paid, it can also be assessed based on the value of awarded contracts. This distinction is important: corruption proceeds reinvested locally may still lead to inefficiencies, but the real loss occurs when illegal rents are transferred offshore. On the other hand, if we target the value of the contracts tarnished by corruption, then questions emerge about the indirect costs resulting from deficient goods and services, ranging from negative externalities—e.g., teacher absenteeism leading to lower education and future income loss (Fazekas et al., 2021)—to systemic effects—e.g., corruption scandals leading to lower interpersonal trust and regime legitimacy (Seligson, 2002).

Finally, and going back to measuring costs through the seriousness of corruption events, this may also be done without reference to any objective harm caused, choosing to focus instead on the “wrongfulness” of corruption. In fact, as I will discuss in the next section, reference to the moral significance of different corruption events is not only an alternative to the objective quantification of cost—it is an entirely new dimension that must be accounted for in order to accurately assess the level of corruption within specific cultural contexts.

5 Third Dimension: Significance

Even before the first edition of the Corruption Perception Index was launched, it was well understood (even if not quantified) that the level of corruption varied across countries. This much was initially established through the first dimension of corruption measurement (i.e., frequency). Some metrics have been further able to provide the foundational data for calculating the size of bribery in some countries, and the analysis of procurement data promises to extend this calculation to all corruption risks within a specific administrative process (World Bank, 2023) but with a great deal of granularity. However, the possibility that estimating the frequency and costs of corruption events might not be sufficient to accurately compare the levels of corruption between different jurisdictions is seldom considered. The

³² The report is available at https://www.tm.org.mx/wp-content/uploads/2011/05/INFORME_EJECUTIVO_INCBG2010.pdf.

sole exception can be found in Ang's (2020) Unbundling Corruption Index, which is used to measure corruption in fifteen countries along four specific types of events: petty theft, grand theft, speed money, and access money. Its results show that although two countries may have identical overall corruption scores as traditionally measured, they may differ in regard to their dominant type of corruption, leading to substantially different economic outcomes. The author correctly points out that "[w]hen corruption is conceptualized and measured as a score on a single dimension, from 0 to 100, this prompts analysts to ask: Which countries are most corrupt?... Once corruption is unbundled, however, we raise a different set of questions: Which types of corruption dominate in which countries?" (Ang, 2020: 11).

Although still set within a discussion focused on economic aspects, the Unbundling Corruption Index prompts researchers working on corruption metrics to question the capacity of costs (defined in any of the various ways discussed in the previous section) to reflect the actual *significance* of different types of corruption for the societies affected. Certainly, the dimension of "cost" may exceed mere monetary value, reflected in possible systemic effects, political instability, or lower governmental capacity (as mentioned in the previous section). However, these issues remain largely objective—that is, their evaluation is not contingent on local preferences—theoretically allowing us to measure any of these costs across jurisdictions with a standard instrument. The proposed dimension of "significance" takes a different view, emphasizing the subjective nature of the social construction of corruption, and making its evaluation inherently contingent on the target group's interpretation. For instance, when examining the negative impact on social trust, the "cost" dimension would focus on economic inefficiencies and increased expenditure (e.g., reliance on contractualism), while "significance" would address the social relevance of these forms of corruption, regardless of their economic costs.

While measurement initiatives have yet to adopt this dimension in their methodologies, there is a prominent area of (anti-)corruption studies that has developed around this issue: the study of tolerance toward corruption. Already in their seminal work on the quantification of corruption cases involving members of Congress, Peters and Welch (1980) recognized the necessity to account for the severity of different corruption cases, scoring each data entry between 0 and 9 based on how corrupt the case was according to several criteria. This severity or wrongfulness (as defined earlier) has been more recently explored in a number of studies dealing with citizen attitudes or permissiveness as an expression of corruption tolerance. Pozsgai-Alvarez (2022: 382) succinctly defines this concept as "an individual's moral approval of, or willing participation in, a corrupt event," employing it to examine the determinants of three types of bribery—in the private sphere, in the public bureaucracy, and in justice administration—and demonstrating that, unsurprisingly, tolerance varies depending on the type of corruption considered. Other scholars have also moved beyond the measurement of tolerance of corruption as a unified phenomenon to study its various manifestations (McGee & Petrides, 2023; Tu et al., 2020). However, the measurement of corruption tolerance in a disaggregated form remains in its infancy.

What appears already clear is that the tolerance of corruption is contextually determined and has a quantifiable relationship with the perception of corruption (Hunady, 2017; Liu et al., 2023). Crucially, tolerance is not only determined by individual factors, but also by country characteristics. For instance, Pop (2012: 34) finds preliminary evidence that "in countries with more income inequality the acceptance of corrupt acts is lower," whereas the opposite is true in countries from the former Soviet bloc. Factors related to political

culture have also been found important, specifically freedom of the press and youth and female representation in parliament (Gouvêa Maciel, 2021). This emerging body of evidence for country-specific determinants of corruption tolerance should lead us to appreciate that, just as the meaning of corruption remains contested among scholars, the estimation of how corrupt an event is cannot be exclusively derived from the value of the damage done but depends on several conditions. Sumar and Orellana (2023: 212) reflect on this perspective when discussing sanctions for the non-property damage of corruption crimes, offering criteria such as the “importance of the duties breached,” the “place, context, and manner of the commission of the unlawful act,” the “advantage obtained,” and the “level of public dissemination,” among other factors of the case. In other words, the seriousness of corruption results from its moral evaluation within the context in which it takes place, far exceeding the quantification of its economic and financial damage.

The entirely contextual nature of this third dimension inevitably leads to questions of aggregation. While the majority of initiatives already reviewed here address corruption at the country level due to the prominence of this unit of analysis in international fora, some examples of region-specific and, to a lesser degree, subnational data can also be observed. These include the Western Hemisphere Anticorruption Index (WHACI), which assesses the level of implementation of international anti-corruption conventions across Latin America and the Caribbean (Zabyelina et al., 2022). Funded by the European Commission, the CO.R.R.E. (2023) project also provides both methodological innovations (Gnaldi & Del Sarto, 2024) and online interactive tools to explore procurement risks during emergency periods at the subnational level in Italy, Spain, Ireland, and Portugal. The increasing interest in geographically disaggregating corruption is perhaps most evident in the work of Crombach and Smits (2024), who constructed a subnational database of grand and petty corruption for 178 countries. The various levels of real or potential aggregation have a direct impact on our discussion about significance, as the moral evaluation of particular acts is inextricably linked to the time and place in which they occur, often in a more specific rather than general context.

The impact of time on the construction of corruption as an object of moral dispute was recognized early on by prominent scholars such as Scott (1972) and Huntington (1968), who saw it embedded within the process of modernization—although others have profusely discussed its evolving history across millennia (e.g., Kroeze & Geltner, 2017). Theorizing about the current stage in the story, Pozsgai-Alvarez (2020: 447) further suggests that “if the transition from tribes to kingdoms and other pre-modern states (driven by the institutionalization of political authority) signaled the emergence of public corruption, the development of modern states gave way to a re-labeling of previously accepted behaviors that would ultimately allow society to recognize corruption in the private sector as well.” Hence, when combined with space—understood in the sense of both geography and community—it is possible to appreciate how corruption has meant many and diverse things for different people at different times. Certainly, a strong sense of moral opprobrium has long been found at the core of the concept of corruption (Noonan, 1984). However, while bribery per se is usually considered to be universally reviled, some of its forms are still confused with gifts and other manners of hospitality (Chang et al., 2001) based on tradition, customs, or social norms—understood as “specific behavioral expectations within a culture” (Kubbe et al., 2024:6). Moreover, other types of corruption such as nepotism and clientelism may be better described as informal institutions than punishable crimes in many countries (Mungiu-

Pippidi, 2018). As the field grows out from an earlier “one-size-fits-all” way of thinking and toward a more contextual analysis, the calls to understand the sociocultural factors affecting individual and group decision-making have become increasingly common over the past few years.

In translating this idea into corruption metrics, it is apparent that the definitional problem succinctly referred to since the beginning of this paper not only affects the measurement of frequency. The possibility of having to deal with behavioral types better classified as either “primary” or “secondary” forms of corruption based on the degree to which they are considered morally deviant (Pozsgai-Alvarez, 2020) introduces another level of complexity when considering their measurement. Other things equal, is a case of nepotism equally serious as an instance of pork barreling? Is bribery in the public sector better or worse than embezzlement in the private sector? Are political corruption and judicial corruption equally immoral? A culturally sensitive approach to corruption measurement suggests that a representation of the extent of the corruption problem in a specific location and time should mirror the significance of those events for the affected stakeholders. Otherwise, indices that record various types of corruption but fail to consider their impact on the social and moral fabric of society may not effectively guide policy efforts to areas of greatest concern.

6 Conclusion: A Three-dimensional Approach to Corruption Measurement

In this paper, I have attempted to provide an argument in support of the construction of corruption metrics that account for three essential dimensions—the frequency with which corruption takes place, the costs involved, and the significance it has in a given context. To address these dimensions of corruption measurement, an overview of the development of corruption metrics was first provided, describing the collection and analysis of different types of data—perceptions and victimization surveys, administrative performance, news articles, procurement processes, etc.—and locating them along three generations of measurement initiatives. The discussion of each dimension against the backdrop of this history highlighted some of the strengths of international indices and scholarly efforts, but it also facilitated the identification of various challenges. I argued that the most prominent deficit is the overreliance on frequency indicators to the detriment of cost assessments, along with the persistent exclusion of contextually-embedded appraisals.

While the extent to which these dimensions overlap or represent mutually exclusive components of the latent variable termed “corruption” remains an empirical question, the theoretical discussion suggests limited interactions between them. In other words, rather than one of the three dimensions being a factor of the others, we can expect them to behave largely independently. The salience of corruption following corruption scandals (Solé-Ollé & Sorribas-Navarro, 2018; Petersen, 2021) and the way it has historically punctuated political and bureaucratic reforms is well acknowledged (Pereyra, 2019), leading one to believe in a positive causal relationship between “frequency” and “significance.” However, there is ample evidence that an increase in perceived corruption leads to a higher individual tolerance of corruption (Hunady, 2017) and little moral opprobrium (Letki et al., 2023), suggesting that the opposite might actually be true. On the other hand, high real or perceived costs associated with corruption events may lead to higher salience and stronger moral criticism,

as seen in the gap between tolerance of grand and petty corruption (Truex, 2011). Yet, the relationship between “cost” and “significance” often develops independently of frequency, as Atkinson’s (2011) rueful question—“why is Canada so corrupt?”—poignantly conveys. More recently, we have witnessed a political scandal of major significance without relevant costs or frequency in the case of the British “Partygate,” providing further reason to believe in the decoupling of these dimensions. All this leads to the conclusion that the significance of different corruption events can evolve over time by the actions of moral entrepreneurs and reformers just as it does by higher frequency and costs. These findings from the literature suggest that the three dimensions have a complex and still unresolved relationship, making them unsuitable to become each other’s proxy.

In summarizing the questions that corruption measurement initiatives are called to face in light of the discussion over multiple dimensions, it becomes possible to see the outline of an approach meant to guide the development of future—and improved—corruption metrics:

Frequency

- What specific behaviors are being targeted for measurement? Does the metric intend to measure those specific behaviors, or are they meant to provide a comprehensive image of the broader corruption phenomenon?
- Should the metric capture the prevalence of corruption, its incidence, or both?
- What is the degree of granularity that the metric aims to reflect? Do data include details on the organizations affected, their geographical location, the roles of individuals involved, the frequency of their participation in corrupt events, the monetary and non-monetary value of damages incurred, etc.?
- How does the metric deal with primary and tributary events to avoid creating duplicate measurements?

Cost

- Does the metric capture the size of the corruption problem in terms of the harm caused?
- Is the size captured with sufficient granularity? Is the harm caused by different types of corruption separately measured?
- Should the metric capture the amount of money instrumentally used—that is, the amount transacted to corrupt an individual or administrative process—, the value of the benefits received, or the amount of resources compromised?

Significance

- How serious are the different types of corruption being measured, in terms of their moral evaluation within the context in which they take place?
- Does the metric’s scoring scheme take into account the seriousness of the different corrupt events captured? How is this done?

These questions reflect concern for (1) a more accurate representation of the level of corruption in different contexts, and (2) a higher level of self-awareness and transparency in the development of corruption metrics. As explained in this paper, measuring the frequency

or probability of a phenomenon as damaging as corruption is of crucial importance for a number of reasons—many of them associated with development goals—but it should not be considered the only dimension of interest in this respect. To accurately quantify the level of corruption afflicting any given group (be it an organization or an entire country), measurement efforts must contend with the complexity of this phenomenon, one which extends beyond the simple incidence of events or their prevalence among a given population to include the harm caused—i.e., its cost—and its locally-assessed wrongfulness—i.e., its significance.

While data producers will inevitably answer the above questions in different ways—reflecting their own interests and needs—the mere exercise will hopefully raise their level of awareness about the specific features of the phenomenon they are actually observing rather than the one they hoped they were capturing. Perhaps most importantly, providing answers and making them publicly known will make their efforts more transparent, facilitating the reproduction of results and alerting decision-makers to the proper ways in which they should be translated to policy options.

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Declarations

Conflict of Interest The author confirms that they have no financial interests (such as investments, stock ownership, or other financial holdings) or non-financial interests (including personal or professional relationships, affiliations, knowledge, or beliefs) that could be construed as conflicts of interest or seen as influencing the research findings.

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References

- Agerberg, M. (2022). Corrupted estimates? Response bias in citizen surveys on corruption. *Political Behavior*, 44(2), 653–678.
- Albanese, J. S., Artello, K., & Nguyen, L. T. (2019). Distinguishing corruption in law and practice: Empirically separating conviction charges from underlying behaviors. *Public Integrity*, 21(1), 22–37.
- Andersson, S. (2017). Beyond unidimensional measurement of corruption. *Public Integrity*, 19(1), 58–76.
- Ang, Y. Y. (2014). Authoritarian restraints on online activism revisited: Why I-paid-a-bribe worked in India but failed in China. *Comparative Politics*, 47(1), 21–40.
- Ang, Y. Y. (2020). Unbundling corruption: Revisiting six questions on corruption. *Global Perspectives*, 1(1), 12036.
- Argandoña, A. (2003). Private-to-private corruption. *Journal of Business Ethics*, 47, 253–267.
- Atkinson, M. M. (2011). Discrepancies in perceptions of corruption, or why is Canada so corrupt? *Political Science Quarterly*, 126(3), 445–464.
- Bello y Villarino, J. M. (2021). Measuring corruption: A critical analysis of the existing datasets and their suitability for diachronic transnational research. *Social Indicators Research*, 157(2), 709–747.
- Bland, G. (2014). Measuring subnational government corruption in the developing world: A vulnerability-assessment framework. *Public Integrity*, 16(3), 265–284.

- Boese, V. A. (2019). How (not) to measure democracy. *International Area Studies Review*, 22(2), 95–127.
- Botero, J. C., & Ponce, A. (2011). Measuring the rule of law. *The World Justice Project – Working Paper Series* 2011:001.
- Boylan, R. T., & Long, C. X. (2003). Measuring public corruption in the American states: A survey of state house reporters. *State Politics & Policy Quarterly*, 3(4), 420–438.
- Caiden, G. E. (1981). Public maladministration and bureaucratic corruption. *Hong Kong Journal of Public Administration*, 3(1), 56–71.
- Cao, Y., Fan, M. Y., Hlatshwayo, S., Petrescu, M., & Zhan, Z. (2021). A sentiment-enhanced corruption perception index. *IMF Working Paper No.* 2021/192.
- Capasso, S., & Santoro, L. (2018). Active and passive corruption: Theory and evidence. *European Journal of Political Economy*, 52, 103–119.
- Chang, C. S., Chang, N. J., & Freese, B. T. (2001). Offering gifts or offering bribes? Code of ethics in South Korea. *Journal of Third World Studies*, 18(1), 125–139.
- Charron, N., & Annoni, P. (2021). What is the influence of news media on people's perception of corruption? Parametric and non-parametric approaches. *Social Indicators Research*, 153(3), 1139–1165.
- Claassen, C., Ackermann, K., Bertsou, E., Borba, L., Carlin, R. E., Cavari, A., & Zechmeister, E. J. (2024). Conceptualizing and measuring support for democracy: A new approach. *Comparative Political Studies*, 1–28. <https://doi.org/10.1177/00104140241259458>
- CO.R.E (2023). About. CO.R.E COrruption Risk indicators in Emergency project. <https://www.core-anticorruption.eu/about-2/>
- Coppedge, M., Gerring, J., Altman, D., Bernhard, M., Fish, S., Hicken, A., & Teorell, J. (2011). Conceptualizing and measuring democracy: A new approach. *Perspectives on Politics*, 9(2), 247–267.
- Cordis, A. S., & Milyo, J. (2016). Measuring public corruption in the United States: Evidence from administrative records of federal prosecutions. *Public Integrity*, 18(2), 127–148.
- Costas-Pérez, E., Solé-Ollé, A., & Sorribas-Navarro, P. (2012). Corruption scandals, voter information, and accountability. *European Journal of Political Economy*, 28(4), 469–484.
- Crombach, L., & Smits, J. (2024). The subnational corruption database: Grand and petty corruption in 1,473 regions of 178 countries, 1995–2022. *Scientific Data*, 11(1), 686.
- D'Agostino, G., & Pieroni, L. (2019). Modelling corruption perceptions: Evidence from Eastern Europe and central Asian countries. *Social Indicators Research*, 142, 311–341.
- Fazekas, M., & Tóth, B. (2018). The extent and cost of corruption in transport infrastructure. New evidence from Europe. *Transportation Research part A: Policy and Practice*, 113, 35–54.
- Fazekas, M., Tóth, I. J., & King, L. P. (2016). An objective corruption risk index using public procurement data. *European Journal on Criminal Policy and Research*, 22, 369–397.
- Fazekas, M., Adam, I., Nikulina, O., Balabanova, D., Dávid-Barrett, E., Hutchinson, E., Kirya, M., & Peiffer, C. (2021). Study on the Extent and Costs of Corruption in the Education Sector in Uganda. Inspectorate of Government, Uganda. Retrieved January 4, 2024, from <https://www.govtransparency.eu/study-on-the-extent-and-costs-of-corruption-in-the-education-sector-in-uganda/>
- Foltz, J. D., & Opoku-Agyemang, K. A. (2015). Do higher salaries lower petty corruption? A policy experiment on West Africa's highways. Unpublished Working Paper, University of Wisconsin-Madison and University of California, Berkeley. Retrieved January 4, 2024, from https://cega.berkeley.edu/assets/miscellaneous_files/118_-_Opoku-Agyemang_Ghana_Police_Corruption_paper_revised_v3.pdf
- Gawthorpe, S., & Pozsgai-Alvarez, J. (2023). How to identify widespread corruption? New insights from geo-spatial analysis. *Governance*. <https://doi.org/10.1111/gove.12832>
- Gilman, S. C. (2018). To understand and to misunderstand how corruption is measured: Academic research and the corruption perception index. *Public Integrity*, 20(sup1), S74–S88.
- Gnaldi, M., & Del Sarto, S. (2023). Validating corruption risk measures: A key step to monitoring SDG progress. *Social Indicators Research*, 1–27. <https://doi.org/10.1007/s11205-023-03238-y>
- Gnaldi, M., & Del Sarto, S. (2024). Measuring corruption risk in public procurement over emergency periods. *Social Indicators Research*, 172(3), 859–877.
- Goel, R. K., Nelson, M. A., & Narett, M. A. (2012). The internet as an indicator of corruption awareness. *European Journal of Political Economy*, 28(1), 64–75.
- Golden, M. A., & Picci, L. (2005). Proposal for a new measure of corruption, illustrated with Italian data. *Economics & Politics*, 17(1), 37–75.
- Gouvêa Maciel, G. (2021). What we (don't) know so far about tolerance towards corruption in European democracies: Measurement approaches, determinants, and types. *Social Indicators Research*, 157(3), 1131–1153.
- Gouvêa Maciel, G., Magalhães, P. C., de Sousa, L., Pinto, I. R., & Clemente, F. (2022). A scoping review on perception-based definitions and measurements of corruption. *Public Integrity*, 26(1), 1–18.
- Guerrazovich, F. (2012). *Effectiveness of international anticorruption conventions on domestic policy changes in Latin America*. Open Society Foundations.

- Gutmann, J., & Lucas, V. (2018). Private-sector corruption: Measurement and cultural origins. *Social Indicators Research*, 138, 747–770.
- Gutmann, J., Padovano, F., & Voigt, S. (2020). Perception vs. experience: Explaining differences in corruption measures using microdata. *European Journal of Political Economy*, 65, 101925.
- Hajdu, M., Pápay, B., Szántó, Z., & Tóth, I. J. (2018). Content analysis of corruption coverage: Cross-national differences and commonalities. *European Journal of Communication*, 33(1), 7–21.
- Hlatshwayo, S., Oeking, A., Ghazanchyan, M. M., Corvino, D., Shukla, A., & Leigh, M. L. Y. (2018). The measurement and macro-relevance of corruption: A big data approach. *IMF Working Paper No. 2018/195*.
- Hong, J. Y., & Yang, L. Y. (2022). Do winners spread more words? Factional competition and local media reports on corruption investigation in China. *Political Science Research and Methods*, 1–18. <https://doi.org/10.1017/psrm.2022.35>
- Hossain, A. T., Hossain, T., & Kryzanowski, L. (2021). Political corruption and corporate payouts. *Journal of Banking & Finance*, 123, 106016.
- Hunady, J. (2017). Individual and institutional determinants of corruption in the EU countries: The problem of its tolerance. *Economia Politica*, 34, 139–157.
- Hunt, J., & Laszlo, S. (2012). Is bribery really regressive? Bribery's costs, benefits, and mechanisms. *World Development*, 40(2), 355–372.
- Huntington, S. (1968). *Political order in changing societies*. Yale University Press.
- IDB (2006). Measuring the opposite of corruption. *Inter-American Development Bank - Web Stories*. Retrieved from <https://www.iadb.org/en/news/measuring-opposite-corruption>
- Jávor, I., & Jancsics, D. (2016). The role of power in organizational corruption: An empirical study. *Administration & Society*, 48(5), 527–558.
- Johnson, J. (2015). The basics of corruption risk management: a framework for decision making and integration into the project cycles. *U4 Issue 2015*(18). Retrieved January 4, 2024, from <https://open.cmi.no/cmi-xmlui/bitstream/handle/11250/2475086/The%20basics%20of%20corruption%20risk%20management%3a%20%20A%20framework%20for%20decision%20making%20and%20integration%20into%20the%20project%20cycles>
- Kaufmann, D. (2005). Myths and realities of governance and corruption. *Global Competitiveness Report 2005-06*: pp. 81–98.
- Khalil, F., Lawarrée, J., & Yun, S. (2010). Bribery versus extortion: Allowing the lesser of two evils. *The Rand Journal of Economics*, 41(1), 179–198.
- Klitgaard, R. (1988). *Controlling corruption*. University of California Press.
- Kroeze, R., & Geltner, G. (Eds.). (2017). *Anticorruption in history: From antiquity to the modern era*. Oxford University Press.
- Kubbe, I., Baez-Camargo, C., & Scharbatke-Church, C. (2024). Corruption and social norms: A New Arrow in the Quiver. *Annual Review of Political Science*, 27, 1–22.
- Le Moglie, M., & Turati, G. (2019). Electoral cycle bias in the media coverage of corruption news. *Journal of Economic Behavior & Organization*, 163, 140–157.
- Leff, N. (1964). Economic development through bureaucratic corruption. *American Behavioral Scientist*, 8(3), 8–14.
- Letki, N., Górecki, M. A., & Gendźwił, A. (2023). They accept bribes; we accept Bribery': Conditional effects of Corrupt encounters on the evaluation of Public Institutions. *British Journal of Political Science*, 53(2), 690–697.
- Liu, T. A. X., Juang, W. J., & Yu, C. (2023). Understanding corruption with Perceived Corruption: The Understudied Effect of Corruption Tolerance. *Public Integrity*, 25(2), 207–219.
- López-Iturriga, F. J., & Sanz, I. P. (2018). Predicting public corruption with neural networks: An analysis of Spanish provinces. *Social Indicators Research*, 140, 975–998.
- Luna-Pla, I., & Nicolás-Carlock, J. R. (2020). Corruption and complexity: A scientific framework for the analysis of corruption networks. *Applied Network Science*, 5, 1–18.
- Mashali, B. (2012). Analyzing the relationship between perceived grand corruption and petty corruption in developing countries: Case study of Iran. *International Review of Administrative Sciences*, 78(4), 775–787.
- McGee, R. W., & Petrides, Y. (2023). Are some forms of Bribery worse than others? In R. W. McGee & S. Benk (Eds.), *The ethics of bribery: Theoretical and empirical studies* (pp. 257–271). Springer International Publishing.
- Meier, K. J., & Holbrook, T. M. (1992). I seen my opportunities and I took 'em: Political corruption in the American states. *The Journal of Politics*, 54(1), 135–155.
- Munck, G. L. (2016). What is democracy? A reconceptualization of the quality of democracy. *Democratization*, 23(1), 1–26.
- Mungiu-Pippidi, A. (2018). Seven steps to control of corruption: The road map. *Daedalus*, 147(3), 20–34.

- Mungiu-Pippidi, A. (2023). Transparency and corruption: Measuring real transparency by a new index. *Regulation & Governance*, 17(4), 1094–1113.
- Mungiu-Pippidi, A., & Dadašov, R. (2016). Measuring control of corruption by a new index of public integrity. *European Journal on Criminal Policy and Research*, 22, 415–438.
- Mungiu-Pippidi, A., & Dadašov, R. (2017). When do anticorruption laws matter? The evidence on public integrity enabling contexts. *Crime Law and Social Change*, 68, 387–402.
- Navia, P., Perelló, L., & Masek, V. (2020). The determinants of perception of corruption in Guatemala, 2006–2016. *Public Integrity*, 22(5), 425–444.
- Noonan, J. T. (1984). *Bribes: The intellectual history of a moral idea*. Macmillan.
- Olken, B. A. (2007). Monitoring corruption: Evidence from a field experiment in Indonesia. *Journal of Political Economy*, 115(2), 200–249.
- Olken, B. A., & Barron, P. (2009). The simple economics of extortion: Evidence from trucking in Aceh. *Journal of Political Economy*, 117(3), 417–452.
- Ortega Nieto, D., Fazekas, M., Vaz Mondo, B., Tóth, B., & Braem Velasco, R. A. (2023). *Governance Risk Assessment System (GRAS): Advanced Data Analytics for Detecting Fraud, Corruption, and Collusion in Public Expenditures*. Washington, D.C.: World Bank Group. <https://www.govtransparency.eu/wp-content/uploads/2023/11/WBG-GRAS-Fazekas-Vaz-Mondo-Tóth.pdf>
- Pavão, N. (2018). Corruption as the only option: The limits to electoral accountability. *The Journal of Politics*, 80(3), 996–1010.
- Percyra, S. (2019). Corruption scandals and anti-corruption policies in Argentina. *Journal of Politics in Latin America*, 11(3), 348–361.
- Peters, J. G., & Welch, S. (1980). The effects of charges of corruption on voting behavior in congressional elections. *American Political Science Review*, 74(3), 697–708.
- Petersen, G. (2021). Early democratization, corruption scandals and perceptions of corruption: Evidence from Mexico. *Democratization*, 28(2), 333–352.
- Pop, I. (2012). Acceptance of corrupt acts: A comparative study of values regarding corruption in Europe. *Journal of Social Research & Policy*, 3(1), 27.
- Pozsgai-Alvarez, J. (2020). The abuse of entrusted power for private gain: Meaning, nature and theoretical evolution. *Crime Law and Social Change*, 74(4), 433–455.
- Pozsgai-Alvarez, J. (2022). Corruption tolerance as a process of moral, social, and political cognition: Evidence from Latin America. *Crime Law and Social Change*, 77(4), 381–404.
- Prateepornarong, D. (2022). Holding public procurement socially Accountable: The adoption of the Integrity Pact Approach and the role of the independent observers. *Public Integrity*, 24(3), 243–253.
- Rose, J. (2018). The meaning of corruption: Testing the coherence and adequacy of corruption definitions. *Public Integrity*, 20(3), 220–233.
- Ryvkin, D., Serra, D., & Tremewan, J. (2017). I paid a bribe: An experiment on information sharing and extortionary corruption. *European Economic Review*, 94, 1–22.
- Saiz, A., & Simonsohn, U. (2013). Proxying for unobservable variables with internet document-frequency. *Journal of the European Economic Association*, 11(1), 137–165.
- Scott, J. C. (1972). *Comparative political corruption*. Prentice Hall.
- Seligson, M. A. (2002). The impact of corruption on regime legitimacy: A comparative study of four latin American countries. *Journal of Politics*, 64(2), 408–433.
- Solé-Ollé, A., & Sorribas-Navarro, P. (2018). Trust no more? On the lasting effects of corruption scandals. *European Journal of Political Economy*, 55, 185–203.
- Solis, J. A., & Antenangeli, L. (2017). Corruption is bad news for a free press: Reassessing the relationship between media freedom and corruption. *Social Science Quarterly*, 98(3), 1112–1137.
- Sumar, O., & Orellana, J. (2023). Punitive damages for the non-property damage derived from the crime of corruption: Constitutional and efficient? *Revista Facultad De Jurisprudencia RFJ*, 13, 205.
- Sunder, N., & Birks, D. J. (2004). Measuring incidence, prevalence and concentration: Implications for policing. *Crime Prevention and Community Safety*, 6, 51–59.
- Tella, R. D., & Franceschelli, I. (2011). Government advertising and media coverage of corruption scandals. *American Economic Journal: Applied Economics*, 3(4), 119–151.
- Tonn, J. (2023). Three waves of (anti-)corruption measurement: The role of civil society in driving innovation and progress. U4 Anti-Corruption Resource Centre's Blog. Retrieved December 27, 2023, from <https://www.u4.no/blog/three-waves-of-anti-corruption-measurement-the-role-of-civil-society-in-driving-innovation-and-progress>
- Truex, R. (2011). Corruption, attitudes, and education: Survey evidence from Nepal. *World Development*, 39(7), 1133–1142.
- Tu, W., Yang, J., & Zheng, Y. (2020). Influence of individual values on attitudes toward corruption: What undermine formal anticorruption effectiveness. *Asian Journal of Social Psychology*, 23(3), 264–277.

- UNODC (2011). *Corruption in the Western Balkans: Bribery as experienced by the population*. UNODC Statistics and Surveys Section (SASS). Retrieved January 4, 2024, https://www.unodc.org/documents/data-and-analysis/statistics/corruption/Western_balkans_corruption_report_2011_web.pdf
- Varraich, A. (2014). Corruption: An umbrella concept. *QoG Working Paper Series* 2014:05.
- Vera, S. B. (2020). Accepting or resisting? Citizen responses to corruption across varying levels of competence and corruption prevalence. *Political Studies*, 68(3), 653–670.
- Warr, M. (1989). What is the perceived seriousness of crimes? *Criminology*, 27(4), 795–822.
- World Bank (2023). *Governance Risk Assessment System (GRAS): Advanced Data Analytics for Detecting Fraud, Corruption, and Collusion in Public Expenditures*. Retrieved December 30, 2023, from <https://openknowledge.worldbank.org/entities/publication/841d9990-8f7e-4860-9acd-cba1b9f096a3>
- Zabyelina, Y., Kalczyński, N., Pozsgai-Alvarez, J., Zakaria, P., & Gul, O. (2022). *Western hemisphere Anti-corruption Index*. John Jay College of Criminal Justice. https://whaci.org/assets/downloads/CNY_report.pdf
- Zhu, J., Lu, J., & Shi, T. (2013). When grapevine news meets mass media: Different information sources and popular perceptions of government corruption in mainland China. *Comparative Political Studies*, 46(8), 920–946.
- Zúñiga, N., & Chêne, M. (2018). The impact of ‘islands of integrity’. *U4 Helpdesk Answer* 2018:1.

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