



The extent and cost of corruption in transport infrastructure. New evidence from Europe



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ABSTRACT

Transport infrastructure provision from roads to waterways involves large amounts of public funds in very complex projects. It is hardly a surprise that all across Europe, but especially in high corruption risk countries, it is a primary target of corrupt elites. This article provides a state-of-the-art review of the literature on the cost of corruption and estimates the level of corruption risks and associated costs in European infrastructure development and maintenance in 2009–2014 using novel data on over 40,000 government contracts. Two forms of corruption costs are investigated in the empirical section: (1) distorting spending structure and project design, and (2) inflating prices. Findings indicate that corruption steers infrastructure spending towards high value as opposed to small value investment projects. It also inflates prices by 30–35% on average with largest excesses in high corruption risk regions. Contrary to perceptions, corruption risks in infrastructure are decoupled to a considerable extent from the national corruption environment. Source data and risk scores are made downloadable at digivhist.eu/resources/data.

1. Introduction

Improving the coverage and quality of transport infrastructure is key for economic development as it is a core public good supporting economic transactions, hence growth in general. As building such infrastructure involves large amounts of public funds in highly complex projects which are only comprehensible to a few experts, it is a primary target of corrupt elites. This is amply evidenced by scandals and trials, perception surveys and increasingly objective proxies of corruption. For example, a series of corruption scandals have rocked Spanish politics since 2014 when the so-called Gurtel case or the Operación Púnica led to the trial and imprisonment of over 90 politicians and businessmen on charges of mishandling government contracts, many of which linked to transportation infrastructure development (Charron et al., 2017). Or take the numerous scandals in Italy involving government contracting for large infrastructure such as the infamous, never built Messina Straits Bridge.¹ Corruption in transport infrastructure delivery is hugely important as it not only can lead to large amounts wasted, but also compromise their intended beneficial effects. Transportation infrastructure investments such as roads, railways, airports or maritime infrastructure represent a large part of public spending. Based on OECD statistics,² the investment and maintenance spending on transport infrastructure amounted to roughly 1% of the GDP in years between 1995 and 2013 in OECD countries. Corruption can also distort spending structure and project design leading to low quality provision and unnecessary investments (Kenny, 2006, 2009b; Mauro, 1997).

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¹ <http://www.independent.co.uk/news/world/europe/italys-85bn-bridge-to-nowhere-8317312.html>

² http://stats.oecd.org/Index.aspx?DataSetCode=ITF_INV-MTN_DATA#.

The challenge of corruption in transport infrastructure building and maintenance is typically investigated in the context of developing countries where the issues are perceived to be more wide-spread (Collier et al., 2015). However, given the qualitative and quantitative evidence of corruption in infrastructure across the EU (Becker et al., 2012) and the region's increased emphasis on renewing its transport infrastructure (e.g. “Junker-plan”), it is timely to review what we know and provide new insights. In particular, this article aims (i) to give a comprehensive overview of the existing literature on transport infrastructure corruption across the globe, and (ii) to assess corruption risks and associated costs in transport infrastructure development across Europe using novel objective corruption proxies.

The contribution of this article is fourfold. First, it carefully lays out the three main theoretical impact mechanisms through which corruption imposes costs on infrastructure provision: spending structure, prices, and delivery time and quality. To our surprise, there is a considerable theoretical and empirical unity in the literature regarding the nature and amount of costs corruption poses to transport infrastructure development across the globe. Second, it uses a novel dataset comprising tens of thousands of transport infrastructure tenders published by national governments and the European Commission, recording every single government contract regulated by the EU Public Procurement Directives (DG GROWTH, 2015). This data is ideal for analysing corruption risks in transport infrastructure investment, as every large project has to go through a formal tendering process, leaving us with a close to complete database of large-scale infrastructure delivery all across Europe. Such an unprecedented detail of infrastructure delivery reveals considerable variation in terms of corruption risks both across and within EU countries. Third, corruption also impacts on spending structure with increased regional corruption risks being associated with increased spending on large projects. As larger projects allow for concentrating corrupt rents in the hands of a few, it is possible that the distorted spending structure serves corrupt goals rather than genuine investment needs. Fourth, increased corruption risks substantially inflate prices in Europe. New road construction projects' unit costs are increased in high corruption risk tenders by up to 30–35% compared to low corruption risk ones.

The article is organised as follows: first, we synthesize the existing literature on transport infrastructure-related corruption. Second, the data used is discussed with particular focus on pros and cons of using ‘Big Data’. Third, the empirical analysis proceeds by highlighting simple comparisons across sub-sectors of transport infrastructure and European regions then systematically assessing the impact corruption has on prices and spending structure. Finally, conclusions are drawn.

2. Conceptual frame

2.1. What do we know currently about transport infrastructure and corruption?

Unfortunately, the literature on transport infrastructure corruption is scattered.³ While theoretical works deliver clear expectations, most research in this area had to rely on country-level perception-based indices which are particularly inadequate in this context as the general population or experts have very little direct experience with transport infrastructure development and can observe corruption in it to a limited degree (Kenny, 2006; Olken, 2009). Nevertheless, based on the available theoretical and empirical evidence we can draw up the key expectations about the costs of corruption in transport infrastructure which we explore on EU data and a small number of benchmark estimations from diverse countries can also be enumerated.

Investment into transport infrastructure is thought to be of particularly high corruption risk based on perception data, high profile scandals, and theoretical considerations (Golden & Picci, 2005; Kenny, 2007). Infrastructure development tends to imply large, long-term and complex projects each of which are conducive to corruption. In large projects, even a small fraction of the investment value amounts to large corruption rents making them particularly attractive (Rose-Ackerman, 1999). In case of long term investments such as transport infrastructure, the situation is further complicated as the gains of corruption – e.g. through building in less/low quality material – are realized early on, while costs arise only later. Complex projects are characterised by high degrees of information asymmetry which makes it harder to detect misconduct in terms of inflated prices, inferior quality, or sluggish delivery (Golden & Picci, 2005; Kenny, 2007). In addition, complex projects can require highly specialised skills and capacities which give rise to monopoly power and pricing making the detection and punishment of misconduct even more difficult. However, the results of transport infrastructure projects in terms of bridges and roads are highly visible to voters and donor agencies and infrastructure failure has the potential to damage many lives leading to investigations of construction works delivered. These together should in principle curb corruption in transport infrastructure development at least to some degree. As some of these characteristics such as complexity are also present in other types of government contracting such as IT development or legal services, *it has to be investigated to what degree transport infrastructure delivery is prone to corruption risks compared to other sectors in Europe*. This is a fundamental question as there is no study comparing transport investment with other investment types in terms of corruption prevalence using objective data, and relying on perceptions and high-profile scandals may be misleading (Kenny, 2006; Olken, 2009).

Corruption can occur at any phase of the investment cycle inflicting different costs on societies and implying different mitigation strategies (Benitez et al., 2010; Kenny, 2006, 2009a). Strategic planning for new projects, the tendering process, or the contract implementation phase each is prone to corruption. Nevertheless, corruption in transport infrastructure provision can compromise public goals in at least three direct ways: (1) distorting spending structure and project design; (2) inflating prices for a given quality; and (3) contributing to delayed and low quality provision, in extreme cases non-completion. Each of these are reviewed briefly in order to focus to the subsequent empirical analysis.

³ Although, Le et al. (2014) provides an overview on recent corruption research dealing with the construction industry, the literature focusing especially on transport infrastructure is only partly discussed.

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