



Corruption and firm behavior: Evidence from African ports



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ABSTRACT

This paper investigates how corruption affects firm behavior. Using an original and unusually rich dataset on bribe payments at ports matched to firm-level data, we observe how firms adapt to different types of corruption by adjusting their transport strategies. Our results suggest that firms respond to the price effects of corruption, organizing production in a way that increases or decreases demand for the public service.

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1. Introduction

The impact of corruption on economic activity has been extensively debated in the literature. One line of argument is that bribes can create direct incentives for bureaucrats to perform, or allow private agents to overcome cumbersome regulations. In both cases, corruption could lead to an improvement in the overall allocative efficiency of public resources (Leff, 1964; Huntington, 1968; Lui, 1985). A second line of argument is that bribes are mostly set according to the strategic preferences of bureaucrats, distorting private agents' decisions and decreasing allocative efficiency (Krueger, 1974; Klitgaard 1988; Shleifer and Vishny, 1992; Shleifer and Vishny, 1993; Rose-Ackerman, 1978). The key empirical challenge behind this debate lies in understanding both how corruption affects the marginal price of public services and how economic actors respond to corruption-induced changes in marginal prices. Limited progress has been made on either front due to the absence of data on bribe payments that can be matched to users' demand for a public service. This paper attempts to fill this gap. We investigate the impact of corruption in ports on firm-level trade costs in the context of import shipping.¹

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¹ We focus on imports since most countries have expedited port clearance for exports, with no tariff payments or mandatory screening procedures. This creates fewer opportunities for corruption deals to take place.

This is a particularly important setting given renewed interest in understanding the micro-level drivers of trade costs (Frankel and Romer, 1999; Limao and Venables, 2001; Obstfeld and Rogoff, 2001; Anderson and Wincoop, 2004).²

The impact of corruption on firm-level trade costs is theoretically ambiguous: corruption can increase costs if bribes increase the final price of clearing services, or corruption can decrease costs if bribes allow firms to avoid significant clearing fees such as tariff duties. To shed light on this question, we examine the impact of corruption on firm behavior that is directly affected by changes in marginal prices of border services: firms' choice of which port to use. To examine the impact of corruption on firms' choice of port, we surveyed a random sample of 120 South African firms of two types: firms that were equidistant to two alternative ports – Maputo and Durban – and firms that were considerably closer to the port of Maputo, in Northeastern South Africa (see Figs. 1 and 2). We then generated a unique dataset of directly observed bribe payments to port officials for a random sample of 1300

² In 2011, shipping a container from a firm in Sub-Saharan Africa was still almost twice as expensive as shipping it from India, and six times more time-consuming than shipping it from the US (World Bank, *Doing Business* 2011). In 2011 it took an average of 31 days for a firm in Sub-Saharan Africa to get a standard 20 ft container from its warehouse through the closest port and on a ship, with potential implications for the structure of trade in the region. Djankov et al. (2008) find that each day cargo is delayed reduces a country's trade by 1% and distorts the ratio of trade in time-sensitive to time-insensitive goods by 6%.

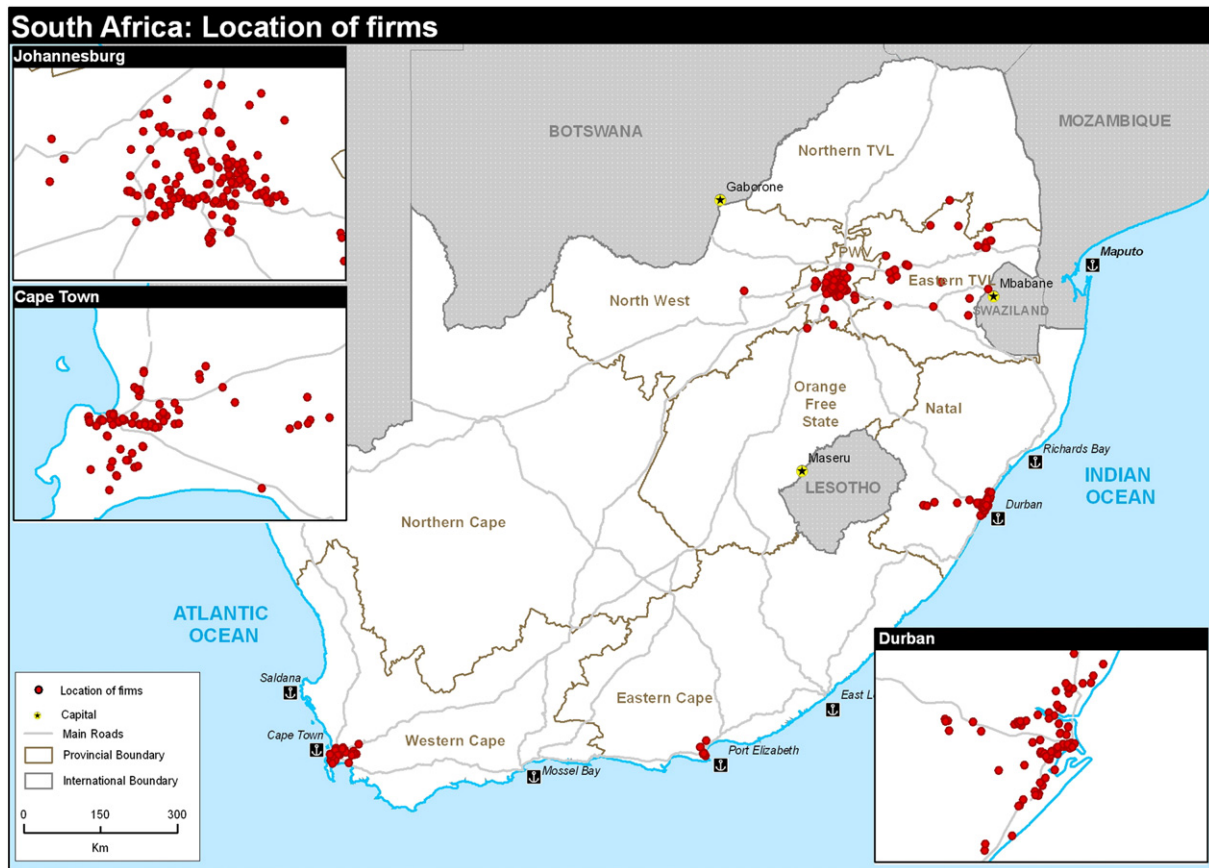


Fig. 1. Map of Southern Africa and the ports of Maputo and Durban. The dots correspond to the firms covered in our regional enterprise survey conducted in 2007.

imports going through both ports. Survey data revealed that a firm's choice of port is driven primarily by the combination of transport and corruption costs at each port. Transport costs are linear to the distance between each firm and the ports. Corruption costs on the other hand are determined by the type of product the firm imports. As we discuss in detail below, exposure to corruption in the port of Maputo is exogenously determined by a South African firm's distance from the port – which determines its transport costs – and by the choice of main input of production – which determines corruption costs. This allows us to estimate how corruption affects South African firms' choice of which port to use, and in particular, how firms substitute higher transportation costs for higher corruption costs.

Our analysis yields three main findings. First, we observe that border officials engage in one of two different types of corruption for any given shipment: “Collusive” corruption occurs when public officials and private agents collude to share rents generated by the illicit transaction, thus reducing firm-level trade costs. We provide evidence on how collusive corruption in the form of tariff evasion allows private agents to capture sizable bribe rents, as the bribes paid often represent only 0.2% of the total tariff duty that is due. “Coercive” corruption takes place when a public bureaucrat coerces a private agent into paying an additional fee above the official price of the clearing service, which increases firm-level trade costs. Corruption is also high and pervasive with 53% of all shipments tracked in Maputo and 34% of all shipments tracked in Durban having to pay a bribe. Corruption is however not equalized across port – the mean bribe is almost 3 times higher in Maputo than in Durban.

Second, we find evidence that coercive corruption affects firms' choice of port. If a South African firm imports an input that is more vulnerable to cost-increasing coercive corruption in Maputo, it is more willing to travel on average an additional 319 km – in some cases

almost doubling its transport costs, just to avoid the corrupt port. This effect is only observed for firms facing a higher probability of being coerced into a bribe due to the type of product they import. In the most extreme case in our sample, the cost for a firm to re-route could be three times higher than the cost of the actual bribe requested at the closer port. This result is difficult to square with standard price theory. While we are unable to firmly establish the reason behind this behavior, survey data revealed that firms were willing to incur in higher transport costs to avoid the *uncertainty* associated with the level of coercive bribe payments at the most corrupt port. These results are robust to a variety of controls for potentially unobserved heterogeneity of product and firm type.

Third, given the detailed nature of our data, we provide descriptive evidence on how both coercive and collusive forms of corruption can affect economic activity beyond the immediate cost of the bribe to the user of the public service. The “diversion effect” caused by coercive corruption increased congestion and transport costs in the region by exacerbating imbalanced flows of cargo along the transport network. Even though the cost trucking companies incur in to ship through either corridor – leading to Maputo or to Durban – is identical and the transport market is fairly competitive, transport services on the transport corridor leading to the most corrupt port of Maputo carried a 70% price premium for users, lending further evidence to the fact that coercive corruption can introduce both direct and indirect distortions in the market. Collusive corruption in Mozambique is on the other hand associated with significant tariff revenue loss for the government, equivalent to a 5 percentage point reduction in the average nominal tariff rate.³

³ This calculation is based on the tariff loss associated with the 650 shipments observed in our sample for the port of Maputo where this type of corruption takes place for Mozambican firms that are able to pay a bribe to avoid tariff duties.

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