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### Public Procurement and Rent-Seeking: The Case of Paraguay

EMMANUELLE AURIOL<sup>a</sup>, STÉPHANE STRAUB<sup>a</sup> and THOMAS FLOCHEL<sup>b,\*</sup>

<sup>a</sup> Toulouse School of Economics (ARQADE, IDEI, and IAST), France <sup>b</sup> World Bank, USA

Summary. — A model of entrepreneurial choices in an economy with a corrupt public procurement sector is built, providing predictions along two dimensions. First, corrupt public institutions operate by offering contracts without competition and more corrupt entities channel larger share of their budget in this way. Second, these firms enjoy extra returns, so that procurement related activities attract the best entrepreneurs. A large-scale microeconomic database, including all public procurement operations over a 4-year period in Paraguay, amounting annually to approximately 6% of the country's GDP, is then used to corroborate these predictions.

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#### 1. INTRODUCTION

Public procurement of goods and services is one of the main areas at risk of corruption in developing countries where regulations and legal enforcement are weak. On top of the static cost of corruption and fund embezzlement, systematic departures from competition in the attribution of public markets are likely to have a devastating impact on economic agents' incentives and as a result on these countries' productive structure. This paper presents the first large-scale micro-level evidence on the channels of rent-seeking and its impact on economic development, using a unique database of nearly 50,000 public procurement operations in Paraguay, covering the period 2004–07. In a nutshell, we show that in Paraguay corrupt behavior in the allocation of public contracts is a key channel for rent-seeking. This large-scale network of favoritism, sometimes coined "la patria contratista", <sup>1</sup> has deeply damaging economic consequences: public institutions buy goods and services at inflated prices, and the set of incentives facing potential entrepreneurs is biased towards unproductive activities.

To guide the analysis, we model the choice of formal entrepreneurs with idiosyncratic cost levels, between serving private consumers competitively, or joining a rent-seeking sector, where they sell to public institutions. In this rent sector, contracts are attributed by corrupt officials, who distort allocation rules in exchange for bribes. Firms willing to do business with the Government must therefore be profitable enough to cover their production costs as well as the bribes. We derive from the model two main sets of predictions that are sustained by the data, revealing the following story.

First, we establish that in Paraguay the main channel for corruption in procurement is the systematic use of an "exceptional" purchase mechanism, which bypasses legally required minimum standards of transparency and competition and is used much more frequently than what should be expected from international best practice. Using the whole panel dimension of the data, we show that this type of corruption is used more by institutions—firms pairs that trade repeatedly and in large volumes. Moreover, we exploit a natural experiment, linked to an exogenous change in public monitoring following the widely publicized release midway through our period of study of an NGO report flagging up exception as a key channel for corruption, and show that its use decreased

significantly for these pairs boasting frequent interactions. Finally, we also provide evidence that this channel dominates other more "traditional" ways to rig procurement contracts, such as the breaking down of lots in amounts that escape the obligation for open tenders.

Second, this implies that firms making more business with the State, those in the so-called rent sectors, enjoy above normal rates of return and are the most efficient ones. We provide evidence of these two aspects, by showing that firms selling more to the public sector, as well as those selling more through the exception channel, have higher profit margins, despite the fact that they trade mostly in standard goods and should face competition for the market.

As a result, public intervention in markets distort firms' incentives by inducing additional entry in activities with an important procurement component. To the extent that this self-selection process pushes some of the best potential entrepreneurs towards rent sectors, it generates a misallocation of talents across the economy. Indeed, we document this strong selection bias by exploiting an original econometric strategy using firms' names.

The paper concludes that in the case of Paraguay, the release of the 2006 TI report and the subsequent change in exposition to public scrutiny had an important positive impact on the overall efficiency of the public procurement process. As it made obvious the involvement of the civil society in monitoring the use of public funds, and spurred an increase in the interest of the media, it generated a change in the behavior of the public sector with respect to the use of exceptional procedures, especially so where the use of exception was motivated by corrupt deals.

The rest of the paper is structured as follows. Section 2 reviews the main strands of related literature and spells out

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the contributions of the paper. Section 3 describes the Paraguayan institutional environment and reviews procurement practices over our period of study. Section 4 develops the model and derives empirical predictions. Section 5 presents the data. Sections 6 and 7 present the results related to the two main sets of theoretical predictions, and Section 8 concludes.

### 2. LITERATURE REVIEW

The idea that rent-seeking behavior has important social and economic costs is a relatively long-standing one in the economic and political science literature. Early contributions such as Tullock (1967), Buchanan (1980), Krueger (1974) and Bhagwati (1982), were concerned, mostly in a theoretical framework, with the different types of costs associated with the transfer of rents and the waste generated by agents engaging time and resources in competing for rents, for example through political lobbying or corruption.

More recently, some papers have provided explanations for ways in which rent-seeking entails dynamic costs. Baumol (1990) and Murphy, Shleifer, and Vishny (1991) focus for example on the resulting dysfunctional allocation of talents. In this approach, potential investments in physical or human capital are directed to rent-abundant sectors (such as those stemming from political favors, corruption or exploitation of natural resources), while investments in innovative activities, which have greater growth potential, become relatively less attractive and are discouraged. As supporting empirical evidence, Murphy et al. (1991) present cross-country growth regressions augmented with country-level proportions of engineering and law students, where the former are said to correspond to investments in productive activities while the latter are considered rent-seekers. Baumol's evidence, on the other hand, is based on historical accounts from Rome, Ancient China, and the Middle Ages.

To date, there is still limited micro-evidence on the actual channels and consequences of rent-seeking in developing economies. Following Fisman's (2001) seminal contribution, some papers have stressed the performance premium of connected firms (Hellman, Jones, & Kaufmann, 2003; Fries, Lysenko, & Polanec, 2003; Slinko, Zhuravskava, & Yakovlev, 2005). Other contributions have documented the importance of political connections in securing access to key economic inputs, such as credit (Khwaja & Mian, 2005; Li, Meng, Wang, & Zhou, 2008), tax advantages or foreign exchange (Hsieh, Miguel, Ortega, & Rodriguez, 2011), or favorable regulations (Agrawal & Knoeber, 2001). At a more general level, the large literature on corruption that developed since the 1990s is also relevant here, and especially the strand of more recent papers using microeconomic evidence to directly measure corruption and its effects on outcomes.

A few contributions have dealt specifically with public procurement. Hyytinen, Lundberg, and Toivanen (2007), who study the effects of politics on municipal cleaning contracts in Sweden, show that the lowest bidder does not win 58% of the time and that the choice of the winner is subject to political considerations; Goldman, Rocholl, and So (2013) show that US companies connected, through the composition of their boards, to the winning party in both legislative and presidential elections (in 1994 and 2000) are significantly more likely to have experienced an increase in procurement contracts. References dealing explicitly with corruption include Di Tella and Schargrodsky (2003), who document the impact of a crackdown on corruption in Argentinean hospitals, and Bandiera,

Prat, and Valletti (2009), who disentangle the effect of passive (inefficiency) versus active waste (corruption) in Italy, finding that the former accounts for about four times the effect of the latter, and Mironov and Zhuravskaya (2012), who analyze the link between corrupt procurement and campaign financing in Russia. Relatedly, Davis (2004) and Deiniger and Mpuga (2004) analyze the impact of corruption on public service delivery in South Africa and Uganda respectively.

With respect to this literature, our paper provides two main contributions. First, we have data not only on the expenses realized by public institutions, but also on the firms that are on the selling side. This enables us to capture the effect of large-scale corrupt practices on the profitability of firms and hence on the industrial structure of the economy. We provide evidence of the distortive effects of rent-seeking in terms of economic efficiency, by showing that it implies an inefficient specialization of the more able entrepreneurs in imports and procurement activities. Second, we document one of the most prevalent channels of corruption in procurement activity, namely the use of purchase mechanisms circumventing standard competitive rules, and uncover the economic characteristics of the institutions and sectors more prone to it.

## 3. RENT-SEEKING AND CORRUPTION IN PARAGUAYAN PROCUREMENT

Paraguay is considered to be one of the most corrupt countries in the world. Our period of study is part of a non-interrupted 61-year spell, including the 1954-89 Stroessner dictatorship, in which the Colorado party governed the country. At the heart of the system was the distribution of public employment and contracts to its supporters, and the exclusion of its opposition. 5 An important channel for corruption, which we focus on here, was the allocation of public contracts to firms that in most cases were created with the sole purpose of supplying the state, often by selling a wide variety of imported goods. As a result of the ample anecdotal evidence of corruption in public procurement, and under pressure from international organizations, a law regulating public procurement practices (law 2051/03) was enacted in 2003 by the government of the newly elected president Nicanor Duarte Frutos, with the announced intention of promoting transparency and efficiency in public purchases. The most significant of its provisions were the creation of a public procurement watchdog (the National Directorate of Public Procurement, or DNCP), the design of a menu of purchase mechanisms to regulate procurement procedures, and the compulsion to make all information (calls, providers, award, etc.) public. This last proviso was accompanied by the creation of the DNCP web site where this information is available, but in practice access is often intermittent and the interface is impractical.

There are strong indications however that improvements in the regulatory framework did not translate quickly into cleaner procurement practices, partly because many officials did not comply with the new law and the wrongdoings continued. The main mechanism through which firms were favored is the use of the exceptional purchase mechanism, by which specific regulations, such as the obligation to organize public tenders above certain amounts, were disregarded (see details in Section 5 below). In 2006, Transparencia Paraguay (TP), the local chapter of Transparency International, published an extensive report sponsored by the Inter-American Development Bank (IDB) focusing on the excessive use of exceptional procedures, which was clearly identified as one of the main irregularities in the procurement process. <sup>6</sup> The Electricity

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