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Corruption and Market Competition: Evidence from Post-Communist Countries

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Summary. — This paper empirically examines whether market competition is associated with greater bribe payments. We use firm-level data from the Business Environment and Enterprise Performance Surveys. Since market competition could be endogenous and some firms report zero bribes, we employ a tobit estimation methodology instrumenting for market competition. We find that greater market competition increases the amount of bribes paid. Results are robust across several measures of market competition. However, market competition is less strongly associated with bribes in the presence of other obstacles of doing business that could also lead to more bribes.

Key words — corruption, competition, post-communist countries

1. INTRODUCTION

Many papers have concluded that corruption lowers economic growth and investment. See Mauro (1995), Svensson (2005) and Asieudu and Freeman (2009) for surveys. Hence, finding ways to lower corruption has attracted the attention of researchers, policy makers, and international organizations. Doing so requires that researchers identify what factors cause and influence the extent of corruption. Treisman (2000) provides one example of this search as he considers many country-wide factors such as colonial history, legal origin, and culture. Another factor considered in the literature is the degree of market competition (see Bardhan, 1997; Klitgaard, 1988). The effect of private sector competition on the level of corruption as denoted by the amount of bribery is theoretically ambiguous. Increased competition among firms drives firm and industry profits to zero thereby reducing a firm's ability to pay bribes. But other researchers have considered instances where competition could lead to more bribery as firms use bribes to gain advantages over their competition. Bliss and Di Tella (1997), Ades and Di Tella (1999) and Laffont and N'Guessan (1999) explore such possibilities (and we describe these papers in greater detail in Section 2).

The aforementioned papers model an extortion type of corruption where government officials extort firms thereby shifting the surplus from the firm to the official. An example would be a firm complying with environmental regulations but dealing with an official that will report noncompliance unless a bribe is paid. Another type of corruption involves collusion, also known as cost-reducing corruption. In this case, a firm pays an official to look the other way when it violates the environmental regulation to lower operating costs. Market competition need not affect these two types of corruption identically. If market competition drives profits to zero, then officials can extort little since little surplus exists from which firms can pay bribes. On the other hand, falling profits could cause firms to bribe more so as to gain advantages over their competition as argued in Alexeev and Song (2013) [AS]. They empirically consider this issue using a sample of manufacturing firms. They find that bribes increase with the number of competing firms although their results are not always robust to other measures of competition.

This paper builds upon this literature in three ways. First, we also consider firm-level data as in AS and so can examine within-country variation between competition and corruption. Country-level empirical work as found in Ades and Di Tella (1999) and Laffont and N'Guessan (1999) use more crude indicators such as the import to GDP ratio as a proxy for competition. Not only does such a measure not allow for within-country variation but the import to GDP ratio would overstate competition in cases where imports do not have domestic substitutes but understate competition in cases where firms face several domestic rivals. Second, our sample considers a wider array of firms than manufacturing and so we can examine if the results in AS apply to firms in other sectors such as services. Environmental and safety regulations could be more onerous for manufacturing firms and this could influence the association between competition and corruption. Do similar associations hold for service industries, for example?

A third difference is that our paper will also consider whether associations between market competition and corruption strengthen or weaken when firms face greater obstacles with regard to obtaining permits or complying with regulations. The existence of such obstacles could raise bribery when competition is fierce because firms have greater incentives to obtain competitive advantages. On the other hand, where such obstacles are onerous, they could weaken the association between competition and corruption because firms are more likely to pay bribes to circumvent these obstacles regardless of whether they face strong competitors. Either way, such differences would point to a more nuanced association between competition and corruption. The degree of government regulations would then influence how market competition affects the level of corruption, in addition to any direct influence that such regulations would have upon corruption.

We use the BEEPS III dataset that covers 9,500 firms in 26 post-communist countries. In our baseline specifications, we

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estimate the effect of private market competition on the amount of bribes paid by firms, both in general and in order to obtain government contracts. Given that many firms do not report any bribe payments, we use a tobit methodology. We also instrument for competition since it could be endogenous to the corruption environment as bureaucrats influence the number of firms in order to extract as much as possible through bribe payments.

We find this sample extremely applicable as problems of corruption could be of particular interest in these former communist countries. Hillman and Schnytzer (1986) detail extensive corruption in the Soviet Union. Firms paid bribes throughout supply chains and individuals often paid bribes to procure government offices. Even political purges, they argue, were a tool to protect and obtain rents by removing rival claimants. Boettke (2001) views communism within the Soviet Union as akin to mercantilism long ago where kings could acquire needed revenue by selling monopoly rights. Boettke argues that the move away from a market economy under communism allowed the government to extract rents by limiting competition. Government officials could then extract the surplus from the few suppliers through bribe payments. Although Boettke (2001) and Hillman and Schnytzer (1986) focus upon the Soviet system and other communist countries, such systems are unlikely to have completely changed following the fall of communism. Bayar (2011) and Mishra (2006) discuss why the extent of corruption could persist over time, including when governments take active steps to eliminate it. Vachudova (2009) describes corruption in the European Union's post-communist members, suggesting that such environments survived the fall of communism. Therefore, corruption has been a longstanding issue for these countries and remains an ongoing one. [1] AS argue that the firms in their sample primarily pay bribes to reduce costs and facilitate business operations. Even if this view is correct, firms could still find other ways to reduce costs such as investing in better production technologies or finding cheaper suppliers. What makes this sample of post-communist countries applicable to our analysis is that the prevalence of corruption in these countries suggests that cutting costs through bribes is more cost-effective than are many alternative ways of reducing costs. [2]

On a final note, this paper's focus on market competition does not mean to imply that market competition is the only or even the primary determinant of corruption. Culture, history, the characteristics of government agencies, *etc.* likely all play a role. Nevertheless, to the extent that the prevalence of corruption is mutable, then better understanding what factors influence the degree of corruption – even at the margin – could hold important policy implications.

The rest of the paper is organized as follows. Section 2 provides a more detailed background discussion, including an extension of the model from AS. Section 3 describes our empirical strategy and our data. Section 4 presents results and Section 5 concludes the paper.

2. BACKGROUND

One view maintains that competition among firms deters corruption by driving profits toward zero, a point raised by Rose-Ackerman (1978). However, several papers question this premise. Bliss and Di Tella (1997) develop a model where firms differ in their profit functions and their overhead costs. These differences allow rents to differ across firms. Corrupt officials could then try to drive the less efficient firms out of business so as to maximize the bribes extracted from the remaining firms who will now see a greater pre-bribe rent. Therefore, the number of firms is not exogenous in their model but is determined endogenously through interactions between firms and potentially corrupt officials. They then show in what cases greater competition, as proxied by lower overhead costs, for example, affects the degree of corruption and the number of firms in equilibrium. They report that greater competition can lead to more corruption.

Ades and Di Tella (1999) give another instance where the relationship between corruption and competition might be unclear. In a simple model where firms receive positive rents, competition has two effects on corruption. First, increasing competition as measured by the number of firms lowers corruption by reducing rent. Since corruption is lower, the gains from further reducing corruption become smaller. This leads to the second effect. Since the benefits of reducing corruption decline, the government has incentive to lower the compensation it pays to government agents since such compensation is used to induce the honest behavior of officials. Thus, officials might compensate for this loss by asking for a larger bribe.

Campos, Estrin, and Proto (2010), Emerson (2006), Dutta and Mishra (2004), and Aidt and Dutta (2002) also present models of corruption and competition where government officials can restrict entry although with disparate findings. The model in Emerson (2006) can produce multiple equilibria, one with high competition and low corruption and another with the opposite outcome. The number of firms is exogenous in Straub (2009) but the effect upon corruption remains ambiguous. In this model, production creates a negative externality that requires regulatory intervention. Firms can pay a bribe to an inspector to avoid adopting the "good" technology. Whether or not an increase in the number of firms increases or reduces corruption depends upon the nature of the externality and how addressing it affects the cost structure of the firm.

Many of the above models consider corruption as extortion as bureaucrats confiscate some of the rent accruing to firms. Shleifer (2004) considers two general cases of corruption: with and without theft. In corruption with theft, an agent pays a bribe to an official so as to lower his taxes or import tariffs thereby reducing total costs. In corruption without theft, the agent pays a bribe to an official to receive a permit to which he is otherwise entitled and so the official extorts the agent. Shleifer argues that competition increases corruption in the first case as cost pressures force all firms to pay bribes.

AS consider cost-reducing corruption. They present a simple model of Cournot competition where firms face linear demand curves. Firms are willing to pay bribes in order to lower fixed or variable costs. AS show that the bribe firms pay increases with the number of firms.

Given the ambiguity of the theoretical literature, researchers have also undertaken empirical research. Most empirical studies examining the impact of competition on corruption are cross-country studies. Ades and Di Tella (1999), Laffont and N'Guessan (1999), Emerson (2006), and Treisman (2000) use different country-level measures of both corruption and competition (where competition is assumed to lower rents) and find negative associations between the two. To the best of our knowledge, only AS examine this issue at the firm level. [3] Using data from manufacturing firms, they report a positive association between bribes and the degree of competition even after correcting for endogeneity using capacity utilization rates and capital–labor ratios to instrument for the degree of competition. They argue that their finding supports the presence of