Political Firms, Public Procurement, and the Democratization Process

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Abstract

In 2008, an opposition coalition defeated the Paraguayan Colorado Party, which had been in power for 61 years, including 35 years of the longest dictatorship in South America. Using data of all the public procurement transactions from 2004 through 2011 and the political connections of the 700 largest public providers, this paper documents how the volume of contracts received by connected firms evolved after this landmark political change. It shows that firms connected with the first ring of power were punished and that there were efficiency gains, mostly in the form of institutions shifting to bigger and more competitive contracts, but that these gains were constrained by the scarcity of entrepreneurs able to step in to replace firms connected to the previous regime. This demonstrates that the potential economic

benefits of democratization are hampered by the perverse rent-seeking entrepreneurial incentives created by a long-term single-party authoritarian regime.

Keywords: Procurement, Political Connections, Rent-seeking, Democratization, Authoritarian regimes.

JEL codes: H57, D72, O5

1   Introduction

In April 2008, the Paraguayan Associación Nacional Republicana (ANR), locally known as the Colorado Party, was defeated in the presidential election by a coalition of opposition parties and social organizations led by a former Catholic bishop, Fernando Lugo. This was a dramatic and largely unanticipated change in a country in which the Colorado Party had enjoyed a monopoly in political power for 61 years, including the 35 years of the Stroessner dictatorship (1954-1989) and the 19 years elapsed since the 1989 coup. For six decades, the Colorado Party had systematically channeled public resources to a subset of citizens by distributing public employment and procurement contracts to the benefit of party members and supporters of the regime. This formed the basis of the Paraguayan "rent-seeking economy."

As in other countries where the rule of a single party lasts for such a long time, including non-democratic spells,[1] the incoming government faced challenges of a different nature and magnitude than those of countries accustomed to regular democratic shifts in power. The distortions in the structure of incentives, the weight of political patronage and corruption in all aspects of economic life, and the institutional shortcomings that characterized the regime were so profound that it was obvious from the start that transforming the Paraguayan economy, one of the least developed in Latin America, would

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[1]Examples include the Mexican PRI, which lost the 2000 presidential election after more than seven decades in power, Taiwan, Zambia, and several communist regimes that survived the Soviet Union (see Haggard and Kaufman, 1995, Chap. 8).

be a daunting task.

This paper documents a specific aspect of this transition, namely, the changes in the relevance of political connections for the allocation of public funds through procurement spending, and analyzes the impact on the efficiency of public procurement spending after democratization using a unique dataset that tracks nearly all public procurement contracts in the country, representing around 10% of the country's annual gross domestic product (GDP), from 2004 to 2011.

Specifically, it looks first at the consequences of the political change with regard to the volume of public contracts received by firms with different political ties, showing that those connected to the previous regime were "punished," especially firms belonging to former influential Colorado 'core' members connected to the top levels of government. Conversely, firms connected to the main party of the opposition coalition benefited in the initial period of the new government but, overall, non-connected firms were the main beneficiaries of the losses incurred by connected entrepreneurs.

Second, it delves into the channels behind these results, showing first that they were not driven by a reduction in contracts distributed through exception or competition-suppressing mechanisms. Instead, losses to firms linked to the previous regime appear to be specifically the result of a reduction in the portfolios of Colorado entrepreneurs in both the biggest and the fastest growing product categories. These categories accommodated more non-connected entrepreneurs prior to 2008, who were then able to step in and grab a bigger share of public contracts after the change.

Finally, this evolution appears to have been efficiency-enhancing in the sense that public institutions that reduced their share of political contracting more dramatically did so by using bigger contracts and more competitive procedures. This implies a reduction in the number of active suppliers and a shift toward open tendering procedures, as well as a decrease in the share of providers boasting previous credit or payment incidents. However, the

evidence also indicates that such benefits only materialized for product categories where a sufficiently large number of potential independent entrepreneurs already existed to respond to public demand, showing the limitations generated by the decade-long stronghold on the economy by the outgoing Colorado Party. These results demonstrate that the potential economic benefits from democratization in the context of a long-term single-party authoritarian regime are constrained by the long-lasting perverse entrepreneurial incentives and rent-seeking ties that supported it.

The remainder of the paper is organized as follows. Section 2 situates the contribution of this paper within several strands of related literature. Section 3 describes the Paraguayan political and economic process under the previous regime and the main changes brought about by the 2008 election. Section 4 introduces the procurement and related data used and presents descriptive statistics, section 5 presents the econometric analysis and discusses basic results, section 6 delves into the efficiency effects, and section 7 concludes.

2 Related Literature

This paper relates first to the literature on political connections of firms. Most of this literature has relied on establishing a causal link between some measure of connection, usually family ties, friendship, party membership, or campaign contribution, and the stock market valuation of large firms. Researchers who have found a positive effect of connections on firms' valuations include Fisman (2001), who tracked changes in the stock market value of Indonesian firms depending on the strength of their connections to the Suharto network, Roberts (1990), who exploited the natural experiment resulting from a US senator's sudden death, Ferguson and Voth (2008) on the value of connections between the German industry and the Nazi party, Jayachandran (2006) on the "Jeffords effect," named after the consequences of Senator Jim Jeffords leaving the Republican Party and tipping control of the US Senate

to the Democrats in 2001, on the stock market valuation of Democrat-related firms, and Coulomb and Sangnier (2012) on the impact of Sarkozy's election on related French firms, among others.[2] Faccio (2006) presented consistent cross-country evidence and stated in particular that connections are more prevalent in corrupt countries and in those with less transparent political systems.[3]

Several researchers have examined the channels of this value creation by looking at specific economic inputs that firms secure through their political ties, sympathies, or financial contributions. Evidence of increased access to credit has been provided by Khwaja and Mian (2005) for Pakistan, Li, Meng, Wang, and Zhou (2008) for China, and Claessens, Feijen, and Laeven (2008) for Brazil, while de Figueiredo and Edwards (2007) showed that campaign contributions elicit higher regulated prices in the US telecommunications industry.[4] Closely related to this paper is Goldman, Rochol, and So (2011), who showed that the allocation of procurement contracts in the US shifted toward firms with Republican politicians on their boards of directors following the 1996 and 2000 elections.

This study contributes to the literature in two main ways. First, it tracks a broad set of firms representing a large share of the domestic entrepreneurship of a developing country. Indeed, the sample is unique in that it tracks 700 firms, covering 70% of the country's public procurement spending, over nearly a decade and relies both on an objective measure of connectedness, namely, party membership, and a concrete outcome in the form of access to procurement contracts. Moreover, by comparing periods before and after a

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[2] A few researchers, including Eggers and Hainmueller (2009) and Fisman, Schulz, and Vig (2013), have documented the opposite channel, namely, politicians' returns to political power.

[3] Fisman et al. (2012), who failed to find an impact of the connections to former US Vice President Dick Cheney, is an exception consistent with Faccio's (2006) finding that the importance of political ties is conditional on the quality of institutions.

[4] For individual economic agents, Hsieh, Miguel, Ortega, and Rodriguez (2011) provided evidence from Venezuela showing the earnings and employment costs of opposing Hugo Chávez.

major political change, the study provides evidence of the efficiency cost of a system in which the public sector relies mostly on connections to allocate contracts to private agents.

Second, this work relates to the political science literature analyzing long-term single-party authoritarian regimes. Most of this literature has focused on the mechanisms that allow such regimes to survive or lead to their eventual demise (e.g.,Haggard and Kaufman, 1995; Diaz-Cayeros, Magaloni, and Weingast, 2003; Magaloni, 2006 and 2010). While the impact of this dynamic process on the economic performance of such regimes and their ability to make important reforms is somewhat understood (see, for example, Haggard and Kaufman, 1995, Chap. 8, and Przeworski et al., 2000), little is known about the consequences for the performance of the regimes after an abrupt electoral change. The paper's contribution is to illustrate both the potential economic benefits when democratization calls into question the rent-seeking ties that were at the root of such regimes and the economic costs stemming from the long-lasting perverse entrepreneurial incentives that derive from an economic organization based on political connections.

This paper also pertains to a small body of literature analyzing political favoritism and corruption in the procurement process. A few notable contributions include Di Tella and Schargrodsky (2003), Hyytinen, Lundberg, and Toinaven (2007), Bandiera, Prat, and Valletti (2009), Auriol et al. (2011), and Mironov and Zhuravskaya (2012). The paper contributes by documenting both wrongdoings in public purchases and the link between major political changes and improvement in procurement practices in the case of a developing country that is characterized by weak overall institutional quality.

Finally, the paper adds to an incipient multidisciplinary body of work on the characteristics and long-term effects of the Paraguayan Colorado regime, which started with and then prolonged the Stroessner dictatorship, the longest right-wing dictatorship in Latin America (e.g., Nickson and Lambert, 1997; Richards, 2008; Folch, 2013). While these papers emphasized sev-

eral channels for rent-seeking and harvesting, including the distribution of public jobs, public lands, and tolerance of illegal activities such as smuggling, this study is the first to document in detail the systematic use of the public procurement process, and not only for mega-projects such as hydroelectric dams, to sustain the regime's network of followers.

3   Paraguay's Political Environment

The Country

Paraguay is a landlocked country of 6.5 million inhabitants in the middle of South America, neighbor to Argentina, Brazil, and Bolivia. As of 2010, it was a low-middle-income country with a per capita income of US $2,710[5] and a poverty headcount ratio at the national poverty line of 35%. Its population is predominantly urban (61%) and young (28.5% under 15, with a median age of 25 years), and economic production concentrates in (intensive) agriculture, the three main products being soybeans, cotton, and meat, and in services such as commerce and finance, including a large informal sector.

The Dictatorship (1954-1989)

During the second half of the twentieth century, Paraguay suffered under one of the harshest dictatorships in Latin America. General Alfredo Stroessner grabbed power in May 1954 through a military coup against Federico Chávez, of his own party, and was named president by a military board. He was subsequently reelected president eight times in fraudulent elections.

Stroessner rapidly installed a grueling system of oppression, which systematically spied on, detained, and tortured opponents.[6] Thousands were physically eliminated and at least tens of thousands went into exile.[7]

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[5] GNI in current US$, Atlas method, as reported by the World Bank world development indicators.

[6] See the fascinating account of the surveillance and repression techniques "Es mi informe" (Boccia Paz, González, and Palau, 1994) based on archives from the dictatorship and Folch (2013), who offered a detailed view of state violence during the dictatorship.

[7] See Informe Final, Comision de Verdad y Justicia (CVJ), Tomo I, 2008, available

This iron rule was complemented by a well-organized system that combined looting the country's resources for the private benefit of a few and redistributing some of the proceeds to a large enough network of followers to ensure the stability of the regime. Evidence of this looting and redistribution remains in the many mansions belonging to Colorado politicians or their heirs located throughout the capital city of Asunción, among which are replicas of Loire castles and the White House.[8] The Stroessner family is estimated to have accumulated a fortune that may amount to US $5 billion, equivalent as of 2010 to twice the public debt and 27% of the Paraguayan GDP.[9]

The redistribution network, on the other hand, operated through the systematic allocation of public jobs and lucrative procurement contracts to the members of the Colorado Party.[10] During the 1970s and 1980s, the expansion in public works, benefited a select class of entrepreneurs closely linked to the government. Among these works was the construction of two large hydroelectric power plants in Itaipú and Yacyretá, with respective construction costs of nearly US $20 billion and $15 billion, equivalent to between three and five times the value of the 1989 GDP. In this context, Juan Carlos Wasmosy, an engineer who was one of the main Itaipú contractors, subsequently became president of the country between 1993 and 1997.

In the case of Yacyretá, which former Argentine President Carlos Menem knowingly dubbed a "monument to corruption," numerous irregularities were confirmed by a World Bank investigation in 2004, and a cost overrun of at least US $8 billion was estimated. Although no records of the use of public money during that period are available, ample anecdotal evidence exists suggesting that a few individuals grew extremely rich through the arbitrary allocation of public contracts, the grabbing of immense extensions

online at http://www.meves.org.py/?node=page&meves=blob,631,0

[8] See Miranda, 2000.

[9] El País Internacional, 21/02/2012.
http://internacional.elpais.com/internacional/2012/02/21/actualidad/1329855402_524683.html

[10] Nickson and Lambert, 2002; Auriol, Straub, and Flochel, 2011.

of public land,[11] or the tolerance of smuggling and other illegal activities, including drug trafficking and money laundering.

The Democratic Transition (1989-2008)

On February 3, 1989, Alfredo Stroessner was deposed by General Andrés Rodríguez, widely nicknamed the "cocaine" general, Stroessner's protégé and "compadre."[12] Rodríguez subsequently organized open elections in which he was elected president. Four other Colorado presidents succeeded him, until the 2008 election removed the party from executive power.[13]

In the first few years, numerous reforms were made, including the elimination of multiple exchange rates, financial liberalization, and the signing of the Mercosur Treaty with neighboring countries (Straub, 1998). However, these reforms failed to put the country on a higher growth trajectory, in large part because the system of patronage and corruption inherited from the dictatorship not only continued but became worse.[14]

Using procurement data for the period 2004-2007 (i.e., before the political change), Auriol, Straub, and Flochel (2011) showed that corruption in the procurement process resulted in a severe misallocation of talents, jeopardizing entrepreneurial incentives, à la Baumol (1990) and Murphy et al. (1991). Their findings were twofold. First, there exists a group of private firms that live mostly off their relationships with the state and are regularly favored through large contracts, often allocated under non-competitive conditions. Second, the firms that belong to this network of favoritism enjoy higher profitability. This is due both to the irregular contracting conditions and to the fact that procurement activities attract the best entrepreneurs, thereby

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[11] See Informe Final, Comision de Verdad y Justicia (CVJ), Tomo IV, 2008.

[12] Rodriguez's daughter was married to Stroessner's elder son.

[13] Juan Carlos Wasmosy (1993-1998), Raúl Cubas Grau (1998-1999), Luis Ángel González Macchi (1999-2003), and Nicanor Duarte Frutos (2003-2008).

[14] See Pérez-Liñán et al. (2006) and Richards (2008) for a description of the political environment and institutional failures during that period. This situation is consistent with evidence from other long-term single-party regimes and their failure to sustain economic growth (Diaz-Cayeros et al., 2003).

siphoning off other sectors with greater development potential. They argued that this was one of the main causes of the dismal long-run performance of the Paraguayan economy. Indeed, from 1950 to 2000, despite extension of the agricultural frontier to the east and the building of dams, the average annual growth rate was 1.7%, not even covering the population growth rate, which was between 2% and 3%.[15]

Note that the reason why successive governments were able to sustain this large-scale rent-seeking system, despite dismal tax revenues which barely exceeded 10% of GDP until 2008, was the large inflows of cash in terms of royalties from the joint ownership of hydroelectric dams, especially Itaipú, which represented around 5% of GDP throughout the 2000s. This effectively enabled the rulers to disregard their taxation base and to maintain a system that strongly disincentivized productive entrepreneurship, a form of resource curse.

A New Government (2008-2012)

After a heated campaign in which popular discontent with corruption ran high, the Lugo government took office in August 2008 in the context of depressed economic activity. With a stated priority of attending to social emergencies, the first measures included an increase in the number of beneficiaries of conditional cash transfer programs from 5,000 to close to 100,000 in the following two years and the immediate and complete offering of health services across the country. The other priorities were expenditures in education and infrastructure (Borda, 2011). The dismal state of public institutions and the scarcity of public resources soon became the number one constraint faced by the new administration.

Over the next 3 years, the finance ministry managed to improve slightly tax revenues, which went from 10 to 13.5% of GDP in 2011. However, due to the lack of a majority in Congress it was unsuccessful in waging important

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[15]Most of this average growth is in fact due to the very high rates corresponding to the period when the hydroelectric dams were constructed. The average over 1977-1980 was 11% (Fernández Valdovinos and Monges Naranjo, 2004). In the 2000s, it was 2%.

reforms, such as the introduction of the personal income tax, which would significantly reduce possibilities of evasion, and the direct taxation of agro-exporting sector, which in 2010 contributed 27% to GDP but only 0.3% to tax revenues (Borda, 2011). The other policy priorities were improving budget execution and changing the structure and practice of public procurement and the direction of spending. Between 2007 and 2011, public procurement spending went from 7.4% to 10.7% of GDP.[16]

The next section details the procurement data and provides descriptive statistics to illustrate the evolution of spending.

4   Data and Descriptive Statistics

A significant change in the legal framework governing public procurement occurred in 2003, when Law 2051/03 was enacted with the objective of promoting transparency and efficiency. The database used in this study contains nearly all the procurement transactions made from 2004 through 2011 between the public sector in a large sense and 12,047 different suppliers. It covers 124,249 public purchase operations in all types of goods and services, from office supplies to food, travel arrangements, oil purchases, and machinery, among others. Each observation in the procurement dataset contains the name and type of public entity, the name and legal registration number (RUC) of the supplying firm, and information on the purchase, including the nature of the good or service, grouped in 25 product categories, the total cost in local currency, and the purchase mechanism used.[17]

This work analyzes the evolution of procurement practices from 2004 through 2011, in effect restricting the analysis to those institutions that were

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[16]The Lugo government was removed through a constitutional coup in June 2012, when its former Liberal ally struck a deal with the Colorado representatives in Congress and grabbed the presidency.

[17]See Auriol, Straub, and Flochel (2011), and the Appendix for a detailed description of the structure of the data.

included throughout the whole period: the three main powers (executive, judicial, and legislative), as well as public firms, autonomous public entities (regulators and some sectorial institutes), social security institutions, the central bank, and the comptroller general.[18]

The resulting dataset includes 101,083 observations from 59 public institutions and 9,193 firms. Total public spending amounts to Gs. 43,342 billion (approx. US $9.3 billion), which represents between 5.5% and 10.7% of Paraguay's annual GDP over the period.

Table A1 shows the distribution in terms of contracts and transaction amounts by category of public institution and year, restricting the analysis to sales by domestic private firms.[19] The table shows that executive power, which comprises most ministries, is responsible for close to 60% of all contracts, followed by public firms, judicial power, and autonomous entities, each representing around 10% of the total. In terms of value, executive power represents the largest category with 44% of spending, while public firms account for 26%.

In terms of individual institutions, the main purchasers are the state electricity company (ANDE), the social security entity (IPS), the health ministry, and the public works ministry, which together represent 52.8% of the total procurement value over the period. The health ministry stands out by far as

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[18]After 2008, the transparency requirements implied by the legal framework were applied more thoroughly by including in the registers the operations of local entities (regional governments and municipalities), the ombudsman, public financial institutions, and public universities. However, newly included institutions represent less than 10% of total 2008-2011 spending.

[19]The dataset also contains observations in which the seller is either another public entity (68 transactions) or a foreign firm (836 transactions). While they represent only 0.9% of all transactions, these 904 transactions account for 43% of total spending. Indeed, most of these purchases are large oil acquisition contracts by public firms, especially the national oil company Petropar, from large foreign oil firms or intermediaries (e.g., Petróleos de Venezuela SA (PDVSA), Petrobras (Brazil), Yacimiento Petroleo Fiscal (YPF) SA (Argentina), Vitol Suiza, and Glencore International). While oil purchases are interesting because they include a relatively small number of very large transactions, they stand out in several respects as different from other procurement areas and are the object of separate research. Results in this paper are largely robust to their inclusion.

the institution with the highest number of transactions, slightly more than one-fourth of the total.

This is mirrored in the breakdown of product categories. Health and construction are noteworthy as sectors with intensive medium-sized procurement. Indeed, in this eight-year period, the health ministry and the social security entity generated more than 26,000 and 4,000 contracts, with an average size of $25,000 and $200,000, respectively.[20] In the construction sector, the public works ministry issued more than 2,000 road and other public works repair or development contracts larger than $300,000 on average, while the electricity company, in charge of transmission and distribution, executed more than 5,000 contracts, with an average size close to $200,000.

In terms of variations over the period, Table A2 shows the changes in total spending by category between 2005-2007 and 2009-2011, in terms of both absolute amounts and percentage. It shows that the biggest absolute increases are in public works and property construction and repair, health products and services, and machines and transport equipment. On the other hand, the largest reductions involve cleaning and maintenance services and materials, which appear to relate mostly to vehicles, the purchase of spare parts, tires, and other materials, and training. This suggests a marked decrease in expenditures (cars), which were either traditional perks or used in political campaigning and other proselytizing activities.

5   Large Providers and Political Connections

The data display an important concentration of purchases. Over the whole period, the top 200 domestic private providers in each given year accounted for 69% of all expenditures.

The evolution of this group of private providers over the period 2004-2011,

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[20]Health ministry purchases are mostly drugs, while the social security institute, which is in charge of hospitals, also buys medical equipment, hence, the larger average size of contracts.

and in particular after the 2008 election, is therefore of particular interest. Thus, two additional datasets were developed: first, the top 200 providers in each year were identified, setting aside purely foreign providers . A list of firms that were at least once in the top 200 during the 2004-2011 period was then compiled, ending up with 695 private Paraguayan firms.[21]

A private Paraguayan consultancy was hired to build a record of the identity and political affiliation or sympathy of all these firms' directors. The gathering of information proceeded by first finding the names of up to five directors by firm, mostly from the local credit bureau.[22] These names were then crossed-checked against the listings of the two main political parties, the Colorado Party (ANR) and the main historical opposition party, the Liberal Party (PLRA). The listings were then completed through extensive consultations with persons knowledgeable of the political environment, both to include political sympathies not necessarily formalized in affiliations and to extend the data to other smaller parties, which include a specter of center to left political movements.[23] Firms are classified as connected if a majority of their directors are identified as members or sympathizers of a given party.[24]

Of the 695 firms included, 526 have some political connection (455 to the ANR, 50 to the PLRA, 21 to other parties). However, until 2008, affiliation with the ANR was widespread and not necessarily very informative because it made it easier to enter almost any activity having some degree of interaction with the public sector.

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[21]One-third of these firms are active in all eight years, more than half in five years or more.

[22]Most Paraguayan firms are family owned and with very few exceptions have fewer than five directors.

[23]These include Democratia Cristiana, Encuentro Nacional, the Partido Febrerista, and Patria Querida. They do not disclose public member listings. The definition of political sympathies is easily identified in a small country with a limited entrepreneurial and political class.

[24]Alternatively, a rule classifying a firm as connected if it has directors responding to a given party, and only to that party, yields almost similar results. Only 6 ANR firms and 1 PLRA firm would be classified differently.

I therefore further distinguished between two levels of political affiliation with the ANR. 'Rank and file' affiliates are formal members, though not influential. They are likely to belong to the party mostly for opportunistic reasons, such as obtaining the right to operate or avoiding extortion. 'Hierarchs,' on the other hand, are, directly or through their close family, influential members or have occupied important administrative functions and are connected to the top levels of government. Firms responding to ANR core members (hierarchs) represent approximately one-third of all ANR-related firms. Table 1 summarizes the political affiliations of the firms in the sample.[25]

(Table 1 here)

6   Empirical Estimations

This section analyzes how the changes following the 2008 election affected firms with different political ties in terms of their procurement outcomes.

Timing matters. In practice, it is likely that the political change did not translate into new practices overnight. First, the public procurement process implies important delays between the initial call for offers, the award, and the final execution of the contract. Second, the initial move to procure goods or services, through the definition of the call itself, is the result of political and administrative planning processes that take time. Third, conversations with public officials indicate that the new government had very little practical experience when it took over in August 2008 and that, as a result, purchases related to the new policy priorities were only fully implemented from 2009 on. Finally, firms may require some time to adjust their behavior or realize specific investments related to addressing new procurement requirements. Based on this, the specifications will consider either a transition in 2008 and

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[25]Additional information includes incorporation date, sector of main activity, integrated capital, number of buildings, city of location, juridical status, and number of incidents registered in the main Paraguayan (private) credit bureau, Informconf.

a new regime starting in 2009 or a transition in 2008-2009 and a new regime starting in 2010.

Consider the following model, which makes use of the full panel structure of the data to elicit the effect of political connections:

$$\ln Y_{it} = \beta_0 (POL_i * Trans_t) + \beta_1 (POL_i * After_t) + X'_{it}\beta_2 + \nu_i + \nu_t + \varepsilon_{it}, \quad (1)$$

where $\ln Y_{it}$ is the variable of interest (i.e., the log of (1 +) the amount of sales to the public sector of each firm i in year t), POL_i is a firm-specific indicator of political relationship, $Trans_t$ and $After_t$ are dummy variables taking the value of 1 for the transition and the new regime periods respectively, X_{it} are firm-specific time-variant controls, specified below, and ν_i and ν_t are firm and time fixed effects, respectively. Identification thus arises from within-firm variations over time in the log amount of contracts received. The use of growth rates rather than levels, through the log specification of the dependent variable, addresses the possibility that firms may have specific time trends. Most specifications include political indicator variables for the government party before 2008 (the ANR, further divided into 'core' and 'rank' subsamples), the PLRA, and an "opposition" pool aggregating the other four small opposition parties, non-connected firms being the excluded category.

Additionally, it is necessary to control for the type of activity firms perform in terms of public procurement. Indeed, specific goods and services category trends, themselves related to changing policies or other exogenous shocks, will affect firms differentially according to their specialization. If firms with political ties happen to be more active in specific areas of procurement, results from estimating (1) may mistakenly attribute to changing political favors the effects of a modification in the structure of purchases across categories. To address this concern, a set of variables was constructed, including "product dummies" that capture for each firm whether it is active in a given category in each year, and its "product share," meaning the year-by-year value of its sales in each good or service category divided by the total amount

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procured in that category. These controls are more appropriate than sector dummies because in this sample most firms are in effect "multi-product" and are active in several categories simultaneously.[26]

The results from estimating (1) in the sample of 695 firms are shown in Table 2. Column 1 presents the basic results with the main political affiliations (ANR, PLRA, opposition) interacted with dummies for the transition and post-transition periods, controlling for firms' fixed effects and product dummies. PLRA firms appear to have significantly increased the log value of their procurement contracts during the transition phase and to a lesser extent after that, with marginal effects of 36% and 24%, respectively. On the other hand, the effect for ANR firms is positive in the transition and negative after that, but fails to differ significantly from zero. Finally, other opposition firms display negative but non-significant effects.

(Table 2 here)

Column 2 disaggregates ANR affiliation between rank and core members. There is now a strongly significant decrease in contracts after 2008 for core ANR members, while the effect is indistinguishable from zero for rank members. Column 3 adds product shares as firm-level time variant controls. This only reinforces the results, as core ANR firms experience a significant decrease both during the transition and after. Marginal effects are sizable, lying between -15% and -17%. Columns 4 through 6 repeat these estimations using a longer transition period (2008-2009), with very similar results.[27]

Figure 1 plots the coefficients of the interactions between the political indicator variables and dummy variables for each year from 2005 to 2011, from a specification using the same controls as columns 3 and 6 in Table 2. The solid line connects the coefficients, while the dotted lines plot the 90% confidence interval derived from robust standard errors clustered at the

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[26] Almost 60% is active in at least two distinct sectors.

[27] The results are also robust to excluding the top firms in terms of amount of contracts received (not shown to save space).

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firm level. In line with the results above, the figure shows a negative and significant change in contracts to core ANR entrepreneurs in 2008, 2010, and 2011 in the upper-right quadrant (1.B) and a positive and significant increase for PLRA firms in 2008 in the bottom-left quadrant (1.C).[28]

Tables 3 and 4 delve into the channels for these results. Table 3 first looks at amounts attributed without competition through the exception mechanism. As discussed in Auriol et al. (2011), this was a major channel of irregularities in the first few years after the enactment of the new procurement law and one that was specifically used to award contracts to targeted firms. The results show a decrease across the board in terms of the log value of such contracts received by firms connected to all political groups, but these are only marginally statistically significant for PLRA and other opposition firms during the transition. While the results are consistent with a cleansing of the procurement process,[29] they also suggest that the use of exception was not the dominant mechanism in awarding contracts to connected firms and that these firms benefited from all types of contracts. This is not surprising given that exceptions began to decrease as early as 2006, as shown in Auriol et al. (2011).

(Table 3 here)

Table 4 analyzes the evolution of connected firms' portfolios across specific product categories. It presents the results from the following specification:

$$\ln Y_{it} = \beta_0(POL_i * Trans * Z_i) + \beta_1(POL_i * After * Z_i) + X'_{it}\beta_2 + \nu_i + \nu_t + \varepsilon_{it}, \tag{2}$$

where Z_i is a dummy variable relating alternatively to two specific subsets of product categories: the fastest growing and the biggest. After 2008, spending

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[28] The corresponding estimations are in Table A3, column 2, in the Appendix.

[29] This could reflect both a reduction in wrongdoing and an efficiency improvement due, for example, to learning with the new legal framework.

increased rapidly, as evidenced by the share of procurement in GDP almost doubling over the period under analysis, going from 5.5% in 2004 to 10.7% in 2011. As described in section 4 above, this was clearly driven by a subset of categories and was largely a response to the new policy priorities. The first measure therefore relates to the product categories experiencing an above-the-median absolute increase between 2005-2007 and 2009-2011.

Moreover, it is likely that categories with a significant initial turnover of purchase may have different dynamics. Indeed, one would expect that even before 2008 they offered more possibility for opposition or non-connected entrepreneurs to win at least marginal amounts of public contracts, and that after 2008 these fringe firms would readily generate more competition for public contracts. To test this, I computed the sum of contracts awarded per category, using specifically the 2005-2007 period, which includes 37,334 procurement operations, and classified as "big" those with values above the median.[30]

The dummy variables for these two measures were assigned a value of 1 if firm i had at least some activity in a "fast growing" or "big" category.[31] Robustness checks were also conducted for a smaller subset of the top "fast growing" or "big" categories.

(Table 4 here)

Columns 1 and 2 of Table 4 present the results for "fast growing" categories, where the subset included is those above the median or, alternatively, the seven largest. They reveal a pattern in which, after the transition period, ANR rank firms actually lost in the largest categories, while compensating these losses in the smaller ones. However, a Wald test rejected the equality of effects during the transition; that is , the sum of the coefficients for the small

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[30]The year 2004 is excluded as it is the first year in which purchases were registered according to the new law. The transition period is set to include 2008.

[31]Note that the new government priorities, public works and health, are among both the biggest categories and the largest seven categories.

and big product categories is not equal to zero, indicating that gains did not compensate losses. A somewhat similar pattern emerges for core ANR firms, although in this case only the losses in large categories are statistically significant. As for opposition firms, PLRA firms display gains in smaller categories, partially compensated by losses in bigger categories (equality rejected in the transition, not rejected after that), while no significant effects appear for other opposition firms.

Looking next at big pre-2008 categories, columns 3 and 4 show that both during and after the transition, ANR rank firms experienced a reduction in their portfolio, while compensating for this in smaller categories. The Wald test failed to reject equality of effects during the transition, indicating that gains compensated losses, but it rejected it for the period 2009-2011, where the coefficient for losses is larger. Again, similar tests are rejected for core ANR firms, indicating that they only partially compensated in large categories for their losses in smaller ones. A similar pattern also affects PLRA firms after the transition, with gains compensating losses.

These results are disaggregated in Figure 2, which plots the coefficients of the interactions among the political indicator variables, dummy variables for each year from 2005 through 2011, and a dummy variable for "big" sectors.[32] In the upper-left quadrant (2.A), which tracks ANR rank entrepreneurs, the substitution of contracts in small product categories for those in big ones is clearly apparent starting in 2008 and gets stronger afterward. In the upper-right quadrant (2.B.), ANR core entrepreneurs display the same pattern in 2009, but for them the increase in contracts in small categories becomes insignificant afterward, while the decrease in contracts in big categories remains significantly negative, explaining their overall losses. Finally, PLRA firms display only a mildly positive increase in small categories in 2011.

These results are consistent with a scenario in which, in the pre-2008 situation, connected entrepreneurs were coping with procurement contracts

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[32]The corresponding estimations are in Table A3, column 6, in the Appendix.

in smaller categories, while larger categories were more open to other non-connected firms. As these connected entrepreneurs were winning contracts not on the basis of being more competitive, but through political favor, they were more likely to be outplayed after 2008 in categories where competition was restored, especially if the volume of procurement grew rapidly. On the other hand, in product categories that had historically excluded non-connected firms, connected firms were able to take advantage of incumbency to improve their position after 2008. This is true even for core ANR entrepreneurs, who appear to have benefited in these smaller and slow-growing categories, although not enough to compensate their overall losses.

This indicates a pattern in which connected entrepreneurs were distributed across the whole range of procurement activities. When these activities were characterized by larger volumes, the space available for non-connected entrepreneurs was more important, and this clearly made the shift toward a less politicized set of suppliers easier after 2008. Thus, it is to be expected that efficiency gains were larger in these sectors because able competitors were present.

In addition, the fact that ANR rank entrepreneurs struggled to maintain their position when faced with more open competition after 2008 indicates that they were less efficient to start with and were only in business thanks to their political connections. In that sense, political favoritism affected the composition of the entrepreneurial class well beyond the first circle of connected core ANR entrepreneurs.

Overall, these results indicate an important role for firms' political connections during and after the 2008 transition. ANR core members were clearly "punished," while PLRA firms benefited mostly in the initial period of the new government, in which the Liberal Party more actively supported the new government.[33] The effect appears to concentrate in the larger, fastest growing sectors, and non-connected firms appeared to be the main benefi-

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[33] The Liberal Party finally actively participated in the eviction of Lugo in June 2012.

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ciaries of the losses of connected entrepreneurs. Thus, rather than political favors only representing an additional advantage for equally talented individuals, the results suggest a misallocation of talents, in which low-ability entrepreneurs prevailed against those with higher ability.

The following section inquires further into the efficiency effects of the post-2008 evolution by looking at entry into the procurement business and at the evolution in types of procedures used to allocate contracts.

7 Political Connections, Democratization, and Efficiency

In addition to substituting politically connected and thus potentially less efficient firms for non-connected firms , efficiency might have improved after 2008 through enhanced competition or through a shift to "better" providers. Here, I focus on proxies for the level of competition in public procurement, specifically, the number of suppliers active per product category and the types of attribution procedures used. As for the quality of providers, I consider whether firms have antecedents of bank incidents registered in the local credit bureau.

The analysis aggregates the full dataset so as to track the effect of changes in the amount of contracts awarded to politically connected firms on the evolution of the variables above at the institution-year level. Moreover, it uses the results of the previous section to instrument the evolution of the amount of these contracts with the political break that occurred in 2008, interacted with specific characteristics of the institutions.

Formally, the equation to be estimated is:

$$Y_{it} = \gamma_0 + \gamma_1 AmountPol_{jt} + X'_{jt}\gamma_2 + \nu_j + \nu_t + \varepsilon_{jt}, \qquad (3)$$

where Y_{it} is the institution-year-level variable of interest (i.e., number of sup-

pliers active, share of contracts made by type of procedure, share of suppliers with bank antecedents), $AmountPol_{jt}$ is the (log of) the sum of contracts each institution j is giving to politically connected firms in a given year t, X_{jt} are institution-specific time-variant controls, specified below, and ν_j and ν_t are institution and time fixed effects, respectively.

The identification strategy relies on using the political change of 2008 and on the fact that it affected some institutions more than others.[34] The first stage is therefore defined as:

$$AmountPol_{jt} = \delta_0 + (Z_j \ * After_t)^{'}\delta_1 + X_{jt}^{'}\delta_2 + \nu_j + \nu_t + \varepsilon_{jt}, \qquad (4)$$

where the instrumental variable is the interaction of a dummy for the period after the political change ($After_t$) with a vector of two variables Z_j, composed of a dummy capturing whether the institution relies on several subcontracting units to operationalize procurement contracts and the share of political contracts in its portfolio in the 2004-2007 period.

The rationale for the first measure is that the new government had relatively few experienced staff when it took over. Hence, it was comparatively more difficult to replace and/or control procurement officials with a large number of subcontracting units, as was, for example, the case in large ministries. As of 2007, of 50 institutions, 17 had more than one subcontracting unit, with numbers ranging between 2 and 22. The second measure relies on the fact that more political pressure is expected on institutions that had a large share of political contracts before 2008.

(Table 5 here)

The first stage in Appendix Table 5 shows that the instruments have the expected effect and are significant. Institutions with a high share of

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[34]Duflo (2001) used a similar specification to estimate the impact of a school construction program on labor market outcomes in Indonesia.

political contracts until 2007 experience relatively larger reductions, while those having several subcontracting units display opposite results. The F-statistics reject the null hypothesis that the instruments are weak for a bias of the instrumental variables (IV) estimator relative to the bias of the ordinary least squares (OLS) not exceeding 15% (see Stock and Yogo, 2005).[35] The results from the second stage are shown in Table 6.

(Table 6 here)

Panel A shows the two-stage least square (2SLS) estimates of (3), where the post-change period is set to be the 2008-2011 period and connected firms are taken to be core Colorado entrepreneurs with strong links to the previous regime. Column 1 shows that a reduction in the log amount of contracts to such political firms implies a reduction in the number of firms with which an institution contracted after 2008. In column 2, the concentration index, computed as the Herfindahl-Hirschman Index (HHI) of purchases across suppliers, is negative, meaning that concentration increases with the reduction in contracts to connected firms, but it fails to be significant. Columns 3 through 7 provide a view into the channels at play. Indeed, the political change also led these institutions to use a bigger share of competitive contracts in general (the tender category in column 3, which includes all contracts giving rise to an open tender) and, more specifically, the type of tendering arising for contracts of a size just above the threshold between direct contracting and small tenders (the call for offers category in column 4). Finally, column 8 indicates that fewer contracts to connected firms also translated into a higher share of contracts to firms with antecedents of bank incidents as signaled by the local credit bureau. Note that the instruments pass the test of overidentifying restrictions, which F-statistics are shown in square brackets.

A number of robustness checks sustain these results. First, following the discussion of the length of the transition period in section 6 above, Panel B

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[35]Using only the first instrumental variable yields very similar second stage results, and a first stage excluded instrument F-statistic of 12.28.

repeats these estimations, now using 2009-2011 as the post-change period, with very similar results. Second, in Panel C, a placebo test looks at the evolution between the 2004-2005 and 2006-2007 periods, using as instruments the share of political contracts in institutions' portfolio in 2004-2005 and the subcontracting dummy. The test yields only insignificant results, as expected. Finally, the pre-2008 institution-level share of political contracts does not predict the post-2008 evolution of the outcome variables in a regression where it is interacted with the whole set of year dummies, with the exception of "licitacions."[36]

The implied marginal effects are sizable. A 1% decrease in the amount of contracts to connected firms in an institution's yearly budget translates to 5.5% fewer providers and a 3.7 point increase in the share of calls for offers (a 2.4 point increase in the share of open tenders overall). Fixing other covariates at their mean, going from an institution-year observation at the 75th percentile in terms of the amount of contracts to connected firms to one at the 25th percentile would translate into a 20% decrease in the number of firms and an increase in the share of calls for offers from 9.4% to 24.8%.

Overall, the results are consistent with the finding in the previous section. In a context of abrupt political change, entrepreneurs closely connected to the previous regime were punished and their share of public procurement reduced. However, this shift was not directly balanced by the entry of new entrepreneurs, either connected to the new regime or with no open connections, as witnessed by the reduction in the average number of firms. A possible explanation is the absence of such entrepreneurs in the short to medium term, as the long-lasting grip of the Colorado regime discouraged entrepreneurship by opposition members. On the other hand, it is also possible that procurement contracts were previously inefficiently divided between too many firms.

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[36]Licitacions are open tenders for contracts above 10,000 mdw. Results not shown to save space.

The reduction in the number of firms was accompanied by a substitution between contracts awarded through direct purchase mechanisms and contracts subject to tendering, as shown by the decrease in the share of contracts just below the tendering threshold of the 2,000 minimum daily wage (mdw) and the increase in the share of contracts made through simple tenders in the range between 2,000 and 10,000 mdw (call for offers). As the new authorities used fewer but bigger and more competitive contracts to reduce the amount of public procurement going to firms connected to the previous regime, it is likely that there were efficiency gains, although it is difficult to evaluate the extent to which this was constrained by the low number of potential new suppliers.

Panels D and E provide evidence of such limitations. Panel D presents the estimation of (3) on the subsample of contracts corresponding to the product categories with a cumulated number of suppliers above the median in the early 2004-2007 period. The results are consistent with those of panels A and B. A decrease in political contracts translates into a significant decrease in the number of suppliers, and the coefficient is 24% to 35% larger than in the whole sample. It also induces significant increases in the concentration of purchases, which is now significant at the 1% level, and in the share of contracts made through a competitive call for offers. Finally, in contrast to the results above, it also corresponds to a shift toward a mix of firms with a lesser history of previous bank incidents, which can be interpreted as an indicator of better quality providers.

The marginal effects are also larger. Comparing the 25th and the 75th percentile yields a 25% reduction in the number of suppliers, an increase in the share of calls for offers from 6.8% to 23.4%, and a reduction in the share of providers with a history of bank incidents from 15.7% to 10.6%.

In contrast, in panel E, which shows the results for the subsample of product categories with a cumulated number of suppliers below the median, all the results become insignificant. These results are consistent with a scenario

in which the reduced number of potential competitors able to supply specific products constrained the introduction of competition after 2008.

8   Conclusion

The paper has looked at how a landmark political change that occurred in Paraguay in 2008, when an opposition coalition defeated the Colorado Party, which had held power for 61 years, affected the allocation of public procurement across different categories of firms. Using data on all the public procurement transactions from 2004 through 2011, and on the political connections of the 700 largest public providers, the results show a depolitization of procurement after 2008 through a reduction in contracts awarded to firms connected to the first ring of power, the core Colorado entrepreneurs, mostly to the benefit of non-connected firms and to a lesser extent of firms connected to the former opposition, which may respond to the non-aligned nature of the new government.

Consistent with the decade-long monopolization of power of the Colorado regime leaving few alternative providers present in the market, the reduction in political contracts translated into public institutions using bigger contracts under explicitly competitive mechanisms and contracting with fewer and more efficient firms. While some efficiency gains appeared in this process, there was also evidence of binding constraints, in particular those related to the time needed for an efficient class of entrepreneurs to emerge.

These results also shed light on how, following democratization, the characteristics of the Paraguayan long-term authoritarian dominant-party regime made reforms difficult for the new government. In contrast to the evidence that authoritarian regimes may be able to reform themselves, as in the case of Taiwan and Mexico in the 1980s (Haggard and Kaufman, 1995), the possibility to transition out of the development trap created by widespread rent-seeking entrepreneurship appears to have been limited in Paraguay. The

inherited non-existence of a strong independent private sector led to a lack of room to maneuver for the new government and, together with the other policy constraints, eventually contributed to the government's fall through a parliamentary coup in 2012.

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Appendix

Purchase Regulations

The 2.051/03 law of public procurement regulates purchases according to their value computed in terms of minimum daily wage (mdw). In the period of study, the value of the mdw fluctuated between approximately US $6 and $10.

Contracts above 10,000 mdw are made through a public tendering ("licitacion"). The call for offers must be published in the national press for a minimum of three days, as well as in the official newsletter and website. Requirements and criteria for evaluation are restricted to technically indispensable requisites. If several offers comply with these requirements, the one with the lowest price wins. All bids and winning offers are published on the National Directorate of Public Procurement (DNCP) website.

For contracts between 2,000 and 10,000 mdw, a competitive bidding process must be organized ("concurso de oferta"). This does not require the call for offers to be published in the national press, but it must be published on the DNCP website and at least five different firms must make an offer.

Below 2,000 mdw, contracts can be allocated directly without an auction, provided the call has been published on the DNCP website and at least three official offers from different firms have been received. Last, spending worth less than 20 mdw can be realized without justification through a `fixed funds' mechanism from a single supplier.

Finally, the law addresses the possibility of disregarding the rules above in cases of "force majeure," such as emergencies, natural disasters, health epidemics, purchase of patented or copyrighted goods, or purchase requiring secrecy for reasons of defense. In these circumstances, institutions can purchase directly and without any requirements from a firm of their choice through the "exceptional purchase mechanism."

Table A1 : 2004 – 2011 evolution of spending by categories of institutions (private domestic suppliers only)

Number of contracts	2004	2005	2006	2007	2008	2009	2010	2011	Total	Total (%)
Central bank	52	64	87	124	136	163	186	158	970	1,0%
Comptroller General	65	128	120	52	92	74	84	78	693	0,7%
Mixt public firms	222	297	294	233	152	352	257	244	2051	2,0%
Public firms	1133	1090	1327	1674	1304	1417	971	1146	10062	10,0%
Autonomous entities	748	879	1120	1126	1130	1339	1417	1479	9238	9,2%
Social security entities	545	474	469	566	647	796	693	574	4764	4,8%
Executive power	6356	7330	7912	7056	7311	6703	8091	9052	59811	59,7%
Judicial power	749	1126	1317	975	1247	1286	1449	1514	9663	9,6%
Legislative power	353	406	435	348	297	361	353	374	2927	2,9%
Total	10223	11794	13081	12154	12316	12491	13501	14619	100179	
Amounts (bn. Guaranies)										
Central bank	18.0	4.2	25.5	8.4	54.8	70.3	69.4	114.4	365.0	1,5%
Comptroller General	0.9	1.8	3.2	2.2	5.3	5.0	13.9	2.9	35.3	0,1%
Mixt public firms	70.1	84.2	130.9	132.3	50.5	189.1	228.8	248.9	1134.8	4,6%
Public firms	478.2	508.8	567.9	724.2	942.6	950.4	1183.0	962.6	6317.7	25,5%
Autonomous entities	32.1	95.1	87.6	136.5	118.1	268.3	213.4	408.6	1359.7	5,5%
Social security entities	180.7	273.4	226.7	314.5	348.6	559.2	605.7	803.2	3312.0	13,4%
Executive power	487.0	469.7	702.6	627.2	1127.0	1710.0	2896.0	2904.0	10923.5	44,1%
Judicial power	28.9	63.7	106.9	94.6	120.8	164.5	256.1	194.2	1029.7	4,2%
Legislative power	11.4	22.7	22.6	25.8	36.5	35.4	30.1	109.2	293.7	1,2%
Total	1307.3	1523.6	1873.9	2065.8	2804.2	3952.1	5496.4	5748.0	24771.3	
Total (% of GDP)	3,1%	3,3%	3,6%	3,4%	3,8%	5,6%	6,3%	5,8%		

Table A2 : Changes in amounts spend by categories (in bn. Guaranies)

Categories	2005-07	2009-11	Variation	%
Public works and properties contruction and repairs	655.4	3554.0	2898.6	442.26%
Health products, materials and services	945.8	2598.4	1652.6	174.73%
Machines, major tools and transport equipments	245.4	1304.2	1058.8	431.46%
Military and security equipment	95.0	785.1	690.1	726.42%
Transport and travel	199.6	697.3	497.7	249.35%
Oil and lubricants	345.6	834.6	489.0	141.49%
Properties adquisition and renting	89.8	533.3	443.5	493.88%
Food products	99.6	489.4	389.8	391.37%
Computing equipments and softwares	476.5	819.4	343.0	71.96%
Technical services	57.2	388.8	331.6	579.72%
Insurance	44.3	367.8	323.5	730.25%
Office stationary, papers and printed material	292.5	615.3	322.8	110.36%
Consulting and studies	69.8	205.6	135.9	194.56%
Minerals	4.8	110.8	106.0	2208.33%
furniture	62.2	137.0	74.8	120.26%
Ceremonies and receptions	88.4	158.8	70.4	79.64%
Quimical products	75.7	135.2	59.5	78.60%
Textile and clothes	72.2	92.5	20.3	28.12%
Advertisement	121.2	139.6	18.4	15.18%
Kitchen materials and glass products	7.2	11.7	4.4	62.50%
Agricultural and forestal goods and materials	11.6	14.8	3.2	27.59%
Training	58.2	58.0	-0.2	-0.34%
Tools and electric, plastic and other materials	503.3	468.0	-35.3	-7.01%
Cleaning materials	71.1	28.6	-42.6	-59.77%
Cleaning, maintenance and repairs	731.3	648.0	-83.3	-11.39%
Total	5463.4	15196.3	9732.9	178.15%

Table A3: Estimations of the impact of political connections on the amount of contracts received with year by year interactions

	(1) lntotval	(2) lntotval	(3) lntotval	(4) lntotval	(5) lntotval	(6) lntotval
	Cat		Fast growing	Fast growing	Big	Big
ANRrank*2005	-0.119	-0.123	-0.286	-0.323	0.086	0.109
	(0.854)	(0.743)	(0.922)	(0.806)	(0.947)	(0.755)
ANRrank*2006	0.006	0.202	-1.208	-1.259	-0.970	-0.790
	(0.891)	(0.767)	(0.974)	(0.807)	(0.800)	(0.632)
ANRrank*2007	-0.122	-0.738	-1.216	-1.474	-0.796	-1.463
	(0.926)	(0.837)	(1.137)	(1.052)	(1.045)	(0.899)
ANRrank*2008	0.540	0.504	1.083	1.019	2.923	2.853
	(1.009)	(0.913)	(1.395)	(1.298)	(1.368)**	(1.253)**
ANRrank*2009	-0.479	-0.486	2.405	2.057	3.510	3.327
	(0.982)	(0.895)	(1.416)*	(1.307)	(1.379)**	(1.225)***
ANRrank*2010	0.081	0.062	3.462	2.502	4.282	3.785
	(1.034)	(0.925)	(1.517)**	(1.400)*	(1.428)***	(1.281)***
ANRrank*2011	-0.755	-0.854	3.668	2.971	5.425	4.915
	(1.076)	(0.992)	(1.612)**	(1.513)**	(1.493)***	(1.363)***
ANRcore*2005	0.435	0.321	-1.117	-0.746	-0.674	-0.573
	(1.076)	(0.973)	(1.288)	(1.075)	(1.035)	(0.842)
ANRcore*2006	-0.887	-0.286	-2.927	-2.395	-1.427	-1.139
	(1.043)	(0.934)	(1.381)**	(1.143)**	(1.045)	(0.828)
ANRcore*2007	-1.192	-1.236	-1.536	-1.984	-0.503	-1.475
	(1.111)	(0.970)	(1.696)	(1.302)	(1.563)	(1.035)
ANRcore*2008	-1.744	-1.865	0.138	-1.141	3.465	1.133
	(1.168)	(1.056)*	(1.936)	(1.571)	(2.091)*	(1.714)
ANRcore*2009	-1.950	-1.293	0.565	0.689	4.170	4.076
	(1.169)*	(1.069)	(1.970)	(1.770)	(2.038)**	(1.870)**
ANRcore*2010	-1.847	-1.996	-0.356	-1.674	3.691	1.969
	(1.215)	(1.090)*	(2.119)	(1.780)	(2.140)*	(1.823)
ANRcore*2011	-2.972	-2.998	-1.903	-2.092	0.587	0.351
	(1.237)**	(1.123)***	(1.960)	(1.704)	(2.001)	(1.820)
PLRA*2005	0.025	0.349	0.339	0.206	-1.173	-1.069
	(1.348)	(1.290)	(1.739)	(1.665)	(1.420)	(1.220)
PLRA*2006	0.945	1.220	-0.163	-1.163	-0.363	-1.295
	(1.450)	(1.280)	(1.921)	(1.210)	(2.146)	(1.279)

PLRA*2007	-0.221	-0.415	-2.358	-2.650	-2.638	-2.750
	(1.424)	(1.377)	(1.201)*	(1.149)**	(1.427)*	(1.228)**
PLRA*2008	3.303	2.793	2.724	2.212	1.580	1.270
	(1.545)**	(1.410)**	(1.924)	(1.751)	(2.546)	(2.272)
PLRA*2009	2.268	1.860	4.200	3.796	3.125	2.953
	(1.565)	(1.481)	(2.071)**	(1.983)*	(2.736)	(2.542)
PLRA*2010	1.787	1.456	3.963	4.109	3.408	3.755
	(1.685)	(1.587)	(2.042)*	(2.044)**	(2.643)	(2.540)
PLRA*2011	2.940	2.109	6.317	5.409	5.779	5.008
	(1.762)*	(1.673)	(2.515)**	(2.380)**	(2.767)**	(2.493)**
OPOS*2005	1.708	3.519	0.082	0.005	-7.216	1.527
	(2.024)	(1.513)**	(0.713)	(0.620)	(6.051)	(2.131)
OPOS*2006	-2.790	-0.068	-0.657	-0.547	-7.969	0.962
	(2.021)	(1.699)	(0.730)	(0.606)	(6.053)	(2.131)
OPOS*2007	0.064	1.297	-1.376	-1.667	-8.681	-0.154
	(2.269)	(1.800)	(0.728)*	(0.636)***	(6.053)	(2.139)
OPOS*2008	-1.205	0.315	4.625	4.190	-5.027	3.509
	(2.425)	(2.004)	(5.158)	(4.871)	(8.705)	(3.743)
OPOS*2009	-1.210	0.467	-3.476	-3.518	-10.769	-1.978
	(2.018)	(1.557)	(0.808)***	(0.741)***	(6.062)*	(2.169)
OPOS*2010	-0.572	0.394	3.969	3.685	-5.822	2.806
	(2.518)	(2.161)	(5.467)	(5.310)	(8.899)	(4.047)
OPOS*2011	-0.788	1.028	-3.879	-4.011	-11.167	-2.466
	(2.566)	(2.282)	(0.870)***	(0.809)***	(6.070)*	(2.203)
ANRrank*cat*2005			0.243	0.280	-0.230	-0.268
			(0.837)	(0.727)	(0.851)	(0.663)
ANRrank*cat*2006			1.607	1.969	1.240	1.293
			(0.911)*	(0.802)**	(0.722)*	(0.620)**
ANRrank*cat*2007			1.402	0.937	0.814	0.882
			(1.124)	(1.065)	(1.028)	(0.922)
ANRrank*cat*2008			-0.709	-0.678	-3.038	-3.001
			(1.310)	(1.223)	(1.276)**	(1.177)**
ANRrank*cat*2009			-3.802	-3.350	-5.091	-4.857
			(1.331)***	(1.231)***	(1.283)***	(1.142)***
ANRrank*cat*2010			-4.472	-3.235	-5.367	-4.758
			(1.436)***	(1.328)**	(1.343)***	(1.205)***

ANRrank*cat*2011	-5.867	-5.085	-7.913	-7.393
	(1.537)***	(1.434)***	(1.408)***	(1.273)***
ANRcore*cat*2005	2.116	1.447	1.364	1.076
	(1.482)	(1.303)	(1.238)	(1.077)
ANRcore*cat*2006	2.747	2.863	0.614	0.995
	(1.498)*	(1.329)**	(1.191)	(1.048)
ANRcore*cat*2007	0.406	0.928	-0.920	0.171
	(1.834)	(1.456)	(1.706)	(1.208)
ANRcore*cat*2008	-2.540	-0.965	-6.409	-3.683
	(1.991)	(1.637)	(2.127)***	(1.752)**
ANRcore*cat*2009	-3.395	-2.683	-7.520	-6.617
	(2.037)*	(1.839)	(2.086)***	(1.910)***
ANRcore*cat*2010	-1.987	-0.399	-6.790	-4.854
	(2.173)	(1.847)	(2.188)***	(1.861)***
ANRcore*cat*2011	-1.453	-1.240	-4.392	-4.145
	(2.039)	(1.764)	(2.066)**	(1.852)**
PLRA*cat*2005	-0.405	0.265	1.834	2.158
	(2.198)	(2.174)	(1.986)	(1.898)
PLRA*cat*2006	1.696	3.653	1.909	3.715
	(2.427)	(1.878)*	(2.554)	(1.882)**
PLRA*cat*2007	3.189	3.363	3.453	3.384
	(2.014)	(2.024)*	(2.084)*	(2.018)*
PLRA*cat*2008	0.809	0.828	2.434	2.170
	(2.463)	(2.238)	(2.846)	(2.553)
PLRA*cat*2009	-2.968	-2.994	-1.338	-1.668
	(2.595)	(2.503)	(3.040)	(2.866)
PLRA*cat*2010	-3.340	-4.074	-2.439	-3.422
	(2.699)	(2.661)	(3.071)	(2.966)
PLRA*cat*2011	-5.225	-5.094	-4.301	-4.347
	(3.045)*	(2.912)*	(3.212)	(2.975)
OPOS*cat*2005	1.861	3.896	10.508	2.439
	(2.083)	(1.476)***	(6.244)*	(2.532)
OPOS*cat*2006	-2.422	0.477	5.947	-1.206
	(2.091)	(1.781)	(6.295)	(2.715)
OPOS*cat*2007	1.451	3.118	10.004	1.532
	(2.339)	(1.807)*	(6.344)	(2.738)
OPOS*cat*2008	-6.467	-4.312	4.410	-3.703

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	(1)	(2)	(3)	(4)	(5)	(6)
			(5.634)	(5.198)	(8.930)	(4.172)
OPOS*cat*2009			2.360	4.268	10.972	2.755
			(1.988)	(1.437)***	(6.198)*	(2.485)
OPOS*cat*2010			-5.123	-3.718	6.004	-2.838
			(5.959)	(5.672)	(9.136)	(4.518)
OPOS*cat*2011			3.279	5.425	11.932	3.970
			(2.638)	(2.309)**	(6.452)*	(3.108)
Firms F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Product dummies	Yes	Yes	Yes	Yes	Yes	Yes
Product shares		Yes		Yes		Yes
R^2	0.32	0.43	0.33	0.44	0.34	0.44
N	5,560	5,560	5,560	5,560	5,560	5,560

Notes: Results from an OLS model, where the dependent variable is the log of (1+) the yearly total amounts of public contracts received by each firm. In columns 1 and 2, explanatory variables are the interactions of the dummy variables indicating political connection (ANRrank/ANRcore, PLRA and OPOS) and year dummies (2005 to 2011, 2004 is the excluded year). In columns 3 to 6, specifications include a triple interaction with Cat. Cat is a dummy variable for the fastest growing product categories between the 2005-2007 and the 2009-2011 sub-periods (13 categories above the median) in columns 3 and 4, and a dummy variable for the biggest product categories in the 2005-2007 sub-period (13 categories above the median) in columns 5 and 6. Column 2 estimates are represented in Figure1, while column 6 estimates are represented in Figure 2. Robust standard errors clustered at the firm-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Figure 1: Year-by-year interaction coefficients of the change in amounts of contracts by type of connections
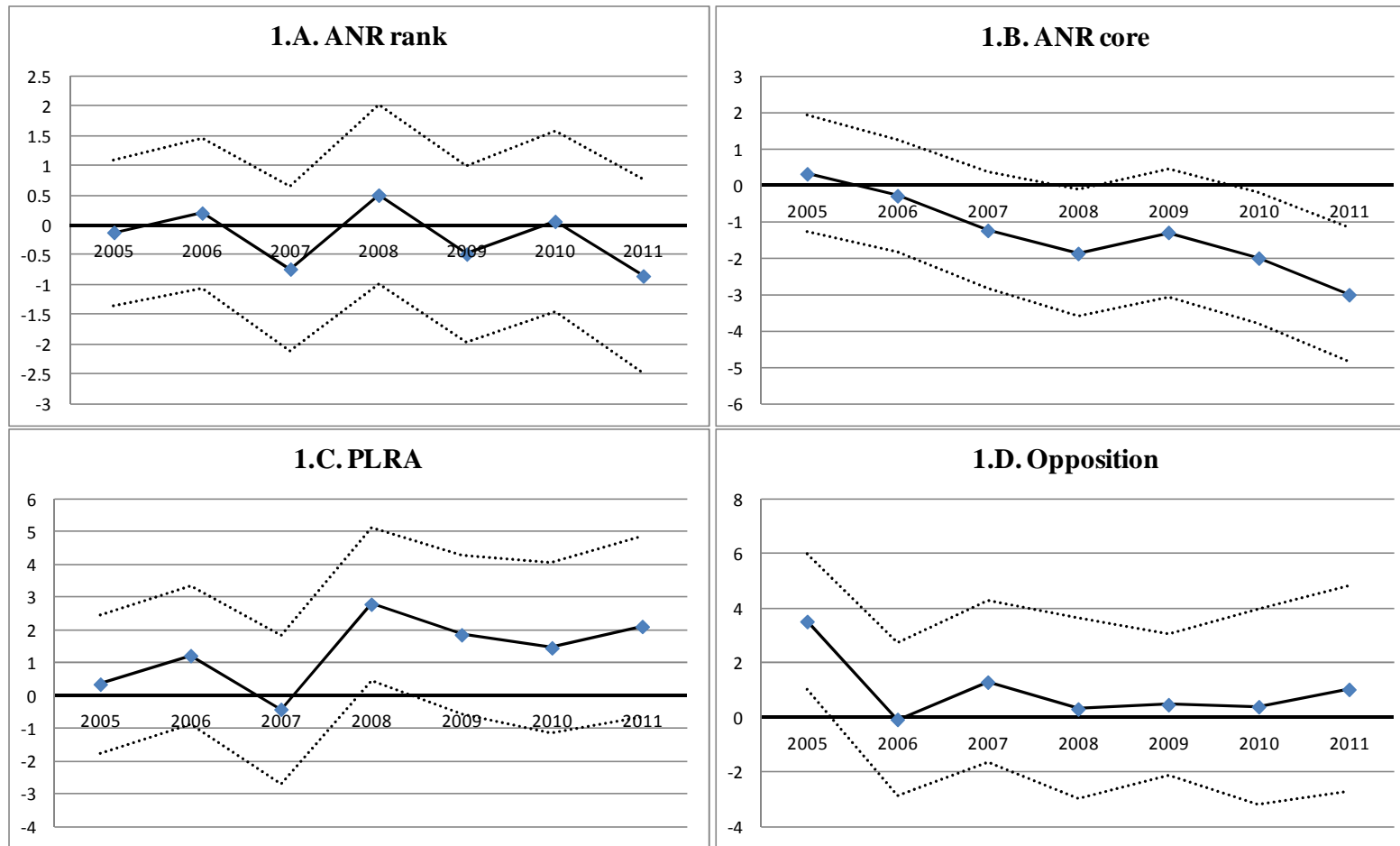
Note: In each Figure, the solid line plots the coefficients from the interaction between the relevant political connection dummy and year dummies. Controls are based on the specification shown in Table 2, columns 3 and 6. The 90% confidence interval derived from robust standard errors clustered at the firm-level is plotted by the dotted lines.

Figure 2: Year-by-year interaction coefficients of the change in amounts of contracts by type of connections and product categories (big vs. small)
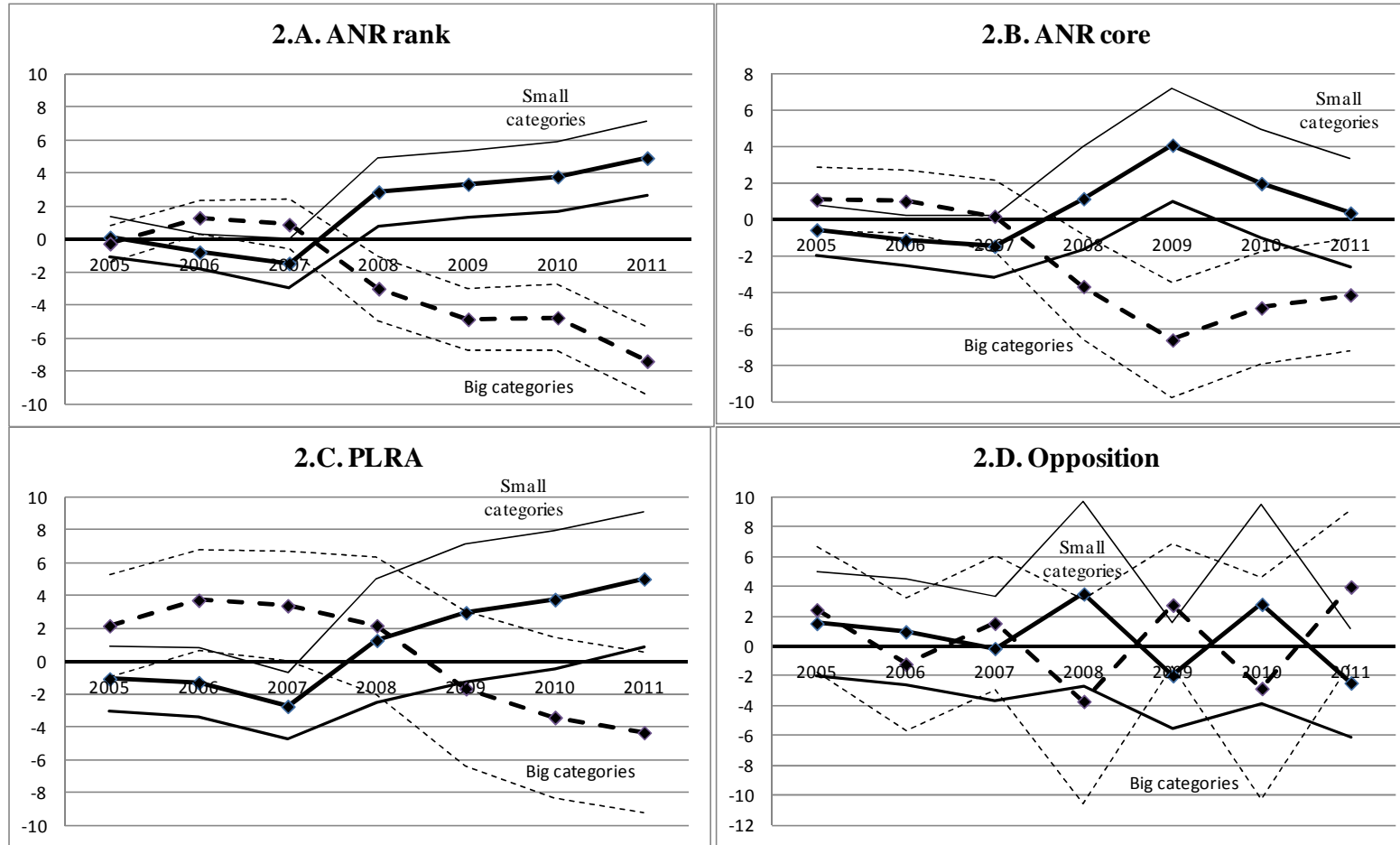
Note: Each Figure plots the coefficients from the interaction between the relevant political connection dummy, year dummies, and product categories (below or above the median size in the 2005-2007 sample) as well as the 90% confidence interval derived from robust standard errors clustered at the firm-level. The solid lines represent the outcome for the group of big product categories, while the dotted lines correspond to the group of small product categories. Controls are the same as those included in Figure 1.

Table 1: Number of connected firms active in each year

	2004	2005	2006	2007	2008	2009	2010	2011	Overall
ANR total	260	254	270	272	287	298	299	273	455
ANR rank	170	165	181	184	197	201	202	188	301
ANR core	90	89	89	88	90	97	97	85	154
Opposition	45	47	45	44	52	54	53	53	71
PLRA	28	29	32	29	37	38	37	38	50
DEM CRIST	1	1	1	1	1	1	1	1	1
ENC NAC	1	3	1	1	1	1	2	2	3
PART FEB	4	4	3	3	3	4	3	3	4
PATRIA	11	10	8	10	10	10	10	9	13
No connection	89	87	99	104	100	109	107	106	169
Total	394	388	414	420	439	461	459	432	695

Table 2: Basic estimations of the impact of political connections on the amount of contracts received

	(1) lntotval	(2) lntotval	(3) lntotval	(4) lntotval	(5) lntotval	(6) lntotval
	Trans : 2008	Trans : 2008	Trans : 2008	Trans : 2008-09	Trans : 2008-09	Trans : 2008-09
ANR*trans	-0.055			-0.428		
	(0.730)			(0.631)		
ANR*after	-0.841			-0.860		
	(0.644)			(0.699)		
ANRrank*trans		0.598	0.674		0.495	0.750
		(0.772)	(0.705)		(0.730)	(0.665)
ANRrank*after		-0.328	-0.262		-0.293	-0.286
		(0.685)	(0.627)		(0.673)	(0.615)
ANRcore*trans		-1.334	-1.560		-1.430	-1.241
		(0.888)	(0.813)*		(0.761)*	(0.700)*
ANRcore*after		-1.848	-1.796		-2.008	-2.230
		(0.806)**	(0.743)**		(0.856)**	(0.787)***
PLRA*trans	3.103	3.120	2.517	2.591	2.609	2.087
	(1.165)***	(1.166)***	(1.089)**	(1.094)**	(1.087)**	(1.027)**
PLRA*after	2.144	2.146	1.530	2.177	2.168	1.468
	(1.164)*	(1.164)*	(1.082)	(1.279)*	(1.262)*	(1.178)
OPOS*trans	-0.947	-0.952	-0.875	-0.950	-0.945	-0.763
	(1.540)	(1.543)	(1.380)	(1.153)	(1.146)	(0.967)
OPOS*after	-0.603	-0.604	-0.563	-0.419	-0.431	-0.516
	(1.281)	(1.284)	(1.174)	(1.642)	(1.632)	(1.550)
Firms F.E.	yes	yes	yes	yes	yes	yes
Product dummies	yes	yes	yes	yes	yes	yes
Product shares			yes			yes
R^2	0.31	0.31	0.42	0.31	0.31	0.42
N	5,560	5,560	5,560	5,560	5,560	5,560

Notes: Results from an OLS model, where the dependent variable is the log of (1+) the yearly total amounts of public contracts received by each firm. ANR/ANRrank/ANRcore, PLRA and OPOS are dummy variables indicating political connection to the Colorado party (all/rank members/core members), the Liberal party and other opposition parties respectively. Trans and after are dummies for the transition and the following period respectively; in columns 1 to 3, the transition is 2008 and the following period covers 2009-2011; in columns 4 to 6, the transition is 2008-2009 and the following period covers 2010-2011. Robust standard errors clustered at the firm-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table 3: Basic estimations of the impact of political connections on the amount of contracts received through exceptions

	(1) lntotexc	(2) lntotexc	(3) lntotexc
ANR*trans	-0.178		
	(0.682)		
ANR*after	-0.702		
	(0.568)		
ANRrank*trans		-0.124	-0.225
		(0.740)	(0.724)
ANRrank*after		-0.666	-0.713
		(0.599)	(0.576)
ANRcore*trans		-0.284	-0.344
		(0.818)	(0.807)
ANRcore*after		-0.772	-0.768
		(0.685)	(0.654)
PLRA*trans	-1.844	-1.843	-2.215
	(1.228)	(1.228)	(1.276)*
PLRA*after	-0.495	-0.495	-0.801
	(0.918)	(0.918)	(0.887)
OPOS*trans	-2.769	-2.769	-2.746
	(1.402)**	(1.403)**	(1.375)**
OPOS*after	-1.030	-1.030	-0.939
	(1.305)	(1.306)	(1.211)
Firms F.E.	yes	yes	yes
Product dummies	yes	yes	yes
Product shares			yes
R^2	0.10	0.10	0.13
N	5,560	5,560	5,560

Notes: Results from an OLS model, where the dependent variable is the log of (1+) the yearly total amounts of public contracts received by each firm through the exception modality. See notes to Table 1 for other aspects. Robust standard errors clustered at the firm-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table 4: The impact of political connections on the amount of contracts received by types of product categories

	(1) lntotval	(2) lntotval	(3) lntotval	(4) lntotval
Cat	Fastest growing	Fastest growing	Biggest	Biggest
ANRrank*trans	1.751	1.400	3.335	2.921
	(1.183)	(1.057)	(1.173)***	(1.132)**
ANRrank*after	3.839	2.172	4.808	3.965
	(1.049)***	(0.960)**	(1.006)***	(0.996)***
ANRcore*trans	1.521	-0.028	4.104	2.139
	(1.602)	(1.355)	(1.878)**	(1.780)
ANRcore*after	0.815	-0.412	3.452	0.988
	(1.345)	(1.158)	(1.392)**	(1.581)
PLRA*trans	3.269	2.387	2.625	2.012
	(1.898)*	(1.748)	(1.871)	(1.858)
PLRA*after	5.352	3.754	5.128	4.612
	(1.578)***	(1.604)**	(1.793)***	(1.757)***
OPOS*trans	5.094	-3.246	0.937	0.916
	(5.110)	(5.099)	(4.871)	(4.859)
OPOS*after	-0.653	-3.195	-3.292	-3.308
	(1.870)	(1.938)*	(2.543)	(2.538)
ANRrank*trans*Cat	-1.516	-1.190	-3.485	-3.066
	(1.108)	(0.984)	(1.095)***	(1.056)***
ANRrank*after*Cat	-5.511	-3.738	-6.558	-5.696
	(0.988)***	(0.912)***	(0.942)***	(0.935)***
ANRcore*trans*Cat	-3.849	-2.016	-6.661	-4.455
	(1.605)**	(1.385)	(1.868)***	(1.774)**
ANRcore*after*Cat	-3.583	-2.225	-6.482	-3.629
	(1.378)***	(1.232)*	(1.407)***	(1.588)**
PLRA*trans*Cat	-0.311	1.160	0.630	1.608
	(2.106)	(2.009)	(2.098)	(2.083)
PLRA*after*Cat	-4.937	-2.737	-4.466	-3.799
	(1.927)**	(2.024)	(2.079)**	(2.068)*
OPOS*trans*Cat	-6.674	2.828	-2.199	-2.175
	(5.253)	(5.207)	(5.030)	(5.019)
OPOS*after*Cat	-0.033	3.115	3.037	3.056
	(2.172)	(2.263)	(2.765)	(2.761)
Firms F.E.	yes	yes	yes	yes
Product dummies	yes	yes	yes	yes
R^2	0.33	0.32	0.33	0.33
N	5,560	5,560	5,560	5,560

Notes: Results from an OLS model, where the dependent variable is the log of (1+) the yearly total amounts of public contracts received by each firm. In columns 1 and 2, Cat is a dummy variable for the biggest product categories in the 2005-2007 sub-period (13 categories above the median in column 1, the 7 biggest in column 2). In columns 3 and 4, Cat is a dummy variable for the fastest growing product categories between the 2005-2007 and the 2009-2011 sub-periods (13 categories above the median in column 3, the first 7 in column 4). See notes to Table 2 for other aspects. Robust standard errors clustered at the firm-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table 5: First stage

	(1) ln(institutions contracts to political firms) After : 2008-2011	(2) ln(institutions contracts to political firms) After : 2009-2011
Share of political contracts 2004-07	-9.69	-10.67
	(2.79)***	(3.06)***
Multiple subcontracting units	2.13	2.68
	(1.01)**	(1.11)**
Firms F.E.	yes	yes
Year F.E.	yes	yes
R^2	0.13	0.14
N	382	382
F-stat overall	29.2***	31.3***
F-stat excluded instruments	8.42***	9.37***

Notes: Robust standard errors clustered at the firm-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table 6: The impact of product categories' growth on the number and concentration of suppliers

	ln nb firms	HHI	Tender share	Call share	Licitacion share	Exception share	Direct purch. share	Bank incidents
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A – After :2008-11								
ln(pol. Contracts)	0.055	-0.009	-0.024	-0.037	0.013	0.013	0.010	-0.010
	(0.018)***	(0.007)	(0.012)*	(0.013)***	(0.010)	(0.009)	(0.007)	(0.005)**
	[0.28]	[0.95]	[0.49]	[0.66]	[0.15]	[0.78]	[0.13]	[0.22]
N	382	382	382	382	382	382	382	382
Panel B – After :2009-11								
ln(pol. Contracts)	0.049	-0.008	-0.022	-0.032	0.010	0.009	0.013	-0.009
	(0.017)***	(0.006)	(0.011)*	(0.012)***	(0.009)	(0.008)	(0.007)*	(0.005)*
	[0.13]	[0.48]	[0.95]	[0.48]	[0.33]	[0.43]	[0.31]	[0.32]
N	382	382	382	382	382	382	382	382
Panel C – After :2006-07								
ln(pol. Contracts)	0.089	0.005	-0.051	-0.025	-0.026	0.037	0.014	0.015
	(0.094)	(0.03)	(0.069)	(0.042)	(0.050)	(0.050)	(0.031)	(0.018)
	[0.93]	[0.89]	[0.66]	[0.68]	[0.34]	[0.38]	[0.68]	[0.61]
N	135	135	135	135	135	135	135	135
Panel D – large cat.								
ln(pol. Contracts)	0.072	-0.034	-0.021	-0.039	0.018	0.015	0.006	0.012
	(0.024)***	(0.012)***	(0.015)	(0.018)**	(0.013)	(0.011)	(0.010)	(0.006)***
	[0.20]	[0.51]	[0.26]	[0.93]	[0.15]	[0.50]	[0.02]	[0.61]
N	377	377	377	377	377	377	377	377
Panel E – small cat.								
ln(pol. Contracts)	-0.024	-0.042	0.039	0.064	-0.025	-0.022	-0.017	0.057
	(0.060)	(0.037)	(0.042)	(0.059)	(0.032)	(0.029)	(0.027)	(0.050)
	[0.55]	[0.82]	[0.71]	[0.66]	[0.20]	[0.12]	[0.28]	[0.86]
N	371	371	371	371	371	371	371	371
Institution FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Results from a 2SLS model, where the dependent variable is the yearly total number of active supplier firms per institution-year categories (columns 1), the concentration index of purchase across suppliers (HHI), the share of purchase made under specific procedures (columns 3 to 7), or the share of suppliers per institution-year categories being registered by the credit bureau as having had bank incidents in the past. All specifications include institution and year fixed effects, and control for the total institution-year level of spending. Standard errors clustered at the institution-year-level are in parentheses, * $p<0.1$; ** $p<0.05$; *** $p<0.01$. F-statistics of the overidentification test are in square brackets.