

The Effect of Cronyism on Private Sector Growth in Egypt

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Abstract. The objective of this paper is to explore if cronyism can account for the modest growth performance of Egypt. Therefore, we construct a unique dataset of 469 politically connected firms under the Mubarak regime in Egypt before the 2011 revolution. We combine this data with various other databases on Egyptian firms and regulations to assess the relation between political connections, regulation, and private sector dynamics. We focus on two mutually inclusive mechanisms through which cronyism may reduce economic growth. First, we test if economic policies have been manipulated to favor connected firms focusing on three particular privileges channels: trade protection, energy subsidies, and rule enforcement. We find that the superior corporate performance of connected firms relative to non-connected firms is systematically related to their ability to capture these policies. Second, we attempt to assess the effect of the prevalence of political connections on the performance of sectors and the economy as a whole. Therefore, we quantify the adverse impact of cronyism on the performance of the majority of non-connected firms. We find that the presence of more connected firms is associated with less firm entry, higher market concentration, and a higher skewness as well as dispersion in the firm size distribution. Moreover, firms report less pressure from competition in industries where politically connected firms are present. Taken together, the findings suggest that when sectors fall prey to crony interests, competition collapses, and the sector is left with few large, connected, moderately performing firms while the majority of (smaller) non-connected firms stagnate.

Preliminary, please do not quote

I. Introduction

In many countries of the Middle East, the process of job creation in the private sector has been too modest in recent years to absorb the youth bulge. Indeed, dissatisfaction with the availability of jobs has been a core driver of the Arab Uprisings. The questions of why has the Arab region under-performed in terms of job creation given what looked on paper as impeccable market reforms has been debated for years. One hypothesis that has become popular with the uprisings places the blame at “crony capitalism”, which is accused of having distorted industrial policy and stifled competition, innovation, and job creation.

There are, as is often said, many types of corruption. Cronyism is characterized by a system of gift exchange between politicians and businesses. It is noteworthy that popular perceptions about both types of corruption had become negative in the region in the years before the uprisings. This is illustrated in Figure 1 which plots for various Arab countries the share of the population that believes that governments are corrupt against the share that believes that business are corrupt, showing a tight fit.¹ We now know that this is not just perceptions. The ongoing trials of leading businessmen are starting to shed light on the ways in which influence was yielded for private gain – they cover issues related to land appropriation at unfair prices, unfair competition, unfair borrowing from state banks, unfair access to subsidized energy, unfair access to state procurement, conflict of interest and receipt of bribes, illegal funding of political campaigns, and the manipulation of the financial markets for the benefits of insiders (Ahram Online, various issues). In Tunisia, the Ben Ali and Trabelsi families monopolized business opportunities. Similar stories about favoritism and insiders abound in Syria, Libya, Yemen and Algeria, where political cronies seem to control large chunks of the private sector (Albrecht, 2002; Alley, 2010; Haddad, 2012; Tlemcani, 1999).

The political science literature covering the region makes *cronyism* the central mechanism that resolved the contradictions created by the gradual liberalization of the region’s economies in environments where political power remained highly autocratic. For these authors, an imperfect economic liberalization allowed weak regimes, coming out of the crisis of state-led growth of the 1950s-70s, to redefine the rules of the game by building alliances with the business elite in ways to dominate the business sector and use it as a source of patronage. This was achieved by erecting barriers to entry

¹ Other indicators support the view that corruption has risen over time. For example, the Pew survey reveals that in 2010, corruption was the top concern of Egyptians, with 46 percent listing it as their main concern even ahead of lack of democracy and poor economic conditions (Pew, 2011). Changes in the corruption ratings of Arab countries in the Transparency International index give a sense of the trend: in 2005, Egypt ranked 70, Tunisia ranked 43, Libya ranked 117 and Yemen ranked 103 out of 158 countries in the Corruption Perceptions Index (CPI). Perceived corruption increased markedly in the following three years. In 2008, Egypt dropped to 115, Tunisia to 62, Libya to 126 and Yemen to 141 out of 180 countries in the CPI.

that excluded opponents and provided privileges to a small coterie of friendly capitalists (Henry and Springborg, 2010; Owen 2004; Heydeman 2004; King 2009). The various authors argue, without providing quantitative evidence, that the regime of crony capitalism is the main culprit for low growth in the region as it weakened competition by corrupting policies, regulation, and industrial policy.

Conceptually, there is nothing intrinsically bad about close state-business relations. In particular, several countries in East Asia illustrate how crony relations and high levels of corruption can even foster the development of a dynamic form of capitalism (Kang, 2002; Khan, 2010; Rock and Bonnett, 2003). Under different circumstances and with less effective states, tight state-business relations, however, can also become sources of undue influence, corruption and other forms of rent-seeking that distort economic and political incentives. Comparisons of country performance have been difficult given the East Asian exception. In particular, the comparative literature so far has not been able to explain why the Arab region, with governance indicators comparable to East Asia, has only managed to achieve about half of East Asian growth rates?

Tentative explanations so far are based on two related factors that influence the impact of cronyism on aggregate growth: (i) the balance of power in the client-patron network between businessmen and the government (Rock and Bonnett, 2003); and (ii) the time horizon of government officials and hence connected business tycoons (i.e., whether they primarily maximize easy-to-extract, short-term rents as 'roving bandits' in the sense of Olson, 1993; or if they also take into account dynamics gains in the form of future rents accruing from long-term economic growth as in Schiffbauer and Shen, 2009). Thus, one possible explanation is that the base of support of autocratic regimes narrowed over time in the Middle East leading to shortened time horizons and weaker ability to discipline connected businessmen. This implies that, in contrast to East Asia, (i) economic regulations and policies have been captured to predominantly favor a small group of connected firms and, as a result, (ii) the majority of non-connected firms has stagnated curtailing aggregate growth. A newly constructed unique database identifying (first tier) politically connected firms allows us to analyze the relevance of both parts of the argument for the case of Egypt.

In Egypt, close state-business relations have, like elsewhere in the region, have been accompanied by moderate levels of economic performance and rising levels of social frustration. Economic growth was on average at about 5 percent per year during the 2000s, higher than during the 1990s, but well below East Asian standards. At the same time, exports declined as a share of GDP as non-tariff barriers rose when tariffs fell; liberalized banks increased the concentration of their loans among fewer large borrowers; energy subsidies to industry consumed larger shares of the budget.

Private investment stagnated between 10 and 15 percent of GDP while capital flight remained high at about 5-10 percent of GDP. Growth did not trickle down and the perceptions about the extent of income inequality rose over time (Diwan, 2013). Unemployment remained high while the formal private sector remained small (employing only 15% of the labor force in 2009), exacerbating dualism in the labor market and inequalities of opportunities among job seekers (Assaad, 2010).

To which extent can one attribute the relatively poor performance of the economy to cronyism? While the literature on Arab capitalism is rich in its analysis of how the imperfect opening up of the economy has allowed the autocrats to consolidate power, it has remained largely impressionistic when describing its economic consequences. Some work analyzes state-business relations in Egypt (Kienle, 2001; Skafianis, 2003; Roll, 2010).² However, with few, if any, direct measurements of the extent of favoritism, there have been no serious attempts to statistically evaluate the economic impact of cronyism. In contrast, there is a growing international literature focusing primarily on quantifying the performance of crony firms (e.g., Fisman, 2001, on Indonesia; Faccio, 2007, using data from stock market listed firms from various countries), and, to a much lesser extent, the impact of cronyism on the specific economic sectors (e.g., Kwaja and Mian, 2005, on Pakistan; Claessens et al., 2006, on Brazil) or specific social outcomes (e.g., Fisman and Wang, 2013, on China; Fisman, et al., 2013, on India).

Two recent quantitative studies on Tunisia and Egypt have started to fill this gap. Rijkers et al. (2013) looks at the corporate behavior firms owned by the Ben Ali and Trabelsi families, which are 214 firms that were expropriated after the Jasmin Revolution. The authors find that these companies disproportionately profited from protection from competition through FDI restrictions or licenses requirements over the previous ten years. They also find some evidence that these firms lobbied for the kind of industrial policy that they ended up benefiting from. Chekir and Diwan (2012) look at the largest 116 large Egyptian firms which are traded on the Egypt Stock exchange, and identify among them 22 politically connected firms. Using an event study of stock market reaction to the revolution, they estimate the value of political connections at about 23 percent of the firms' value – close to the level estimated by Fisman in Suharto's Indonesia. The authors also show that these firms were less efficient than other large stock market firms in Egypt.

The objective of this paper is to explore if cronyism can account for the modest growth performance of Egypt. Therefore, we construct a database identifying a large set of 469 (first tier) politically connected firms which operate in about half of all (355 non-government 4-digit) economic

² Studies on other Arab countries include Morocco (Cammett, 2007; Catusse 2008, Henry 1997), Tunisia (Bellin 2002, Cammett 2007, Hibou 2011) and the Gulf (Hanieh 2011, Hertog 2011, Moore 2004), as well as the region as a whole (Heydemann 2004, Schlumberger 2008, Henry and Springborg 2010, Noland and Pack 2007, World Bank, 2009).

sectors. The data allow for a robust empirical analysis of the impact of cronyism on the economy. We focus on two mutually inclusive mechanisms through which cronyism may reduce economic growth. First, we test if economic policies have been manipulated to favor connected firms focusing on three particular privileges channels: trade protection, energy subsidies, and rule enforcement. We find that the superior corporate performance of connected firms relative to non-connected firms is systematically related to their ability to capture these policies. Second, we attempt to quantify the adverse impact of cronyism on the performance of the majority of non-connected firms; in particular, we focus on the impact on firm growth, entrepreneurship, and competition. We find that, after controlling for other sector specific characteristic such as maturity or size, sectors dominated by crony firms are less dynamic and competitive. The results suggest that the poor firm dynamics and insufficient private sector job creation observed in Egypt are related to the weak performance of the various non-connected firms and entrepreneurs that cannot compete with the few connected firms dominating their markets.

There are only few contributions in the literature, most likely due to the difficulty to access appropriate data, analyzing these macroeconomic effects of cronyism. On the first hypothesis, the literature has looked in some detail at how firms may gain from political connections, with most studies finding privileges in the capacity of connected firms to borrow, and to a lesser extent, to pay less taxes, monopolize market power, and benefit disproportionately from state bail-outs (Johnson and Mitton, 2003; Cull and Xu, 2005; Khwaja and Mian, 2005; Claessens et al., 2006; Leuz and Oberholzer-Gee, 2006; Goldman et al., 2008; Boubakri et al., 2010). To the best of our knowledge, only very few studies have looked directly at how connected firms are able to capture specific regulations to their own benefit; these include Krozner and Statman (1998), Hallward-Driemeir et al. (2010), and Rijkers et al. (2013). On the second hypothesis, we are on even less travelled ground. Therefore, we ground our empirical hypothesis on the theoretical Schumpeterian *escape competition* framework, developed by Aghion et al. (2001). That is, we argue that political connections provide a cost advantage for connected firms that is unbridgeable by competitors operating in the same sector leading to lower *neck-on-neck competition* and thus less *creative destruction* and aggregate growth.

The paper is organized as follows. Section 2 describes how we build our sample of *connected firms* and illustrates their characteristics and distribution across sectors. Section 3 asks whether the connected firms profited disproportionately from protection and subsidies, and section 4 evaluates their relative efficiency compared to non-connected firms. Section 5 examines whether the presence of connected firms reduced the dynamism and growth opportunities of the rest of the economy. Section 6 concludes with a discussion of the broader implications of our results.

II. Data

A portrait of politically connected firms circa 2010. In Egypt, cronyism seemed to have grown in the shadow of economic liberalization. After the socialism of Nasser (1956-68), the first opening of Sadat in the mid-1970s, and a long transition with a modest and gradual opening up of “strategic sectors” such as telecom, steel, construction, and cement in the 1990s, Mubarak’s son, Gamal, working closely with a group of ambitious businessmen, started to redefine the economic programs of the aging ruling party in the early 2000s. This effort included a big push on privatization and further liberalization of trade and finance. While Sadat’s first *Opening* involved a handful of politically connected businessmen reflecting a marriage of state bourgeoisie, army, and old money, a larger new class of capitalists connected to the state was cultivated by the Mubarak regime (Skafianakis, 2004). Privileges initially worked mainly through credit markets – the credit boom of the 1990s was driven by state banks that lent primarily to the connected business elite, leading to high non-performing loans (24%) and an IMF program by the end of the 1990s. As a result, the banking sector was reformed and led by the private sector. The banking crisis also changed the nature of privileges which evolved and became less apparent in the early-2000s. At the same time, the connected business elite expanded further; well established insider firms were joined by new rising stars more closely connected to the president’s son (Henry and Springborg, 2010; Osman, 2010; King, 2011).

Several authors believe that cronyism reached its nadir after 2004, with the “businessmen” cabinet headed by Ahmad Nazif (2004-2011) (Kienle, 2002; Sfakianakis, 2004; Roll, 2010). Either being part of or fully backed by the highest levels of government, connected businessmen’s firms took on the modernization of the economy, spearheading the development of several new sectors. By the time of the 2011 uprising, the Sinai had become an international tourist spot, the oil and gas sector attracted large amounts of FDI, the banking and telecommunication sectors had flourished, retail and wholesale trade had often been reorganized within larger corporate structures, and massive housing projects had promoted a much expanded construction sector. The few rising businessmen were not only well connected politically, by occupying important posts in government, the ruling party, parliament, and various influential boards and committees; but also among each other through an opaque web of mutual ownership based on investment funds, holdings, and pyramid structures (and marriages).³

³ Gamal Mubarak and his allies were but one faction of the regime, and it was counterbalanced by a strong and historically powerful protectionist bourgeoisie, which included the military (which is only known in imprecise terms). In the aftermath of the uprising, the existing tensions between these groups help to explain why the army allowed Mubarak to fall (Marshall and Stacher 2012).

Identification of politically connected firms. We construct a dataset of politically connected firms in the late Mubarak period. As political contributions are not reported publicly in Egypt, we rely instead on the identification of the network of businessmen that operated around the former president's son Gamal. The identification of politically connected firms involved the following steps. First, we constructed a list of 32 politically connected businessmen by recognizing businessmen that served as directors or board members in one of the think tanks created by Gamal Mubarak.⁴ We confirmed the relevance of this list by interviewing private sector representatives in Egypt; e.g., managers of investment banks, lawyers, and anti-corruption activists. In fact, many of these businessmen (or their direct family dependents) were members of the ruling party and several also had significant political posts in government; for instance, as ministers or heading political committees in the National Democratic Party (NDP). Moreover, the assets of the identified politically connected businessmen had typically been frozen on the basis of allegations of corruption and fraud after the Egyptian revolution in 2011. Second, we identified firms for which these politically connected businessmen served as board members, managing directors, or major shareholders using information on publicly listed firms from the Orbis database. The Orbis database contains detailed management and ownership information for a subset of 854 listed firms which are currently or were formerly traded on the Cairo stock exchange. We were able to unambiguously match the names of the 32 businessmen with board members, managing directors, or major shareholders of 104 firms. Third, we find that several of these firms are holding companies (and investment funds) masking large business conglomerates. Therefore, we identified all (names of) subsidiaries (up to two tiers) of these 104 firms through internet searches and matched them with the Orbis database.⁵ We ended up with 469 firms that were directly or indirectly controlled by the 32 businessmen.

Our approach is consistent with previous contributions in the literature. Faccio (2007) created an index of politically connected firms by matching names of board members of publicly listed European firms with members of national parliaments. Fisman (2001) worked together with a local Indonesian think tank to identify firms controlled by the Suharto family. We followed both approaches to check for the robustness and representativeness of our list of connected businessmen and firms.

The number of connected firms we identify should be regarded as a lower bound – not only are we unable to identify all subsidiaries of the different conglomerates but also because the Orbis database

4 These are: The Egyptian center for economic studies, The American Egyptian Works Council, the Policies Committee of the NDP, and the Future Generation Foundation.

⁵ The information on subsidiaries or equity holdings of investment fund is either available on the webpage of the corresponding holding companies or through financial news providers (such as Mubasher, Reuters, and Zawiya).

does not include all (small) establishments operating in Egypt; it covers over 75,000 establishments which contain all medium and large as well as a sample of smaller establishments. Our conservative approach allows us to uncover what can be thought of as most of the first tier of privately owned firms closely connected to the inner political regime at the time. We are also able to distinguish between different (non-exclusive) types of political connections; i.e., we identified 47 firms that have at least one politically connected businessman as a general manager (CEO), 140 that have a connected board member, and 334 with ownership by at least one connected businessman or firm (ownership of at least 10%) – see Table 9.⁶

Other datasets used. Moreover, we employ four other datasets. First, when comparing the performance of firms, we rely on the Orbis database since it includes the names of establishments allowing us to identify the politically connected firms. It provides information on firm characteristics and balance sheet variables for a panel of over 75,000 establishments between 2003 and 2012. While the Orbis data include, in principle, all medium and large and a sample of small establishments, the data contain many missing values for production variables of smaller establishments reducing the sample depending on the variable used.⁷ Still, production variables are available for most medium and large establishments which are the adequate comparison group for politically connected firms.

Second, when comparing firm dynamics across sectors, we use establishment census data which allow characterizing firm dynamics at the detailed sector level for all firms in the economy independent of their size. The census data are obtained from the department of statistics in Egypt (CAPMAS); they cover information on employment and firm characteristics of over two million (non-farm) economic establishments in 1996 and 2006 (repeated cross-sections). The database is combined with our information on politically connected firms at the (ISIC Rev. 4) 4-digit sector level (which include 355 non-government sectors) allowing us to characterize the performance of sectors depending on how many connected firms they include. Third, we use World Bank Enterprise Survey (WBES) data to assess correlations between the presence of crony firms and perceived policies. Therefore, we pool all available surveys for Egypt between 2004 and 2008 in order to maximize the representativeness of the perceived policy data at the sector level. Overall, there are more than 4,200 firms which are aggregated into 90 (ISIC Rev. 3.1) 4-digit sectors. Fourth, we use information on non-tariff barriers to trade (NTMs) from the World Bank (WITS) and energy intensities of manufacturing industries from the UN.

⁶ Also, 172 firms obtained major investments from a private equity investment fund managed or owned by at least one politically connected businessman; 88 of these 172 firms receiving private equity funds also had a politically connected businessman as a board member or majority shareholder (above 50%).

⁷ For instance, employment is observed for about 20,000 establishments while operating revenues and profits are only available for about 700 and 400 large establishments, respectively (Table 1).

Table 1 compares connected and non-connected firms pooling information between 2006 and 2010 for a range of production variables.⁸ Table 2 summarizes static and dynamic performance differences between connected and other firms in Egypt for a set of variables (levels and growth rates). The last four columns of Table 2 report the differences in coefficients and the corresponding t-statistics between both groups, with the last columns controlling for sectors at the 2-digit level.

Size. Politically connected firms are large. They are on average significantly larger than other large firms in terms of revenue, employment, loans, or net investments. Among the 678 firms with non-missing revenue data in Orbis, 67 connected firms command 55 percent of all operating revenues; their average revenues (\$172 million) were more than four times the size of the average of non-connected firms (\$42 million) in 2010. These differences are statistically significant, even after controlling for the (2-digit) sector in which these firms operate. Moreover, these firms also grew faster than non-connected firms during the period 2003-2010, also within sector. Nevertheless, we note that there are many other large firms in Egypt. In the Orbis database, among the 2,900 larger establishments (more than 200 employees) with available employment data, 344 are politically connected and 2,556 are not (see Table 22 for the distribution of connected and non-connected firms across firm size categories).

Employment. Politically connected firms account for a significant share of aggregate employment. On average, the 436 connected firms with available pooled data have 941 employees, compared to 253 employees for the other 19,375 firms.⁹ Using employment data for the latest available year between 2010 and 2012, the 263 firms with available data employ in total 319,324 workers; this corresponds to 569,441 workers for all 469 firms assuming that the remaining connected firms have the same average size. This compares to 7.2 million employed workers in all non-farm economic establishments according to the latest available census in 2006.¹⁰ Table 2 shows that employment differences between connected and other firms are significant, even after controlling for sectors specific effects. However, even though connected firms grew faster in terms of revenues or market shares, they did not hire at a faster rate than non-connected firms between 2003 and 2010.

Investment. Given that connected firms account for 55 percent of revenues but only 11 percent of employment, and with revenues growing but not labor, they seem to be increasingly more capital-intensive. Table 2 confirms that their capital-to-labor ratio is higher than non-connected firms, although

⁸ The sample sizes differ with the corresponding variables. The column reporting aggregates uses 2010 data only.

⁹ We do not include the number of employees associated to holding companies which are missing in almost all cases.

¹⁰ The largest firm with available data has 13,256 workers (in the iron & steel sector); eight have more than 5,000 employees (apart from one firm that operates hotels, all of these are in the manufacturing sector --food, vehicles, base metals, textiles, plastics, or ceramics); 21 percent of the firms have more than 1,000 employees; 36 percent more than 500; and 71 percent more than 100.

not once controlling for sectors, suggesting that they operate in sectors that are capital-intensive. We have fewer observations for investment, but within these smaller samples, connected firms dominate in. This difference has increased over time: connected firms invested about \$338 million in 2010 while non-connected had negative net investments, implying that they, on average, depreciated their assets between 2006 and 2010.

Borrowing. The higher capital-intensity of connected firms is also reflected in their much larger borrowing: in our sample, 50 connected firms accounted for 92 percent of total borrowing among the 261 firms with loan information. While some of these loans must have come from state banks, which continued to provide about half of the credit to the private sector, a large proportion must also stem from private banks. Reportedly, private banks competed in lending to the few well-known connected businessmen during the 2000s instead of expanding their core customer base.¹¹ Their attraction for banks is likely to be related to their privileged access to land (the main asset used as collateral for bank loans in Egypt), their higher market shares, and, possibly, the tacit knowledge that these businessmen had inside knowledge and influence. Still, several well connected firms were allowed to fail and not bailed out in the mid-2000s. Thus, in contrast to the 1990s when directed lending by state banks was a major channel of privileges, cronyism had to adapt after the banking crisis, shifting privileges from capital markets to other areas that more directly strengthen the market power and profitability of connected firms such as energy subsidies, trade protection, access to land, and relaxed (or targeted) enforcement of rules and regulations (e.g., for licenses, inspections, or competition rules).

Who are the politically connected firms? Out of the 469 politically connected firms, 400 are subsidiaries of larger conglomerates listed at the Cairo stock exchange. Several of these companies were established after 2000, when large established family conglomerates, often run by the second generation of the family, started to outsource parts of their business by creating legally independent subsidiaries of which they held majority shares.¹² This process was encouraged by the amendment of the tax code in 2000 which eliminated taxes on capital gains for stock market transactions (and as argued below, allowed for greater borrowing and leverage).

The list of politically connected firms includes 20 holding companies and nine investment funds, each masking at least two tiers of subsidiaries. The result is an intertwined web of connected businessmen and firms, where pyramidal structures with at least two ownership levels are the rule

¹¹ A World Bank report on financial system in the Middle East finds that Egyptian banks have one of the highest concentration of large clients in the world.

¹² Out of the 469 politically connected companies, 81 have been legally registered after 2000 of which 73 were subsidiaries owned by larger conglomerates. Overall, connected firms were on average 19 years old in 2011 compared to an average age among all Egyptian establishments of 10 years in the 2006 census.

rather than the exemption.¹³ These pyramidal organization structures are likely to serve several purposes in Egypt. First, they allow controlling lower tiers of subsidiaries with low levels of ownership. Second, they make it possible to tunnel profits among the different subsidiaries and the holding company potentially minimizing tax payments.¹⁴ A third advantage relates to the ability of such corporate structures to raise more funds from banks. After the banking crisis, the sector was reformed restricting the maximum bank equity per firm to only 5 percent in order to limit the exposure of banks' balance sheets to individual firms. Pyramidal structures consisting of several independent firms circumvent this restriction. Finally, these structures allowed connected businessmen to sell parts of their equity over time and redeploy their capital elsewhere (or to diversify abroad).

This web of intertwined ownership structures limits the scope for competition among crony firms. While the 32 politically connected businessmen (and their offspring) control directly or indirectly 469 firms, a smaller group of businessmen are board members of large holding companies or private equity funds and thus associated with a large number of firms. For instance, the ten most intertwined business tycoons together control stakes directly or indirectly in 322 firms while the six most intertwined businessmen together control stakes directly or indirectly in 240 firms. In contrast, only ten connected businessmen are associated with less than ten firms. Moreover, 85 firms (18 percent) managed or owned by a connected businessman received significant investments from private equity funds controlled by *other* politically connected investors.

In which economic sectors do they operate? Politically connected firms are widely spread across sectors. Overall, establishments in Egypt operate in 355 non-farm, non-government 4-digit ISIC Rev.4 sectors.¹⁵ Using information from Orbis, we are able to assign each of the 469 connected firms to one or more of these sectors. Table 3 shows the distribution of the number of connected firms across (4-digit non-government) sectors and Table 20 highlights a selection of 4-digit sectors in which they operate as well as sectors where they are not present. Overall, about half (49%) of the sectors include connected

¹³ Overall, 289 firms (62%) are owned by only a single politically connected business family, 180 firms (38%) by at least two families, 79 (17%) by at least four families, and 37 (8%) by at least six families. In several cases, the daughters and sons of politically connected businessmen are also associated with the same firm or one of its subsidiaries as a manager, board member, or major shareholder.

¹⁴ Morck et al. 2006 construct a global database on family pyramidal structures and show that these firms tend to tunnel profits to higher tiers where they hold larger participation, using transfer pricing to maximize profit. Moreover, such firms tend to employ family members in top management posts across the pyramid which partly explains why they remain less efficient.

¹⁵ We also account for the fact that many of connected firms operate in several 4-digit sectors by considering up to six 4-digit sectors per firm. We exclude the following sectors dominated by the government making a comparison with private sector firm dynamics inadequate: public administration, education, health, arts, and household service activities (ISIC codes >8400).

firms (186 out of 372).¹⁶ Within the manufacturing sector (where 41% of the connected firms operate), they are present in 58 percent of the 4-digit industries (73 out of 126).¹⁷ The almost even number of 4-digit sectors with and without crony firms, at parts different 4-digit industries with similar economic characteristics within the same 2-digit sector (see Table 20), allows for a good empirical identification when analyzing the channels of privileges in sections III and IV and when comparing firm dynamics across sectors in section V.

Despite their wide spread, there seems to be a concentration of connected firms in specific sectors such as tourism (hotel & restaurants, tour operators, transport), real estate, construction, wholesale & retail trade, mining, finance, business services, and some manufacturing sectors. The presence of connected firms in various manufacturing industries, which are typically harder to protect from (international) competition, is striking. In contrast, in Tunisia only 13 percent out of 214 connected firms operate in manufacturing industries.¹⁸ This suggests that connected manufacturing firms in Egypt may be protected from foreign competition or have preferential access to subsidies in order to guarantee their disproportionately high profits (see Table 2). We analyze both channels for privileges below. Reportedly, an additional potential channel are exclusive licenses to distribute international brands in Egypt shielding connected wholesale & retail firms from competition.¹⁹ Moreover, connected families entered the real estate, tourism, and transport sectors by acquiring large sections of prime land from the government, reportedly, involving closed and non-transparent deals.

Importantly, Table 10 reveals that sectors in which connected firms operate tend to have grown faster than non-connected ones between 1996 and 2006, confirming that state support to connected firms was also driven the objective to help them expanding into new sectors, instead of just protecting them from dying in mature decaying sectors. This suggests that the regime aimed to tighten control of the expanding areas of the economy in the last decade, possibly to ensure that the opposition did not gain a foothold. As a result, several sectors which had been de jure *opened up* to domestic entry and competition became de facto *closed* and dominated by connected firms. In fact, Table 20 shows that connected firms appear to control most large establishments (with more than 200 employees) in several

¹⁶ 62 sectors include a single politically connected firm, 114 at least three connected firms, and 18 sectors more than ten. At the broader 2-digit sector level, they are present in 67 out of 88 sectors (76%).

¹⁷ A significant share of the firms (40%) is active in more than one 4-digit sectors, reflecting the relatively high degree of vertical integration of large firms in Egypt, as documented by Abdel-Latif and Schmitz (2010).

¹⁸ The list of politically connected firms in Tunisia in Rijkers et al. (2013) is based on a government list of frozen asset accounts after the revolution for firms owned by the Ben Ali or Trabelsi families.

¹⁹ In particular, several business families benefit from the exclusive rights to sell international brands such as General Motors, Mercedes, Caterpillar, McDonalds, Costa Café, KFC, Hardee's, Samsung, Labanita, Dell, UPS, and Pal Zileri suits. Connected firms also benefit from the exclusive rights to operate different gas or oil fields (in joint ventures with state-owned enterprises).

sectors including computer programming activities, other retail trade in specialized stores, wholesale of construction materials, motor vehicles (parts), support activities for petroleum & gas, cement, or iron & steel, or sale of motor vehicle parts.

Private equity investment funds controlled by politically connected business families played an important role in supporting the growth of the connected sector in some new industries, such as business services, ICT, and pharmaceuticals (see Table 20). Almost half of all politically connected firms in business services (44 out of 103) benefitted from investments of one or more of the nine connected private equity funds. The targeted private investments in computer programming suggests that instead of entering the skill intensive sector directly, connected businessmen acquired the sector's most profitable firms. Table 20 documents further that in 2006, there were 157 establishments providing computer programming services, of which only two had more than 200 wage workers. By 2010, there were 18 politically connected firms in the sector, of which six had more than 200 employees. Of these, 11 received significant private equity participations. Politically connected private equity funds also appear to have targeted pharmaceutical companies: 8 of the 13 companies received funding, often in the form of venture capital whereby the private equity firm acquires the majority ownership of the firm and actively guides management decisions.

III. Mechanisms for Regulatory Capture

In this section, we want to explore the type of mechanisms that were at work in Egypt that could have led to the phenomena of inclusion and exclusion that seem apparent in the portrait of the connected firms discussed above. While state lending was still prevalent, in spite of the rise of private banking, we believe that the regulatory frame in the late crony period in the 2000s was much more extensive. There are various mechanisms that can provide connected firms with preferences over their competitors, such as a differential application of licensing regulations, preferential access to subsidies, trade protection, access to state land, or to government contracts. We focus on three possible mechanisms: protection from foreign competition, energy subsidies, and the way in which the regulatory frame was implemented more generally.

The three policy frameworks we explore are supposed to incorporate rules that apply to whole sectors. On all of these fronts, Egypt had made progress on paper as reflected, for example, in its Doing Business Indicators. We want to show, however, that instead of rules firms face "deals" that advantage connected firms and exclude those without political connections. This definition of privileges is similar to that of Hallward-Driemeier et al. (2010), who argue that rather than rules dictating the implementation

of policy actions (e.g., the provision of operating licenses), firms in a weak governance environment face *deals* which they can affect depending of their actions (such as paying bribes) and characteristics (such as having political connections). In their paper, the authors develop a useful typology of deals according to whether they are *ordered* (i.e., predictable) versus *disordered* (i.e., uncertain), and whether they are *open* (i.e., available to all firms) versus *closed* (limited to a certain type of firms with political connections). In terms of this terminology, our interest is to analyze the variations of political connections across sectors systematically to detect closed/ordered deals in Egypt that are available to politically connected firms but not to non-connected firms.²⁰ First, we show that connected firms are predominant in sectors protected from foreign competition through non-tariff barriers (NTMs). While NTMs *close* sectors from foreign (import) competition, entry into these sectors is, in principle, open for domestic firms. However, protection through NTMs requires that they are enforced which might materialize more stringently when the interests of connected firms are at stake. Second, we focus on the provision of energy subsidies and reason that the way they are implemented describes, in effect, closed deals. Third, we look into the way in which regulations are implemented (in particular, tax and other inspections, construction permits, and operating licenses) and show that they are systematically more variable in sectors dominated by connected firms.

Are politically connected firms more likely to operate in sectors protected from foreign competition?

Tariff rates were reduced in Egypt by the end of the 1990s. But protection from import competition did not necessarily disappear. Instead, information about NTMs for Egypt, which we take from a new World Bank database measuring NTMs in various countries (Malouche et al., 2013), suggests that it shifted towards the use of non-tariff technical barriers to import. NTMs are regarded as an effective tool to increase prices of imported goods in domestic markets and thus to protect domestic producers from import price competition without constituting blatant violations of international trade agreements. Figure 2 depicts the evolutions of average weighted tariff rates and the year of introduction or latest year of major amendments to non-tariff technical barriers to import between 1995 and 2009.²¹ It illustrates that the average weighted tariffs declined from about 16.5 percent in 1995 to 8.7 percent in 2009. At the same time, however, of the 53 different NTMs in place in Egypt in 2009, almost half (24)

²⁰ Hellman et al. (2000) and Slinko et al. (2005) argue that dominant firms use their influence not only to improve their own policy environment but also to worsen that of their competitors. The political influence might further be used to alter policy actions in ways that are favorable to connected firms operating in specific sectors, for instance, by lobbying for restrictions on (foreign) investments in wholesale or retail sectors as shown for the case of Tunisia by Rijkers et al. (2013).

²¹ The World Bank database on NTMs provides either the year when a particular NTM has been introduced or the latest year in which it is has been substantially revised. Unfortunately, the database does not distinguish between the two.

were introduced or amended around 2000 and 21 percent between 2005 and 2009. Most of these new or substantially revised NTMs have been issued through decrees by the Ministry of Industry and Trade, which was led by a businessman after 2005. As a result, Egypt had one of the highest NTM frequencies in the world in 2010 (Malouche et al., 2013). Moreover, Egypt had a very large covariance between different classes of NTMs and sectors which results in more red tape as importers have to comply with several ministries responsible for the different NTM classes. But did NTMs in Egypt disproportionately benefit politically connected firms?

To answer this question, we first match data on NTMs (at the 6-digit product level HS classification) from the World Bank dataset with the Orbis data (which is at the 4-digit industry level).²² The NTM measures are available for tradable goods which correspond broadly to manufacturing and mining industries so that we limit the analysis of NTMs to these sectors.²³ Our data includes 200 politically connected firms operating in at least one such sector.²⁴ Most NTMs in Egypt are in the form of legal technical barriers to import (class B) including license or registration requirements for importers, packaging requirements, regulations on production or distribution processes, traceability, and product-quality requirements. These restrictions are imposed on 65 percent (96 out of 147) of the 4-digit manufacturing industries. On average, there are 3-4 different restrictions for each of these 96 industries. The second most common NTMs are sanitary restrictions (class A) affecting 65 manufacturing industries, mostly in the food sector. Price controls (class F) and export-related measures (class P) are also imposed on 60 and 16 manufacturing industries, respectively.

We find that manufacturing and mining industries with politically connected firms are more likely to be protected by NTMs. We observe at least one NTM (class B) in 76 percent of the manufacturing and mining industries in which at least one politically connected firm operates. A simple regression shows that the probability for a (4-digit) industry to be protected by at least one class B NTM increases by 21 percent when a politically connected firm is operating in that industry (the difference is statistically significant at the 1% level). Looking at the overall distribution of connected manufacturing or mining firms, we find that politically connected firms are more likely to be protected by NTMs than nonpolitically connected firms (Table 4); in 2006, 82 percent of the connected firms in Egypt benefitted

²² We convert the NTM data from 6-digit (HS Rev. 2002) product classification to the 4-digit industry ISIC Rev. 4 classification by using concordance tables from HS Rev. 2002 to ISIC Rev. 3 to ISIC Rev. 3.1 to ISIC Rev. 4, respectively. Several firms are operating in more than one 4-digit industry so that in total we have 230 industry-firm observations in manufacturing or mining.

²³ The correspondence between product and industry classifications is also more straightforward for mining and manufacturing industries. The focus on manufacturing and mining reduces the number of sectors with NTM data from 200 to 147.

²⁴ There is no equivalent HS (Rev. 2002) product code for two 4-digit ISIC Rev. 4 industries: *Casting of non-ferrous metals* and *Forging, pressing, stamping and roll-forming of metal*. We observe three politically connected firms in these two industries which we had to drop for the NTM analysis reducing the sample from 202 to 200 politically connected firms in manufacturing.

from some (NTM class B) protection, compared to 56 percent of all manufacturing/mining firms.²⁵ Even more striking, Table 5 shows that the difference in the share of connected relative to non-connected firms protected by NTMs increases dramatically with the number of NTMs imposed per industry – for example, 71 percent of politically connected firms are protected by at least three NTMs (class B) relative to 4 percent of all firms. Table 4 shows that among other types of NTMs, measures of price control and restrictions on export are also disproportionately protecting politically connected firms while sanitary measures, which are mostly imposed in the food sector, do not appear to be skewed. Among the technical barriers to import (class B), requirements to obtain a license to import, to inspect the product quality, and to trace the origin of materials used are most prevalent in industries with connected firms. For instance, 67 percent of connected firms are protected by quality inspections on import while only 22 percent of all firms are protected by this NTM. The analysis suggests that connected firms had a comparative advantage at enforcing NTMs in the sectors in which they operated, while non-connected firms were unable to ensure their application when it was in their interest to do so. As a result, non-connected firms are less likely to be profitable in mining and manufacturing industries.

Did politically connected firms disproportionately benefit from energy subsidies?

The value of energy subsidies targeted to heavy industry in Egypt is substantial. In 2010, subsidies to energy-intensive sectors accounted for 2.9 percent of GDP or USD 7.4 billion (24.9 percent of total energy subsidies). Thus, energy subsidies to heavy industries accounted for the equivalent of almost half of total public investments in 2010 (amounting to 6.2% of GDP).

Table 20 indicates a large concentration of politically connected firms in energy (and capital) intensive manufacturing industries such as base metals, cement, plastics, textiles, or ceramics. To test more systematically if connected firms disproportionately benefitted from energy subsidies, we use the UN classification of manufacturing industries into low, medium, and high energy-intensive sectors (Table 21) to analyze if connected firms are over-represented in high energy-intensive sectors.²⁶ In particular, we compare the distribution of politically connected firms to the distribution of all firms across 4-digit manufacturing industries with different energy intensities. We reveal that connected firms are more likely to operate in high energy-intensive industries (Figure 5): 36 percent operate in high energy-intensive industries compared to only 8 percent of all firms (the difference is statistically significant at

²⁵ The distribution of non-tariff technical barriers to import across all manufacturing or mining firms and industries suggests no systematic pattern to benefit larger industries (with more firms) in Egypt. If anything, more concentrated sectors benefitted disproportionately since 65 percent of all industries had some NTM protections but only 56 percent of all firms.

²⁶ High energy-intensive industries account for only 22 percent of all manufacturing 4-digit industries, medium energy-intensive industries for 37 percent, and low energy-intensive for 42 percent.

conventional levels). In contrast, only 21 percent operate in low energy-intensive industries compared to 29 percent of all firms. At the sector level, at least one politically connected firm operates in 81 percent of all high energy-intensive 4-digit industries. In contrast, politically connected firms entered only in 41 percent of all low energy-intensive industries. A simple regression shows that high energy-intensive industries are 27 percent more likely to have at least one politically connected firm (the difference is significant at the 1% level). On the other hand, low energy-intensive industries are 13 percent less likely to have at least one connected firm (the difference is significant at the 10% level).

How could politically connected firms benefit more from energy subsidies which are supposed to be accessible to all firms operating in the energy-intensive sectors? A closer look reveals that the access to energy subsidies was *closed* as the implementation of this policy did discriminate between different types of firms. That is, required a government license to legally operate in heavy industry sectors (steel, cement, etc.). This license was issued by the Ministry of Industry and Trade or the Ministry of Investment and had to be renewed annually. Thus, in effect, firms were excluded from the subsidy. If this was the case, non-favored firms would balk at entering energy-intensive sectors given the risk that they would be left in an uncompetitive position after heavy investments have been sunk.

Are rules applied fairly among all industries irrespective of the presence of connected firms?

To answer this question we employ World Bank Enterprise Survey data (WBES) which is a unique database as it contains firms' assessments of the implementation of various government policies and regulations. While most of the studies using this data have focused on average responses, a few studies (e.g., Hallward-Driemeier et al., 2010) have started to focus on the *variability* of the responses. The WBES contain both subjective assessments by firms about the obstacle they face, for example, how consistent is policy implementation (or the extent of domestic or foreign competition), and objective measurements on how difficult it is *to get things done* including the time it takes to get a construction permit or the number of yearly inspections by government officials. Variations (discrimination) in the de facto implementation of these regulations across firms affect their competitiveness. For instance, using political connections to increase the number of inspections by government officials for a direct competitor is a mechanism to prevent a potential competitor from growing. We cannot identify crony firms in the WBES dataset, however, we can use variations in the intensity of cronyism by detailed 4-digit sectors to assess if it is this affects the deals environment in particular ways. In particular, we evaluate if the intensity of cronyism is systematically correlated with variations in the perceived policy implementation among 4-digit industries. In a closed deal environment, we would expect that industries

with more crony presence would be characterized by a beneficial enforcement of rules for insiders but a discriminatory for outsiders. Thus, the average number of tax inspections or waiting time for construction permits might be either higher or lower relative to non-crony industries. However, we expect that the degree of variability in the implementation of these rules increases unambiguously with the intensity of political connections in an industry.

We focus on the following measures of policy implementation: the number of inspections (tax, customs, labor, etc.) by government officials, the time managers spend dealing with government regulations, the time needed to obtain a construction permit, and the time needed to obtain an operating license. We use responses of more than 4,200 firms which are aggregated into 95 (ISIC Rev. 3.1) 4-digit sectors.²⁷ These include 84 manufacturing and 11 services sectors. As all of the 11 services sectors include multiple connected firms (e.g., sub-sectors of hotels & restaurants, retail trade, or wholesale trade), we restrict the analysis to manufacturing only. Out of the 84 manufacturing industries, 71 have at least one politically connected firm, 41 more than three, and 5 more than 20.

The descriptive statistics are summarized in Table 16 and the regression results in Table 18 and Table 19; statistically significant coefficients are highlighted in bold. We also show the results for different (non-exclusive) types of political connections. The most stringent definition requires that the CEO is politically connected (*PC CEO*) and the least stringent that private equity funds run by politically connected businessmen invested in the company (*PC PE*). The remaining two definitions require that firms have a connected board member (*PC board*) or that they are owned by at least one connected businessman (*PC own*). Table 16 shows that the total number of inspections by government officials is higher in sectors with at least one connected firms; in particular, the numbers of customs, labor, and police inspections. At the same time, the coefficient of variation (CoV) tends to be higher among these sectors. Similarly, the waiting time for construction permits and operating licenses tends to be lower while the coefficient of variation higher in connected sectors.

The regression analysis confirms the systematic variation. Table 18 summarizes the results for the industry-level regressions of the average number as well as the variation of tax inspections on the number of crony firms per industry by type of connection. We consider three different specifications for each regression type whereby we successively control for industry characteristics (the average firm size and export share) and 2-digit sector dummies; we note that the latter specification is quite restrictive as the 2-digit sector dummies reduce the degrees of freedom significantly (the remaining variation in the

²⁷ We only consider sectors representing information from at least 10 firms; on average, each 4-digit sector contains information aggregated from 66 firms.

data only captures differences in connection intensities among 4-digit industries within the same 2-digit sector). Table 18 shows that the number of tax inspections by government officials increase significantly with the intensity of political connections in an industry. At the same time, the coefficient of variation increases significantly with the number of connected firms per industry. Taken together, the results reveal that in politically connected sectors few firms incur few tax inspections while several firms obtain frequent tax inspections by government officials each year. Even though we cannot directly identify deals by connected firms in the WBES data, the results strongly suggest that connected firms are rarely targeted by tax inspectors while their competitors in the same 4-digit industry suffer from a disproportionately high number of tax inspections by government officials each year. The results for the number of inspections by municipalities show a comparable pattern of anti-competitive practices when politically connections are present; results are somewhat weaker for customs inspections (i.e., they indicate a similar pattern but coefficients are often not significant at conventional levels).

Table 19 reports the results testing if some firms have access to fast-track regulatory procedures while other firms in the same sector have to wait disproportionately longer. It shows that the average waiting time to receive a construction permit or operating license is either comparable or somewhat declining with the intensity of cronyism. Again, the results suggest that political connections are used to access fast-track regulatory services. In other words, the implementation of regulations discriminates across competitors in the same industry distorting the level playing field.

Overall, the findings clearly indicate that connected industries have a less equal level playing field as few (connected) firms are rarely targeted by inspections and benefit from fast-track regulatory services (for permits or licenses) while their competitors are frequently targeted by inspections and incur significantly higher costs from delayed enforcement of regulations (red tape). The findings are also consistent with the notion that non-connected small firms or firms in the informal sector stay small (*under the radar of large politically connected competitors*) in order to avoid being targeted by anti-competitive actions or government scrutiny. Moreover, inspections by government officials and discretion in the enforcement of regulations are potentially used for anti-competitive behavior preventing non-connected firms from growing.

IV. Do politically connected firms outperform non-connected firms, and if so, why?

The evidence so far shows that politically connected firms systematically benefit from the elements of industrial policy we have evaluated (in particular, import protection and energy subsidies), and also, that they probably do systematically better when dealing with regulatory agencies. This

suggests that “deals” are more ordered for them relative to their non-connected competitors. Do these privileges explain why they make larger profits than their less connected competitors?

Connected firms may be better at navigating the maze of regulations of a predatory bureaucracy so that their superior access reflects their overall efficiency (to work the system). Likewise, political connections can be endogenous in that firms become connected because they are more efficient. In these cases, the privileges they receive are like “oil greasing the wheels” in that they facilitate their performance in a predatory and inefficient regulatory environment. However, connected firms may also be badly managed as politicians may care more about skills other than management capabilities (e.g., loyalty). They may also have to return politicians’ favors, for example, by creating more jobs than economically efficient or by financing the politician political campaign. It follows that the net effect of political connections on firm performance could go either way.²⁸ In general, country studies tend to show that connected firms perform better.²⁹

Importantly, even if politically connected firms performed better it does not allow drawing conclusion on dynamic welfare implications because non-connected firms may have been systematically excluded from competing in profitable sectors for political reasons, even if they were potentially more efficient, reducing welfare (“sand in the wheel”). That is, if non-connected firms face closed deals that put them systematically at a disadvantage, it should be reflected in their smaller market shares and profits in protected or subsidized sectors. Thus, whether the net effect of cronyism is wealth creation or rent-seeking is a matter specific to each country system depending on how exclusive the privileges are. Assessing the entire impact of Egyptian cronyism on macroeconomic growth requires understanding the effect of cronyism on the performance of the majority of non-connected firms. One needs to address the question how crony sectors and the economy as a whole would have performed in the absence of the privileges for few politically connected businessmen? We turn to this question in detail in Section V.

In this section, however, we provide the first, more straightforward step of the analysis by investigating the origin of performance differences among connected and non-connected individual firms. To do so, we compare measures of performance using the Orbis data controlling for the privileges that connected firms receive. We focus on market shares and profits (margins) as Table 2 reports that connected firms have significantly higher profit margins and larger market shares (the market share differential also grew over time). These differences remain significant even after controlling for (2-digit)

²⁸ Bertrand et al. (2007) find that firms managed by connected CEOs in France create more jobs and pay higher wages, but have less value than non-connected firms.

²⁹ For instance, Roberts (1990) and Goldman et al. (2009) find stronger performance of politically connected firms in the U.S., Ramalho (2003) in Brazil, and Ferguson and Voth (2008) in Nazi Germany. Similarly, Boubakri et al. (2009) find that firms increase their financial performance after establishing connections.

sector-specific effects but they decline – suggesting that higher profit margins and market shares are explained by sector-specific as well as firm- or more detailed 4-digit industry-specific factors. However, they do not seem to be more productive than non-connected firms. Table 2 shows that the difference in (log) labor productivity is not significantly different from zero after we control for 2-digit sector specific productivity differences. This then raises the question as to how they were able to make larger profits.

To what extent are the higher market shares and profits related to the privileges they receive?

The evolution of the profit differential between both firm groups over time already indicates that the answer relates to the special privileges connected firms receive. Figure 3 illustrates that the profit differential suddenly disappears after the fall of the Mubarak regime in early 2011. At the same time, connected firms maintained their size advantage in 2011 in terms of employment or operating revenues (Figure 4). Thus, the immediate decline in relative profits must have reflected the discontinuation of a previous cost advantages directly linked to the political connections of the businessmen associated with the former presidential regime.

We analyze more systematically in the following if the privileges identified in section III (i.e., protection from import competition and energy subsidies) explain the higher profitability. In other words, connected firms might simply be more profitable because their products are more frequently protected from import competition or because they absorb more energy subsidies and not because of their innovative or managerial capacity. Therefore, we estimate an equation of the form:

$$Y_{ist} = \beta_B \text{connected}_{ist} + \beta_R \text{Regulation}_{st} + \beta_{BR} \text{connected}_{ist} * \text{Regulation}_{st} + \beta_X \ln X_{ist} + \beta_t T + \varepsilon_{ist}$$

where the dependent variable Y_{ist} reflects either market shares or profits (margins) of firm i in the 4-digit sector s at time t , *connected* is a dummy variable capturing if firms are politically connected, *regulation* measures either (i) the number of NTMs (class B) in sector s or (ii) a dummy variable which is equal to one if sector s is (high) energy-intensive. X is a matrix of control variables (firm age) and T a vector of time dummies.

Our main interest is the coefficient on the interaction between political connectedness and regulation (β_{BR}). Under the null hypothesis that NTM protection and energy subsidies affect connected firms and their competitors in the same way, this coefficient should be 0. Under the alternative hypothesis that regulations were used to serve connected firms' interests, we expect β_{BR} to be positive.

Non-tariff protection. Table 6 reports performance differences between politically connected manufacturing and mining firms and other large firms after accounting for the impact of NTM

protection. First, we find that the difference in market shares becomes insignificant once we account for the fact that older firms (which include many connected firms) have higher market shares. We further detect that NTM protected sectors have lower market shares indicating that these sectors tend to be less concentrated (after controlling for firm age and political connections). The interaction term between NTM protection and political connections is positive but not significant. Second, and more importantly, we find that the higher profits and profit margins of politically connected firms originate entirely from protection from import competition. That is, once we control for the joint distribution of NTMs and politically connected firms across 4-digit industries, the higher profits and profit margins disappear entirely. In fact, the last column reveals that profit margins are only significantly higher for connected firms benefitting from NTM protection from import competition. The coefficient of the political connection dummy, measuring the relative profit margins of connected firms in less protected manufacturing and mining industries, is now even negative but not statistically different from zero suggesting that they are not more profitable than non-connected firms.

Energy subsidies. Table 7 reports the results from a similar exercise relating to differences in energy intensities across manufacturing industries. First, we find that politically connected firms have significantly higher market shares only if they operate in high energy-intensive industries (even after controlling for firm age). Second, the differential in profit margins between connected and other large firms is entirely explained by the joint distribution of energy-intensity and political connections across 4-digit sectors. At the same time, the coefficient of the energy dummy is negative and significant, indicating that non-connected firms in energy-intensive sectors make have smaller profit margins than in other sectors. In contrast, the profit margins of connected manufacturing firms in high energy-intensive sectors are 4.5 percentage points higher. These results suggest that energy subsidies are targeted and exclude non-connected firms. Again, we do not find evidence that connected firms are more profitable than non-connected competitors after controlling for their access to energy subsidies.

The findings point to the existence of deals that systematically benefit a small group of connected firms, which are not more efficient, at the expense of other non-connected firms (and consumers). The evidence is likely to reflect a broader tendency for regulations to be captured by connected firms. Other preferences reportedly include access to exclusive licenses, land, or fast-track regulatory processes which allow circumventing cumbersome business regulations. Privileges in Egypt tend to secure higher profits of politically connected firms by providing them with an (exogenous) cost advantage relative to non-connected firms. In turn, the impact on non-connected firms is akin that of a

higher tax rate imposing additional relative costs.³⁰ Independent of the question if connected businessmen initiated these policies or if they entered already protected sectors and used their political influence to prevent policy changes, these privileges can come with significant costs to non-connected firms and to the economy as a whole.

While the microeconomic impact of exclusion mechanisms can be substantial for non-connected firms, our main interest is to assess the macroeconomic consequences of the system of close deals in Egypt. Each of the distortions we have analyzed leads to macroeconomic losses, but how large are they? Trade protection increases consumer prices reflecting static welfare losses. Energy subsidies for industries crowd out the available government funds for public investments. If energy subsidies to industry are moved to public investment, it can rise by 50 percent. This policy can also lead to dynamic welfare gains given that Egypt's deficient public infrastructure holds back the growth potential of the economy.³¹ But can these mechanisms explain growth shortfalls of a magnitude of say 2-3 percentage points? In the following section, we explore an additional mechanism through which the (closed deal system of) privileges might have led to dynamic losses potentially explaining Egypt's modest growth.

V. The impact on cronyism on competition

The potentially most important source of dynamic macroeconomic losses is the impact of close deals on the growth opportunities of non-connected firms. In a monopolistic competition framework, this unfair competition can distort within sector competition and reduce the incentives to innovate and invest of the vast majority of non-connected firms or latent entrepreneurs. This in turn reduces the pressures on firms that decay to exit. This lack of competition results over time in weak firm dynamics instead of promoting firm entry or broad-based sector growth.

Firm dynamics in Egypt are indeed stagnant by international comparison. In particular, a companion paper by Hussain and Schiffbauer (2013) reveals a firm size distribution skewed towards small scale, unproductive activities; an increase in the informal economy between 1996 and 2006; low firm turnover rates and creative destruction; a lack of growth over firms' life cycles; and a *missing middle* of growing young SMEs with the potential to challenge large incumbent firms. In the following, we analyze if these weak overall firm dynamics are correlated with the incidence of politically connected firms across sectors.

³⁰ The finding is consistent with Fisman and Svensson (2005) on corruption costs in Uganda. The authors show that the payment of bribes reduces firms' growth by 3 times more than the payment of taxes.

³¹ One could also argue that there is a dynamic loss in that forgone well-designed industrial policy, which could make a difference for growth, is made ineffective through its capture by rent-seekers.

The dynamic losses from a system of exclusive (closed deal) privileges can be well demonstrated in the theoretical framework of the Schumpeterian *escape competition effect* developed Aghion et al. (2001). The authors show that an exogenous cost advantage for a market leader, which is unbridgeable by competitors operating in the same sector, reduces the incentives of all firms in this sector to adopt new technologies resulting in lower *creative destruction* and ultimately in lower overall growth. In particular, the market leader has little incentive to invest in innovations since she does not face competitive pressure to reduce her costs; the laggard (continuum of smaller) firms are too far away from the frontier to bridge the cost gap and instead uses vintage production technologies seeking for local market niches to survive. In contrast, monopolistic competition whereby competitors in the same sector have comparable cost structures leads to *neck-on-neck competition* in that each firm invests in the adoption of new technologies to reduce its costs and escape the competition (at least temporarily).³² Thus, aggregate growth is increasing in the number of sectors that are characterized by *neck-on-neck competition* market structures instead of an exogenous cost advantage for a single (or few colluding) market leader(s).³³

While the Aghion et al. (2001) do not specify the source of initial large differences in cost structures among firms in the same sector, the framework appears to be directly applicable to a situation where few firms benefit from exclusive (close deal) privileges due to their political connections. That is, these firm-specific privileges translate into an initial exogenous costs advantage for connected firms helping them to break away from within sector competition. If the exogenous cost advantage from the privileges is sufficiently large, the sector is permanently dominated by the politically connected firm since the required investments in new cost-reducing technologies to bridge the cost gap are too large for the potential competitors. As a result, these firms remain small and produce with vintage technologies to serve local market niches. The connected market leader, in turn, faces little competitive pressure and hence little incentives to invest in new cost-reducing technologies. Hence, the impact of political connections on competition and aggregate growth depends on (i) the exclusivity and scope of the associated privileges as well as (ii) the number of sectors affected. The theoretical framework also

³² The authors also show how perfect competition market structures can reduce the incentives for any innovation by reducing the discounted present value of rents from innovations (*rent dissipation effect*). Thus, they find an inverted U-shaped relation between competition and growth. They argue, however, that the negative part in the competition-growth nexus, whereby the *rent-dissipation effect* outweighs the *escape competition effect*, is less empirically relevant (which is backed up by follow up empirical work – see below).

³³ The framework is closely related to Parente and Prescott (2002). Its validity has been tested empirically by estimating the impact of increased product market competition on growth (Aghion et al., 2004) as well as entry deregulation in India (Aghion et al., 2005). To the best of our knowledge, however, the framework has not been adopted before to test directly for the impact of political connections on firm dynamics and competition.

implies that sectors dominated by politically connected firms due to their exogenous cost advantage are more concentrated, face less competition, lower growth or entry of non-connected firms, and have a more skewed firm distribution; i.e., a large crony market leader and a potentially large number of small or micro firms using vintage technologies to serve local market niches. Our newly constructed dataset allows testing for the empirical implications of this framework by estimating the correlation between firm dynamics and the intensity of connections among detailed 4-digit sectors.

Does the presence of politically connected firms suppress the growth opportunities of non-connected firms leading to stagnant economic dynamics?

Addressing this question requires defining an appropriate counterfactual. Given that cronies are operating in half of all non-government economic sectors, how much would these sectors have grown in the absence of crony firms? The answer requires two type of information. First, how did cronies perform relative to other firms in terms of job creation? Second, how did firm dynamics in these sectors change due to the presence of (dominating) crony firms? The above analysis on firm performance suggests that crony firms in Egypt are not more productive despite their privileges and that their unconditional higher profitability is entirely due to protection from import competition and energy subsidies that they receive.

While the counterfactual of firm dynamics in the absence of crony firms in the same sectors is not observable, our empirical strategy is to compare firm dynamics across sectors, which differ in their intensity of political connections. The comparison can be biased due to an endogenous selection effect of crony and non-crony firms into sectors with specific characteristics such as the ability to extract rents or sector-specific growth opportunities. These sector-specific characteristics, in turn, can be correlated with the observable firm dynamics in these sectors. The findings in the previous sections help assessing the potential direction of such bias. First, we found that the presence of crony firms in sectors is positively correlated with the protection from import competition and the access to energy subsidies. In theory, both factors create rents which should trigger higher rates of entry of domestic firms into these sectors. Thus, a priori, we should observe higher entry rates in these sectors (i.e., observed entry rates should be biased upward bias relative to other sectors).

Second, the analysis has shown that the presence of connected firms is relatively broad based across economic activities including also manufacturing or modern service sectors (e.g., several 4-digit machinery, transport, or ICT service sector) with arguably higher sector-specific growth opportunities (see Table 20 in the Appendix). This observation might also be explained by the fact that the circle of politically connected businessmen expanded significantly in the early 2000s implying that firms already

operating in these sectors became part of the exclusive closed circle benefitting from first tier political connections to the Mubarak regime.³⁴ Thus, we argue that there is sufficient variation in the distribution of crony firms across sectors with high- or low-growth potential in Egypt in the 2000s. In addition, we control in the empirical analysis for (1- or 2-digit) sector-specific effects as well as the maturity of a sector (i.e., its average firm size and age) resulting in comparisons of firm dynamics between 4-digit industries with similar characteristics that primarily vary in the intensity of political connections.

Do we observe weaker firm dynamics in industries dominated by politically connected firms?

We use establishment census data in 1996 and 2006, aggregated to the 4-digit sector-level, to test the hypothesis that firm dynamics are weaker in sectors with (more) politically connected firms. Weaker firm dynamics are defined as: lower rates of firm turnover (entry/exit), higher market concentration, and higher resource misallocations (skewness) within sectors. The fact that crony firms are operating in about half of all sectors provides a rich empirical variation in the data.

We also distinguish, as in section IV, between more or less stringent types of political connections. Table 10 compares firm dynamics among 4-digit sectors with at least one politically connected firm to sectors without (first-tier) political connections. It turns out that politically connected sectors tend to be larger, employing about twice as many employees, but have comparable average firm sizes; together, this suggests that the size distribution of firms is skewed to the right when politically connected firms are present. Importantly, as noted above, connected sectors tend to have grown faster than unconnected ones between 1996 and 2006, suggesting that these are not decaying sectors.

We find lower entry rates into sectors with politically connected. Table 10 shows that the entry rate into political connected sectors in 2006 was 6.7 percent compared to 7.6 percent for non-connected sectors. Among the different types of connections, entry rates into connected sectors were between 0.6 and 1.3 percent lower. Likewise, the share of new jobs created by entrants (employment-weighted entry rate) is between 0.3 and 1.6 percent smaller in *crony sectors*. The differences among both group of sectors for both entry definitions is, however, only significant for one connection type. We also find that the share of old establishments (between 11 and 30 years) is significantly larger among connected sectors implying that firm turnover (either entry or exit rates) in the 10 years before 2006 has been significantly lower in sectors with politically connected firms. Thus, instead of higher entry rates based on a higher expected profitability from import protections and energy subsidies, we find

³⁴ The intervened ownership structures and mutual investments among politically connected businessmen in Egypt also appear to have reduced, a priori, the potential for competition among this enlarged circle of connected firms.

(significantly) lower entry rates into connected sectors suggesting that potential entrepreneurs are indeed discouraged to enter sector where they would have to compete with crony firms.

Moreover, we find a higher market concentration: the market shares (based on the number of employees) of the five largest establishments are significantly higher in connected sectors (often more than twice as high). We also find a significantly higher dispersion (coefficient of variation) and skewness in the firm size distribution when politically connected firms are present potentially indicating higher resource misallocations in these sectors. Together, the higher skewness, dispersion, and market concentration imply that the share of (non-connected) micro and small firms is larger when few large connected firms operate in the same sector. Since entry rates as well as the share of young firms in these sectors are both lower, we can infer that young (small) firms grow less when they have to compete with connected firms in the same sector. In fact, Table 10 reveals that the share of micro firms (between 5 and 10 employees) is indeed significantly higher in connected sectors.³⁵

The dynamic effects highlight that the average yearly entry rates into connected sectors between 1996 and 2006 tend to have declined more significantly. Likewise, the market share of the largest 5 firms increased more strongly; at the same time, the dispersion in firm size and the skewness increased as well indicating a worsening in the growth opportunities of micro and small firms relative to non-connected sectors.

So far, we only exploited the variation between sectors with at least one and without any connected firms. In the following, we also take advantage of the variation in the number of politically connected firms per sector (thus the PC variable is not a dummy but an integer varying from 0 to 35). Table 11 reports the regression results of different firm dynamics indicators on the number of connected firms per industry by type of connection. Again, we consider three different specifications for the regressions of each firm dynamics indicator on each type of political connection including (i) 1-digit sector dummies only, (ii) 1-digit sector dummies and the control variables (average firm size and age), and (iii) 2-digit sector dummies and the control variables.

Table 11 confirms that entry rates decline with the intensity of political connections in sectors. The corresponding coefficients are typically significant at conventional levels among the different types of connections for the first two specifications. For instance, an increase in the number of connected firms in a sector from 1 to 11 firms reduces the entry rate by 0.9 percent after controlling for the impact of average firm size and age on entry rates (based on the overall definition). The impact of political connections on firm entry rates is only significant for one type of connection once we control for 2-digit

³⁵ The finding might suggest lower benefits from formalization when connected firms are present in the same sector.

sector dummies, potentially indicating the lower precision of the estimation (lower degrees of freedom after including 2-digit sector dummies). We also find that the share of old establishments typically increases significantly with the intensity of connections indicating either lower past entry or exit of young firms.

Table 12 confirms earlier findings revealing that a higher intensity in political connections within sectors is associated with a higher market concentration, a higher dispersion and skewness in firm size, as well as a higher share of micro firms. Table 13 presents the correlation between politically connections and the changes in firm dynamics between 1996 and 2006. It shows that connected sectors had higher employment growth over that decade. At the same time, the market concentration of the five largest firms (in terms of employment) as well as the skewness and coefficient of variation increased during the same period. Table 13 also shows that the share of young establishments declined more strongly among connected sector between 1996 and 2006 indicating lower firm turnover in these sectors (either due to lower entry in the years before 2006 relative to the years before 1996 or due to lower exit of young firms). Taken together, the findings suggest that the few large connected firms grew strongly during that period while the majority of non-connected smaller firms potentially stagnated.

Do firms in connected industries report less competition?

The results above strongly suggest that when sectors fall prey to crony interests, *neck-on-neck competition* collapses, and the sector is left with few large, connected, moderately performing firms. At the same time, we seem to observe that other large firms survive on their old assets and are not investing, a missing middle, and a growing set of very small and inefficient firms that do not grow. We now ask whether we can find direct evidence of mechanisms leading to this outcome. Here, we go back to the WBES to compare perceived competition across sectors.

Firms tend to report less competition in manufacturing sectors dominated by PC firms. Table 16 and Table 17 summarize the findings for cross-sector regressions analog to section IV. We find that firms operating in sectors with at least one connected firm report, on average, between 18 and 60 percent lower number of competitors in domestic markets (depending on the type of connection). The reported number of competitors by firms is skewed to the right with few firms reporting very high numbers. Therefore, we categorize the variable into seven different classes including (1, 2, 3-5, 5-10, 11-15, 15-20, and more than 20 competitors). Table 17 shows that the number of reported domestic competitors declines significantly with the intensity of political connections in a sector for this qualitative variable. Moreover, firms in connected sector are also significantly more likely to report that they primarily

compete with imported goods instead of domestic competitors. This finding is consistent with the earlier results which indicated that politically connected firms might have lobbied for protection from import competition through non-tariff barriers during the 2000s.

Firms operating in connected sectors are also less likely to have lowered their prices in reaction to a price reduction of a foreign competitor. The corresponding coefficients are significant at conventional levels for most type of connections. They are also less likely to have lowered their prices in response to price competition with a domestic competitor; however, the corresponding coefficients are only significant for the narrowest definition of political connections.

VI. Conclusions

In this paper, we have advanced the analysis of private sector growth in economies dominated by cronyism (in the sense of ordered and closed deals), focusing on the case of Egypt. We have started by identifying a large set of connected firms and have described how a few connected businessmen have been able, in the span of a decade, to take control a large part of Egypt's formal private sector. They developed a comparative advantage at capturing protection and subsidies which allowed them to increase their market shares relative to competitors and to leverage their equity with a dominant access to the (liberalized) capital market. We have then compared the performance of connected and non-connected firms. We have found that while connected firms appeared at first view to be more profitable than non-connected firms, most of their edge derives from their dominant access to privileges. Finally, we have compared the performance of firm dynamics across sectors. We have found that sectors that are more affected by cronyism are growing sectors (due to the growth of the few privileged firms), but that they tend to be less dynamic and have less firm entry in spite of the privileges they receive.

These results suggest that rather than resulting in static losses only, cronyism may have actually reduced the rate of growth of the Egyptian private sector in two ways: by rendering industrial policy ineffective and by reducing the pressure on private firms to compete and innovate. Our results cast doubt on the feasibility of industrial policy under a closed political system. While this was successful in other parts of the world, it has not worked in Egypt and in Tunisia (Rijkers et al., 2013). Industrial policies which are seen by many analysts as an essential part of a successful development strategy in the Middle East, in parts to offset the over-valuation of the exchange rates introduced by oil and remittances revenues, cannot work effectively in environments dominated by rent-seeking. The extent of political connections in Egypt can also help explaining why the industrial structure remains dualistic and static, with a few large firms, a missing middle, and a burgeoning informal sector.

We have not focused in this paper on the broader political-economy of cronyism. The political pay-back from privileged firms to their supporting politicians must have played a central role in the operation of this “regime”, in terms of election finance or, more broadly, in neutralizing political competition by drying its financial base. This allowed the autocratic regimes to survive much longer than they would have otherwise, exacerbating the economic costs on the Egyptian economy.

It is in the social sphere that the economic bet of the decade was lost – one can imagine that if the economy of privileges had been better performing, the regime would have been more comfortable opening up polity over time, which might, in turn, have reinforced a stronger performance of the economy. Instead, the political economic regime seems to have fallen into a “low growth cronyism trap”, which produced social inequalities, and was finally rejected by society in the streets. That private investment in Egypt never went beyond 15 percent of GDP, in conjunction with the stagnation of unconnected firms, militates for this low equilibrium interpretation. In retrospect, the unwillingness of autocrats to take political risks and liberalize polity sufficiently to allow for a more dynamic capitalism has generated enormous social discontent, and thus subjected the connected corporate sector to larger political risk ex ante. The fact that capital flight has remained at high levels between 5 and 10 percent of GDP over the last decade (Dev and Corso, 2011), is a testimony that risks was perceived to be high.

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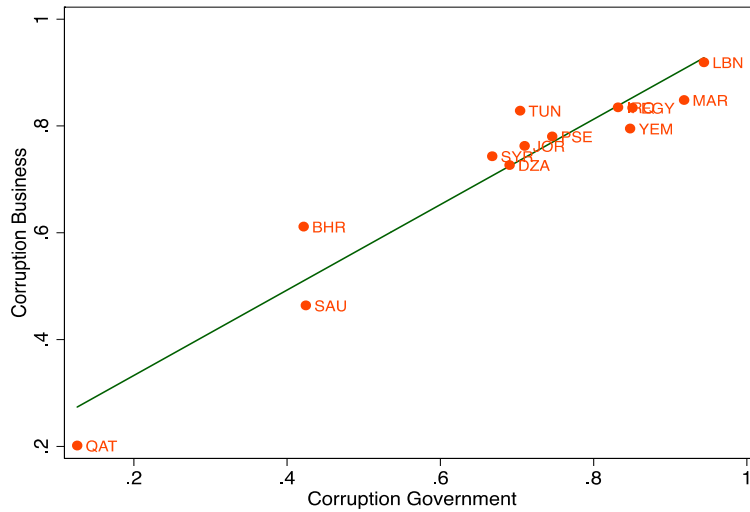
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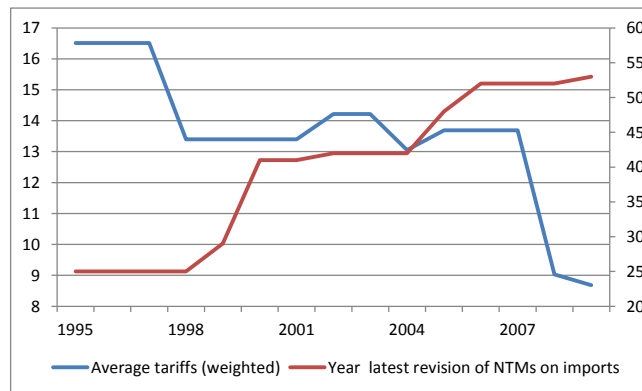
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Figure 1: Perceptions of corruption in Government and in Business, Arab Countries, 2011



Source: Gallup. From Diwan and Nabli (2012).

Figure 2: The evolution of average (weighted) tariffs and NTMs on imports in Egypt since 1995



Source: WITS. Rate reflects most-favored nation tariffs. The database on NTMs provides either the year when a particular NTM has been introduced or the latest year in which it has been substantially amended.

Figure 3: The evolution of the difference between net profits of politically connected and other firms from 2004-2011

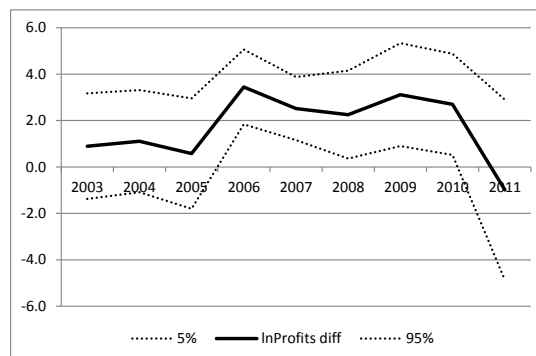


Figure 4: Difference between politically connected and other firms over time: employment (left), operating revenues (right)

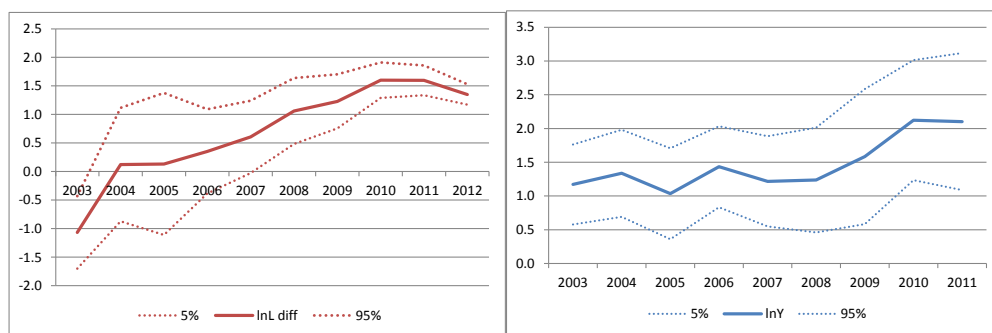
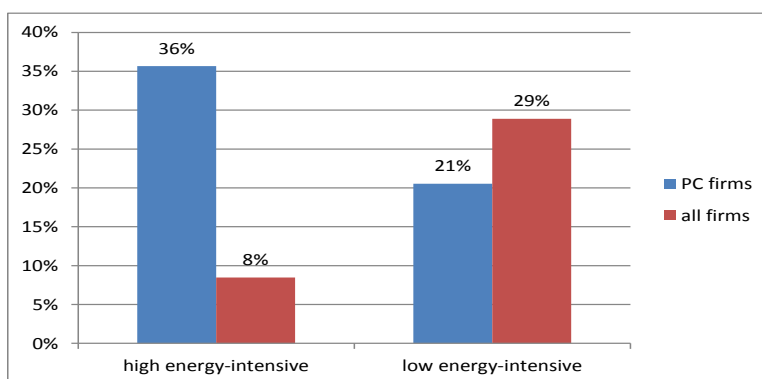


Figure 5: Politically connected firms are more likely to operate in high energy-intensive industries



Note: The differences between politically connected and all other firms are significant at the 1 percent (high energy-intensive) and 10% (low) level, respectively. The percentage of firms in medium energy-intensive sectors has been excluded.

Table 1: Characteristics of PC vs. other larger firms with non-missing data in Orbis (pooled years 2006-2010)

	PC firms			Other firms			Share PC firms of total
	firms	mean	sum (2010)	firms	mean	sum (2010)	
L	436	941	172,425	19,375	253	1,396,646	11%
Y	67	172,403	12,400,000	611	42,985	10,100,000	55%
Gross profits	51	41,936	1,507,381	331	12,174	1,740,165	46%
Net profits	49	60,230	1,273,986	239	4,611	856,636	60%
Loans	50	43,893	2,205,305	211	6,107	202,817	92%
Net Investment	73	6,921	338,261	263	1,564	-217,787	281%

The data stems from the Orbis database covering most large firms in Egypt. The information is pooled (averaged) between 2003 and 2011. The sum is used for the year with the largest number of observations (firms) for the corresponding variable which is 2010 for all variables except from employment (2012) and tax payments (2011). Bolded coefficients indicate that the difference between politically connected and other firms is significant at the 5 percent level.

Table 2: Performance differences politically connected versus other large firms

	PC firms			Other firms			Differentials demeaned (industry)			
	firms	mean	std error	firms	mean	std error	No	t-stat	2-digit	t-stat
Static performance										
lnL	436	5.04	1.82	19,375	3.64	1.52	1.40	15.88	1.02	12.39
lnY	67	10.02	1.96	611	8.42	1.83	1.61	6.46	1.59	6.27
ln(Y/L)	24	3.93	1.38	347	3.41	1.69	0.52	1.81	0.39	1.45
ln(K/L)	28	3.41	1.68	90	2.57	1.44	0.83	2.38	0.11	0.31
lnProfits	49	6.52	4.70	239	5.09	4.73	1.43	1.95	<i>1.37</i>	<i>1.73</i>
ln(Profits/L)	11	2.82	2.08	56	0.19	5.52	2.63	2.75	1.69	1.30
ln(Profits/Y)	47	-2.04	3.57	236	-3.92	5.28	1.88	3.03	2.17	3.29
ln(Profits/K)	45	-2.33	4.05	208	-3.34	5.56	1.01	1.41	1.54	1.97
Market share	436	8.4%	0.18	19375	4.5%	0.15	0.04	4.55	0.03	3.44
lnLoans	45	8.07	2.76	148	6.88	2.34	1.19	2.63	0.58	1.16
lnDebtlong	34	9.14	2.49	112	7.47	2.05	1.66	3.57	1.07	2.37
lnInvestm	56	8.12	2.53	162	6.63	2.37	1.50	3.89	1.02	2.17
Dynamic performance (growth)										
ΔlnL	186	0.03	0.41	3,751	0.04	0.44	-0.02	-0.49	-0.02	-0.67
ΔlnY	55	0.04	0.29	295	-0.10	0.45	0.14	2.91	0.15	3.06
Δln(Y/L)	9	0.14	0.39	50	-0.10	0.64	0.24	1.58	0.07	0.67
Δln(K/L)	19	-0.20	0.39	48	-0.19	0.19	-0.01	-0.15	0.07	0.89
ΔlnProfits	45	-0.80	3.29	199	-0.10	2.97	-0.70	-1.32	-0.81	-1.22
Δln(Profits/L)	4	-1.05	1.20	11	-1.45	4.62	0.40	0.26	0.71	0.86
Δln(Profits/Y)	44	-0.63	3.44	199	-0.02	2.94	-0.61	-1.09	-0.80	-1.18
Δln(Profits/K)	28	-0.88	2.19	71	-0.43	1.45	-0.44	-1.00	-0.13	-0.24
Δ(Market share)	55	0.09	0.79	295	-0.15	1.16	0.24	1.95	0.31	2.22
ΔlnLoans	41	-0.02	0.62	122	-0.05	0.98	0.03	0.21	0.24	1.61

The data stems from the Orbis database covering most large firms in Egypt. The information is pooled (averaged) between 2003 and 2011. Bolded coefficients indicate that the difference between politically connected and other firms is significant at the 5 percent level.

Table 3: Number of politically connected, families, firms, etc. by economic sectors

	PC firms	PC families	PCCEO	PC board	PCowner	PCPE inv	PCsole PE inv
Agriculture	17	13	2	9	8	6	4
Mining	12	8	0	2	2	11	8
Food & beverages	33	18	1	11	16	11	11
Textiles & clothing	22	7	3	14	14	9	0
Chemicals	15	9	0	3	10	7	4
Pharmaceuticals	13	10	0	4	2	8	7
Base metals	19	11	5	7	16	5	3
Machinery & transport equ	27	20	4	10	18	8	5
Other manufacturing	64	25	5	18	49	25	9
Utilities	18	13	0	2	10	10	8
Construction	36	19	8	12	29	15	4
Trade of vehicles & repair	9	4	1	3	9	1	0
Wholesale trade	91	27	8	22	65	28	18
Retail trade	25	16	0	4	18	8	6
Transport	13	13	0	2	9	4	3
Hotels & resturants	43	17	7	11	35	8	6
Finance	53	21	11	29	38	15	4
Real estate	25	20	4	11	18	12	2
Business services (ICT, etc.)	103	25	7	27	75	44	19
Rental & leasing	1	1	0	1	1	0	0
Travel & tour operators	10	6	1	2	7	3	2
Public admin & defense	2	3	1	1	2	2	0
Education	2	2	0	0	2	0	0
Health & social	4	3	0	1	2	2	2
Personal service	0	0	0	0	0	0	0
Other services	7	11	5	5	7	2	0

Table 4: Share of politically connected and all firms by type of NTM

	Share of PC firms	Share of all firms
Sanitary measures (Class A)	27%	28%
Price-control (Class F)	37%	26%
Export promotion (CLASS P)	5%	1%
Technical import barriers (Class B)	82%	56%
Authorization required (B140)	11%	1%
Quality inspection required (B840)	67%	22%
Traceability required (B859)	82%	56%

Source: WITS.

Table 5: Share of politically connected and all firms protected by non-tariff trade barriers

NTMs (class B)	Share of PC firms	Share of all firms
at least 1 per industry	82%	56%
at least 2 per industry	82%	27%
at least 3 per industry	71%	4%
at least 4 per industry	26%	3%
at least 5 per industry	18%	3%
at least 6 per industry	15%	2%
at least 7 per industry	13%	0%
at least 8 per industry	10%	0%

Source: WITS.

Table 6: Do performance differences originate from protection from import competition?

Performance Differentials (2003-2011)								
Dependent Variable	LnL				Market Share			
PC firms	1.20*** (5.08)	.990*** (10.91)	.994*** (11.21)	1.08*** (9.87)	.025*** (3.15)	.013 (1.47)	.008 (1.09)	.005 (0.37)
NTMs			.014*** (3.02)	.016** (2.81)			-.006*** (-4.90)	-.006*** (-4.39)
PC firms * NTMs				-.025 (-1.37)				.001 (0.68)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	8,939	4,624	4,624	4,624	8,939	4,624	4,576	4,576
R2	0.185	0.130	0.130	0.131	0.017	0.010	0.016	0.016
Dependent Variable	Ln Profits				Ln Profit margins			
PC firms	1.67*** (3.47)	1.63*** (3.22)	1.58*** (3.13)	1.17 (0.94)	1.58*** (3.24)	1.38*** (2.30)	1.36** (2.30)	-2.32 (-1.19)
NTMs			-.230** (-2.40)	-.245** (-2.02)			-.144 (-0.56)	-.218 (-0.78)
PC firms * NTMs				.115 (0.31)				1.03** (2.40)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	536	489	489	489	253	253	253	253
R2	0.071	0.062	0.067	0.067	0.059	0.061	0.063	0.069

Note: The sample includes all firms from the Orbis database with available information for the corresponding variables. The standard errors are clustered at the year level accounting for the fact that the standard errors might be correlated for all firms in a given year due to year specific shocks. *, **, *** denote significance at the 10%, 5% and 1% significance level, respectively.

Table 7: Do performance differences originate from higher benefits from energy subsidies?

Performance Differentials (2003-2011)								
Dependent Variable	InL				Market Share			
PC firms	1.20*** (5.08)	.990*** (10.91)	.991*** (10.83)	.930*** (10.55)	.025*** (3.15)	.013 (1.47)	.013 (1.47)	-.015 (-0.91)
Dummy high energy			-.053 (-1.32)	-.066* (-1.74)			-.001 (-0.23)	-.007 (-1.53)
PC firms * Dummy high energy				.163 (1.50)				.074** (2.81)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	8,939	4,624	4,624	4,624	8,939	4,624	4,624	4,624
R2	0.185	0.130	0.130	0.131	0.017	0.010	0.010	0.012
Dependent Variable	Ln Profits				Ln Profit margins			
PC firms	1.67*** (3.47)	1.63*** (3.22)	1.65*** (3.02)	1.11* (1.76)	1.58*** (3.24)	1.38*** (2.30)	1.56** (2.37)	.267 (0.33)
Dummy high energy			-.154 (-0.32)	-.625 (-0.96)			-.634 (-1.04)	-2.60** (-2.73)
PC firms * Dummy high energy				1.64* (1.73)				4.55*** (3.77)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Age	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	536	489	489	489	253	253	253	253
R2	0.071	0.062	0.062	0.065	0.059	0.061	0.063	0.094

Note: The sample includes all firms from the Orbis database with available information for the corresponding variables. The standard errors are clustered at the year level accounting for the fact that the standard errors might be correlated for all firms in a given year due to year specific shocks. *, **, *** denote significance at the 10%, 5% and 1% significance level, respectively.

Table 8: Distribution PC firms by 4-digit industries (ISIC Rev. 4 and Rev. 3.1 classification)

	Number of PC firms	Number of 4-digit ISIC-4 sectors	Number of 4-digit ISIC-3.1 sectors
0		181	66
1		62	41
2		24	24
3		28	23
4		11	22
5		10	8
[6,10]		21	32
[11,20]		14	22
[>20]		4	13
total		355	251

Table 9: Type of political connection across firms and by 4-digit industries

	Number of PC firms by type	Number of sectors with PC firms
PC overall	469	174
PC CEO	47	50
PC board member	140	109
PC owner	334	148
PC PE participation	172	108

Table 10: Variations of firm dynamics among politically connected and non-connected sectors

	PC overall	Others	PC CEO	Others	PC board	Others	PC owner	Others	PC PE part	Others
Level effects in 2006 (based on 355 4-digit ISIC Rev. 4 sectors)										
Employment total	24,835	11,092	26,050	16,480	22,924	15,571	26,274	11,790	23,156	15,499
Average establ size (empl)	18.9	18.5	16.3	19.0	21.1	17.6	18.4	18.9	21.5	17.4
Entry rate	6.7%	7.6%	6.4%	7.3%	6.5%	7.5%	6.8%	7.4%	6.3%	7.6%
Share jobs created by entry	4.1%	4.7%	3.6%	4.5%	4.2%	4.5%	4.4%	4.4%	3.3%	4.9%
Share old establ (age 11-30)	26.1%	24.4%	27.8%	24.8%	27.5%	24.3%	25.0%	25.4%	26.0%	24.9%
Marketshare (empl 5 largest)	1.3%	0.6%	0.3%	0.1%	1.5%	0.7%	1.1%	0.8%	1.9%	0.5%
Share mirco establ (5-10 empl)	20.4%	18.5%	20.3%	19.1%	20.6%	18.7%	19.8%	18.9%	21.5%	18.3%
Coefficient of variation (empl)	2.0	1.2	2.6	1.5	2.2	1.3	2.0	1.3	2.2	1.4
Skewness (empl)	7.3	4.8	9.0	5.6	7.2	5.6	7.2	5.2	7.6	5.4
Dynamic effects from 1996 to 2006 (based on 251 4-digit ISIC Rev. 3.1 sectors)										
Change employment	17,650	7,507	17,355	14,063	18,035	11,320	18,340	8,080	15,423	14,614
Growth employment (yearly)	16.7%	8.6%	22.3%	11.4%	17.3%	11.3%	17.0%	9.6%	17.2%	11.9%
Change entry rate	-2.6%	-0.3%	-2.1%	-2.0%	-2.2%	-1.8%	-2.6%	-0.6%	-2.4%	-1.4%
Change jobs share by entry	-1.0%	-1.1%	-1.8%	-0.7%	-1.1%	-1.0%	-1.1%	-0.9%	-0.9%	-1.2%
Change share young establ (<=10)	7.5%	9.5%	5.7%	9.1%	6.8%	9.7%	7.5%	9.2%	6.7%	9.6%
Growth marketshare	2.4%	0.1%	4.0%	0.8%	3.2%	-0.1%	2.6%	-0.1%	3.7%	-0.4%
Change share large establ (>=200)	-2.7%	-0.7%	-2.0%	-2.3%	-2.3%	-2.1%	-2.5%	-1.5%	-2.4%	-2.0%
Change CoV (empl)	1.7	-0.4	2.7	0.5	2.1	-0.3	1.8	-0.3	2.1	0.1
Change Skewness (empl)	6.0	0.5	7.5	3.3	6.8	1.8	6.2	0.9	6.7	1.9

Note: Statistically significant differences between connected and non-connected sectors are highlighted (*bold*). The level observations reflect averages across establishments at the 4-digit (ISIC Rev. 4) sector level in 2006. Data on establishments are obtained from the Egypt Establishment census in 1996 and 2006 which includes over 2 million establishments each year which are aggregated to the 4-digit sector level in order to be combined with information on PC firms. Sector data in 1996 (and thus dynamics effects) are based on ISIC Rev. 3.1 classifications. Public administration, education, health, arts, household service activities are excluded (ISIC codes >8400).

Table 11: Impact of intensity of political connections across 4-digit sectors on firm turnover in 2006

	Entry rate			Entry rate (employment weighted)			Share old establ (age 11-30)	
PC overall	-.107**	-.093**	-.067	-.109**	-.061	-.031	.214*	.131
t-values	(-2.34)	(-2.29)	(-1.08)	(-2.25)	(-1.43)	(-0.54)	(1.84)	(1.00)
obs	289	289	289	289	289	289	355	355
R-squared	0.063	0.378	0.518	0.097	0.265	0.443	0.175	0.344
PC CEO	-.545	-.409*	-.403	-.584	-.385	-.267	2.12**	2.21**
t-values	(-1.53)	(-1.68)	(-1.01)	(-1.64)	(-1.36)	(-0.63)	(2.87)	(2.19)
obs	289	289	289	289	289	289	355	355
R-squared	0.061	0.375	0.518	0.095	0.265	0.443	0.182	0.352
PC board member	-.230*	-.120*	-.202	-.211	-.054	.001	1.11**	1.01**
t-values	(-1.64)	(-1.70)	(-0.81)	(-1.30)	(-0.40)	(0.02)	(4.07)	(3.03)
obs	289	289	289	289	289	289	355	355
R-squared	0.062	0.378	0.518	0.095	0.264	0.443	0.187	0.352
PC owner	-.112*	-.072	-.054	-.120**	-.059	-.003	2.88*	1.58
t-values	(-1.94)	(-1.51)	(-0.65)	(-2.09)	(-1.14)	(-0.03)	(1.82)	(0.99)
obs	289	289	289	289	289	289	355	355
R-squared	0.061	0.375	0.517	0.096	0.264	0.443	0.175	0.344
PC PE participation	-.244*	-.323**	-.322**	-.275*	-.202	-.216**	.261	1.80
t-values	(-1.82)	(-2.82)	(-2.11)	(-1.72)	(-1.46)	(-1.98)	(1.07)	(0.56)
obs	289	289	289	289	289	289	355	355
R-squared	0.063	0.381	0.521	0.098	0.266	0.444	0.171	0.343
Sector dummies (1-di)	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Controls (Insize, age)	No	Yes	Yes	No	Yes	Yes	No	No
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	Yes

Note: Each cell reflects the results of a regression of a firm dynamic indicator on the number of connected firms per industry (by type of connection) controlling for the average (log) size and age of establishments as well as sector dummies (1- or 2-digits). The standard errors are clustered at the 2-digit sector level. * and ** denote significance at the 10%, 5% significance

level, respectively. The observations reflect averages across establishments at the 4-digit ISIC Rev. 4 sector level. Data on establishments are obtained from the Egypt Establishment census 2006 which includes over 2.4 million establishments which are aggregated to the 4-digit sector level in order to be merged with information on PC firms. Public administration, education, health, arts, household service activities are excluded (ISIC codes >8400).

Table 12: Impact of intensity of political connections across 4-digit sectors on resource allocations in 2006

	Marketshare (empl 5 largest establ)			Coefficient of Variation (employment)			Skewness (employment)			Share micro establ (5-10)	
PC overall	.017**	.013**	.001	.095**	.093**	.081**	.212**	.319**	.419**	.294**	.243**
t-values	(2.65)	(2.20)	(1.56)	(4.14)	(3.93)	(2.72)	(2.41)	(3.07)	(2.10)	(2.23)	(2.02)
obs	320	320	320	292	292	292	290	290	290	355	355
R-squared	0.310	0.382	0.566	0.204	0.207	0.392	0.105	0.222	0.340	0.082	0.366
PC CEO	.062*	.043	.034	.716**	.717**	.688**	1.13	1.40	1.96*	1.46	1.92**
t-values	(1.89)	(1.22)	(0.78)	(3.02)	(2.97)	(2.17)	(1.03)	(1.51)	(1.65)	(1.51)	(1.99)
obs	320	320	320	292	292	292	290	290	290	355	355
R-squared	0.299	0.375	0.563	0.213	0.216	0.401	0.101	0.210	0.386	0.079	0.368
PC board member	.051**	.039*	.025	.243**	.242**	.178**	.430*	.684**	.842**	.822**	.773**
t-values	(2.26)	(1.89)	(1.17)	(3.74)	(3.64)	(2.12)	(1.83)	(2.81)	(2.26)	(2.31)	(2.12)
obs	320	320	320	292	292	292	290	290	290	355	355
R-squared	0.314	0.384	0.565	0.183	0.185	0.378	0.100	0.213	0.387	0.083	0.367
PC owner	.020**	.016*	.014	.139**	.139**	.116**	.298**	.397**	.511**	.314*	0.261
t-values	(2.33)	(1.92)	(1.43)	(3.78)	(3.67)	(2.60)	(2.31)	(2.92)	(2.15)	(1.68)	(1.61)
obs	320	320	320	292	292	292	290	290	290	355	355
R-squared	0.301	0.380	0.566	0.216	0.219	0.398	0.106	0.219	0.395	0.079	0.364
PC PE participation	.327**	.033**	.033*	.205**	.211**	.183**	.424*	.747**	1.00*	.718**	.372
t-values	(3.02)	(2.68)	(1.72)	(3.17)	(2.99)	(2.05)	(1.70)	(2.58)	(1.78)	(2.69)	(1.04)
obs	320	320	320	292	292	292	290	290	290	355	355
R-squared	0.311	0.382	0.568	0.187	0.192	0.385	0.102	0.221	0.395	0.082	0.363
Sector dummies (1-di)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls (lnsize, age)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	No	Yes	No	No

Note: Each cell reflects the results of a regression of a firm dynamic indicator on the number of connected firms per industry (by type of connection) controlling for the average (log) size and age of establishments as well as sector dummies (1- or 2-digits). The standard errors are clustered at the 2-digit sector level. * and ** denote significance at the 10%, 5% significance level, respectively. The observations reflect averages across establishments at the 4-digit ISIC Rev. 4 sector level. Data on establishments are obtained from the Egypt Establishment census 2006 which includes over 2.4 million establishments which are aggregated to the 4-digit sector level in order to be merged with information on PC firms. Public administration, education, health, arts, household service activities are excluded (ISIC codes >8400).

Table 13: Impact of intensity of political connections across 4-digit sectors on changes in firm dynamics from 1996 to 2006

	Growth employment			Change in entry rate (employment-weighted)			Share young establ (age <11)		Growth marketshare (empl 5 largest establ)			Change skewness (employment)		
PC overall	.332*	.340*	.581**	-.008	.012	-.001	-.393**	-.299	.183*	.186**	.386**	.409**	.384**	.581**
t-values	(1.90)	(1.88)	(2.76)	(-0.27)	(0.37)	(-0.01)	(-1.96)	(-1.16)	(1.88)	(1.95)	(3.27)	(3.80)	(3.65)	(3.21)
obs	233	232	232	203	203	203	227	227	221	221	221	202	202	202
R-squared	0.109	0.189	0.492	0.063	0.107	0.306	0.066	0.315	0.069	0.159	0.355	0.162	0.179	0.418
PC CEO	2.83**	2.62**	3.11**	-.309**	-.187	-.232	-2.40**	-2.79**	1.14**	.977*	2.03**	.987*	.802	1.60**
t-values	(2.89)	(2.85)	(2.63)	(-2.33)	(-1.29)	(-1.04)	(-2.95)	(-2.53)	(2.09)	(1.74)	(2.58)	(1.92)	(1.55)	(2.00)
obs	233	232	232	203	203	203	227	227	221	221	221	202	202	202
R-squared	0.128	0.203	0.491	0.070	0.109	0.308	0.079	0.349	0.072	0.159	0.350	0.086	0.109	0.312
PC board member	1.21**	1.21**	1.50**	-.108*	-.051	-.082	-1.27**	-1.29**	.702**	.700**	1.10**	.692**	.624**	.898**
t-values	(2.91)	(2.87)	(3.41)	(-1.82)	(-0.71)	(-0.84)	(-3.10)	(-2.40)	(3.19)	(3.15)	(4.31)	(2.74)	(2.43)	(2.48)
obs	233	232	232	203	203	203	227	227	221	221	221	202	202	202
R-squared	0.127	0.206	0.499	0.067	0.108	0.308	0.106	0.359	0.087	0.176	0.371	0.117	0.136	0.340
PC owner	.442*	.433*	.828**	-.013	.015	-.001	-.528**	-.414**	.232*	.222**	.515**	.577**	.546**	.843**
t-values	(1.94)	(1.90)	(2.94)	(-0.28)	(0.30)	(-0.01)	(-2.03)	(-1.20)	(1.71)	(1.70)	(3.08)	(3.63)	(3.46)	(3.57)
obs	233	232	232	203	203	203	227	227	221	221	221	202	202	202
R-squared	0.107	0.187	0.492	0.063	0.107	0.306	0.062	0.314	0.067	0.156	0.351	0.164	0.181	0.423
PC PE participation	.445	.563	1.19**	.029	.069	-.015	-.794*	-.399	.341	.421**	.890**	.910**	.882**	1.28**
t-values	(1.05)	(1.33)	(2.39)	(0.33)	(0.72)	(-0.14)	(-1.65)	(-0.78)	(1.40)	(1.95)	(3.18)	(3.60)	(3.63)	(2.62)
obs	233	232	232	203	203	203	227	227	221	221	221	202	202	202
R-squared	0.099	0.181	0.482	0.063	0.107	0.306	0.049	0.301	0.064	0.157	0.349	0.138	0.161	0.382
Sector dummies (1-di)	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Controls (Insize, age)	No	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	No	No	No	Yes	No	No	Yes

Note: Each cell reflects the results of a regression of changes in firm dynamics indicators between 1996 and 2006 on the number of connected firms per industry (by type of connection) controlling for the average (log) size and age of establishments as well as sector dummies (1- or 2-digits). The standard errors are clustered at the 2-digit sector level. * and ** denote significance at the 10%, 5% significance level, respectively. The observations reflect averages across establishments at the 4-digit ISIC Rev. 3.1 sector level. Data on establishments are obtained from the Egypt Establishment census in 1996 and 2006 which includes over 2.4 million establishments which are aggregated to the 4-digit sector level in order to be merged with information on PC firms. Public administration, education, health, arts, household service activities are excluded (ISIC codes >8400).

Table 14: Distribution of politically connected firms by 4-digit manufacturing industries in WBES

Number of PC firms	Number of 4-digit sectors
0	13
1	12
2	6
3	8
4	9
5	6
[6,10]	13
[11,20]	12
[21,35]	5

Table 15: Type of political connection across firms and by 4-digit industries in WBES

	Number of sectors with PC firms	Number of NPC sectors
PC overall	71	13
PC CEO	35	49
PC board member	58	26
PC owner	64	20
PC PE participation	53	31
PC PE minority part	40	44
PC excl PE minority	68	16

Table 16: Variations of perceived competition among politically connected and non-connected sectors

	PC all	Others	PC CEO	Others	PC board	Others	PC own	Others	PC PE	Others
Competition:										
Number of domestic competitors	16.0	39.5	18.0	22.0	17.9	25.3	16.2	34.3	16.7	26.1
Number of competitors by category (1-7)	6.0	5.9	5.9	6.0	5.9	6.0	5.9	6.0	6.0	5.9
Share firms main competitor imports	3.8%	1.6%	4.5%	2.6%	4.3%	1.6%	4.0%	1.4%	3.3%	3.6%
Share firms report domestic price competition	29.9%	29.9%	26.7%	31.9%	28.2%	33.0%	28.3%	35.5%	29.8%	30.1%
Share firms report foreign price competition	14.7%	23.7%	13.0%	18.2%	14.1%	20.0%	13.9%	24.3%	15.1%	18.1%
Share firms report competition informal sector	47.0%	41.2%	37.5%	51.2%	45.9%	45.8%	45.8%	46.8%	47.9%	42.6%
CoV (Share firms report dom. price competition)	1.2	1.0	1.1	1.2	1.3	1.0	1.2	0.9	1.2	1.2
CoV (Share firms report for. price competition)	1.5	1.5	1.3	1.5	1.5	1.4	1.5	1.4	1.5	1.5
Inspections:										
Total number of inspections per year	36.7	21.7	26.2	39.9	37.2	28.5	36.4	27.0	39.5	25.0
Tax inspections per year	4.9	4.0	4.4	5.0	5.0	4.4	4.9	4.3	4.9	4.6
Customs inspections per year	5.5	1.2	4.9	4.6	6.0	2.1	5.7	1.6	6.5	1.8
Labor inspections per year	6.3	4.3	6.3	5.6	5.9	6.0	5.8	6.1	6.6	4.7
Police inspections per year	1.4	0.4	1.3	1.1	1.3	1.1	1.4	0.6	1.5	0.7
Municipal Authorities (for construction permit)	2.4	1.5	1.5	2.7	2.5	1.7	2.5	1.3	2.6	1.6
CoV (number tax inspections)	1.3	1.2	1.3	1.3	1.3	1.2	1.3	1.2	1.3	1.3
CoV (number customs inspections)	2.6	2.3	2.7	2.5	2.7	2.3	2.7	2.9	2.6	2.5
CoV (number labor inspections)	1.2	1.1	1.2	1.0	1.1	1.1	1.1	1.1	1.1	1.1
Policy implementation uncertainty:										
Consistent implement. (1: disagree - 4: agree)	2.4	2.4	2.3	2.5	2.4	2.5	2.4	2.4	2.4	2.5
Time dealing with government regulations (%)	12.1	10.6	13.4	10.9	12.3	10.9	11.8	12.0	13.2	9.6
Waiting days for construction permit	609	714	600	649	591	699	606	698	610	658
Waiting days for operating license	448	515	444	472	435	512	454	481	430	511
CoV (consistent implementation)	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.3
CoV (time government regulations)	1.2	1.2	1.2	1.1	1.2	1.0	1.2	1.1	1.2	1.1
CoV (waiting days construction permit)	0.5	0.2	0.5	0.5	0.6	0.3	0.5	0.3	0.5	0.4
CoV (waiting days operating license)	0.9	0.8	0.9	0.9	1.0	0.8	0.9	0.8	1.0	0.8

Note: Statistically significant differences between connected and non-connected sectors are highlighted (*bold*).

Table 17: Impact of intensity of political connections across 4-digit sectors on reported pressure from Competition

	Number of competitors by category			Share firms report domestic price			Share firms report foreign price competition		
PC overall	-.017**	-.014**	-.037	-.296	-.359	-1.09	-.368**	-.279**	-1.18*
t-values	(-3.10)	(-2.11)	(-1.42)	(-0.55)	(-0.61)	(-1.00)	(-11.02)	(-3.50)	(-1.85)
obs	71	71	71	53	53	53	53	53	53
R-squared	0.025	0.105	0.538	0.005	0.021	0.412	0.017	0.048	0.447
PC CEO	-.159**	-.161**	-.286**	-4.57**	-4.78**	.475	-4.86**	-4.70**	-5.96*
t-values	(-4.56)	(-3.03)	(-2.35)	(-6.22)	(-6.46)	(0.15)	(-2.26)	(-3.08)	(-1.73)
obs	71	71	71	53	53	53	53	53	53
R-squared	0.036	0.126	0.537	0.019	0.034	0.270	0.041	0.077	0.396
PC board member	-.015	-.008	-.068	-.808	-.952	-2.70	-1.14**	-.939**	-3.41**
t-values	(-0.44)	(-0.20)	(-1.03)	(-0.56)	(-0.64)	(-1.02)	(-4.45)	(-17.01)	(-2.86)
obs	71	71	71	53	53	53	53	53	53
R-squared	0.002	0.009	0.500	0.004	0.019	0.403	0.016	0.050	0.449
PC owner	-.029**	-.027**	-.057**	-.373	-.434	-1.32	-.644**	-.540**	-1.61**
t-values	(-5.92)	(-3.58)	(-2.20)	(-0.43)	(-0.46)	(-0.85)	(-3.14)	(-2.04)	(-1.95)
obs	71	71	71	53	53	53	53	53	53
R-squared	0.043	0.126	0.559	0.005	0.020	0.406	0.030	0.060	0.452
PC PE participation	-.035	-.021	-.076	-.196	-.384	-1.66	-.386	-.211	-2.39
t-values	(-1.42)	(-1.54)	(-0.88)	(-0.21)	(-0.33)	(-0.61)	(-0.96)	(-0.40)	(-1.40)
obs	71	71	71	53	53	53	53	53	53
R-squared	0.015	0.094	0.514	0.001	0.014	0.387	0.002	0.040	0.411
Controls (size, expsh)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	No	Yes

Table 18: Impact of intensity of political connections across 4-digit sectors on Inspections by Government Officials

	Number of Inspections Tax			Number of Inspections Customs			Number of Inspections Municipal Authorities			Coefficient of Variation (Tax Inspections)			Coefficient of Variation (Customs Inspections)			Coefficient of Variation (Municipal Inspections)		
PC overall	.051**	.055**	.062	.411	.390	.847	.251**	.237**	.381	.023**	.029**	.006	.013	.017	-.016	.044**	.049	-.012
t-values	(2.48)	(3.50)	(0.65)	(1.15)	(1.13)	(1.60)	(2.02)	(2.18)	(0.89)	(2.78)	(3.38)	(0.46)	(0.26)	(0.39)	(0.41)	(4.60)	(7.74)	(-0.54)
obs	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.019	0.026	0.329	0.060	0.070	0.377	0.062	0.071	0.402	0.052	0.164	0.445	0.003	0.040	0.409	0.056	0.092	0.607
PC CEO	-.497**	-.502**	.186	1.11	1.16	2.43	-.581	-.557	.294	-.014	-.019	.063	-.067	-.076	-.145	.029	.022	-.049
t-values	(-2.64)	(-3.06)	(0.42)	(1.22)	(1.01)	(0.81)	(-1.22)	(-1.09)	(0.51)	(-0.13)	(-0.18)	(0.41)	(-0.24)	(-0.32)	(-0.32)	(0.23)	(0.23)	(-0.23)
obs	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.031	0.036	0.316	0.008	0.025	0.255	0.006	0.022	0.324	0.001	0.089	0.446	0.001	0.036	0.410	0.001	0.025	0.606
PC board member	.219**	.225**	.293	1.04	1.01	1.88	.271*	.242**	.602	.095**	.102**	.058	.101	.104	-.003	.141**	.146**	-.007
t-values	(2.74)	(3.18)	(1.08)	(1.06)	(1.08)	(1.36)	(1.77)	(2.96)	(0.83)	(2.83)	(2.88)	(1.06)	(0.70)	(0.78)	(-0.03)	(15.84)	(11.13)	(-0.11)
obs	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.037	0.043	0.355	0.041	0.054	0.320	0.008	0.023	0.347	0.094	0.198	0.465	0.018	0.054	0.407	0.060	0.089	0.605
PC owner	.079**	.084**	.116	.426	.396	1.17	.273*	.257**	.458	.030**	.036**	.011	.001	.008	-.027	.057**	.063**	-.005
t-values	(2.15)	(2.69)	(0.99)	(0.91)	(0.88)	(1.42)	(1.90)	(2.07)	(0.91)	(2.27)	(3.05)	(0.62)	(0.02)	(0.12)	(-0.41)	(2.32)	(3.40)	(-0.16)
obs	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.027	0.036	0.344	0.040	0.050	0.387	0.045	0.056	0.387	0.055	0.164	0.446	0.001	0.035	0.410	0.056	0.093	0.605
PC PE participation	.112**	.123**	.080	1.14*	1.12*	1.83	.953**	.936**	1.17	.047**	.060**	-.005	.044	.044	-.034	.102**	.109**	-.057
t-values	(2.63)	(2.72)	(0.32)	(1.89)	(1.74)	(1.56)	(2.89)	(2.73)	(0.90)	(6.44)	(6.08)	(-0.14)	(0.83)	(1.16)	(-0.49)	(3.62)	(4.52)	(-1.00)
obs	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71	71
R-squared	0.013	0.020	0.318	0.066	0.078	0.336	0.128	0.137	0.437	0.032	0.138	0.443	0.005	0.039	0.408	0.043	0.072	0.613
Controls (size, expsh)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Table 19: Impact of intensity of political connections across 4-digit sectors on policy implementation uncertainty

	Time dealing with government regulations			Waiting days for Construction Permit			Waiting days for operating license			Coefficient of Variation (Time gov. regulations)			Coefficient of Variation (Waiting constr. permit)			Coefficient of Variation (Waiting operating)		
PC overall	.049	.033	-.244	-9.44	-9.07	-10.4	-7.23	-6.90	-6.22	.005**	.007**	-.002	.007**	.006**	.009	.017**	.018**	.012
t-values	(0.34)	(0.33)	(-0.63)	(-1.28)	(-1.11)	(-1.23)	(-1.41)	(-1.50)	(-1.03)	(3.36)	(3.44)	(-0.11)	(2.15)	(2.53)	(0.79)	(3.31)	(3.16)	(0.66)
obs	50	50	50	69	69	69	71	71	71	47	47	47	65	65	65	68	68	68
R-squared	0.001	0.009	0.377	0.118	0.137	0.436	0.050	0.063	0.441	0.004	0.074	0.525	0.010	0.033	0.438	0.023	0.041	0.242
PC CEO	1.67	1.74	1.76	-51.9*	-50.9*	-97.7*	-19.5	-20.5	-86.5*	.057	.059	-.030	.004	.001	.069	-.046*	-.035	.175
t-values	(1.32)	(1.17)	(0.37)	(-1.84)	(-1.64)	(-1.79)	(-0.48)	(-0.55)	(-1.87)	(0.30)	(0.32)	(-0.13)	(0.08)	(0.03)	(0.71)	(-1.69)	(1.57)	(1.01)
obs	50	50	50	69	69	69	71	71	71	47	47	47	65	65	65	68	68	68
R-squared	0.019	0.029	0.373	0.061	0.088	0.473	0.006	0.027	0.485	0.009	0.074	0.526	0.001	0.027	0.438	0.003	0.018	0.256
PC board member	-.069	-.091	-.933	-35.1*	-34.1	-33.9	-17.4	-16.8	-17.5	.051**	.056**	.029	.033	.029*	.026	.018	.022	.009
t-values	(-0.15)	(-0.24)	(-0.80)	(-1.80)	(-1.62)	(-1.57)	(-1.08)	(-1.09)	(-0.93)	(2.01)	(3.00)	(0.43)	(1.44)	(1.64)	(0.58)	(0.88)	(1.19)	(0.15)
obs	50	50	50	69	69	69	71	71	71	47	47	47	65	65	65	68	68	68
R-squared	0.001	0.009	0.387	0.173	0.191	0.458	0.030	0.047	0.440	0.049	0.123	0.533	0.022	0.044	0.439	0.003	0.020	0.236
PC owner	.131	.107	-.379	-13.2*	-13.1	-16.1*	-10.8**	-10.2**	-10.2	.007*	.010	-.008	.008	.007**	.017	.028**	.028**	.017
t-values	(0.66)	(0.73)	(-0.65)	(-1.66)	(-1.48)	(-1.78)	(-2.09)	(-2.34)	(-1.59)	(1.95)	(1.41)	(-0.42)	(1.38)	(2.15)	(0.90)	(4.21)	(3.37)	(0.68)
obs	50	50	50	69	69	69	71	71	71	47	47	47	65	65	65	68	68	68
R-squared	0.005	0.012	0.382	0.142	0.167	0.462	0.067	0.078	0.451	0.006	0.075	0.528	0.008	0.033	0.445	0.034	0.050	0.242
PC PE participation	.070	.069	-.407	-17.3	-15.4	-18.0	-13.6	-13.1	-9.37	.008	.015	.004	.020**	.014	.019	.040**	.046**	.040
t-values	(0.41)	(0.86)	(-0.36)	(-0.97)	(-0.75)	(-0.91)	(-0.94)	(-0.94)	(-0.52)	(0.25)	(0.73)	(0.12)	(2.00)	(0.88)	(0.68)	(2.77)	(2.09)	(0.54)
obs	50	50	50	69	69	69	71	71	71	47	47	47	65	65	65	68	68	68
R-squared	0.001	0.009	0.368	0.057	0.073	0.392	0.025	0.042	0.423	0.001	0.070	0.525	0.011	0.438	0.436	0.020	0.043	0.645
Controls (size, expsh)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Sector dummies (2-di)	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

Table 20: Selected 4-digit industries with the most PC firms versus industries without PC firms

ISIC Rev4	Description	PC firms	PC families	PC CEO	PC board	PC owned	PC PE inv	PC only PE inv	# firms 2006	#est>200 empl	Age
5510	Short term accommodation activities	35	17	5	8	29	7	5	3,056	129	15.0
4100	Construction of buildings	21	16	4	8	16	10	2	5,385	35	10.8
6201	Computer programming activities	18	11	1	2	14	11	4	157	2	5.5
4773	Other retail sale in specialized stores	16	14	0	3	11	5	4	138,202	12	9.8
6612	Security and commodity contracts brokerage	15	14	1	7	10	3	0	367	0	8.9
6820	Real estate activities on a fee or contract basis	15	16	3	8	10	9	1	2,234	2	6.4
2100	Manufacture of pharmaceuticals	13	10	0	4	2	8	7	189	22	11.4
4663	Wholesale of construction materials, hardware	13	13	0	0	12	4	1	2,933	9	12.1
2220	Manufacture of plastics products	12	13	0	3	8	4	2	2,399	30	9.0
2930	Manufacture of parts for motor vehicles	11	16	2	3	8	4	3	58	1	10.3
3510	Electric power generation, transmission & distribu	10	4	0	1	7	3	3	348	29	19.0
6810	Real estate activities with own or leased property	10	19	1	3	8	3	1	1,338	0	7.5
910	Support activities for petroleum & natural gas extr	9	8	0	2	1	8	6	33	3	10.0
2394	Manufacture of cement, lime and plaster	8	10	1	2	7	4	0	68	10	14.3
1410	Manufacture of wearing apparel, except fur appare	7	3	2	2	5	4	0	57,214	103	12.1
2410	Manufacture of basic iron and steel	7	3	2	3	7	1	0	454	17	13.3
4530	Sale of motor vehicle parts and accessories	7	3	1	3	7	1	0	31,131	1	10.4
1020	Processing and preserving of fish	0	0	0	0	0	0	0	329	3	14.2
1622	Manufacture of builders' carpentry	0	0	0	0	0	0	0	18,825	1	10.0
1629	Manufacture of other products of wood	0	0	0	0	0	0	0	4,570	3	11.0
1701	Manufacture of pulp, paper and paperboard	0	0	0	0	0	0	0	992	9	13.5
2211	Manufacture of rubber tyres and tubes	0	0	0	0	0	0	0	168	1	12.6
2593	Manufacture of cutlery, hand tools & hardware	0	0	0	0	0	0	0	13,599	0	11.8
2670	Manufacture of optical instruments	0	0	0	0	0	0	0	215	0	9.2
2750	Manufacture of domestic appliances	0	0	0	0	0	0	0	391	27	10.7
2821	Manufacture of agricultural machinery	0	0	0	0	0	0	0	175	1	14.4
3100	Manufacture of furniture	0	0	0	0	0	0	0	88,829	14	10.1
4741	Retail sale of computers, software in stores	0	0	0	0	0	0	0	18,066	1	4.5
4772	Retail sale of pharmaceuticals	0	0	0	0	0	0	0	50,566	1	9.0
5210	Warehousing and storage	0	0	0	0	0	0	0	41,356	12	11.3
6110	Wired telecommunications activities	0	0	0	0	0	0	0	41,904	14	4.7
6920	Accounting, bookkeeping and auditing activities	0	0	0	0	0	0	0	3,888	2	10.1
7410	Specialized design activities	0	0	0	0	0	0	0	875		8.1
8110	Combined facilities support services	0	0	0	0	0	0	0	341	4	8.3

Table 21: UN classification of energy-intensive manufacturing sectors

Intensity of energy consumption	Industry
High Energy Intensity	Manufacture of textiles, Paper and paper products, Coke and refined petroleum products, Chemical products, Non-metallic mineral products, Manufacture of basic metals.
Moderate Energy Intensity	Food products and beverages, Wearing apparel, dressing and dyeing, Manufacture of leather products, Wood and wood products, Printing and publishing, Rubber and plastic products, Fabricated metal products
Low Energy Intensity	Tobacco products, Machinery and equipment n.e.c., Office, accounting and computing machinery, Electrical machinery and apparatus n.e.c., Radio, TV and communication equipment, Medical, precision and optical instruments, Motor vehicles, trailers and semi-trailers, Other transport equipment, Furniture and other manufacturing n.e.c., Recycling

Table 22: Large firms are well distributed among connected and non-connected firms

Coverage of PC and NPC firms by size categories in Orbis

# of employees	Orbis					
	PC			NPC		
	# of est.	% of est.	% of jobs	# of est.	% of est.	% of jobs
<20	8	2%	0%	1,375	19%	0%
[20,99]	73	16%	0%	2,571	35%	2%
[100,199]	44	9%	1%	853	12%	2%
[200,999]	186	40%	12%	1,642	22%	12%
>=1,000	158	34%	87%	914	12%	84%

Table 23: Large firms are well distributed among connected and non-connected firms

Coverage of PC and NPC firms by size categories in Orbis

# of employees	Orbis					
	PC			NPC		
	# of est.	% of est.	% of jobs	# of est.	% of est.	% of jobs
<20	8	2%	0%	1,375	19%	0%
[20,99]	73	16%	0%	2,571	35%	2%
[100,199]	44	9%	1%	853	12%	2%
[200,999]	186	40%	12%	1,642	22%	12%
>=1,000	158	34%	87%	914	12%	84%