Political Connections Reduce Job Creation\(^1\)

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Abstract: Using firm-level data, we document that politically connected firms (PCFs) create more jobs than unconnected firms in Lebanon. We observe however that the presence of PCFs in a sector is correlated with lower job creation. Although causality is difficult to establish due to endogeneity issues, we find that PCFs expand, and non-PCFs retract, more around elections. Our findings are consistent with the hypothesis that unfair competition by PCFs hurts unconnected competitors so much that aggregate growth in the sector is affected negatively.

Keywords: job creation; political connections; event study; competition  
JEL codes: D02; D22; D47; J2; J38; J4; L22; L5; O43; P16

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1. Introduction

Firm-level political connections are widespread. How politicians influence behavior of firms is an important question in economics. We go further toward answering this question by studying the relationship between aggregate job creation and political connections at the firm level.

To build intuition, there are two opposing forces to consider in this relationship. From one end, firms may get economic privileges via political connections, i.e., in the form of subsidies, licences, lower regulatory burdens, or easier access to procurement contracts. Such political connections may be costly, however. These firms may need to pay back such favors, for instance, by offering jobs for constituencies of politicians. Such mechanism could enhance job creation. From another end, the provision of unfair privileges to politically-connected firms (PCFs) can reduce incentives of market entry and hinder ability of unconnected competing firms to grow. This latter mechanism can reduce willingness of non-politically-connected firms (NPCFs) to create jobs. The net effect of political connections on job creation is, thus, ambiguous.²

The economics literature on the role of political connections of firms has been growing. Shleifer and Vishny (1994) showed how politicians try to influence firms through subsidies while firms pay back to politicians through political support. Various studies documented the effects of political connections on firms' value (Fisman (2001) and Acemoglu et al. (2018)) and likelihood of fraud detection (Yu and Yu, 2011). Others investigated mechanisms of influences, such as bailout (Faccio, 2006); access to finance (Claessens et al. (2008), Cull and Lixin (2005), Dinc (2005), and Khwaja and Mian (2005)); access to international markets (Leuz and Oberholzer-Gee, 2006); procurement contracts (Goldman et al., 2013); capital controls (Johnson and Mitton, 2003); tariff evasion (Rijkers et al., 2015); and tax sheltering (Hochman et al. (2013) and Francis et al. (2016)). Bertand et al. (2018) and Diwan et al. (forthcoming) have investigated the impact of cronyism on job creation. This study contribute to this recent area of investigation by analyzing whether political connections influence employment decisions at firm and sector levels by exploiting an exogenous elections event in an identification strategy.

Lebanon is a suitable country for this study for several reasons. First, there is anecdotal evidence for the link between politicians and firms in Lebanon. In the post war reconstruction phase of the 1990s, the necessity to consolidate security led to the constitution of a large political coalition.

² It is important to recognize that there are payoffs beyond job creation that politicians may enjoy. For instance, media firms may not create many jobs, yet may pay dividends while influencing public opinion.
which brought political stability at the cost of an extensive system of spoils (Leenders, 2012). Part of political clientelism in Lebanon depends on ability of politicians to find employment for their constituencies in both the public and private sectors (Corstange, 2016). Three quarters of university students surveyed by the Lebanese Center for Policy Studies (LCPS) thought that political connections were important to find jobs, and 20 percent said that they had used them (LCPS, 2013).

Second, the most recent World Bank Enterprise Surveys (2013) for Lebanon showed that three-fifths of firms identify corruption as a major constraint for their growth. Similarly, Gallup (2013) and Arab Barometer (2013) surveys showed that the Lebanese public view corruption in the public and private sectors more negatively than in other countries. Third, the Lebanese economy has been performing relatively poorly in terms of job creation over the last two decades. While several reasons could limit job creation, we aim to shed light on whether political connections play a role. Fourth, our ability to access an original and relevant firm-level dataset allows us to study the relationship between political connections and job creation.

We use a unique large dataset, which includes all registered (formal) firms at the Lebanese Ministry of Finance (MoF). The dataset provides annual information between 2005-2010 on employment and output of firms. We are able to identify among these firms ones with political connections. We do so by first comparing characteristics of firms in our MoF dataset with the firms identified in the Lebanese Commercial Register at the Ministry of Justice (MoJ). We then draw a list of all politicians and their main associates, and identify firms as politically-connected when at least one of their stakeholders (manager, board member, or shareholder) is on that list. The resulting database allows us to analyze the micro foundations of employment creation in Lebanon and to compare the performance of firms and sectors with and without political connections.

The first set of our results showed that, compared to other countries, employment is concentrated more in larger firms in Lebanon. These larger firms tend to also pay higher wages, but without exhibiting better performance in terms of labor productivity (output per worker) than smaller firms. However, once we looked at firms that are not politically connected, the more usual pattern of larger firms having higher output per worker prevailed. This result suggests that PCFs are possibly over-hiring among the constituents of their political patron in exchange of economic privileges (but which we do not observe). Nevertheless, a correlation between PCFs and job creation does not prove causality. It is possible that successful firm owners tend to join the country’s political elite, but that they do not receive particular economic privileges, and that over-hiring by large firms is due to recent
economic shocks together with labor market inflexibilities. To rest this concern, we examined whether the increase in employment by PCFs came from market trend or political consideration. We investigated whether PCFs increased their employment creation around elections. Helping voters get jobs is an essential element for politicians to signal competency in Lebanon. The incentive of politicians to influence firm-level job creation becomes much higher prior to elections. We show, using different sets of evidence -- including the 2009 Parliamentary election as an exogenous shock, and the fact that we capture political connectedness of firms at point of entry -- that it is more likely that political connections led to over-hiring, and not vice versa.

In the second part of the empirical analysis, we investigated a macroeconomic implication of political connections. The trend that NPCFs create fewer jobs in sectors where connected firms operate is plausible - they are likely to shrink when connected firms expand, i.e., due to limited market size. The question, however, is whether a connected sector ends up as a whole growing relatively less, and creating relatively less jobs, than an otherwise similar sector. To answer this question, we compared sector performance as a function of the presence of PCFs in a sector, and found that sectors that include more PCFs have relatively lower net job creation than sectors that do not include PCFs. While this result establishes a correlation between privileges and lack of job creation at the sector level, it is not sufficient to claim causality. There are several possible explanations for this correlation. It may be that more jobs get destroyed as the sector becomes more capital intensive when the market share of PCFs expand as PCFs may depend more on capital. Also, PCFs may receive privileges in sectors that are rent-filled and have low growth potential. Moreover, unfair competition may reduce economic activity by reducing the incentives of both the industry leader and its followers to innovate (Aghion et al. 2001, 2009).

Our results are robust to the use of different variables in our econometric estimation technique. We confirm that PCFs create more jobs than unconnected firms and they do so more around elections, ruling out the possibility that they are driven by common trend of firms. We also show that the presence of PCFs in a sector is correlated with lower job creation in that sector, suggesting that PCFs affect negatively NPCFs and reduce their incentives to create jobs, especially around elections time.

The remainder of this paper is as follows. We present in section 2 relevant points about the centrality of clientelism and cronyism within the political economy of Lebanon. In section 3, we describe our firm-level dataset, identify politically-connected firms, and look at stylized facts about PCFs and NPCFs. We examine the impacts of political-connections on job creation, wages, output,
and output per worker at firm-level in section 4. In section 5, we present sector-level implications of PCFs. We summarize our main findings and discuss policy implications in section 6.

2. Political settlement and the evolution of business-state relations in Lebanon

The present model of power sharing among sectarian groups in Lebanon has been reconfigured over time as a result of changes in internal and external forces. Ziadeh (2006) and Traboulsi (2007) highlighted various changes that led to different political settlements. These settlements included several types of coalitions: (i) small size coalition which delivered a stable macroeconomic situation, but an unstable security environment, during the early “merchant republic” dominated by elite interests in 1950s and 1960s; (ii) fragmented governance during the civil war of 1975-90; and (iii) large over-stretched multi-group coalitions with high costs in terms of budget deficits, during the current post-Ta’if agreement period. When examining the most recent period, four characteristics of the political settlement stand out in terms of economic implications.

First, the trade-off between security and economic performance, which was present in the various settlements, was especially constraining in the post-Ta’if (current) period. As the governing coalition came to include in the 1990s the main political groups, fiscal and public sector off-balance sheet spending rose as the coalition generated demands for large rents. The ability of oligarchs to make horizontal deals depended on the extent of contestation within their community. Access to rents was important to influence elections results, and to hinder the rise of alternative political forces within their group.

Second, a large fiscal expansion, financed by debt, initially allowed the state, starting in the early 1990s, to be the main source of clientelistic favors. The main political groups engaged in hiring of clients in the public sector, controlling funds for reconstruction, and providing

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3 The restricted coalitions of the 1960s allowed for a large degree of macro stability that oversaw some of the fastest economic growth rates in the region. However, the narrow socio-economic coalition could not stem the rise of groups who fell excluded, and the country burst increasingly into cycles of grievances and violence that ultimately led to the civil war.

4 The Ta’if Agreement, also known as the National Reconciliation Accord or Document of National Accord, was reached in October 1989 to provide the basis for ending the 1974-1989 Lebanese civil war. It was negotiated and signed in Ta’if, Saudi Arabia.

5 Different types of rents can differ in the extent to which they support economic growth (rents from cooperation) versus the extent to which they taxed growth (external rents that generate political divisions, regulatory rents). The first type relates to the conditions of security that allowed Lebanon, at a time, to become a touristic, entrepot, and banking center in a troubled region. The second type relates to the use of state provided patrimonial instruments (such as state employment, controls over various funds, choice of infrastructure investments) as well as economic distortions and related rents (such as access to contracts, and the way in which the policy framework benefits particular groups).
preferential treatment in the procurement of government contracts to PCFs.\textsuperscript{6} Government deficits were rarely below 20 percent of GDP in the 1990s. As the fiscal space closed down, a multitude of off-balance sheet cost-centers arose, and these centers were divided among various oligarchic networks.\textsuperscript{7} These high levels of public expenditures were predicated on fast economic growth, as happened in the first part of the 1990s. However, with the demise of the Israeli-Palestinian peace process, the regional outlook deteriorated substantially, and growth rates came down to a halt in the second part of the decade in Lebanon. As a result, large state expenditures became unsustainable, resulting in a ballooning public debt that reached 300 percent of GDP by the end of the 1990s. Given the lack of fiscal space, oligarchs had to look elsewhere to finance their clientelistic endeavor, turning more toward foreign patrons, and increasingly engaging in the extraction of regulatory rents from the domestic private sector.

Third, Lebanon has a weak state. Political scientists have stressed how the political economy of Lebanon has militated for a weak state, as a defensive mechanism by the various religious groups to retain some autonomy (Salibi, 1990). The small range of interventions by state limited how much regulatory rents could be created. This small potential for rent extraction, is potentially costly in terms of growth in sectors under state influence. The systematic allocation of privileges to connected businessmen along sectarian lines (the system of \textit{Muhasasa}) has made Lebanon, in the eyes of the Lebanese, one of the most corrupt countries in the Arab region. For example, the most recent World Bank Enterprise Surveys (2013) showed that three-fifths of Lebanese firms identify corruption as a major constraint for their growth. Similarly, Gallup (2011) surveys showed that the Lebanese public views corruption in the public and private sectors more negatively than in other countries of the Arab region.

Fourth, there was greater inter-group competition after 2005 due to the growing regional rift between Iran and Saudi Arabia, and later, the divisive effects of the Syrian crisis. This weakened the oligarchic settlement, and created more inter-group and intra-group competition. As a result, the parliamentary elections of 2009 were more competitive and under a new electoral law. On the face of it, an election effect seems apparent at the macro-level. Figure 1 shows that in 2009,

\textsuperscript{6} The distribution of state favors in the post-war period neglected redistribution to the poorest in favor of equal shares to the different communities. Group composition and share of public spending were strikingly equal, based on distribution of public capital expenditure (1996-2005) and distribution of registered voters (Salti and Chaaban, 2010).

\textsuperscript{7} For example, The Council of Development and Reconstruction (CDR), the Council of the South, the Ministry of Energy (and its lucrative import of oil), and the Ministries of the Displaced, Public Works, and Health were under the suzerainty of different political groups (Leenders 2012).
the overall hiring by PCFs jumped from an average of 8,500 new jobs per year over the 5-year period, to 14,500, at a time when the non-politically-connected firms (NPCFs) in the same 29 sectors reduced their hiring (from an average of 6,500 a year, to about 4,500). We conduct formal statistical tests below to check if PCFs have increased hiring in 2009 more than in non-election years. We are also interested in the reaction of NPCFs, and especially, in the possibility that net job creation in the politically connected sectors ended up lower.

3. Data-set, corporate landscape, and PCFs

In this section, we describe the firm-level dataset, identify politically-connected firms, and highlight differences in corporate characteristics such as job creation, output per worker, and wages between PCFs and NPCFs.

3.1. Firm-level data

We employ data on firms that paid taxes in Lebanon between 2005 and 2010. The dataset includes annual information about all registered firms at the Directorate of Revenues, Lebanese Ministry of Finance (MoF). This dataset includes data about each firm’s date of birth, 4-digit sector of business operation, number of employees, wages per year, sales, as well as initial paid-in capital.

The dataset has several advantages for the purpose of this study. Its complete coverage of all firms and sectors on an annual basis allows us to compare performance within and across firms and sectors in a comprehensive manner. For example, to answer the question of whether large firms create more jobs than small firms, it is crucial to examine firms of all sizes and in all sectors of the economy. Over the sample period of 2005-2010 that we study, the database includes information about an average of 122,242 firms per year. The dataset includes information on each firm’s output and number of employees (and to a lesser extent on registered capital), which allows us to look not just at job creation, but also, at output per employee at the firm level and across sectors. The dataset also allows us to observe when particular firms enter or exit particular sectors.

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8 Public sector recruitment also rose from 3300 in 2008 to 5941 in 2009 but then dropped to 762 in 2010 (see Abou Jaoude, 2015).
9 These firms are legally bound to be also registered in the Commercial Registry (CR) and at the National Social Security Fund (NSSF).
10 To check the accuracy with which the MoF data captures new firms, we compared the sector-capital-year-date-of-birth-data in the MoF dataset with the CR registry data. We found that the MoF data identified firm start dates accurately.
But it is also important to keep in mind the limitations of our dataset. The dataset covers only formal firms and workers, that is, firms that paid taxes, and declared labor that pays social security contributions. It does cover however a large share of formal jobs: firms in the dataset reported employing a total of 775,540 workers while the total number of workers in the formal sector was estimated at 777,000 in Lebanon in 2010 (ILO 2015). The dataset does not include information about profitability, but only about output, which may however be under-reported for tax evasion purposes. The dataset also suffers from apparent reporting errors. To correct for this, we dropped firms that exhibited abnormally high volatility in output per worker, and other cases with obvious reporting errors. On average, we dropped a total of 4.6 percent of the firms originally reported in the dataset in each year. The cleaned dataset includes 105,092, 111,223, 117,513, 124,877, 133,686, and 141,061 firms, respectively, in 2005-2010.

### 3.2 Stylized facts about corporate landscape in Lebanon

The analysis of the relationship between firm size and employment in Lebanon has been hindered to date by data limitations. The dataset from the MoF allows us to uncover a new set of stylized facts about the distribution of jobs among firms of different size and age groups.

A specificity of Lebanon is that a large share of labor works in relatively large firms, unlike the pattern typically observed in developing economies, where private sector jobs tend to be clustered around a vast abundance of small firms, and only a handful of substantially large ones. Table 1 shows that over the period 2005-2010, large firms that employ 100 or more employees accounted for nearly half of total (formal) employment in Lebanon, a figure that is large by regional standards. In addition, while small-scale activities provide the majority of jobs in the Middle East and North Africa region, the share of employment in firms with less than five employees is only 19.3% in Lebanon. This concentration of jobs in relatively large firms is moreover not explained by a lack of small firms - 87% of firms have fewer than 5 employees in Lebanon.

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11 In addition, while formal workers accounted for 60 percent of workers in Lebanon, there was an estimated 613,000 informal workers working mainly in micro enterprises in 2010 (ILO 2015).
12 We defined “abnormally high” volatility as a change that was equivalent to more than 100 percent between t and t+1 followed by a change that took the output per worker level to less than its initial (t) value at t+2. An example of reporting error is when a firm is reported to pay taxes before it is established.
13 Ayyagari et al. (2014), Aga et al. (2015), and World Bank (2016)
14 In Turkey, Tunisia, and Jordan only 20 to 30 percent of labor work in firms with more than 10 workers, while in Egypt and the West Bank and Gaza this figure is below 10 percent. The share of employment in firms with less than five employees is much larger in Egypt and the West Bank (about 60%), Jordan (40%), Tunisia (37%), and even in Turkey (34%) (Figure 1.5, page 19, World Bank 2014).
Moreover, there is a trend toward larger size firms. From 2005 to 2010, the share of jobs in large firms increased from 41.1 to 47.8 percent while it declined in micro-firms from 15.2 to 13 percent (Table 1). Indeed, large firms have increasingly driven net job creation. Figure 2 decomposes net job creation in each year by firms of different size categories. In any year between 2006 and 2010, the bulk of net job creation was in larger firms. A closer look at the data in Table 2 shows that self-employed firms were responsible for a net destruction of jobs. For example, in 2010, firms that employed at least 200 employees created 22,511 jobs while self-employed firms destroyed 3,074 jobs. Setting aside self-employed firms, large firms accounted for 55 percent of net job creation - in contrast to Tunisia and Egypt, where small firms accounted for more than 90 percent of the new jobs created (World Bank 2014).

It is noteworthy that when it comes to job creation, it is the formal firms in our dataset, as opposed to the informal sector, that has been the main creator of new jobs in recent years. According to ILO (2015), about 56,000 workers entered the market each year between 2005 and 2010. Firms in our database created between 40,000 and 50,000 new (formal) jobs per year, which is between 70 and 90% of all jobs created (Table 2 and Figure 1). Overall, the large share of employment and job creation in large firms in Lebanon is thus as unique in the Middle East as is its competitive political system.

3.3 Identifying politically connected firms (PCFs)

We aim to assess if the above stylized facts are related to PCFs in Lebanon. We start by identifying PCFs in our database. Doing so requires assembling lists of politically connected persons and then determining if any of these individuals has a relation with any firm in our dataset. Our method of identifying PCFs is closely related to Faccio (2006), Rijkers et al. (2015), and Diwan et al. (forthcoming).

First, we developed a list of politically connected persons. We defined a person as politically connected if s/he was (i) a member of parliament, minister, or president anytime between 1992 and 2010; (ii) direct family member (i.e., father, mother, brother, sister, spouse, son, or daughter) of anyone in this group; (iii) publicly-known friend of anyone in this group; or (iv)

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15 This contradicts the result in World Bank (2014), which using the same dataset, claims that most new jobs in Lebanon during the period were created by micro-firms. Upon further inspection, it turns out that this study mistakenly coded employment in micro-firms as new jobs.

known members of political parties. Because the same oligarchy has been in power after the so-called Ta’if agreements that ended the civil war in 1989 (Traboulsi, 2007), we included in this list people that were in public office before 2005. In other words, although our firm-level dataset covers the 2005-2010 period only, we assume that a firm with a connection to a politician who held public office before 2005 has a high probability of enjoying privileges in later years. The inclusion of people that were in public office before 2005 allows us to capture more firms that may have benefited from past political connections after 2005.

Second, we used the Commercial Register at the Ministry of Justice to identify PCFs. The Commercial Register covers information on all formal firms that are registered in Lebanon. It includes the names of owners and founders, board members and managers, paid in capital, date of birth, and sector of operation of each firm. We identified as politically connected any firm that includes at least one individual – partial owner, founder, shareholder, or officer – who is on our list of politically connected persons. Since PCFs can be expected to be large firms, to make the (manual) search-and-match task manageable, we restricted it to firms that employed at least 50 workers in at least one year between 2005 and 2010.

Third, we matched all the PCFs that we found in the Commercial Register with the MoF dataset. While our MoF dataset does not include names of firms, it includes date of birth and detailed sector of activity for each firm. In all cases we looked at, the date of birth and sector characteristic of a firm in our database matched uniquely with a firm in the Commercial Register, allowing us to deduce the name of the PCFs that we wanted to identify. This procedure allowed us to compare the corporate characteristics of PCFs and NPCFs in the MoF dataset.

It is clear that we do not capture all the PCFs in Lebanon with our procedure. However, our aim is to ensure that we do not erroneously characterize any of the firms as a PCF when it is not. In other words, our estimates of the effects of political connections are likely to be conservative.

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17 Using the framework of Macneil (1978), we considered that firm-level political connections in Lebanon are relational, as there is anecdotal evidence that firms in Lebanon maintain long-term benefits from political connections, instead of transactional, and directed towards short-term economic benefits.

18 We checked whether the effect of connections is different for those who were in office in 2005-2010 compared to ones who were in office before then, and did not find a statistically significant difference.

19 The process of matching (Arabic) names creates possibilities of errors when different database use a different spelling, or when different individuals have the same name. We tried to minimize this error by allowing for common spelling variants, and matching first, middle, and last names before classifying a firm as politically connected.

20 Admittedly, this procedure may exclude PCFs firms owning other firms, if no politically connected individual is involved publicly in that lower tiers firm. There is also a risk that our measure is correlated with a firm’s attributes, such as its number of owners, since having more owners may increase the chances of matching.
We mention a few examples from the TV sector to clarify our approach to identify PCFs. Future TV is owned by the sons, wife, brother, sister, and other friends of Rafic Hariri. The latter was a prime minister in Lebanon several times between 1992 and 2005. His sister has been a member of Lebanese parliament since 1992. And, his son has been a parliament member since 2005 and served as a prime minister during the time span of our dataset. Thus, we coded Future TV as PCF. In addition, we coded the NBN TV channel as a PCF because several of its owners, according to the Commercial Register, are on our list of politically connected individuals. Where none of the owners or managers of a given firm is on our list of politically-connected individuals or clearly affiliated with a party, we did not code the firm as PC. For example, we coded LBC TV and Al-Jadeed TV as NPCFs. In other words, we do not consider political-preference of firm owners as a proxy of their political connectedness unless the firm itself publicly represent a political group.\textsuperscript{21} Also, it is worth noting that we identified PCFs using direct ownership only. Given data limitations, it may not be feasible to trace indirect ownership links.

3.4 Stylized facts – politically connected firms

The above three-step procedure allowed us to identify 497 PCFs in the MoF dataset. These PCFs include 228 firms connected solely through direct family members or publicly known friends of politicians as well as 269 firms connected directly through politicians themselves. The 497 PCFs that we have identified are concentrated in the banking, media, energy (including oil and gas distribution), health (i.e. hospitals, drug import and distribution), real-estate construction, road paving, water extraction and sale, mining (including quarries), telecommunication, soft-drinks, and pharmaceutical production sectors. All together, they operate in only 29 of the 289 (4-digit) sectors that exist.\textsuperscript{22} So, although some PCFs seem to monopolize particular national or sub-national markets (such as import of pharmaceutical products, or quarries), their large number in other sectors may have increased competition among themselves, which should lower their market dominance in these sectors.

An important difference between PCFs in Lebanon and those in Egypt or Tunisia is that the sectors of activity of PCFs in Lebanon are narrower. In Egypt, Diwan et al. (forthcoming)

\textsuperscript{21} In few cases, we treated the cases of firms that are publicly known to be politically connected as PCFs as well. For instance, Al-Manar TV is publicly known to be the mouthpiece of a specific political party in Lebanon, and the channel does not deny that but even highlight this fact by its logo and different daily advertisements. Even though the Commercial Register does not include names of owners or shareholders of Al-Manar TV, we still coded Al-Manar TV as PCF.
\textsuperscript{22} All the sectors identified by Leenders (2012) as politically connected are captured by our methodology.
found that PCFs were operating in 174 out of 350 4-digit sectors of activity. In Tunisia, the connected sectors were found to be widespread – present in 30 of the 32 2-digit economic sectors (Rijkers et al., 2015). In both countries, rents were created by systematic policy changes that instituted systems of industrial subsidies (mainly cheap fuel), or by erecting barriers to foreign investors by closing off entire sectors to foreign firms. Eibl and Malik (2016) also found that rent could be created by closing off international competition through the imposition of non-tariff barriers. These studies have also shown that policy change followed the entry of PCFs in particular sectors. In Lebanon, a weaker state has been unable to implement such ambitious interventions. Instead, rents exist only in sectors of more traditional state influence, such as the application of zoning laws, the licensing of schools and hospitals, or the control over government procurement.

Table 3 shows the distribution of PCFs in Lebanon, summarizes some of their key characteristics, and compares them to NPCFs in their sectors of activity. Overall, PCFs form 42.7 percent of large firms (with more than 100 workers) and 72 percent of the large firms in the sectors which they operate in. To compare PCFs with NPCFs of the same size category, we also focused on NPCFs that had 50 employees at least once during the period. We observe that PCFs tend to be larger than their non-connected direct sector competitors. On average, each PCF employs 225 workers, compared to an average of 90 employees in NPCFs in the 29 connected sectors (see Table 3). As a group, the PCFs employ over 123,000 employees, which is about 16 percent of the labor force in the formal sector.

One can also observe in Table 3 that, PCFs employed more workers per unit of output produced than NPCFs in 26 of the 29 sectors in which they operate (and especially so in the banking, gas distribution, pharmaceutical sectors). The fact that larger firms have lower output per worker stands in sharp contrast to the experience of fast growing economies, such as Turkey, where larger firms tend to have higher firm productivity (Atiyas and Bakis, 2015). But although workers in PCFs are less productive than their peers, Table 3 also suggests that in many sectors, they receive higher wages on average.23

These stylized facts allow us to refine the puzzle that we identified in section 1. While PCFs are the main creators of jobs, they display lower output per worker and pay higher wages than NPCFs. One hypothesis could be that, compared to NPCFs, as a political pay-back for the privileges they receive, PCFs may be pushed to hire more workers from the pool of supporters of

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23 T-tests have also been calculated and show the mean differences are statistically significant. T-test results are not reported for space reasons.
their patron politician.\textsuperscript{24} In the next sections, we test the link between political connections and job creation in more formal ways.

4. The effects of political connections at firm-level

We observed that PCFs enjoy higher output, create more jobs, pay higher wages, but have less output per worker than NPCFs within their sectors of activity. In this section, we investigate the reasons for these differences, describe our hypotheses, sketch our econometric strategy, and present our empirical tests and firm-level results.

4.1 Hypotheses

We can think of three hypotheses that are coherent with these observations. The first hypothesis (H1) is that PCFs are successful firms - and as a result of innovations, superior skills, and more productive efforts - they are able to beat their competitors, increase their market share, and expand output and employment. Under H1, all firms – PCFs and NPCFs - maximize profits; they hire workers as long as their marginal cost of labor does not exceed their marginal benefit of expanding. Also, under this hypothesis, entrepreneurs tend to become politically connected after they grow and become large employers. This would be the case when successful businessmen become politicians, or get close to politicians because of their national importance, but these firms do not receive special privileges from the state.

The second hypothesis (H2) is more in line with the stylized facts, but falls short of accepting that PCFs benefit from economic privileges. It incorporates H1, but in addition, considers the possibility that while PCFs are over the long-run more successful firms than NPCFs, they have been hit by a negative economic shock during our period of investigation and have operated below capacity, but that they were unable (or unwilling) to adjust their employment levels, and thus ended up overstaffed. Thus, under H2, we expect that PCFs may have lower output per worker than NPCFs.

The third hypothesis (H3) is that PCFs are pushed to over-hire by politicians as a repayment for favors they bestow on them, and especially so around election time.\textsuperscript{25} Under H3, we expect that the privileges PCFs receive allow them to reduce their operating costs, giving them an advantage over their competitors. As a result, they end up at their optimum with larger market

\textsuperscript{24} Bertrand et al. (2018) provide support for this hypothesis using data from France.

\textsuperscript{25} This supposes a long-term relation of trust, which is typically provided by repeated games that end up constituting a relational contract.
shares than their unconnected competitors, and with larger profits. At the same time, because politicians bestow privileges on conditions that they hire some of their clients, we expect decisions of PCFs to depart from their first best optimum. In other words, they would spend part of their profit on hiring more workers than implied by pure profit maximization, depending on the relative bargaining powers of PCFs and their political patrons. Thus, under H3, we would expect to find that PCFs hire more workers than otherwise similar firms in their sectors that are not connected (especially around election time), and to end up with lower levels of output per worker.

It is worth noting that H3 is coherent with the popular narrative of the type of political clientelism that characterizes the Lebanese political economy in several ways. First, we know from journalistic investigations (Ibrahim and Saoud, 2015) and the anthropological work of Leenders (2012) that many PCFs receive special advantages. These studies have documented several mechanisms through which privileges are provided in a discriminatory fashion in particular sectors, including by state regulation and state procurement in the pharmaceutical, oil and gas, fuel imports, construction, and garbage disposal sectors as well as by licensing in the education, telecom, and media sectors, and by environmental regulations in the quarries sector.

4.2 Econometric strategy

We are limited in our ability to test H3 directly – as discussed in section 3.3, we cannot use time-variation in political connections at the firm level as Commercial Register data allow us to capture political connectedness of firms only at point of registration and not over time. Our econometric strategy will instead take advantage of the data we have to construct an indirect proof that argues that: (i) the data contradicts implications of H1 on corporate behavior; (ii) the data supports the implications of H2 and H3 regarding the PCFs and the NPCFs corporate and employment behavior; (iii) the behavior of firms around the election of 2009 supports H3 but not H2; and (iv) H3 is a reasonable statement in the context of the political economy of Lebanon.

Our empirical specifications will focus on the impacts of political-connectedness on the corporate strategies of firms. We estimate:

\[ Y_{it} = \beta_0 + \beta_1 PCF_i + \beta_2 Year + \beta_3 Year * PCF_i \]
+β₄Sizeᵢᵗ + β₅Ageᵢᵗ + β₆PCFᵢᵗ * Sizeᵢᵗ + β₇PCFᵢᵗ * Ageᵢᵗ + β₈PCFᵢᵗ * PCFᵢᵣ * PCFᵣᵣ + β₉Sizeᵢᵣ + β₁₀Ageᵢᵣ + β₁₁Age_Sᵣᵣ + β₁₂HHIᵣᵣ + β₁₃Entryᵣᵣ + β₁₄Employmentᵣᵣ + β₁₅Capitalᵣᵣ + γⱼ + εᵢᵗ

where the dependent variable, Yᵢᵗ, will represent in different estimations net job creation, average wage per employee, output, and productivity per employee at the firm-year level, for firm i, at time t. PCF is a dummy variable equal to 1 if the firm is politically-connected, and zero otherwise. Measuring β₁ allows us to determine if firm performance vary between PCFs and NPCFs.

The variables on the second line are used to test the existence of an election effect. Year is a vector of dummy variables that equal to 1 in 2007-2010 (year 2006 is the comparator base year). For instance, 2009 is a dummy variable equal to 1 in year 2009, and zero otherwise. The multiplicative term PCFᵢ allows us to gage if PCFs and NPCFs behaved differently during that election year.

The controls on the third line are meant to ensure that firms are compared with others with similar corporate and sector characteristics, so as to reduce possible omitted variable bias. Sizeᵢᵗ and Ageᵢᵗ refer to firm size (in terms of number of employees) and age. PCFᵢᵣ represents the number of politically-connected firms at the sector-year level. γⱼ denotes 2-digit sector fixed effects. Size_S, Age_S, and Capital refer to the average firm employment size, age, and capital (in LBP 10 million), respectively, at the 4-digit sector-year level. Employment refers to the number of employees (in ‘000) at the sector-year level. Entry rate is the firm entry rate (number of entrants/total number of firms) on a scale from 0-100 at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level.

We restrict the regression analysis to the sectors that have sufficient numbers -- i.e., with at least 10 percent -- of firms having at least 50 employees in at least one year between 2005 and 2010. We do so because we consider that large firms respond to unfair competition by adjusting

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26 We are not in position to determine strength of political connections of firms as that involves making subjective judgments about how much influence each politician possesses. In addition, given we consider that firm-level political connections in Lebanon are relational instead of transactional and we did not find statistically significant difference when we tested whether the effect of connections is different for those who were in office in 2005-2010 compared to ones who were in office before then (see section 3.3), we did not differentiate between different types of connections based on alignment with the ruling coalition.

27 While we use the 2009 elections which resulted in winners and losers and one would expect positive impacts amongst firms aligned with the governing coalition and negative impacts among firms that are not, our dataset ends in 2010 and thus does not allow further analysis of effect of political connections on job creation.

28 HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100.
employment size (i.e., by hiring and firing) while small firms are more likely to respond by exiting a sector. In other words, since we are focusing on the former type of adjustment, we ensure that the sectors we look at include a sufficient number of large firms. In the base estimations, we only keep firms in sectors when at least 10% of the firms have more than 50 employees.

4.3 Results

We now turn to test the above hypotheses. Tables 4a-4d report the results of the above empirical specifications. Before turning to election considerations, we observe that the main results provide reasons to reject H1, the hypothesis that successful firms become politically connected, but are supportive of both H2 and H3.29

First, the results confirm that PCFs create more jobs, produce larger output, and pay higher wages to their employees than comparable NPCFs - i.e., firms in their same sector of activity, and of similar age and size. But, PCFs exhibit lower labor productivity (output per worker). Column 3 of Table 4a shows that annual growth rate of employment in PCFs is, on average, 20.32 percent \[100^\times(\text{EXP}(0.185)-1)\] higher than annual growth rate of employment in -NPCFs that operate within their same sector, controlling for size, age, and number of PCFs in the sector.30 Given that PCFs are larger than NPCFs (section 3), this coefficient also means that PCFs create more jobs than NPCFs in terms of both percentage growth and raw numbers. For H1 to be consistent with the fact that PCFs are more labor intensive than non-PCFs, it must be the case that NPCFs have privileged access to capital compared to PCFs, and are unsuccessful in spite of this advantage. The reality is, however, completely different. While our dataset does not include data on different types of capital, it shows that PCFs have higher initial paid-in capital than NPCFs (Table 3).31

A second reason to reject H1 is provided by a comparison of wage setting in PCFs and NPCFs. Under H1, there would be no reason to expect good businessmen to offer higher wages than in less successful firms, especially if workers are less productive. However, firms with more long term growth prospects (as in H2) are more likely to offer efficient wages, and (some of) the workers employed by PCFs may be able to exert pressure on firms to receive higher wages (under

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29 For robustness checks, i.e., to reduce selection bias and avoid generating a spurious correlation between political connectedness and employment growth at firm level, in a separate exercise, we also limited the analysis to firms with more than 50 employees. Results hold but are not presented for space purpose.

30 Along the lines of the firm growth rate that was introduced by Davis, Haltiwanger, and Shuh (1996), NJC in column 3 of Table 4a refers to the log of net employment growth, using our measure of firm-level employment growth which is equal to the log of (change in employment from year t-1 to year t, divided by employment in year t-1).

31 Moreover, Chaaban (2019) shows that banks in Lebanon are overwhelmingly owned by politically connected individuals, and we can thus expect them to lend disproportionally to firms that belong to their corporate networks.
H3). Table 4b suggests that workers in PCFs do indeed receive higher wages, on average, than workers in NPCFs. Columns 3 in Tables 4b-d show that, compared to NPCFs, PCFs pay 16.29 percent \[100\times\exp(0.151)-1\] higher wage per employee and enjoy 26.87 percent \[100\times\exp(0.211)-1\] more output per firm while output per employee is 20.38 percent \[100\times\exp(-0.228)-1\] lower. These magnitudes are large. Moreover, the differential effects of age and size are informative: older and larger firms are associated with more net job creation, and more so if they are PCFs. However, older and larger PCFs are associated with even lower output per employee and higher average wages, suggesting that overstaffing and overpayment of wages increase over time. This is a first indication that favors H3 over H2.

The evidence discussed above suggests that we can reject H1, the hypothesis that PCFs are simply successful firms. But it does not strongly allow us to reject H2 in favor of H3. The main argument that we have for rejecting H2 and accepting H3 is the differential performance of PCFs and non-PCFs around the Parliamentary elections of 2009. Under H2, elections should affect all firms in the same manner—negatively, if they generate uncertainty, or positively if they usher a more attractive future. Under H3, elections should generate more pressures for job creation among PCFs as a way to help their political patrons secure votes. Thus, the question to address is: did PCFs hire more than NPCFs during the 2009 elections, the year of Lebanese parliamentary elections, compared to its behavior during other years? The coefficients on PCF*2009 is positive and significant, implying that net job creation by PCFs was higher than in 2006 by an extra 25.4 [\(100\times(0.047/0.185)\)] percent during 2009. At the same time, their output did not rise by an extra amount in 2009, and as a result, we observe a large additional deterioration in output per worker, of about 23.3 [\(100\times(0.052/0.223)\)] percent. Such effects are not present in other years. The Year and PCF*Year interactive terms for the years other than 2009 have coefficients that are positive, but much smaller, and more importantly not significant at conventional statistical levels. The fact that PCFs expand more than NPCFs during an election year, but not in other years, strongly back H3, and contradict H2.

Our results also shed light on the effects of increased competition among PCFs, a result of increased political competition among the two large political coalitions in Lebanon. Tables 4a-d show that the increased presence of PCFs in a sector affects the behavior of PCFs and NPCFs differently. More competition by other PCFs (i.e., larger PCF*PCFs coefficient) reduces PCF’s net job creation, wage, and output premiums as well as increases their labor productivity – their hiring
growth falls, ceteris paribus, by 5.44 percent \(100\times(\exp(0.053)-1)\) more for each additional PCF in the sector of activity (Column 3, Table 4a). The increased presence of PCFs also affects hiring by NPCFs. The hiring growth by NPCFs falls by 4.1 percent for each PCF in their sector of activity (Column 3, Table 4a), but their output per worker is not affected. These findings suggest that more competitive pressures by PCFs reduce their profits and ability to over-expand – their privileges become less valuable, and as a result, their pay-back to politicians becomes less. NPCFs also suffer from more competition. In other words, competition among PCFs does not move the sector to full competition, and the advantages of PCFs over NPCFs remain.

It can be also checked directly that sector concentration matters. It has long been asserted in Lebanon that in spite of what appears as unbridled competition, markets are in reality heavily concentrated, and that a relatively small elite controls most of the wealth and monopolizes large parts of the economy (Credit Suisse, 2015), and that this may explain low levels of growth in these sectors. Column 4 in Table 4a shows that higher output concentration level within a sector is associated with lower employment growth at the firm level in that sector.\(^3\)

The explanatory power of the variables in our estimations is relatively high, as evidenced by the R-squared measures. The high R-squared measures are brought about by the explanatory variables and not by the fixed effects in our estimations. Also, each of the coefficients of interest is statistically significant at conventional levels.

Comparing firms in connected sectors has thus allowed us to accept H3, the hypothesis that PCFs over-hire. We also found evidence that, on the other hand, employment growth in NPCFs shrinks as the number of PCFs expand in their sectors. But so far, we have not measured the net effect of political connections on sector-level job creation. On a net basis, do political connections result in more jobs (because of their effect on PCFs), or less jobs (because of the reaction by NPCFs) at sector-level? To answer this question, we compare in the next section sectors in terms of PCFs they contain and jobs they create.

5. The effects of political connections at sector-level

The above results show that PCFs contributed positively to employment growth in Lebanon. However, whether they had negative impact on job creation by their competitors, and thus on

\(^3\) We also checked whether political connections correlate with market concentration. We found on average significantly higher market concentration in sectors where a higher number of PCFs exist - although some highly concentrated sectors are not dominated by PCFs, and some sectors dominated by PCFs are not highly concentrated.
aggregate job creation in their sectors, is an empirical question. Assuming we find an association between political connections and reduced sector-level growth and job creation, the problem of identifying the underlying cause of this under-performance would remain a complicated task. In this section, we test whether the presence of PCFs decrease aggregate employment in a sector.

5.1 Hypotheses

We cannot observe a counterfactual of firm dynamics in absence of PCFs in particular sectors, since our time series is not long enough to observe the entry of PCFs in previously unconnected sectors. So, we will have to resort to comparing dynamics in sectors that are similar, as a function of the variation in the intensity of their political connections. Identification is further complicated by the existence of several compelling hypotheses that can explain the differential effects of sector performance. There are three hypotheses that may explain the relation between sector-level political connections and job creation.

One interpretation is along Aghion et al (2001) competition argument (call this hypothesis, H4). In industries that exhibit monopolistic competition, competing firms have incentives to pursue productivity growth only when they have comparable cost structures. Each firm is pushed to invest in the adoption of new technologies to reduce its costs and escape competition, at least temporarily, and thus generate productivity gains that boost aggregate economic growth. Aghion et al. (2001) showed that while perfect competition can reduce the incentives for innovation by reducing the discounted present value of rents from innovations (rent-dissipation effect), too little competition has the same effect. When leading firms in their sector have large (and exogenous) cost advantages that cannot be overcome by trailing firms, the market leaders have little incentive to invest in innovation, since they do not face competitive pressures to reduce their costs. At the same time, the laggard firms are too far away from the frontier to bridge the cost gap, and instead, they use vintage production technologies, focusing on local market niches to survive. Thus, too little competition can also hurt growth.

Another hypothesis is that there is an endogenous selection of PCFs into sectors with specific characteristics. For instance, PCFs may exist more in rent-filled sectors which may have low growth opportunities - for example, PCFs tend to operate predominantly in the construction

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33 Also, Aghion, et al. (2009) reported empirical tests of predictions of the model with respect to the effects of product market competition and entry deregulation on growth.
sector, which benefit disproportionately from state procurement of public works, but which does not experiences fast technical change. In this case, PCFs would not cause low growth in the sectors they enter; they simply prefer to enter into low growth sectors. We call this hypothesis H5.

An alternative possibility is that PCFs are likely to be capital intensive (because of their preferential access to credit, as implied by Chaaban (2019), when they expand, sector output expands, but jobs can disappear at the sector-level because machines substitute for jobs, and not because NPCFs shrink. We call this hypothesis H6.

Thus, and as we cannot see other coherent explanations, we need to find empirical methods that test whether sector dynamics are consistent with H4, but contradict H5 and H6. H4 (but also H5 and H6) would be supported if the performance of connected sectors is lower than that of non-connected sectors. To test H5, we should control for *enough* sector characteristics, to compare sectors with and without PCFs that would otherwise tend to show similar characteristics. To test H6, we can compare sector output and employment with and without the presence of PCFs. If output is higher but employment is lower, this would be evidence to support H5. However, if connected sectors have a lower performance in terms of both employment and output, then this would be taken to be evidence that helps reject H6. The elections episode provides an additional (but weaker) test. If sectors with PCFs deteriorate more during elections year, then H4 would be disproved, since the sectors with PCFs cannot become less growth friendly only around elections. However, it may take longer for NPCFs to cut their output in the face of an expansion of PCFs capacity in their sector.

5.2 Econometric strategy

Comparing sectors is a less precise endeavor than comparing firms, since the number of sectors with political connections is relatively small. We can compare sectors according to whether they are connected or not (both at the 4-digit sector-level). To control for sector characteristics, we included as many controls as we can. Precisely, to focus on the question of whether PCFs are associated with less employment growth in their sector of operation, we estimated:

\[
Y_{jt} = \beta_0 + \beta_1 PCFs_{jt}
\]

34 A related argument is that rent-filled sectors may be naturally less competitive, for example because of high entry costs, and thus have lower entry and exit rates.
35 There are 289 sectors disaggregated at the 4-digit level in Lebanon. 29 of these sectors include PCFs.
\[Y_{it} = \beta_2 \text{Year} + \beta_3 \text{Year} \times PCFs_{jt} + \beta_4 \text{Size}_P_{jt} + \beta_5 \text{Age}_P_{jt} + \beta_6 \text{Size}_N_{jt} + \beta_7 \text{Age}_N_{jt} + \beta_8 \text{HHI}_{jt} + \beta_9 \text{Entry}_{jt} + \beta_{10} \text{Employment}_{jt} + \gamma_j + \epsilon_{it}\]  

where \(Y_{it}\), in different estimations represent net job creation, average wage per employee, output, and output per employee at the sector-year level. \(PCFs_{jt}\) is the number of politically-connected firms at the sector-year level.

As before, the elements on the second line test for the existence of an election effects. Year is a vector of dummy variables that equal to 1 in 2007-2010 (year 2006 is the comparator base year). For instance, 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. The third line includes a long list of sector characteristics. \(\text{Size}_P\) and \(\text{Age}_P\) represent average size (employment) and age of PCFs in the sector-year. \(\text{Size}_N\) and \(\text{Age}_N\) represent average (employment) size and age of NPCFs in the sector-year. These terms allow for a comparison of the effect of size and age in sectors with and without PCFs. Entry rate represents the firm entry rate (number of entrants/total number of firms) on a scale from 0-100 at the sector-year level. \(\gamma_j\) denote 2-digit sector fixed effects. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. Employment refers to the number of employees (in ‘000) in the sector-year. We restricted the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010.

5.3 Results

The results are in Tables 5a-5d. There are three main findings. First, politically connected sectors grow less, create less jobs, have lower output per labor, and pay higher wages than non-connected sectors. Second, all these characteristics get worse if the number of PCFs in the sector rises. Third, the presence of old and large firms improves sector performance when these firms are non-connected, but worsens it when they are connected. Fourth, all sectors grew less during the 2009 election year, but politically connected sectors grew less than non-connected sectors.

The explanatory power of the variables in our estimations are relatively high, as evidenced by the R-squared measures. The high R-squared measures are brought about by the explanatory variables and not by the fixed effects in our estimations. Moreover, all the coefficients of interest are statistically significant at conventional levels.
These results support H4. Not only connected sectors grow less than non-connected sectors, but growth gets smaller the more PCFs operate in the sector. For every additional PCF in a sector, 6.8 percent less jobs are created each year on average. Importantly, this impact is larger during the year of elections of 2009, increasing to 9.4 percent in year 2009, (column 3, Table 5a). On the other hand, the Year and PCF*Year interactive terms other than 2009 have coefficients that are not significant at conventional statistical levels, showing that this additional effect is particular to the election year. Since we had found earlier that PCFs expand more during the election year, one can infer that it is this expansion that causes the sector to grow less. Also, sector growth gets smaller the older and larger the PCFs in the sector - characteristics that should reduce competition. But the opposite holds with respect to the average size and age of NPCFs, characteristics that are likely to increase competition in the sector.

Moreover, the evidence contradicts elements of the other possible hypotheses. In particular, we reject H5 - that PCFs tend to be more present in low-growth sectors to start with - because the result noted above survives even after the addition of the battery of sector controls in all the models. Moreover, we find that sectors dominated by PCFs deteriorate even more during election years. And, we disprove H6 because we find that connected sectors shrink in terms of output, jobs, and labor productivity. Thus, the loss of jobs in the connected sectors is not due to improved labor productivity.

This process of elimination makes H3 even more plausible. Although PCFs over-hire, the negative incentives to innovate and invest created by unfair competition in the sector in which they operate lead to less job creation compared to non-connected sectors. The magnitude of the result can be compared to the case of Egypt. Diwan et al (forthcoming) estimate that the entry of a PCF into a previously unconnected sector reduces employment growth in this sector by 15-25 percent. If there was more than 3 PCFs per sector (as implied by Table 3), it would appear that the negative sector effect of cronyism on jobs is larger in Lebanon than in Egypt. However, as stated above, a larger share of sectors of activity are politically connected in Egypt, and thus, the macroeconomic cost of cronyism is likely to be larger in Egypt than in Lebanon.

6. Conclusions

Using a new dataset, we reach two conclusions about the effect of political connections on employment growth in Lebanon. First, PCFs are larger and create more jobs, but are also less
productive and pay higher wages than NPCFs in their sectors. Second, PCFs reduce net job creation at the sector level by affecting growth of NPCFs: for every additional PCF in a sector, 6.8 percent less jobs are created each year on average. These results show a negative economic impact of clientelism in Lebanon.

It would be tricky to draw policy implications from these results. At one level, they suggest that pro-market competition policies would lead to more growth and job creation over time, compared, for example, to second best policies such as those that support creation and growth of small and medium enterprises using subsidized credit. At a deeper level, however, a more competitive economic structure would not support the current oligarchic political equilibrium, and would possibly lead to political chaos, unless a different political system was in place in the country. Nevertheless, a better understanding of the state-business relations can put informed citizen groups in a better position to influence changes that can improve the overall economic and political environment.

Future research can examine further the general equilibrium implications of the existence of connected firms. While we have focused on the within sector implication of lower levels of competition, other broader effects may exist. Additional effects in the labor and capital markets may crowd out non-connected firms. While such effects were evidently not at work in Lebanon, perhaps because PCFs are clustered in a small number of sectors, they can negatively affect the working of NPCFs in all sectors in other countries. In particular, if PCFs pay higher wages, especially around election years, firms in all sectors may react by reducing hiring if they face higher wages. Similarly, if the expansion of PCFs is financed from the financial markets, this can crowd out borrowing by other firms, and result again in lower job expansion.
References


### Table 1: Firm size and employment distributions over time

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<th>Number of employees</th>
<th>Share of firms</th>
<th>Share of jobs</th>
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Note: * represent self-employed firms. The average number of firms and jobs per year between 2005 and 2010 is 122237 and 677812, respectively.

### Table 2: Net job creation by firm size (2006-2010)

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Note: * represent self-employed firms. Net number of firms that created jobs refers to the difference between the number of firms that created jobs and the number of firms that destructed jobs (negative sign refer to firms that destructed jobs). Net jobs created refers to the difference between the number of jobs created and the number of jobs destructed (negative sign refer to jobs destructed).
and show the mean differences are statistically significant. Tests have also been calculated to show that mean differences are statistically significant. Note: Output per worker, wage per worker, and capital are in LBP millions. Figures represent annual averages at the firm-level. This table includes only firms with at least 50 employees in any year between 2005 and 2010 in politically-connected sectors (PCs). None of the remaining (2237) firms in PCs had 50 employees in any year between 2005 and 2010. T-tests have also been calculated and show the mean differences are statistically significant. T-test results are not reported for space reasons.

### Table 3: Characteristics of politically-connected firms in Lebanon

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<th>Non politically connected firms, NPCFs</th>
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Totals: 497 224.51 97.37 15.89 12.06 300.93 639 89.58 108.51 10.48 13.37 216.89
Table 4a: The effect of political connections on net job creation at the firm level

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2-digit Sector fixed effects: Yes
Number of observations: 12130
R-squared: 0.514

Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. NJC refers to the log of net employment growth, using our measure of firm-level employment growth which is equal to the change in employment from year t-1 to year t, divided by employment in year t-1. PCF is a dummy variable equal to 1 if the firm is politically-connected, and zero otherwise. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size and age refer to firm size (in terms of number of employees) and age, respectively, at the year level. PCFs represent the number of politically-connected firms at the sector-year level. HHIs refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. Employment refers to the number of employees in '000 at the sector-year level. Size_S, Age_S, and Capital_S refer to the average firm employment size, age, and initial capital (in LBP 10 million), respectively, at the sector-year level. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. For robustness checks, i.e., to reduce selection bias and avoid generating a spurious correlation between being politically connected and employment growth at firm level, in a separate exercise, we also limited the analysis to firms with more than 50 employees. Results hold but are not presented for space purpose. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still positive in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
Table 4b: The effect of political connections on wages at the firm level

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Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Wage represent (log of) average wage per employee (in LBP million) at the firm-year level. PCF is a dummy variable equal to 1 if the firm is politically-connected, and zero otherwise. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size and age refer to firm size (in terms of number of employees) and age, respectively, at the year level. PCFs represent the number of politically-connected firms at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Employment refers to the number of employees (in '000) at the sector-year level. Size_S, Age_S, and Capital_S refer to the average firm employment size, age, and initial capital (in LBP 10 million), respectively, at the sector-year level. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. For robustness checks, i.e., to reduce selection bias, in a separate exercise, we also limited the analysis to firms with more than 50 employees. Results hold but are not presented for space purpose. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still positive in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
Table 4c: The effect of political connections on output at the firm level

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<td>(0.055)</td>
<td>(0.057)</td>
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<td>0.033**</td>
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<td>(0.048)</td>
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<td>(0.053)</td>
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<td>PCF*PCFs</td>
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<td>Age_S</td>
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<td>Capital_S</td>
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<td>0.648</td>
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Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Output per firm represent (log of) output per firm (in LBP million) at the year level. PCF refers to (output). PCF is a dummy variable equal to 1 if the firm is politically-connected, and zero otherwise. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size and age refer to firm size (in terms of number of employees) and age, respectively, at the year level. PCFs represent the number of politically-connected firms at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Employment refers to the number of employees (in ’000) at the sector-year level. Size_S, Age_S, and Capital_S refer to the average firm employment size, age, and initial capital (in LBP 10 million), respectively, at the sector-year level. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. For robustness checks, i.e., to reduce selection bias, in a separate exercise, we also limited the analysis to firms with more than 50 employees. Results hold but are not presented for space purpose. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still positive in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
## Table 4d: The effect of political connections on output per worker at the firm level

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Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Output per worker represent (log of) average output per worker (in LBP million) at the firm-year level. PCF is a dummy variable equal to 1 if the firm is politically-connected, and zero otherwise. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size and age refer to firm size (in terms of number of employees) and age, respectively, at the year level. PCFs represent the number of politically-connected firms at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Employment refers to the number of employees (in ’000) at the sector-year level. Size_S, Age_S, and Capital_S refer to the average firm employment size, age, and initial capital (in LBP 10 million), respectively, at the sector-year level. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. For robustness checks, i.e., to reduce selection bias, in a separate exercise, we also limited the analysis to firms with more than 50 employees. Results hold but are not presented for space purpose. And all regressions include time dummies for all years, not just 2009.
Table 5a: The effect of political connections on net job creation at the sector level

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<td>-0.024**</td>
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<td>(0.032)</td>
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<tr>
<td>Age_P</td>
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<td>-0.019*</td>
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<td>(0.072)</td>
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<td>0.019**</td>
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<td>(0.021)</td>
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</tr>
<tr>
<td>Age_N</td>
<td>0.021**</td>
<td>0.014**</td>
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<tr>
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<td>(0.033)</td>
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<tr>
<td>HHI</td>
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<tr>
<td>Capital</td>
<td></td>
<td></td>
<td>0.014*</td>
<td></td>
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<td></td>
<td>(0.066)</td>
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</tr>
</tbody>
</table>

Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. NJC refers to the (log of) number of net jobs created at the sector-year level. PCFs represent the number of politically-connected firms at the sector-year level. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size_P represent average (employment) size of PCFs at the sector-year level. Age_P represent average age of PCFs at the sector-year level. Size_N represent average (employment) size of NPCFs at the sector-year level. Age_N represent average age of NPCFs at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. Capital refers to the average initial firm capital (in LBP 10 million) at the sector-year level. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. And all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still negative in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
Table 5b: The effect of political connections on wages at the sector level

<table>
<thead>
<tr>
<th></th>
<th>Wage</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.058**</td>
<td>0.055**</td>
<td>0.046**</td>
</tr>
<tr>
<td>PCFs</td>
<td>(0.017)</td>
<td>(0.019)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>2009</td>
<td>0.126</td>
<td>0.129</td>
<td>0.122</td>
</tr>
<tr>
<td></td>
<td>(0.208)</td>
<td>(0.135)</td>
<td>(0.301)</td>
</tr>
<tr>
<td>PCFs*2009</td>
<td>0.029*</td>
<td>0.022*</td>
<td>0.011**</td>
</tr>
<tr>
<td></td>
<td>(0.062)</td>
<td>(0.051)</td>
<td>(0.043)</td>
</tr>
<tr>
<td>Size_P</td>
<td>0.021*</td>
<td>0.016**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.072)</td>
<td>(0.027)</td>
<td></td>
</tr>
<tr>
<td>Age_P</td>
<td>0.028</td>
<td>0.019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.125)</td>
<td>(0.215)</td>
<td></td>
</tr>
<tr>
<td>Size_N</td>
<td>0.023</td>
<td>0.016</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.178)</td>
<td>(0.140)</td>
<td></td>
</tr>
<tr>
<td>Age_N</td>
<td>0.007</td>
<td>0.013</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.413)</td>
<td>(0.122)</td>
<td></td>
</tr>
<tr>
<td>HHI</td>
<td>0.027</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.188)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry rate</td>
<td>0.011</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.273)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>0.018*</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.064)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2-digit Sector fixed effects | Yes | Yes | Yes
Number of observations    | 910 | 910 | 910
R-squared                  | 0.582 | 0.553 | 0.602

Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Wage represent (log of) average wage per employee (in LBP million) at the sector-year level. PCFs represent the number of politically-connected firms at the sector-year level. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size_P represent average (employment) size of PCFs at the sector-year level. Age_P represent average age of PCFs at the sector-year level. Size_N represent average (employment) size of NPCFs at the sector-year level. Age_N represent average age of NPCFs at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. Capital refers to the average initial firm capital (in LBP 10 million) at the sector-year level. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still positive in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
### Table 5c: The effect of political connections on output per firm at the sector level

<table>
<thead>
<tr>
<th></th>
<th>Output per firm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PCFs</strong></td>
<td>-0.041*** -0.038** -0.033**</td>
</tr>
<tr>
<td></td>
<td>(0.000) (0.011) (0.010)</td>
</tr>
<tr>
<td><strong>2009</strong></td>
<td>0.013 0.017 0.041</td>
</tr>
<tr>
<td></td>
<td>(0.129) (0.133) (0.281)</td>
</tr>
<tr>
<td><strong>PCFs*2009</strong></td>
<td>-0.019* -0.020* -0.017**</td>
</tr>
<tr>
<td></td>
<td>(0.052) (0.075) (0.036)</td>
</tr>
<tr>
<td><strong>Size_P</strong></td>
<td>-0.026** -0.032***</td>
</tr>
<tr>
<td></td>
<td>(0.015) (0.008)</td>
</tr>
<tr>
<td><strong>Age_P</strong></td>
<td>-0.045** -0.029**</td>
</tr>
<tr>
<td></td>
<td>(0.026) (0.015)</td>
</tr>
<tr>
<td><strong>Size_N</strong></td>
<td>0.041** 0.033*</td>
</tr>
<tr>
<td></td>
<td>(0.039) (0.061)</td>
</tr>
<tr>
<td><strong>Age_N</strong></td>
<td>0.022* 0.024*</td>
</tr>
<tr>
<td></td>
<td>(0.081) (0.053)</td>
</tr>
<tr>
<td><strong>HHI</strong></td>
<td>-0.038</td>
</tr>
<tr>
<td></td>
<td>(0.168)</td>
</tr>
<tr>
<td><strong>Entry rate</strong></td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>(0.117)</td>
</tr>
<tr>
<td><strong>Capital</strong></td>
<td>0.012**</td>
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<tr>
<td></td>
<td>(0.024)</td>
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<tr>
<td><strong>2-digit Sector fixed effects</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Number of observations</strong></td>
<td>910</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.531</td>
</tr>
</tbody>
</table>

Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Output per firm represent (log of) average output per firm (in LBP million) at the sector-year level. PCFs represent the number of politically-connected firms at the sector-year level. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size_P represent average (employment) size of PCFs at the sector-year level. Age_P represent average age of PCFs at the sector-year level. Size_N represent average (employment) size of NPCFs at the sector-year level. Age_N represent average age of NPCFs at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100 at the sector-year level. Entry refers to the first time the firm entered the market. Capital refers to the average initial firm capital (in LBP 10 million) at the sector-year level. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still with same signs as above in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
Table 5d: The effect of political connections on productivity at the sector level

<table>
<thead>
<tr>
<th>Output per worker</th>
<th>PCFs</th>
<th>2009</th>
<th>PCFs*2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.048**</td>
<td>0.068</td>
<td>-0.042**</td>
</tr>
<tr>
<td></td>
<td>(0.013)</td>
<td>(0.155)</td>
<td>(0.022)</td>
</tr>
<tr>
<td></td>
<td>-0.042**</td>
<td>0.060</td>
<td>-0.036***</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.125)</td>
<td>(0.005)</td>
</tr>
<tr>
<td></td>
<td>-0.036***</td>
<td>0.044</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.253)</td>
<td></td>
</tr>
<tr>
<td>Size_P</td>
<td>-0.039**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.031)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age_P</td>
<td>-0.028**</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>(0.010)</td>
<td></td>
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</tr>
<tr>
<td>Size_N</td>
<td>0.019*</td>
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<td>(0.061)</td>
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<tr>
<td>Age_N</td>
<td>0.025**</td>
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<tr>
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<td>(0.042)</td>
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<td></td>
</tr>
<tr>
<td>HHI</td>
<td>-0.024*</td>
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<td></td>
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<tr>
<td></td>
<td>(0.056)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry rate</td>
<td>0.022**</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(0.028)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>0.078</td>
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<td>(0.141)</td>
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</tbody>
</table>

2-digit Sector fixed effects Yes Yes Yes
Number of observations 910 910 910
R-squared 0.582 0.551 0.651

Note: The above estimations restrict the analysis to all 4-digit sectors with at least 10 percent of the firms having at least 50 employees in at least one year between 2005 and 2010. Output per worker represent (log of) average output per worker (in LBP million) at the firm-year level. PCFs represent the number of politically-connected firms at the sector-year level. 2009 is a dummy variable equal to 1 in year 2009 (year of parliamentary elections), and zero otherwise. Size_P represent average (employment) size of PCFs at the sector-year level. Age_P represent average age of PCFs at the sector-year level. Size_N represent average (employment) size of NPCFs at the sector-year level. Age_N represent average age of NPCFs at the sector-year level. HHI refers to (output) Herfindahl-Hirschman Index at the sector-year level. HHI is defined as the sum of the squares of the market output shares of the firms within the sector, where the market shares are expressed as fractions. The result is proportional to the average market share, weighted by market share. As such, it can range from 0 to 1, moving from a large number of very small firms to a single monopolistic firm. To facilitate empirical interpretation, we multiplied HHI figures by 100; so, in the above estimations HHI figures range from 0 to 100. Entry rate represents the firm entry rate (number of entrants / total number of firms) on a scale from 0-100. Entry rate refers to the time the firm entered the market. Capital refers to the average initial firm capital (in LBP 10 million) at the sector-year level. P-values are in brackets. ***, **, and * refer to statistical significance at the 1, 5, and 10 percent level. And, all regressions include time dummies for all years, not just 2009. The Year and PCF*Year interactive terms had coefficients that are much smaller while still with same signs as above in terms of magnitude in years other than 2009 but that are not significant at conventional statistical levels. Standard errors are clustered at the sector level.
Figure 1: Aggregate net job creation in Lebanon

Source: Authors’ calculations using MoF database

Figure 2: Net job creation by firm size in Lebanon (2006-2010)

Source: Authors’ calculations using MoF database