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All in the Family

State Capture in Tunisia

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Abstract

This paper examines the relationship between regulation and the business interests of President Ben Ali and his family, using firm-level data from Tunisia for 1994–2010. Data on investment regulations are merged with balance sheet and firm-level census data in which 220 firms owned by the Ben Ali family are identified. These connected firms outperform their competitors in terms of employment, output, market share, profits, and growth and sectors in which they are active are disproportionately subject to authorization requirements and restriction on foreign direct investment. Consistent with theories of capture, performance differences between connected firms and their peers are significantly larger in highly regulated sectors. In addition, the introduction of new foreign direct investment restrictions and authorization requirements in narrowly defined five-digit sectors is correlated with the presence of connected firms and with their startup, suggesting that regulation is endogenous to state capture. The evidence implies that Tunisia's industrial policy was used as a vehicle for rent creation for the president and his family.

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All in the Family

State Capture in Tunisia

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1 Introduction

The potential for regulatory abuse is well known. Countries with more elaborate business regulations have higher levels of corruption and lower levels of development, yet do not have better public goods (Djankov et al., 2001, Aedes and di Tella, 2007). While these patterns may in part be explained by limited administrative capacity in developing countries (Harrison and Rodriguez-Clare, 2010), they might also be the product of political processes susceptible to capture by special interests. Consistent with this conjecture, political connections account for significant market value in traded firms (Fisman, 2001) and are especially prevalent in countries with weak rule of law (Faccio et al., 2006). Nonetheless, direct empirical testing of the hypothesis that capture and manipulation of investment laws is a mechanism for rent creation remains elusive in spite of in-depth theoretical analysis of the nexus between corruption, rents, and regulation (see e.g. Stigler 1971, Shleifer and Vishny, 1993, 1994, Bliss and Di Tella, 1997, Ades and Di Tella, 1999, Acemoglu and Verdier, 2000).

This paper examines the relationship between the business interests of President Ben Ali and his family and the evolution of the Tunisian investment law, the *Code d'Incitations aux Investissements,* during the last decade and a half of Ben Ali's tenure. To characterize the Ben Ali family's business interests and their relation to regulation, we identify in the Tunisian firm census 220 firms owned by the Ben Ali family that were confiscated in the aftermath of the Jasmin revolution. We merge these data with administrative data from the tax authorities, containing balance sheet information, and create a database of the evolution of the Tunisian investment law from 1993 until 2010, the last full year of Ben Ali's tenure.

The data set we assembled[1] allows us to identify the relationship between investment policies and the business interests of Tunisia's politicians. First, we pinpoint the sectors in which Ben Ali firms were active. Second, the data allow us to document performance differentials between firms owned by the Ben Ali family and their competitors, and to examine to what extent these are explained by regulatory restrictions limiting entry. Finally, the data set allows us to examine whether sectors in which Ben Ali firms were active were significantly more likely to be subjected to new restrictions, effectively testing the endogeneity of regulations, i.e. state capture. Decision-making

[1] The dataset is accessible at the Tunisian Institut National de la Statistique.

authority over investment laws can be confidently attributed to Ben Ali since changes to the Investment Code were made by decrees signed by the President himself. Thus, we not only examine whether excessive regulations invite rent seeking, but also whether rent seeking is associated with the proliferation of regulation.

Tunisia provides a relevant context to examine who reaps the rents from regulation. It resembles many other developing countries in having a development model based on rather extensive state intervention. The Ben Ali family's involvement in the economy was by no means secret, and Tunisia's investment promotion agency advertised his close interactions with the business community as enhancing public welfare. In part because Tunisia registered stable positive growth rates hovering around 4–5% per annum, Ben Ali also had a fairly favorable external image. The World Economic Forum repeatedly ranked Tunisia as the most competitive economy in Africa and the IMF as well as the World Bank heralded Tunisia as a role model for other developing countries. Yet, the Tunisian model had serious flaws; unemployment and corruption were high over the period studied, and contributed to Ben Ali's downfall. Last but not least, Tunisia has a high-quality firm census, and authorities willing to grant access to data on both firm performance and political connections.

We find evidence that entry regulation was captured and to some extent dictated by the Ben Ali clan's private business interests. To start with, Ben Ali family's entrepreneurship was both extremely lucrative and significant from a macro-economic perspective. The ensemble of 220 confiscated Ben Ali firms appropriated 21% of all net private sector profits and accounted for approximately 3% of private sector output.[2] Since we identify only firms with direct links to the Ben Ali family, as opposed to all firms with cultivated connections, this number is probably best interpreted as a lower bound on the importance of political connections.

Second, sectors in which Ben Ali firms are active are significantly more likely to be subject to prior authorization by the government and to FDI restrictions. Ben Ali firms dominate the

[2] These estimates are in line with previous studies of the economic significance of connected firms. For example, in his study of firms with connections to the Suharto regime, Fisman (2001) observes that the 25 business groups he identifies account for approximately a third of Indonesian GDP. Similarly, Ferguson and Voth (2008) argue that firms with ties to the Nazi regime accounted for three quarters of stock market capitalization in Nazi Germany. A key difference with these studies, which have focused on publicly listed firms, is that we focus on the universe of firms and exclusively on firms with family ties to the Ben Ali regime.

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telecommunications and air transport sectors and were also important players in other transport sectors, and real estate, all sectors in which entry is highly regulated.

Third and related, Ben Ali firms outperform their competitors in terms of employment, output, market share, and profits, as well as growth in these variables and do so especially in sectors that are regulated. Performance differentials between connected firms and their competitors are significantly larger in sectors subject to authorization requirements and FDI restrictions. The effects are economically meaningful. Even after controlling for its superior size, the market share of a typical Ben Ali firm is 6.3 percentage points higher than the average firm, and this conditional differential is entirely due to Ben Ali firms sorting into the regulated sectors. Consistent with theories of capture (Stigler, 1971), the superior performance of connected firms is thus to a large extent explained by entry regulation, which is perhaps our most important finding.

Finally, we present evidence consistent with the idea that the Ben Ali clan manipulated investment laws to further its own business interests. Although the number of observations is limited, the correlation between the presence of connected firms, entry restrictions and protectionism was present in the original code enacted in 1993. In addition, the probability of reforms to investment laws promulgating in additional regulations is significantly higher when Ben Ali firms are present and the null hypothesis of no correlation between Ben Ali presence and the introduction of authorization requirements and FDI restrictions is strongly rejected. Moreover, the start-up of new Ben Ali firms is significantly correlated with the imposition of new authorization requirements and FDI restrictions.

These findings contribute to the literature in a number of ways. To start with, they demonstrate that industrial policies can be a vehicle for state capture (Schleifer and Vishny 1993, 1998, Helmann et al., 2000). Second and closely related, they contribute to the growing literature on the political economy of reform by furthering our understanding of the emergence and persistence of suboptimal policies (see the discussion in Rodrik, 1996), and suggesting these may be endogenous to cronyism. Third, by focusing on the relationship between (entry) regulations and political connections, our results help explain why political connections have been so highly valued (see e.g. Fisman, 2001, Ferguson et al, 2008). We assess empirically the importance of the creation of market

power as a mechanism through which they may impact macroeconomic performance.[3] Fourth, the paper aids our understanding of the causes of the Arab Spring. Among the complaints common to all Arab Spring protests are the established system of cronyism, which rewarded an elite few, and a demand for social justice. While media reports about the nefarious practices of nepotistic autocrats abound, very little quantitative information exists on the prevalence and economic significance of state-business relationships in the region with the notable exception of Chekir and Diwan, (2012), who study listed firms with political connections in Egypt.

The remainder of this paper is organized as follows. The next section describes our data and briefly reviews Tunisian investment law. A bird's eye view of the economic activities of the Ben Ali family is provided in section three, which also presents descriptive statistics demonstrating that firms owned by the Ben Ali family were much larger and produced much more output per worker than their competitors. Section 4 shows that these performance differences were especially pronounced in highly regulated industries, while Section 5 shows evidence that suggests that Ben Ali manipulated the investment laws to benefit his business interests. Conclusions and policy implications are discussed in section 6.

2 Data

2.1 Identifying Ben Ali's Business Interests

In the aftermath of the Tunisian revolution, assets of the Ben Ali clan were confiscated. The confiscation process, ordained by the new government by means of a decree (notably *Décret-loi n° 2011-13*), involved 114 individuals, including Ben Ali himself, his relatives and his in-laws, and concerned the period from 1987 until the outbreak of the revolution. The seized assets included some 550 properties, 48 boats and yachts, 40 stock portfolios, 367 bank accounts, and approximately 400 enterprises (not all of which operate in Tunisia). The confiscation commission estimates that the total value of these assets combined is approximately 13 billion USD, or more than one-quarter of Tunisian GDP in 2011.

[3] Connected firms have been demonstrated to benefit from privileged access to finance (Claesens et al., 2008) including bailouts (Faccio et al., 2006), as well as capital controls (Johson and Mitton, 2001) and licensing arrangements (Mobaraq and Purbasari, 2006) limiting competition.

We obtained a list of 252 confiscated firms from the Tunisian authorities and use this list to identify the Ben Ali family's business interests. The list included firms confiscated up until December 2012, including a number of very prominent firms such as Orange Tunisia, Tunisiana, Carthage Cement, ENAKL auto-industries, and the International School of Carthage. We were able to identify 220 firms as being politically connected in the Tunisian Business Register, *the Repertoire National des Enterprises (RNE),* an annual census containing information on the size, age, location and legal form of all private-non-agricultural registered firms in Tunisia, including one-person firms without paid employees. For 202 firms the identification of firms in the Repertoire was based on their tax identification number. For an additional 18 firms whose tax identification numbers we did not obtain, identification was based on their name only when there was a unique match between their name and firms in the repertoire. For the remaining 35 firms on the list, matching on their name proved problematic because there were multiple firms with the same name. In addition, among the 220 firms identified in the RNE, for six firms data were missing altogether, such that the effective sample is 214, but even for those the information is typically incomplete. For example, 100 connected firms never report using hired labor. We thus do not identify all connected firms, yet do identify the vast majority and, moreover, our sample of connected firms is most likely skewed towards the largest and economically most relevant firms since these are easier to identify. A major advantage of using data from the confiscation commission is that there is no ambiguity as to whether these firms were indeed politically connected to the president.

As is depicted in Figure 1, which presents an aggregated family tree of the Ben Ali family and its business interests, the confiscated firms we identify can be crudely classified as belonging to Ben Ali's children and their in-laws, Ben Ali's siblings and their children, as well as the siblings of his second wife, Leila Trabelsi, and their children.[4] Ben Ali's children and their in-laws, particularly from his marriage with Leila Trabelsi, had extensive business interests. His daughter Nesrine and her husband Sakhr El Matri and his immediate family alone had ownership connections to 35 of the confiscated firms we obtained data on, including car-dealership ENAKL, radio station Radio Zitouna and telecommunications company Zitouna Telecom. Similarly striking are the extensive business interests of Trabelsi family members, who jointly owned more than half of all the

[4] It should be noted that the dataset we assembled at the Institut National de la Statistique to analyze performance differences between connected and non-connected firms was anonymized; political connectedness was identified using a binary dummy variable indicating whether firms were on the list of firms we obtained from the Tunisian authorities; the anonymized data provide information on conventional firm characteristics such as size, age and sector, but do not contain the names and locations of firms in order not to violate laws governing dissemination of statistics.

confiscated properties in our database. Especially notorious among them was Belhassen Trabelsi, whom we can link to 33 firms (37 firms if we also include those owned by his wife Zahra Jilani), including cement factory Carthage Cement, sugar refinery Tunisie Sucre, and airline Nouvelair. A detailed listing of all the individuals whose assets were seized is provided in the Annex to *Décret-loi n° 2011-13* that ordained the confiscation process. A detailed listing of all the confiscated firms and their exact ownership connection to the Ben Ali family can be found on the website of the Tunisian ministry of Finance.[5] The list illustrates that the Ben Ali clan's business interests were extensive, diverse and largely concentrated in the hands of a relatively small group of entrepreneurs.

2.2 The Firm-level Data

To assess the macroeconomic significance of Ben Ali's business interests and performance differences between connected and non-connected firms, the Tunisian firm census for the period 1996–2010 was merged with confidential data from the tax authorities that contain information on gross output and profits, which we obtained from the Ministry of Finance for the period 2000–2010.[6] A unique aspect of the Tunisian firm census (RNE) is that it spans the universe of private sector firms. In 2010, the RNE contained information on 102,660 firms with employees and an additional 501,746 firms without paid employees (e.g. the registered self-employed). This enables us to pinpoint precisely which sectors connected entrepreneurs sorted into and how they performed relative to their competitors. In addition, the database enables us to follow the same firms over time, track entry and exit, and avert survivor bias. Moreover, the quality of the employment data is high.[7] By contrast, data on turnover and profits are missing for approximately a third of all firms, even though officials confirmed that the data at our disposal covered all firms for which such information is available, the majority of which are operating in the so-called 'regime totalement exportatrice', commonly referred to as the offshore sector. Firms in this tax regime do not have to pay output tax, provided they export at least 70% of their output, and, as a consequence, tax inspectors have limited incentives to verify the accuracy of their declarations. In addition, for many firms that do report, the

[5] See: http://www.finances.gov.tn/index.php?option=com_content&view=article&id=201:gestion-des-biens-confisques&catid=28&Itemid=577&lang, accessed March 7, 2013.

[6] Data for earlier years were not available since by law the Tunisian ministry of Finance is required to delete data more than ten years old.

[7] For example, a comparison of the employment numbers obtained from the RNE with those documented in the labor force survey suggest that underreporting of labor is quite low, typically on the order of 10-15%.

data are quite noisy or contain missing values. Thus, we have to be cognizant of the limitations of administrative data.[8]

2.3 Data on Regulation; Coding the Investment Code

To test for the relationship between regulation and the performance of politically connected firms, a data set documenting the evolution of Tunisian investment law was created, which we merge with the firm-level data. More specifically, we code regulations on entry by domestic and foreign firms listed in the Tunisian Investment Incentives Code (hereafter referred to as the investment code), which governs investment in all sectors of the economy with the exception of finance, mining, energy and domestic commerce, which are regulated by separate laws. The current investment code dates back to December 27, 1993 (Law 93-120 of 27 December 1993) and its coverage and key provisions concerning entry were subsequently amended by 22 presidential decrees, all of which are included in our database.[9]

The code is extensive and the main piece of product market legislation governing economic activity in Tunisia. In addition to containing provisions regulating entry and FDI, the code also contains a myriad of clauses concerning taxation and the provision of fiscal incentives.[10] For instance, the code stipulates that firms that export at least 70% of their output (Articles 10 and 16 of the code), so-called "offshore" firms, do not have to pay profit and turnover taxes. This has helped Tunisia attract foreign investors and accolades from the international community, in spite of the onshore sector being highly protected and largely closed to foreign competition as discussed below.

The focus of this paper is on entry regulations, which have the advantage that they vary across sectors, over time, and are relatively straightforward to code, in the sense that a specific

[8] We did not find any evidence that the quality of reporting information varied between connected and non-connected firms.

[9] More specifically, the decrees covered by our database are: Décret n° 95-1095, Décret n° 96-1234, Décret n° 96-2229, Décret n° 97-0503, Décret n° 97-783, Décret n° 98-29, Décret n° 98-2094, Décret n° 2000-821, Décret n° 2001-2444, Décret n° 2002-0518, Décret n° 2003-1676, Décret n° 2004-0008 , Décret n° 2004-1630 , Décret n° 2005-2856, Décret n° 2006-1697, Décret n° 2007-1398, Décret n° 2007-2311 , Décret n° 2007-4194, Décret 2008-3961,Décret n° 2009-2751,Décret n° 2010-825 and Décret n° 2010-2936. We do not include decrees that do not pertain to the coverage of the investment code or entry regulation. That is, we do not record decrees resulting in changes in registration requirements, customs regulations, fiscal advantages, etc.

[10] These include fiscal incentives to promote R&D, SME development, regional development, environmental protection, international trade and agricultural upgrading. While the specificity and complexitiy of these incentives renders it challenging to analyze them in a comprehensive manner using econometric methods, our exploratory foray into this interesting area for future research is suggestive of substantial abuse of fiscal incentives. For example, Décret n° 2010-3116 stipulates that the ministry of transport will contribute towards the financing of 15 kilometers of railway to connect Carthage Cement's production facility at Jebel Ressas Mornag to the railroad network.

activity either *is* or *is not* regulated. Other types of regulations, such as fiscal incentives, are much more complex or only pertain to very specific subsets of firms and are consequently more difficult to code and analyze econometrically. Moreover, cumbersome entry regulation has been shown to be a strong predictor of poor economic performance, greater corruption and weaker (re-)allocative efficiency across countries (Djankov et. al. 2002, Freund and Bolaky 2008). A better understanding of the relationship between entry regulation and special interests might help explain why countries with more extensive regulations perform so much worse in terms of growth and resource reallocation.

While the code stipulates the freedom to invest for both foreign (non-resident) and domestic (resident) entities, it also contains a number of provisions that restrict this freedom. To start with, for a number of activities one needs to obtain prior authorization from the government in order to be able to operate legally. Examples of such activities include fishing, tourism (travel agencies), air transport, maritime transport and road transport, telecommunications, education, the film industry, real estate, marketing, and health related industries.

One would anticipate competition to be potentially more limited in sectors in which entry is regulated. Moreover, if not administered equitably, authorization requirements could in principle be abused to create market power and stifle competition, both from prospective entrants and incumbents. Anecdotal evidence suggests this happened in the case of the closing of the Bouebdelli School, a highly respected private school from which many of Tunisia's elite have graduated. This school was perceived to be in direct competition with the International School of Carthage, which was founded by Ben Ali's second wife, Leila Ben Ali. In spite of widespread public protests, the Minister of Education ordered the school to close for failure to comply with registration regulations.[11]

Second, the investment code stipulates a number of activities for which foreign firms need to obtain permission from the Investment Commission (*Commission Superieure d'Investissement - CSI),* which is chaired by the Prime Minister, to invest when their foreign equity exceeds 50% of capital, notably transport, communications, tourism, education, cultural production, entertainment, construction, real estate, computer services, and a select number of other services. Obtaining such

[11] Wikileaks cables 09TUNIS372_a and 07TUNIS1489-a: see https://wikileaks.org/plusd/cables/09TUNIS372_a.html, https://wikileaks.org/plusd/cables/07TUNIS1489_a.html, accessed February 23, 2013.

permission is notoriously difficult; according to a recent review of Tunisia's Investment Policies by the OECD, since 2005, the CSI has been processing between two and three applications per year with roughly half of all applications being successful (OECD, 2012). The list of sectors subjected to restrictions on foreign investment overlaps considerably, but not perfectly, with those that are subjected to government authorization.

Restrictions on foreign entry likely limit foreign competition and can also be used to direct foreign funds to certain domestic firms. McDonald's failed entry into the Tunisian food market is often used to illustrate the Ben Ali family's hold on specific sectors. McDonald's exclusion from the Tunisian market followed from their unwillingness to grant the sole license to a franchisee with family connections. The government of Tunisia in turn refused to grant authorization to invest. [12]

Thus, the code contains provisions stipulating the need for government authorization to operate a firm and FDI restrictions. These types of entry regulations are certainly not specific to Tunisia but are widely used instruments of industrial policy, rendering the analysis of interest beyond Tunisia alone.

The list of activities which are subject to these types of restrictions has evolved over time, as it has been supplemented and amended by 22 subsequent presidential Decrees, resulting in 73 amendments at the NAT 96 level, i.e. the 5-digit sector level. We test whether amendments were plausibly due to manipulation of the investment law by the Ben Ali clan. A major advantage of our strategy is that all these decrees were issued by the president, which enables us to confidently attribute decision making authority to Ben Ali himself.

While statistical power is limited due to the relatively small number of observations on both connected firms and regulatory changes, we document a few instances of striking simultaneity between regulatory changes and deployment of business activities by clan members. For example, *Décret n° 96-1234* issued in 1996 amended the investment code by introducing authorization requirements for firms engaging in the handling and transfer of goods in ports, and the towing and rescue of ships. The decree also introduced restrictions on FDI for firms involved in the transport of red meat. That same year, Med Afif Chiboub, uncle of Ben Ali's son-in-law Mohammed Slim Chiboub, established "La Mediterraneene pour le Commerce, le Transport et la Consignation" a

[12] Wikileaks cable 08TUNIS679_a, https://wikileaks.org/plusd/cables/08TUNIS679_a.html, accessed February 23, 2013.

shipping and logistics company focused on the transport of refrigerated products. As another example, the establishment of "Carthage Cement" by Belhassen Trabelsi, the brother of the president's second wife, followed on the heels of *Décret n° 2007-2311* stipulating the need for government authorization for firms producing cement.

One issue we faced was matching the activities listed in the Investment Code to specific 5-digit sectors, which do not perfectly overlap. In some cases, the Investment Code provides a more detailed description of activities, whereas in others, the code is more general than the Tunisian NAT 96 classification that we use. With the help of officials at the Tunisian INS, we create a correspondence between activities and sectors, but in some cases multiple activities were mapped to the same sector and vice versa.[13] As a consequence it is possible for some sectors to be subjected to several regulations of the same kind.[14] These issues are discussed in more detail in Appendix B2, which provides more detail on the creation of the regulation data.

3 Descriptive Statistics: Excess Profits and Strategic Sorting

Ben Ali firms are very important from an aggregate economic point of view. Descriptive statistics presented in Table 1 show that while they account for less than 1% of all wage jobs, Ben Ali firms produce 3.2% of all private sector output, and obtain 21.3% of all net private sector profits, although it should be noted that this is in part due to many firms reporting losses; when only firms reporting positive profits are considered, Ben Ali firms account for 6.8% of all profits. Profits are measured as operating profits declared to the tax authorities. While not all firms are fully family owned - suggesting some of these profits accrue to non-family members - these numbers are perhaps best interpreted as a lower bound on the total profits accruing to politically connected firms because many firms do not report positive output, salaried employment or profits.[15] Moreover, as

[13] A detailed mapping from activities to sector codes was constructed in collaboration with the Tunisian Institut National de la Statistique and is available from the authors upon request. The correspondence we developed was not fully exhaustive; a handful of activity descriptions, such as "exporting activities" were too generic to match to particular subsectors.

[14] The analysis presented here relies on binary indicators of regulation. In robustness checks not presented here to conserve space but available upon request, we experimented with using the number of regulations pertaining to a particular sector as a measure for regulatory density instead. The results we obtain using this alternative proxy are very similar to using the simpler binary proxy.

[15] For a subset of firms, we were able to identify which share of the firms was owned by the Ben Ali family; adjusting for ownership by non-family members, we find that the sum of net profits if we examine the share of profits and losses directly accruing to the Ben Ali family, these numbers are arguably even more dramatic; the total net profits accruing to the Ben Ali family amount to 333,596 million USD, gross profits accruing to them to 247,315 million USD and gross

explained above, we do not observe firms which benefitted from cultivated, rather than family connections. In any case, these statistics demonstrate how a handful of connected entrepreneurs were able to reap a large share of aggregate profits.

Table 2 presents additional descriptive statistics both in levels and de-meaned by 2-digit and 5-digit sector averages (the right hand columns). We exclude firms that never report hiring workers, i.e. the self-employed, in order not to bias the comparison and to minimize the impact of non-reporting.[16] On average, Ben Ali firms are significantly larger in terms of employment and output and produce higher levels of output per worker, even after sorting is controlled for by subtracting sector averages. They also report higher profits, though the difference with profits reported by non-connected firms is not statistically significant. Interestingly Ben Ali firms are significantly more likely to report losses than non-connected firms. The group of Ben Ali firms is highly heterogeneous in other dimensions as well. While three connected firms feature in the list of the ten largest firms in Tunisia, 100 connected firms did not report using any paid laborers at any point and are consequently not included in this table.[17]

Analyzing growth differentials is complicated by the presence of substantial measurement error and survivor bias since our identification of political connectedness hinges on firms surviving up until 2011. Nonetheless, taken at face value the descriptive statistics presented in Table 2 suggest that Ben Ali firms expand employment and output faster. Their faster growth in labor usage is not matched by a corresponding increase in output, however, such that they exhibit significantly lower growth in output per worker. Ben Ali firms also do not experience significantly faster growth in profits, and record significantly lower growth in profits per worker.

Connected firms are more likely to operate in sectors which are subject to entry regulation; 64% of Ben Ali firms are in sectors subject to authorization requirements and 64% in sectors subject

losses to -86,281 million USD, respectively; 25.5% of overall net profits, 4.4% of gross profits and 2.0% of gross losses, respectively).

[16] This leads us to exclude exactly 100 connected firms just under 80% of the non-connected firms, which jointly account for 2% of all output, in spite of accounting for just under a third of all jobs. The qualitative patterns of results we document are robust to using the full sample of firms and available upon request but not presented here to conserve space.

[17] Some such firms may have served as shell companies for money laundering or to benefit from tax breaks.

to restrictions on FDI. For non-Ben-Ali firms the comparable numbers are 45% and 36%, respectively.[18]

Table 3 provides a broad overview of activities deployed by Ben Ali firms and documents the average share of output, employment and profits Ben Ali firms account for across broad sectors using the entire sample of firms. In terms of sheer numbers, most firms are in the real estate and enterprise services sectors (59 firms), personnel services (20), transport (16), wholesale trade (15), automobile trade (11), and also construction (9), financial services (8), the food industry (7) and hotels and restaurants (7). It is also noticeable that five firms engaged in media activities. When one focuses instead on the shares of output, employment and profits Ben Ali firms account for, one can see that sheer numbers are not necessarily informative about the economic significance of firms; even though there are only three Ben Ali firms in the post and telecommunications sector, these account for 43% of output and 44% of profits in that sector. Ben Ali firms are also important in terms of output in the trade and transport sectors.

These aggregate categorizations obscure important variability within broad sectors as Ben Ali firms are often major market players that account for an important share of output, employment and profits within specific subsectors. This is demonstrated in Table A1 in the Appendix which provides a detailed sectoral breakdown at the 5-digit level, but only for activities in which Ben Ali firms account for more than 10% of all firms, output, employment, gross profits or net profits in case sector aggregate net profits are positive. It also includes sectors in which more than five Ben Ali firms are operating. The Table unveils that the airline industry and telecommunications were dominated by Ben Ali firms.

4 Accounting for Performance Differentials: Why Are Ben Ali Firms More Profitable?

Now that we have established that Ben Ali firms make supranormal profits and grow faster than other firms, even after we condition on their sector selection, a natural next question is how do they reap these rents?

[18] Note that the number of observations on these variables is limited to 64 for this variable because we confine attention to enterprises operating in sectors in which the investment code is binding; similarly, for the non-connected firms, where the sample is restricted to 70,259. This amounts to about 55 percent of the full sample for both connected and non-connected firms. The regressions are also confined to this group of firms. Many of the other sectors are also subject to government intervention, but not through the Investment Code.

4.1 Static Performance Differentials

To test to what extent the performance differentials documented above are associated with being connected and to what extent they reflect other firm characteristics, such as the activities they engage in, their size and age, we run a number of very simple regressions, where we progressively add explanatory variables. We are particularly interested in testing the hypothesis that Ben Ali firms outperform their competitors when regulatory restrictions are prevalent. Our most general estimation equation takes the form;

$$Y = \beta_B \, Ben\ Ali \ + \beta_R \, Regulation + \beta_{BR} \, Ben\ Ali \ * Regulation + \beta_L \, lnL + \beta_A \, Age + \beta_I \, I + \beta_t \, \tau + \varepsilon$$

where *Ben Ali* is a dummy variable indicating whether a firm was owned by a clan member, Regulation is a set of dummies capturing whether the specific 5-digit sector in which the firm operates is subject to i) requirements for "authorization" and/or ii) restrictions on foreign investment, lnL is the log of the number of paid employees, *Age* is a measure of firm-age, I a set of 2-digit industry dummies that capture crude sectoral-differences, τ a vector of time dummies and Y_{ijt} an outcome variable of interest for firm i.

Our main interest is the coefficient on the interaction between political connectedness and regulation β_{BR}. Under the null hypothesis that regulations affect connected firms and their competitors in the same way, this coefficient should take the value 0. Under the alternative hypothesis that regulations were (ab)used to serve family interests, one would expect a positive coefficient. Specifically, we examine the hypothesis that regulations are associated with greater size, output, market power, and profits for connected firms. Note that differences in general entrepreneurial ability between connected and non-connected entrepreneurs would affect the coefficient on connectedness, β_B, but need not impact the coefficient on the interaction term, unless these capabilities were somehow sector-specific. A positive coefficient nonetheless does not constitute proof of regulatory abuse; it may simply reflect Ben Ali clan' members superior ability to navigate the Tunisian bureaucracy. Irrespective of the cause of the performance differentials, establishing such patterns of comparative advantage is of interest in and of itself, for rejection of the null hypothesis suggests a lack of a level playing field.

The results are presented in Table 4, using as dependent variables, respectively, employment, market share, output and the Z-score (standardized score) of pre-tax profits, which has the

advantages of also allowing for negative profits and reducing the impact of outliers. We estimate four separate regressions, progressively adding explanatory variables. The first specification only controls for whether a firm is owned by the Ben Ali family or not. The second specification adds controls for firm size and age (except when the dependent variable is firm size), such that performance differentials between Ben Ali and non-Ben Ali firms should now be interpreted as being per worker.[19] The third specification, which mainly serves as a benchmark, adds indicators of regulation, notably dummy variables indicating whether i) operating in the corresponding 5-digit sector requires "authorization" and ii) whether there are restrictions on foreign investment in that sector. In our fourth and preferred specification, these indicators of regulation are interacted with whether firms are connected. All regressions control for 2-digit industry and year dummies and the sample is confined to activities covered by the investment code. Only firms which report hiring paid workers at some point during the year are included; we exclude the self-employed without employees. Also, due to lack of profits and gross output data in earlier years our sample is out of necessity confined to the period 2000–2010.

The first specification (presented in the columns labelled (1) confirms that Ben Ali firms are on average dramatically larger than their peers in terms of the number of people they employ, but especially in terms of output and profits, and that they have significantly higher market share. The second specification shows that the superior output, profits and market share of Ben Ali firms are to a large extent associated with Ben Ali firms employing more workers, with the coefficient on firm size being consistently statistically significant across specifications; as expected, firms that employ more workers produce proportionately more output, have higher market shares and make more profits. The superior performance of Ben Ali firms is not solely due to them being larger on average. Even after number of employees and firm age are conditioned on, Ben Ali firms still on average have 6% higher market shares (see column (2) in the top right panel) and produce more than three times as much output as their peers (see column (2) in the bottom left panel). They are also significantly more profitable (see column (2) in the bottom right panel).

Turning to the results of focal interest, which are presented in specification 4, when regulation at the 5-digit sector level is controlled for, we observe that the superior performance of Ben Ali firms is especially marked in densely regulated sectors.[20] While all firms in sectors that

[19] While one would ideally also control for capital intensity, data on capital stock were unfortunately not available.

[20] One concern is that these results are driven by differential tax reporting between connected and non-connected firms. In robustness checks not presented to conserve space but available upon request we examined whether tax rates differ

require authorization tend to employ more workers (see column (3) in the top row on the left), this is particularly true for Ben Ali firms; the interaction term between being a Ben Ali firm and authorization requirements is strongly statistically significant. Ceteris paribus, Ben Ali firms employ 137% more salaried employees than non-connected firms in such sectors (see column 4 in the top row on the left). FDI restrictions, which are associated with slightly lower average firm size ceteris paribus, are associated with even larger size differentials between connected firms and their competitors; the coefficient estimate implies that connected firms ceteris paribus employ 285% more workers than their non-connected competitors when FDI restrictions are present. It is also important to note that the coefficient on Ben Ali Firms drops by more than half when the interaction terms are included. This shows that a great deal of the size dividend from being a Ben Ali firm is in the regulated sectors, consistent with the hypothesis that restrictions on entry help create market power.

Moreover, differences in market share and output between connected firms and non-connected firms associated with authorization requirements and FDI restrictions are statistically significant even after the superior size of connected firms in these sectors is controlled for; entry restrictions are not only associated with a size premium but also with output and profit premia. The output of Ben Ali firms exceeds the output of non-connected firms in sectors requiring authorization by 205% ceteris paribus, while their market share exceeds that of non-connected firms in such sectors by 4 percentage points on average (see column 4 in the top row on the right); this is a very sizeable difference when one considers that the average market share of non-connected firms in sectors subject to authorization requirements is 0.27%. The market share differential between connected and non-connected firms associated with FDI restrictions is even larger, notably 6.4 percentage points, and statistically significant. Interestingly, these market share and productivity premia associated with being connected are only significant in sectors subject to authorization requirements and FDI restrictions; in sectors covered by the Investment Code but not subject to these regulatory requirements, differences in market share are statistically negligible once the larger size of connected firms is accounted for. It thus seems that their greater market share can be attributed to entry restrictions.

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between Ben Ali firms and their competitors and found no statistically significant differences in the tax rates, tax deferrals and tax reporting. However, Rijkers, Raballand and Baghdadi (2013) show that connected firms that imported were more likely to evade import duties, inter alia by exploiting duty suspension regimes intended to facilitate exports.

Profit differentials, presented in the bottom row on the right, exhibit a similar pattern. Ben Ali firms are especially more profitable than their peers in sectors subject to authorization and FDI restrictions; these regulations thus appear disproportionately to assist the profitability of Ben Ali firms. In sectors not subject to these restrictions, however, Ben Ali firms make significantly less profit than their competitors ceteris paribus, which countermands the idea that Ben Ali family members were innately better entrepreneurs across the board. One explanation for the finding that Ben Ali firms are less profitable than other firms when regulations are absent but more profitable when they are present is that inferior management on the part of Ben Ali firms that can be offset with regulations that target their competitors. Alternatively, it could be the case that these profit numbers reflect the fact that enterprises were not truly economically active, but instead served as a smokescreen for money laundering and other socially unproductive activities.

In summary, performance differentials between Ben Ali firms and their peers are significantly larger in sectors subject to authorization requirements and FDI restrictions. The results show that these entry regulations are associated with greatly enhanced size, output, market share and profitability of Ben Ali firms. These results are indicative of regulatory capture.

4.2 Dynamic Performance Differences

Dynamic performance differentials are assessed in Table 5. We estimate four specifications which are similar in set-up to those presented above; we estimate models with and without controlling for the lagged dependent variable and use two different specifications; one that simply controls for whether a firm is owned by the Ben Ali and one that has a full set of controls for initial conditions. Our most general specification is thus

$$\Delta Y_{it} = \beta_Y \, lnY_{t-1} + \beta_{BA} \, Ben\ Ali \ + \beta_R \, Regulation + \beta_{BAR} \, BenAli * Regulation + \beta_A \, lnAge + \beta_I \, I + \beta_t \, \tau + \varepsilon$$

where we use as dependent variable, respectively, employment growth, profits growth, output growth and changes in market share.

The results are presented in Table 5 and confirm that Ben Ali firms exhibit significantly higher unconditional employment, market share, output and profits growth, albeit that differences in output growth between Ben Ali firms and their competitors are only significant at the 10% level.

Once we control for initial employment, profits and output, Ben Ali firms expand output, employment and profits significantly faster at conventional significance levels.[21]

Again, these performance differences vary across sectors. Differentials in growth performance again vary systematically with the prevalence of regulations, in spite of substantial measurement error. To start with, Ben Ali firms operating in sectors subject to authorization exhibit faster growth in profits, market share as well as output, though the latter association is only significant once initial output is controlled for. They do not record significantly higher growth in employment. Second, in sectors with restrictions on foreign ownership Ben Ali firms expand employment, output, market share and profits significantly faster than their competitors, irrespective of whether we control for initial conditions or not.

5 Regulation and State Capture

Given the association between the success of Ben Ali firms and regulation, an important question is whether the Ben Ali family might have manipulated the Investment Code to serve its business interests. To shed light on this question, we examine the co-evolution of family ownership and of the Tunisian Investment Code since its inception in 1993. First, we assess whether the prevalence of various types of sectoral regulations in the original code was higher in sectors in which Ben Ali firms had already been operating. Second, we examine whether Ben Ali firms disproportionately enter into regulated sectors. Third, we assess whether revisions to the code were more likely when Ben Ali firms were undertaking a particular activity, and whether these correlate with the start-up of connected firms in a given sector.

While statistical power is limited since laws evolve slowly over time, one major advantage of examining changes in regulation is that it mitigates the risk that there is a third factor, such as high rents, or ("natural") market structure that drives both crony entry and regulation.[22] Nonetheless, it could still be the case that certain sectors spuriously attract both more connected firms and more

[21] One might be worried that the results presented here reflect survivor bias since the connected firms in our sample all survived up until 2011, but such bias turns out to be small in practice; In robustness tests not presented to conserve space but available upon request we have restricted the sample to firms that were all still active in 2010 (the last year of our dataset) and the pattern of results we document is qualitatively robust to excluding firms that exit before 2010.

[22] In robustness checks not presented to conserve space, we also ran regressions in which we modeled the likelihood of new regulation as a function of market concentration, profit margins, and Ben Ali presence. The results we obtained were qualitatively broadly similar to the results presented here, which cover a larger sample. Since information on profits margins and market concentration is not complete for the majority of sectors, and moreover, missing for all year prior to 2000, we instead prefer to present simple bivariate correlations for the larger sample.

regulation. As a partial check against endogeneity of this type, it is informative to examine the timing of Ben Ali entry and regulation; since these are statistically (relatively) rare events, one would not expect strong simultaneity a priori, even when they occur in the same sector.

5.1 Was the Original Code Corrupted?

The strong correlation between the presence of Ben Ali firms, entry restrictions and protectionism was present in the original code enacted on 27 December 1993. This is demonstrated in Table 6 which presents information on the prevalence of various types of regulation by whether or not connected firms were present in a particular sector, separately for 1994 (the top row), the first full year in which the current investment laws were binding, as well as for 2010 (the bottom panel), the last full calendar year of Ben Ali's reign. The columns document the number of 5-digit sectors without and with Ben Ali presence by the prevalence of authorization requirements and FDI restrictions. Fisher's exact t-tests are used to test the null hypothesis that the presence of Ben Ali firms and regulations are independent of one another. This test is well-suited for small samples as it provides an exact quantification of its power.

Of the confiscated firms in our list that were already operating before 27 December 1993, the day the Investment Code was enacted, eight were active in sectors which were to be governed by the Investment Code. These eight firms were spread over eight different sub-sectors,[23] of a total of 310. While the numbers of sectors with Ben Ali presence is very small, these sub-sectors were significantly more prone to entry regulation than the sub-sectors in which Ben Ali firms were not active. Of the eight sectors populated by Ben Ali firms, four were subject to FDI restrictions and four to authorization requirements. By contrast, of the 302 subsectors in which connected firms were not present fewer than one in five (19%) were subject to authorization requirements and fewer than one in seven (14%) were subject to FDI restrictions. Fisher's exact t-tests strongly rejects the null that the prevalence of authorization requirements and FDI restrictions did not vary with Ben Ali presence at the conventional 5% significance level.

For purposes of comparison, Table 6 also presents the sectoral distribution of regulation and Ben Ali firms in 2010. Over time, the code was expanded to include an additional 22 sectors and

[23] The subsectors were fabrication of plastic packaging, non-refridgerated warehouses, construction of (large structures for) buildings, hotels and restaurants, non-regular air transport, real estate, engineering/technical studies, and services related to production.

both the prevalence of connected firms and regulation increased, yet the strong correlation between Ben Ali presence and restrictions on entry persisted. [24,25]

5.2 Did Ben Ali Firms Enter into Regulated Sectors?

This persistence of the correlation between Ben Ali presence and regulation begs the question whether Ben Ali firms entered into sectors that were already regulated, or whether sectors in which Ben Ali firms were already operating were more likely to attract additional regulation. We examine the first question here and assess the latter possibility in the next subsection.

Table 7 demonstrates evidence that Ben Ali firms disproportionately entered into sectors subject to restrictions on foreign investment and authorization requirements. Out of a total of 129 entries of connected firms into sectors regulated by the Investment Code, more than half (57%) were into sectors subject to FDI restrictions, while only 18% of all sectors in any given year are subject to such regulations. In addition, 47% of all connected firms started in sectors subject to authorization requirements which on average pertain to 24% of all sector-year observations. For both these categories of regulation, the null hypothesis that Ben Ali entry is independent of the presence of regulation is rejected at the 1% significance level.

5.3 Did Ben Ali Firms Change the Rules?

We analyze the evolution of the Tunisian Investment Code to assess whether Ben Ali might have manipulated the investment code to further his family's business interests. To this end, Table 7 summarizes changes made to the Tunisian investment code between 1994 and 2010 by means of 22 decrees issued by Ben Ali himself. These decrees introduced new authorization requirements pertaining to 45 sectors and new FDI restrictions in 28 sectors.[26] The structure of the table is

[24] Note that additional regulations were also introduced in some of the sectors in which some, but not all, activities were already regulated, but these do not show up in Table 6 since we code a sector as being regulated if at least one of the activities in it is subject to regulation.

[25] One limitation of our data is that we only observe connected firms that were confiscated in 2011; we thus do not identify firms that went out of business or were sold before the outbreak of the Revolution. This may result in survivor bias, though it is not a priori obvious how to sign this bias. Such bias is much less likely to afflict the 2010 data.

[26] Note that because decrees pertain to activities and because sectors can span multiple activities, even at the 5 digit level, a number of sectors in which novel regulations were introduced were already partially subjected to such regulations. E.g. 16 of the 45 sectors subject to new authorization requirements were already prone to some such requirements and 11 sectors in which FDI restrictions became more stringent already had some form of FDI restrictions. A total of 51

similar to that of Table 6; the top row cross-tabulates the prevalence of the imposition of new regulations by the presence of Ben Ali firms, while the bottom row cross-tabulates the prevalence of legislative changes by start-up of Ben Ali firms either in the same year or the year immediately after the introduction of new regulations within narrowly defined 5-digit sector, using binary indicator variables which take the value 1 if a new regulation is introduced that pertains to the sector and 0 otherwise.[27] The table thus examines both whether the probability of regulatory proliferation is independent on Ben Ali presence (the top panel of the table), and whether the entry of Ben Ali firms within narrowly defined 5-digit sectors is correlated with the imposition of new restrictions pertaining to these sectors (in the bottom panel of the table). Note that the latter test mitigates concerns about omitted variables driving a potential correlation between regulation and family connections somewhat, since both of these events are relatively rare in our data, such that the probability of them occurring exactly at the same time is very low, though this is of course not a litmus test.

Both Ben Ali presence and Ben Ali start-up help predict the proliferation of regulation. To start with, the null hypothesis that the imposition of new requests for government authorization to operate is independent of the presence of connected firms is rejected at the 10% level; columns 1 and 2 show that in seven of the 45 (approximately 16%) sector-years in which new authorization requirements were imposed connected firms were present. By contrast only in 8% of all sector-year observations Ben Ali firms were present. The association between connected firms and the imposition of new FDI requirements is also significant; in nine out of the 28 sector-years in which new restrictions were imposed, Ben Ali firms were present (see columns 1 and 2). The null hypotheses that the likelihood of the imposition of new FDI restrictions does not depend on the presence of connected firms is rejected at the 1% significance level, as is evidenced by Fisher's exact t-test presented in column 5.

Table 8 also examines the correlation between the introduction of new regulations and startup of new Ben Ali enterprise either in the year the law was revised or the year immediately after. We use a two-year entry window to have a relatively broad definition of simultaneity, but obtain

activities were subject to new authorization requirements and 36 activities were subject to new authorization requirements.

[27]Note that our indicator variable does not take into account regulations already in place; it is thus possible for the same NAT96 sector to be subject to new regulations multiple times over the sample period.

similar results confining attention to entry in the same year only.[28] While the number of observations is again small, the data reject the null of independence between the startup of new Ben Ali firms in narrowly defined 5-digit sectors and the introduction of new authorization requirements and FDI restrictions, albeit at the 10% significance level.

The data are thus not only consistent with regulatory capture of existing legislation by connected entrepreneurs, but also with regulatory proliferation being endogenous to their business interests.

5.4 Discussion

Our results are suggestive of regulatory capture and reject the null hypothesis that the evolution of the Tunisian investment law was independent of Ben Ali's business interests. An important question is to what extent our findings can be interpreted causally. Potential endogeneity of connections (e.g. better entrepreneurs being more likely to become connected by marrying into the family), firm performance (e.g. better firms being more likely to be captured) and regulations (e.g. a spurious relationship between regulation and connections) are the three main challenges to such an interpretation. While we cannot rule out any of these, there are a number of reasons to believe that their likely empirical magnitude is limited.

To start with concerns about endogenous selection, we do not have enough degrees of freedom to examine the effect of selection into the Ben Ali family with statistical confidence, the sudden success of those who married into the family is strongly suggestive of the superior performance of connected entrepreneurs not predominantly being driven by their business acumen. For example, Ben Ali's son in-law, Sakr-El-Materi, striking business success was precipitated by his marriage with Ben Ali's daughter Nesrine in 2004. Two years later he purchased ENNAKL, a previously publicly owned car-dealership, for 22 million Dinars. Following the transfer of ownership, the quotas for import of cars awarded to ENNAKL increased almost four-fold. In 2009 40% of the company's capital was sold through an IPO yielding 53 million Tunisian of dinars. Sakr-El-Materi also managed to obtain permission from the government of Tunisia to establish an exclusive new cruise port in La Goulette, which he exploited using his newly founded firm Goulette Shipping Services.

[28] Results are available from the authors upon request but not presented here to conserve space.

Second, anecdotal evidence suggests predation was an issue and that the Ben Ali-Trabelsi family targeted relatively successful firms. In the case of take-overs of firms by the Ben Ali clan, part of the superior performance of connected firms thus likely reflects prior performance differences. Our focus on the interaction between regulations and performance should reduce this bias. If predation was the main channel of success, there is no reason why better performance should be associated with greater regulation. In addition, if Ben Ali's relatives could take over the best firms there would be no need to erect barriers to entry in sectors in which they are active. While we would have liked to examine this potential endogeneity of firm performance in more depth through an analysis of the impacts of takeovers by the Ben Ali clan and which firms they were targeting, in the vast majority of cases, the connected firms we identify were started by the Ben Ali clan members themselves. Yet, even in the few cases where we are able to study performance difference before and after Ben Ali participation, such as the case of ENNAKL, the evolution of profits growth is inconsistent with performance differentials reflecting endogeneity alone. .A substantial number of firms become more profitable after being included in the Ben Ali's clan's portfolio rather than vice versa. For example, Carthage Cement, which was founded in 2008 by Belhassen Trabelsi as a split-off from the heavily indebted cement firm "Grandes Carrières du Nord", exhibited spectacular profits growth after gaining exclusive concessions to harvest in Jbel Ressas, resulting in rapid growth of the firm.

Concerns about potential endogeneity bias are also mitigated by the conviction of Ben Ali and several of his family members for abuse of power (though not necessarily for manipulating the investment code itself) in the aftermath of the Jasmin Revolution. Thus, the interpretation of regulatory capture advanced in this paper is certainly consistent with other corrupt practices the Ben Ali clan has been shown to engage in. The quantitative evidence we have presented also resonates with qualitative evidence on corruption in Tunisia. According to a recent study by the Chekir and Menard (2013), for example, *"predation mainly focused on (i) highly regulated sectors in which cronies could abuse of their influence and privileged access to the decision-making spheres" (p4).*

While the evidence presented here is consistent with significant inequities in terms of market access, a closely related question is to what extent the regulations hampered efficiency, and to what extent they stunted economic growth. Although answering this question is beyond the remit of this paper, it is of interest to note that consumer prices for telecommunications services, a sector which was dominated by the Ben Ali clan, were dramatically higher than those in neighboring countries.

6 Conclusion

Optimal regulation involves a tradeoff between government failure and market failure (Krueger, 1991). Regulations can protect consumers from monopoly pricing or dangerous products, protect the rights of investors, direct resources to underfunded sectors, and promote growth. But regulations can also be captured. Direct empirical testing of the hypothesis that regulations serve the private interests of those who institute them has been complicated by data limitations. To help fill this gap in the literature, this paper assembles a unique data set to examine the relationship between the evolution of the Tunisian investment law and the business interests of President Ben Ali's family during the last decade and a half before his fall, which precipitated the Arab Spring. Tunisia provides a very pertinent context to examine this issue in view of its highly interventionist and internationally celebrated industrial policy.

The Ben Ali family's business interests were significant from a macro-economic perspective. Enterprises with direct ownership links to the Ben Ali family confiscated in the aftermath of the revolution accounted for 3% of all private sector output and appropriate approximately a fifth of all private sector profits. The disproportionate aggregate contribution of Ben Ali firms reflects their superior performance; Ben Ali firms are on average significantly larger than their competitors and record spectacularly higher levels of output, profits and growth. Thus, a very small group of connected entrepreneurs was able to amass a large portion of Tunisia's wealth.

The superior performance of Ben Ali owned firms to a large extent results from regulatory capture. The sectors in which Ben Ali firms were active were significantly more likely to be subject to prior government authorization and FDI restrictions. Moreover, performance differences between Ben Ali firms and other firms were significantly larger in sectors subject to authorization requirements and FDI restrictions. In the absence of these regulations, performance differences between Ben Ali and other firms were much smaller or absent altogether. Thus it appears that regulatory capture was a major conduit for rent appropriation.

While these findings might simply be explained by the superior ability of Ben Ali family members to navigate the complex Tunisian bureaucracy, our results also attest to an arguably more insidious association between regulation and cronyism; proliferation of regulation being endogenous to the presence of special interests; analyzing the evolution of the Tunisian investment law, we reject the hypothesis that its' evolution was exogenous to the president's business interests. Although the

number of observations is small, we are able to demonstrate that the correlation between Ben Ali firm presence and entry regulation was already significant when the code was introduced. Moreover, the likelihood of new FDI restrictions and requests for government authorization being imposed in a narrowly defined 5-digit sub-sector is correlated both with prior presence of Ben Ali firms in that sector, as well as with start-up of connected firms.

The Tunisian experience thus demonstrates how interventionist business regulations may be captured, and, even more perniciously, that the proliferation of regulation may be a vehicle to expand state capture. As such, it cautions against the embrace of highly interventionist industrial policies when checks and balances on abuse of power are limited. While anecdotal evidence suggests the Ben Ali clan's involvement in the economy led to both large inefficacies and inequities, quantifying the precise costs associated with the perverted state-business relationships documented in this paper would seem an important area for future research.

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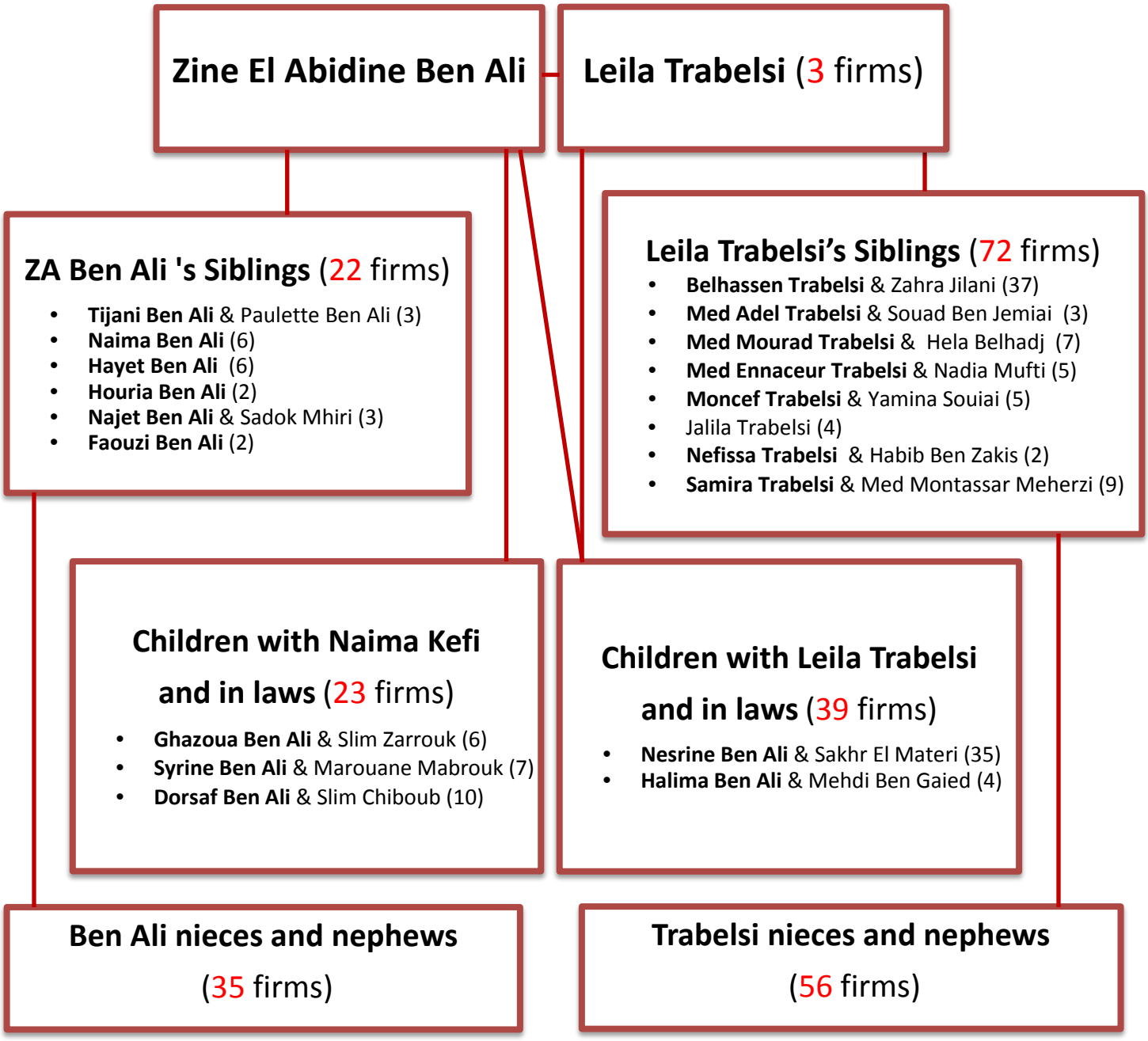
Tables and Graphs

Figure 1: The Business Interest of the Ben Ali Family (# of firms in parentheses)



Note: The diagram indicates the Ben Ali clan's alleged ownership of confiscated firms using information published on the website of the Ministry of Finance. The diagram is confined to firms for whom we obtained information from the Tunisian authorities and is consequently not exhaustive. The diagram merely indicates alleged ownership relations and does not imply improper conduct of any kind on the part of the listed individuals. It should also be noted that some of the listed individuals are currently contesting the confiscation of their assets. *Sources:*http://www.finances.gov.tn/index.php?option=com_content&view=article&id=201:gestion-des-biens-confisques&catid=28&Itemid=577&lang, *Journal Officiel de la République Tunisienne*, 18 mars 2011, No 18, 337-342.

Table 1: Economic Significance Ben Ali Firms[29]

	Ben Ali Firms			*Other firms*			
	N	**Mean**	**Sum (USD)**	**N**	**Mean**	**Sum (USD)**	**Ben Ali Share of Total**
L	105	80	8,392	78177	13	1,036,610	0.80%
Y	122	16,980,822	2,071,660,240	307430	225,300	62,512,270,119	3.20%
Net Profits	122	1,908,925	232,888,796	96859	11,090	1,074,153,638	21.30%
Gross Profits	122	2,811,035	342,946,258	96859	54,320	5,261,372,574	6.80%
Gross Losses	122	-902,110	-110,057,441	96859	-43,230	-4,187,219,068	2.70%

Note: USD:TND exchange rate1:1.5146, data for 2010, L=wage workers (only observations for whom this number is not zero or missing), Y=output, Net profits=pre-tax profits declared to the tax authorities (all firms), gross profits=pre-tax profits declared to the tax-authorities only for firms for whom this is positive. Gross losses=tax profits declared to the tax authorities only for firms for whom this is negative.

[29] Not all Ben Ali firms are fully family owned. Once we account for ownership share of the Ben Ali family, the share of profits and losses directly accruing to the Ben Ali family appear even more dramatic; the total net profits accruing to the Ben Ali family amount to 333,596 million USD, gross profits to 247,315, and gross losses to -86,281 million USD.

Table 2: Descriptive Statistics

Descriptive Statistics Ben Ali Firms vs Other firms – 2010 Excluding firms which never report hiring paid workers									
	Descriptive Statistics						***Differentials***		
	Ben Ali Firms (Total N=114)			***Other Firms (Total N=128397)***					
							Demeaned		
	N	**Mean**	**St. Dev**	**N**	**Mean**	**St Dev**	***No***	***2-digit***	***5-digit***
Static Performance [x]									
ln L	105	2.610	1.859	78177	0.896	1.406	**1.713**	**1.604**	**1.122**
lnY	70	21.757	2.580	74119	18.052	2.180	**3.705**	**3.501**	**1.936**
ln(Y/L)	68	18.895	1.997	57060	17.561	1.464	**1.334**	**1.098**	**0.572**
Profits (Z-score)[+]	83	0.981	10.704	49862	0.000	2.051	0.981	0.937	1.228
Profits/L (Z-	78	0.020	0.071	42749	-0.012	3.183	**0.031**	0.041	0.013
Profitable[#]	83	0.494	0.503	49862	0.663	0.473	**-0.169**	**-0.111**	**-0.093**
Market Share[i]	83	0.063	0.175	86483	0.006	0.049	**0.057**	**0.055**	**0.032**
Firm Characteristics									
Age	114	10.430	10.166	128397	15.155	16.942	**-4.725**	**-4.216**	**-3.605**
Offshore	114	0.070	0.257	126019	0.060	0.238	0.010	0.020	-0.004
Regulation									
FDI Restriction[*]	64	0.641	0.484	70259	0.361	0.480	**0.280**	**0.118**	
Authorization[*]	64	0.641	0.484	70259	0.446	0.497	**0.195**	**0.185**	
Growth [x]									
*Δ*lnL	96	0.239	0.845	70493	0.025	0.550	**0.214**	**0.195**	**0.147**
*Δ*lnY	63	0.121	1.331	70131	0.074	0.715	**0.048**	0.032	-0.042
*Δ*ln(Y/L)	58	-0.155	1.197	50733	0.030	0.715	**-0.186**	-0.182	-0.195
*Δ*Profits (Z-score)[+]	83	-0.237	2.697	48179	-0.007	2.125	-0.229	-0.236	-0.215
*Δ*Profits/L (Z-	71	0.068	0.488	38331	-0.001	0.556	0.069	0.075	0.036

* **Bolded** coefficients in the last three columns indicate that the differential between Ben Ali and non-Ben Ali firms is significant at the 10% level. **Bolded and underlined** coefficients in the last three columns indicate that the differential between Ben Ali and non-Ben Ali firms is significant at the 5% level.

[x] Sample is confined to firms that reported hiring paid labor at some point during 2000 and 2010.

[+]Note to account for negative profits and minimize the impact of outliers we use the Z-score the variable in question computed over the period 2000-2010.

[i] *Market share* is measured at the 5 digit level.

[#]*Profitable* is a dummy variable taking the value 1 if a firm reports positive profits and 0 otherwise.

[*]*FDI Restriction* and *Authorization* are dummy variables indicating whether the particular 5 digit sub-sector the firm operates in is subject to the regulation in question, taking the value 1 if this is the case and 0 otherwise.

Table 3: Sectoral Distibution Ben Ali Firms

Sectoral Distribution Ben Ali Firms (2010)

			Contributions of Ben Ali firms					*Sector Aggregate*		
	# of BA firms	**% of firms owned by BA**	**% Y by BA firms**	**% of L**	**% of net profits**	**% of gross profits**	**% of gross losses**	**Sum L**	**Sum Y in Millions of USD**	**Profits in Millions of USD**
Telecommunications and post	3	0.03	39.13	57.71	42.33	49.29	95.39	4,264	2,197	472
Trade, cars	11	0.04	15.35	3.94	28.39	24.6	0.00	17,107	3,895	149
Transport	16	0.02	8.53	3.29	-36.75	3.12	6.74	43,460	2,642	22
Real estate and enterprise services	59	0.11	3.59	0.47	0.6	1.01	1.91	158,636	4,208	489
Financial services	8	0.50	2.43	1.13	-0.78	0.57	1.79	23,517	4,052	212
Fishing	2	0.56	1.88	0.30	-9708.38	13.83	6.66	2,444	50	0
Minerals (other)	3	0.09	1.48	1.47	18.03	6.02	0.00	24,715	1,539	55
Paper, printing	4	0.15	0.81	1.62	1.77	0.56	0.00	11,733	895	18
Hotels and restaurants	7	0.03	0.79	0.73	0.02	1.61	0.25	73,699	1,690	-549
Health and education	1	0.00	0.72	0.27	-1.04	0.00	3.55	24,259	522	46
Plastics	2	0.18	0.54	0.53	-0.47	0.00	0.16	11,793	745	11
Metalworks	2	0.02	0.54	0.02	-1.89	0.00	0.25	25,644	2,075	15
Trade – gross	27	0.08	0.41	0.31	0.52	0.45	0.24	49,557	14,207	427
Construction	9	0.03	0.38	0.77	9.22	0.14	3.77	87,136	3,044	-90
Personnel services	20	0.06	0.29	0.61	0.66	0.00	0.44	13,791	380	-56
Extractive industries	5	0.33	0.00	0.03	0.00	0.00	0.00	16,701	1,587	-769
Food industry	7	0.06	0.00	0.07	0.01	0.00	0.00	50,080	5,686	76
Chemical industry	1	0.06	0.00	0.01	0.00	0.00	0.00	16,563	2,635	163
Electronics	6	0.14	0.00	0.00	0.00	0.00	0.00	69,058	3,721	200
Manufacturing – other	2	0.04	0.00	0.00	0.00	0.00	0.00	13,670	2,370	-157
Retail trade	3	0.00	0.00	0.30	-0.02	0.00	0.05	42,617	4,562	161
Textiles	2	0.01	0.00	0.00	0.00	0.00	0.00	171,333	2,852	172
Manufacturing - wood	1	0.01	0.00	0.00	0.00	0.00	0.00	6,116	190	7
Manufacturing - machinery equipment	2	0.35	0.00	0.00	0.00	0.00	0.00	5,733	480	21
All	214	0.04	3.02	0.81	19.88	6.3	2.57	1,035,881	68,566	1,171

Note: The totals do not perfectly match those in Table 2 since for a small proportion of firms information on their sectoral classification is lacking.

Table 4: Performance Differentials (Static)

Static Performance Differentials (2000-2010) – OLS								
Dependent Variable	***lnL***				***Market Share***			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ben Ali Firm	1.490***	1.517***	1.503***	0.679***	0.078***	0.063***	0.062***	-0.002
	(0.069)	(0.069)	(0.069)	(0.129)	(0.003)	(0.003)	(0.006)	(0.015)
lnL						0.009***	0.009***	0.009***
						(0.000)	(0.000)	(0.000)
Age		0.009***	0.009***	0.009***		0.000	0.000	0.000
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Authorization			0.141***	0.140***			0.002***	0.002***
			(0.009)	(0.009)			(0.000)	(0.000)
BA*Authorization				0.316**				0.040***
				(0.145)				(0.006)
FDI Restriction			-0.095***	-0.097***			0.002***	0.002***
			(0.008)	(0.008)			(0.000)	(0.000)
BA*FDI Restriction				1.047***				0.064***
				(0.145)				(0.006)
Activity Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	421175	421175	421175	421175	329664	329664	329664	329664
R2	0.2419	0.2482	0.2489	0.2490	0.0288	0.0837	0.0839	0.0844
Dependent Variable	***Ln Y***				***Profits (Z-score)***			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ben Ali Firm	2.932***	1.241***	1.135***	0.856***	0.945**	0.928***	0.927***	-0.506***
	(0.108)	(0.073)	(0.071)	(0.134)	(0.063)	(0.063)	(0.063)	(0.118)
lnL		1.003***	1.000***	1.000***		0.016***	0.016***	0.015***
		(0.002)	(0.002)	(0.002)		(0.002)	(0.002)	(0.002)
Age		-0.003***	-0.003***	-0.003***		-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
Authorization			0.383***	0.382**			0.009	0.003
			(0.009)	(0.009)			(0.010)	(0.010)
BA*Authorization				0.719***				1.257***
				(0.167)				(0.131)
FDI Restriction			0.797***	0.797***			0.013	0.010
			(0.008)	(0.008)			(0.011)	(0.011)
BA*FDI Restriction				0.061				1.096***
				(0.153)				(0.131)
Activity Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	329664	329664	329664	329664	217651	217651	217651	217651
R2	0.2589	0.6630	0.6738	0.6738	0.0040	0.0044	0.0044	0.0053

Note: *,**,*** denote significance at the 10%, 5% and 1% significance level respectively. The sample is confined to firms which report using hired labor. Activity dummies are defined at the 2-digit level. *FDI Restriction*, and *Authorization* are dummy variables indicating whether the particular 5 digit sub-sector the firm operates in is subject to the regulation in question, taking the value 1 if this is the case and 0 otherwise.

Table 5: Dynamic Performance Differentials

Dynamic Performance Differentials (2000-2010) – OLS								
Dependent Variable	***ΔlnL***				***ΔMarket Share***			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ben Ali Firm	0.148***	0.274***	0.055	0.102*	0.004***	0.009***	-0.002	-0.002
	(0.032)	(0.031)	(0.059)	(0.058)	(0.001)	(0.001)	(0.002)	(0.002)
Lagged LnL		-0.090***		-0.088***				
		(0.001)		(0.001)				
Lagged Market Share						-0.064***		-0.064***
Share						(0.001)		(0.001)
Age			-0.003***	-0.002***			-0.000***	-0.000***
			(0.000)	(0.000)			(0.000)	(0.000)
Authorization			-0.008*	0.005			0.000	0.000
			(0.004)	(0.004)			(0.000)	(0.000)
BA*Authorization			0.027	0.057			0.003*	0.007***
			(0.074)	(0.072)			(0.002)	(0.002)
FDI Restriction			-0.014***	-0.028***			-0.000	0.000
			(0.004)	(0.004)			(0.000)	(0.000)
BA*FDI Restriction			0.116*	0.216***			0.007***	0.012***
			(0.066)	(0.065)			(0.002)	(0.002)
Activity Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	331235	331235	331235	331235	400202	400202	400202	400202
R2	0.0031	0.0470	0.0093	0.0508	0.0001	0.0342	0.0005	0.0344
Dependent Variable	***ΔlnY***				***ΔProfits (Z-score)***			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Ben Ali Firm	0.080*	0.430**	-0.097	0.097	0.215***	0.590***	-0.099	-0.308***
	(0.049)	(0.048)	(0.089)	(0.087)	(0.064)	(0.061)	(0.122)	(0.116)
Lagged ln Y		-0.107***		-0.108***				
		(0.001)		(0.001)				
Lagged Profits						-0.509***		-0.510***
(Z-score)						(0.003)		(0.003)
Age			-0.004***	-0.003***			0.000	0.000
			(0.000)	(0.000)			(0.000)	(0.000)
Authorization			-0.030***	0.027***			-0.002	-0.000
			(0.006)	(0.006)			(0.010)	(0.010)
BA*Authorization			0.081	0.221**			0.272**	0.788***
			(0.103)	(0.100)			(0.135)	(0.128)
FDI Restriction			0.021***	0.127***			0.000	0.000
			(0.005)	(0.005)			(0.012)	(0.011)
BA*FDI Restriction			0.203*	0.306**			0.238*	0.670***
			(0.104)	(0.101)			(0.135)	(0.128)
Activity Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	400202	400202	400202	400202	202976	202976	202976	202976
R2	0.0041	0.0597	0.0087	0.0646	0.0003	0.1003	0.0003	0.1006

Note: *,**,*** denote significance at the 10%, 5% and 1% significance level respectively. The sample is confined to firms which report using hired labor at any point during their existence. Activity dummies are defined at the 2-digit level. *FDI Restriction*, and *Authorization* are dummy variables indicating whether the particular 5 digit sub-sector the firm operates in is subject to the regulation in question, taking the value 1 if this is the case and 0 otherwise.

Table 6: Regulations and State Capture - The Investment Code in 1994 and 2010

The 1994 Investment Code							
Ben Ali Presence		***Authorization Requirements***			***FDI Restrictions***		
	N	*N*	*%*	*Fisher F-test*	*N*	*%*	*F-test*
At least one	8	4	50.00%	Table Pr	4	50.00%	Table Pr
None	302	56	18.54%	0.040	42	13.95%	0.017
All	310	60		P=0.048	46		P=0.019
The 2010 Investment Code							
Ben Ali Presence		***Authorization Requirements***			***FDI Restrictions***		
	N	*N*	*%*	*F-test (p-value)*	*N*	*%*	*F-test*
At least one	56	22	39.29%	Table Pr	24	42.86%	Table Pr
None	276	67	24.28%	0.010	39	14.13%	0.000
All	332	89		P=0.031	63		P=0.000

Note: The test for equality is Fisher's Exact T-test. It tests the null hypothesis that the prevalence of the regulation mentioned in the column heading is independent of the presence of connected firms within narrowly defined 5 digit sectors. The table probability equals the hypergeometric probability of the observed table given the row and column totals.

Table 7: Entry of Ben Ali firms by Regulation

Distribution of Ben Ali entry by Prevalence of Different Types of Regulation		
	Authorization Requirements	***FDI Restrictions***
N of BA firms entering (Total=129)	61	73
% of BA Entries	47.3%	56.6%
% of sectors subject to regulation each year	23.5%	18.3%
F-test (p-value)	0.000	0.000

Note: The F-test tests whether BA firm entry is independent of the presence of the regulation referred to in the column heading.

Table 8: The Co-Evolution of Investment Regulation and State Capture

The Evolution of the Tunisian Investment Code (by NAT 96 sub-sector-year)

New Regulations and Presence of Ben Ali firms

Ben Ali Presence		***New Authorization Requirements***			***New FDI Restrictions***		
	N (All)	*N*	*%*	*Fisher F-test*	*N*	*%*	*Fisher F-test*
At least one firm	451	7	*1.55%*	Table Pr	9	*2.00%*	Table Pr
None	5058	38	*0.75%*	0.046	19	*0.38%*	0.000
All	5509	45		P=0.0961	28		P=0.000

New Regulations and Entry of Ben Ali firms

Ben Ali Entry In the Same or the Subsequent Year		***New Authorization Requirements***			***New FDI Restrictions***		
	N (All)	*N*	*%*	*Fisher F-test*	*N*	*%*	*F-test*
At least one entry	168	4	*2.35%*	Table Pr	3	*1.76%*	Table Pr
None	5031	41	*0.82%*	0.043	25	*0.50%*	0.049
All	5199	45		P=0.0582	28		P=0.0619

Note: The test for equality is Fisher's Exact T-test. It tests the null hypothesis that the introduction of new regulations referred to in the column heading pertaining to narrowly defined 5 digit sectors is independent of the presence (top row) and start-up (bottom row) of connected firms within such sectors. The table probability equals the hypergeometric probability of the observed table given the row and column totals. The entry indicator is a sector-level binary indicator taking the value 1 if a Ben Ali firm entered in the same or following year.

Appendix

Table A1: Sector Distribution Ben Ali Firms – Narrow 5-digit Sectors (ordered by contribution to output)

Sectoral Distribution of Ben Ali firms – Narrow 5 Digit Sectors												
	#BA	Ben Ali Share of					Sector Total				Regulation	
	N	*Y*	*N*	*L*	π	*Gross* π	*Y*	*L*	π	*Gross* π	*AUT*	*FDIR*
Air transport (non-regular)	2	92.5	66.7	83.6	0.0	139.6	216.5	850	3.0	-7.7	1	1
Telecommunications (various)	3	86.8	0.0	57.7	93.1	92.3	987.1	4264	286.9	215.9	1	1
Administration of enterprises	5	86.0	3.4	3.0	0.0	2.7	121.6	398	0.8	-14.2	0	1
Breeding of horses	1	75.3	12.5		0.0	100.1	0.3	0	0.0	-1.8		
Fabrication of plaster	1	47.9	1.5	51.5	71.1	74.3	47.4	704	14.0	13.4	0	0
Installation (plumbing and electric)	2	44.8	7.4		0.0	31.9	0.0	1	0.0	-0.1		
Commerce - automobiles	5	43.1	5.3	26.1	41.4	46.6	1316.	2372	95.2	84.5		
Editing of journals	2	17.4	2.8	14.8	21.0	-43.5	40.1	1261	1.2	-0.6		
Engineering (general)	1	14.3	0.1	0.1	0.0	-7.4	78.5	2112	6.5	3.9		
Restaurants (traditional)	2	11.3	0.0	7.4	27.4	-87.9	117.1	6900	5.5	-1.7		
Wholesale trade – electronics	3	10.3	0.3	4.2	9.8	12.6	390.4	1965	22.1	17.2		
Bioculture (livestock)	3	6.6	4.1	4.1	0.0	49.8	23.6	7773	0.3	-7.3		
Installation (cables)	2	5.4	0.8	4.9	0.0	32.6	175.7	2238	10.9	-0.6	1	1
Maritime transport related services	3	5.0	0.6	3.1	12.5	13.2	274.6	2942	56.1	53.0	1	0
Analysis and technical inspections	1	3.6	0.6	2.2	9.6	11.9	45.1	1137	10.0	8.1	0	1
Informatics – consulting	1	3.5	1.0	2.3	10.4	11.8	40.6	458	4.2	3.7	0	1
Pisciculture and acquaculture	2	3.0	3.0	1.1	25.1	-48.8	30.6	653	1.5	-0.4		
Radio and TV	2	2.9	12.5	33.1	0.0	0.9	38.5	125	2.4	-35.9	1	1
Infrastructure for roads	1	1.7	1.5	1.1	67.5	-5.1	33.9	782	0.2	-2.9		
Real estate	21	1.4	1.1	1.4	2.5	3.2	946.3	3903	173.2	118.4	1	1
Wholeale trade –other	13	0.2	0.2	0.3	0.0	-0.2	1832.	3297	131.2	105.6		
Consulting	13	0.1	0.1	0.2	0.0	0.0	621.5	9713	192.2	155.2	0	1
Recreational activities (other)	10	0	0.3	2.1	0.0	0.2	38.8	1928	1.7	-22.0	1	0

NB Table includes sectors in which Ben Ali firms account for more than 10% of output, 10% of all firms, 10% of all wage employment, 10% of gross profits, or 10% of net profits in case the sector aggregate net profits are positive, as well as sectors in which at least 5 Ben Ali firms are active. Y=output in millions of USD, L=employment (wage workers), π=net profits, Gross π =Gross profits (e.g. only including firms which report positive profits), FDIR=subject to FDI Restriction, AUT= subject to authorization requirements. Note that when a field is left blank the relevant data are not available or not applicable (the investment code does not govern all sectors)

Appendix B: Data Construction

B.1: List of Variables

Variable	Description	Source
Political Connections		
Ben Ali Firm	Dummy variable taking the value 1 if the firms is owned, fully or in part, by a member of the Ben Ali clan	CC and MoF
Firm Characteristics		
L	Number of salaried employees (annual average over 4 quarters)	INS
Age	The age of the firm defined as the difference between the current year minus the year in which it first registered.	INS
Offshore	A dummy variable taking the value 1 if a firm operates in the tax regime 'totalement exportatrice', commonly referred to as the offshore sector. Firms in this tax regime do not have to pay output tax, provided they export at least 70% of their output or sell it to other 'offshore' firms.	INS
Y	Output as reported in firm's annual tax declaration	MoF
Profits	Profits as reported in the firm's annual tax declaration	
Gross Profits	Profits for firms reporting positive profits and 0 for those reporting losses (The maximum of 0 and profits as reported in the firm's annual tax declaration)	MoF
Gross Losses	Profits for firms reporting losses and 0 for those reporting positive profits (The minimum of 0 and profits as reported in the firm's annual tax declaration)	
Profitable$^{\#}$	Dummy variable taking the value 1 if a firms reported positive profits and 0 otherwise	MoF
Market Share	The firms output divided by the sum of all output of firms operating in the same five digit sector.	MoF
Regulation		
FDI Restriction	Dummy variable taking the value 1 if the 5 digit sector in which the firm is operating is subject to restrictions to foreigners as stipulated in the Tunisian Investment Code (see Appendix B2)	IC
Authorization	Dummy variable taking the value 1 if the 5 digit sector in which the firm is operating is subject to prior authorization as stipulated in the Tunisian Investment Code, and 0 otherwise (see Appendix B2)	IC

INS=Institut National de la Statistique, IC= Code d'Incitation aux Investissements, MoF= Tunisian Ministry of Finance, CC=La Commission Nationale de Gestion d'Avoirs et des Fonds objets de Confiscation ou de Récupération

B.2: Coding the Investment Code

To assess the relationship between firm performance, political connections and the regulation, we created a database of the Tunisian Investment Code, the *Code d'Incitation aux Investissements*. The dataset contains annual information at the NAT96 5-digit sector level, the most disaggregated sector classification available in Tunisia, on which activities were covered by the Investment Code and whether these activities were subject to i) prior authorization as stipulated in Article 4 of Décret n°94-492 and subsequent amendments ii) restrictions on foreign investment in the form of having to obtain permission from the *Commission Superieure d'Investissement* as stipulated in stipulated in Article 5 of Décret n°94-492 and subsequent amendments.

To construct this dataset we code the original Investment Code enacted in December 1993 and all subsequent decrees resulting in amendments to investment laws up until 2010. In total we record 22 decrees which result in revisions in the coverage of the Investment Code and changes in which activities are subject to authorization requirements and restrictions on foreign investment. We do not record decrees resulting in changes in registration requirements, customs regulations, fiscal advantages, or other regulations that are not analyzed in this paper.

Arguably the most important challenge in coding these regulations is that the list of activities stipulated in the investment code and the Tunisian NAT 96 classification do not overlap perfectly.[30] Sometimes the activities listed in the Investment Code are more general than the NAT96 classifications (for example, the activity "Hébergement" in the Investment Code corresponds to a number of NAT96 categories, notably "Hôtels avec restaurant", "Hôtels de tourisme sans restaurant", "Hôtels non classes", "Auberges de jeunesse et refuges", "Exploitation de terrains de camping", "Autre hébergement touristique", "Hébergement collectif non touristique"). In other instances, they are more specific (for example the activities "Pêche côtière", Pêche au feu, Pêche au chalut" are encompassed by the NAT96 sector "Pêche") and occasionally it is hard to create a satisfactory correspondence (e.g. the activity "Topographie" is difficult to map to NAT96 sectors). Coding the Investment Code thus inherently involves a degree of subjectivity, which we have tried

[30] Note also that as a result of the imperfect overlap is possible that some of the activities classified in a NAT96 sub-sector are subject to particular provisions in the investment code whereas others are not. We treat all activities in such a sector as being affected by the regulation; while this is not ideal, it is not possible to gage how many "activities" a sector is comprised of, rendering it difficult to account for the "intensity" of regulation within narrowly defined 5 digit sectors, though we do record the number of provisions relevant to a particular sub-sector. Conversely, certain provisions apply to multiple sub-sectors.

to minimize by developing the correspondence between NAT96 and the Investment Code in collaboration with the Tunisian Institut National de la Statistique.

Table B.2.1 depicts part of this correspondence for activities covered by the original Investment Code subject to authorization requirements and FDI restrictions.[31] Table B.2.2 presents an overview of changes to the Investment Code, again excluding changes in coverage that do not involve the imposition of authorization requirements or restrictions on foreign investment.[32]

[31] A longer list that also covers those activities covered by the investment code but not subject to any one of these three regulations is not presented to conserve space but available upon request.
[32] These are not presented to conserve space, but available upon request.

Table B.2.1 The Original Investment Code

The Original Investment Code

Only sectors which are subject to authorization requirements and Restrictions on FDI

(Note: AUT=Authorization Requirement, FDIR=Restrictions on FDI, BA=Ben Ali presence)

Activitiy in the Investment Code	Sector in NAT96	Sector Code	AUT	FDIR	BA
Pêche côtière	Pêche	05010	1		
Pêche au feu	Pêche	05010	1		
Pêche au chalut	Pêche	05010	1		
Aquaculture	Pêche	05020	1		
Industrie du tabac	Industrie du tabac	16000	1		
Verre plat (sauf feuilleté et miroiterie)	Fabrication de verre plat	26110	1		
Recyclage et transformation des déchets	Enlèvement et traitement des déchets	90002	1		
Recyclage et valorisation des déchets et ordures (y compris les déchets plastiques, métalliques, de carton et autres papiers ainsi que la valorisation et la transformation en engrais des déchets domestiques)	Enlèvement et traitement des déchets	90002	1		
Moquettes, revêtements muraux et de sols	Fabrication industrielle de tapis et moquettes	17511	1		
Fabrication d'appareils électroménagers et de chauffage (sauf fours industriels)	Fabrication d'appareils électroménagers	29710	1		
Fabrication d'appareils de telecommunication	Fabrication d'appareils de téléphonie	32202	1		
Fabrication d'armes et munitions, parties et pièces détachées	Fabrication d'armes et de munitions	29600	1		
Récupération et recyclage des déchets métalliques ou autres	Récupération de matières métalliques recyclables	37100	1		
	Récupération de matières non métalliques recyclables	37200	1		
Récupération des pièces usagées en vue de leur réutilisation (rubans et cartouches pour imprimante laser et rubans informatiques)	Récupération de matières non métalliques recyclables	37200	1		
Transport terrestre routier international	Autres transports routiers réguliers de voyageurs	60212	1	1	
	Autres transports routiers de voyageurs	60230	1	1	
Transport terrestre routier de marchandises	Transports routiers de marchandises	60241	1	1	
Transport collectif de personnes	Transports urbains de voyageurs	60211	1		
	Transport de voyageurs par taxis et par Louages	60220	1		
Transport ferroviaire	Transports ferroviaires	60100	1	1	
Le transport maritime	Transports maritimes	61101	1	1	
	Transports côtiers (par BAC).	61102	1	1	
Le transport aérien	Transports aériens réguliers	62100	1	1	
	Transports aériens non réguliers	62200	1	1	E
Le transport par pipe	Transports par conduits	60300	1	1	
Installation électronique et de télécommunication	Construction de lignes électriques et de télécommunications	45214	1	1	

Distribution de courier	Postes nationales	64110	1	1	
Services de courrier électronique	Autres activités de courier	64120	1	1	
Services de vidéo-texte	Autres activités de télécommunications	64202	1	1	
Centres d'appel	Autres activités de télécommunications	64202	1		
Hébergement	Hôtels avec restaurant	55110	1		E
	Hôtels de tourisme sans restaurant	55121	1		
	Hôtels non classes	55122	1		
	Auberges de jeunesse et refuges	55210	1		
	Exploitation de terrains de camping	55220	1	1	
	Autre hébergement touristique	55231	1		
	Hébergement collectif non touristique	55232	1		
Animation	Activités diverses de spectacle	92340	1		
Transport touristique	Transports urbains de voyageurs	60211	1		
	Autres transports routiers réguliers de voyageurs	60212	1		
	Autres transports routiers de voyageurs	60230	1		
	Transport de voyageurs par taxis et par Louages	60220	1		
Thermalisme	Activités thermales et de thalassothérapie	93041	1		
	Bains et autres soins corporels	93042	1		
Tourisme de congress			1		
Sociétés de gestion d'unités d'hébergement et d'animation	Agences de voyages	63300	1	1	
Agences de voyages touristiques					
L'éducation et l'enseignement	Enseignement préscolaire	80101	1	1	
	Enseignement primaire	80102	1	1	
	Enseignement secondaire (collège - 1er cycle)	80211	1	1	
	Enseignement secondaire (lycée - 2ème cycle)	80212	1	1	
	Enseignement supérieur	80300	1	1	
La formation professionnelle	Formation professionnelle	80220	1	1	
hôpitaux,	Activités hospitalières	85110	1		
cliniques pluridisciplinaires ou polycliniques,	Activités hospitalières	85110	1		
cliniques monodisciplinaires.	Activités hospitalières	85110	1		
Centres de soins, de rééducation et d'hémodialyse,	Pratique médicale	85120	1		
Cabinets médicaux et para-médicaux,	Pratique médicale	85120	1		
Laboratoires médicaux,	Laboratoires d'analyses médicales	85144	1		
Pharmacies,	Activités des auxiliaires médicaux	85141	1		
Transport sanitaire,	Ambulances	85143	1		
Projection de films à caractère social et culturel	Projection de films cinématographiques	92130	1	1	
Restauration et animation des monuments archéologiques et historiques	Gestion des musées et préservation des sites et monuments historiques	92520	1	1	
Création de musées	Gestion des musées et préservation des sites et monuments historiques	92520	1	1	
Création de bibliothèques	Gestion des bibliothèques et archives publiques	92510	1	1	

Arts graphiques	Autres activités graphiques	22250	1		
Musique et danse	Art dramatique et musique	92310	1	1	
Arts plastiques	Activités diverses de spectacle	92340	1		
Design	Autres activités graphiques	22250	1		
Activité de photographe, reportage vidéo et d'enregistrement et développement des films	Production de films	92110	1	1	
Production de cassettes audio-visuelles	Edition et distribution video	92122	1		
Galeries d'expositions culturelles	Gestion de salles de spectacle	92320	1		
Centres culturels	Gestion de salles de spectacle	92320	1	1	
Foires culturelles	Activités diverses de spectacle	92340	1	1	
Services de dépollution, de lutte contre les nuisances et de vecteurs	Enlèvement et traitement des déchets	90002	1		
Collecte, transport, traitement ou tri, recyclage et valorisation des déchets et ordures	Enlèvement et traitement des déchets	90002	1		
Assainissement, épuration et réutilisation des eaux usées	Epuration des eaux uses	90001	1		
Entretien et nettoyage des voies publiques	Assainissement, voirie et gestion des déchets	9000	1		
Conception, réalisation et suivi d'ouvrages de génie industriel et de génie civil, de bâtiment et d'infrastructure	Activités d'architecture et d'ingénierie	7420		1	
Projets d'habitation	Promotion immobilière	70110	1	1	E
Bâtiments destinés aux activités économiques	Construction de bâtiments (gros œuvre)	45211	1	1	E
Banques de données et services télématiques	Activités de banques de données	72400		1	
Topographie				1	
Electricité de bâtiment	Travaux d'installation électrique	45310		1	
Pose de carreaux et de mosaïque	Revêtement des sols et des murs	45430		1	
Pose de vitres et de cadres	Miroiterie de bâtiment; vitrerie	45441		1	
Pose de faux plafond	Travaux d'isolation	45320		1	
Façonnage de plâtre et pose d'ouvrages aux plâtres	Plâtrerie	45410		1	
Etancheité des toits	Travaux d'isolation	45320		1	
Entreprise de bâtiment				1	
Traduction et services linguistiques	Secrétariat, traduction et routage	74830		1	
Service de gardiennage	Services annexes à la production	74842		1	E
Organisation de congrès, séminaires, foires et expositions	Organisation de foires et salons	74841		1	
Edition et publicité	Publicité	74400		1	
stockage des fourrages grossiers produits localement,	culture de fourrages	01112			
Valorisation des sous produits d'origine végétale ou animale	Activités de services aux cultures productives	01411			
Insémination artificielle	Activités vétérinaires	85200			
Services de cabinets et cliniques vétérinaires	Activités vétérinaires	85200			
Services de laboratoires d'analyses vétérinaires et agricoles	Activités vétérinaires	85200			
Collecte du lait	Elevage de bovins, production de lait à la ferme	01210			
Collecte et stockage des céréales	Entreposage non frigorifique	63122			E
Conditionnement et commercialisation des semences	Activités de services aux cultures productives	01411			

Préparation de la terre, de récolte de moisson et de protection des végétaux	Activités de services aux cultures productives	01411		
Transport réfrigéré des produits agricoles.	Entreposage frigorifique	63121		
Montage d'équipement et de matériel de pêche	Réparation de matériel agricole	29322		
Circuits intégrés pour la distribution des produits de la pêche	Commerce de gros de poissons, crustacés et mollusques	51381		
Centre de stages sportifs	Autres activités sportives	92620		1
Centre de médecine sportive	Pratique médicale	85120	1	1
Centre d'éducation et de culture physique	Gestion d'installations sportives	92610		1
Services de diffusion radiophonique et télévisuelle	Activités de radio et de télévision	92200	1	1
Laboratoires d'analyses bactériologiques et chimiques vétérinaires	Activités vétérinaires	85200		
Fabrique de glace en écailles	Fabrication de glaces et sorbets	15520		

NB AUT=Subject to Authorization Requirements, FDI=Subject to Restrictions on Foreign Investment, BA=Ben Ali presence (where E=existing firm is in place)

Table B.2.2 Revisions to the Investment Code

Revisions to the Investment Code from 1994-2010

List only includes Revisions to Authorization requirements and Restrictions on FDI

(Note AUT=Authorization Requirement, FDIR=Restrictions on FDI, BA=Ben Ali presence)

***Decrees Covered*:** Décret n° 95-1095, Décret n° 96-1234, Décret n° 96-2229, Décret n° 97-0503, Décret n° 97-783, Décret n° 98-29, Décret n° 98-2094, Décret n° 2000-821, Décret n° 2001-2444, Décret n° 2002-0518, Décret n° 2003-1676, Décret n° 2004-0008 , Décret n° 2004-1630 , Décret n° 2005-2856, Décret n° 2006-1697, Décret n° 2007-1398, Décret n° 2007-2311, Décret n° 2007-4194, Décret 2008-3961, Décret n° 2009-2751, Décret n° 2010-825, Décret n° 2010-2936.

Activitiy in the Investment Code	Sector in NAT96	Sector Code	AUT	FDIR	BA
Décret n° 95-1095					
Transport réfrigéré des produits de la pêche	Entreposage frigorifique	63121		1	S1
Décret n° 96-2229					
transport réfrigéré de viandes rouges	Entreposage frigorifique	63121		1	E
acconage et manutention	Services annexes des transports maritimes	63220	1		S2
travaux de sauvetage et de remorquage maritime	Services annexes des transports maritimes	63220	1		S2
travaux de maintenance et de draguage de ports	Travaux maritimes et hydrauliques	45240	1	1	
Transitaires					
Décret n° 97-0503					
aménagement de zones industrielles et des zones destinées aux activités économiques.	Construction de bâtiments (gros œuvre)	45211	1	1	E
développement et maintenance de logiciels	Réalisation de logiciels	72200		1	
prestations machines et services informatiques	Entretien et réparation de machines de bureau et de matériel informatique	72500		1	
assistance technique, études et ingénierie informatique	Conseil en systèmes informatiques	72100		1	
saisie et traitement de données.	Traitement de données	72300		1	
audit et expertise comptables	Activités comptables et d'audit, conseil fiscal	74120		1	E
audit et expertise énergétiques	Conseil pour les affaires et la gestion	74140		1	
audit économique, juridique, sociale, technique et administrative,	Conseil pour les affaires et la gestion	74140		1	
audit maintenance,	Conseil pour les affaires et la gestion	74140		1	
études de marketing,	Etudes de marché et sondages	74130		1	
contrôle et expertise qualitative et quantitative,	Analyses, essais et inspections techniques	74302		1	
études et conseils en propriété industrielle et commerciale,	Analyses, essais et inspections techniques	74302		1	
certification d'entreprises,	Activités juridiques	74110		1	
analyse et essai de produits industriels,	Analyses, essais et inspections techniques	74302		1	
études techniques, travaux d'architecture, de décoration et de	Ingénierie, études techniques	74203		1	E

contrôle.					
maintenance d'équipements et d'installations,				1	
montage d'usines industrielles,	Administration d'entreprises	74150		1	
rénovation et reconditionnement de pièces et matériels industriels et non industriels,				1	
engeneering industriel,	Ingénierie, études techniques	74203		1	E
buanderies industrielles,	Blanchisserie – teinturerie	93010		1	
analyse, test et vérification des produits,	Analyses, essais et inspections techniques	74302		1	
mécanisation agricole.	Fabrication de tracteurs agricoles	29310		1	
mécanisation agricole.	Fabrication d'autres machines agricoles	2932		1	
Décret n° 97-783					
exécution des puits et forages d'eaux	Forages et sondages	45120	1	1	
Décret n° 98-29					
organisation des manifestations sportives et de jeunesse,	Organisation de foires et salons	74841	1	1	
préparation de vins,	Production de vin	15930	1		
Brasseries	Brasserie	15960	1		
industrie du tabac	Industrie du tabac	16000	1		
Décret n° 98-2094					
Les conseils agricoles	Organisations professionnelles	91120	1		
Décret n° 2000-821					
Publicité commerciale	Publicité	74400	1	1	E
Décret n° 2002-0518					
raffinage des huiles alimentaires	Fabrication d'autres huiles et graisses raffinées	15422	1		
minoterie,	Meunerie	15611	1		
Semoulerie	Fabrication de produits amylacés	15620	1		
fabrication de barres, de profilés et ronds à béton,	Profilage à froid par formage ou pliage	27330	1		
effilochage,	Préparation et filature de l'industrie cotonnière	17110	1		
	Préparation et filature de l'industrie lainière-cycle cardé	17120	1		
	Préparation et filature de l'industrie lainière-cycle peigné	17130	1		
	Préparation et filature du lin	17140	1		
	Moulinage et texturation de la soie et des textiles artificiels et synthétiques	17150	1		
	Préparation et filature de Jute et d'autres fibres dures	17170	1		
collecte, transport, tri, traitement, recyclage et valorisation des déchets et ordures du secteur du textile.	Enlèvement et traitement des déchets	90002	1		
Décret n° 2003-1676					
L'animation des jeunes, les loisirs et l'encadrement de l'enfance.	Crèches et garderies d'enfants	85321	1	1	
Centres publics d'internet	Autres activités de télécommunication	64202	1	1	S2
Centres d'appel	Autres activités de télécommunication	64202	1		S2
création d'entreprises de théâtre.	Art dramatique et musique	92310	1	1	

Carnaval	Autres activités récréatives	92720	1		E
Cirque	Autres activités récréatives	92720	1		E
Publicité et sponsoring dans les projets des loisirs,	Publicité	74400	1	1	E
Parcs de loisirs.	Manèges forains et parcs d'attractions	92330	1	1	
Décret n° 2004-0008					
Etablissements sanitaires et hospitaliers	Activités hospitalières	85110	1		
hôpitaux,	Activités hospitalières	85110	1		
cliniques pluridisciplinaires ou polycliniques,	Activités hospitalières	85110	1		
cliniques monodisciplinaires.	Activités hospitalières	85110	1		
Centres de soins, de rééducation et d'hémodialyse,	Pratique médicale	85121	1		
Cabinets médicaux et para-médicaux,	Pratique médicale	85120	1		
Laboratoires médicaux,	Laboratoires d'analyses médicales	85144	1		
Pharmacies,	Activités des auxiliaires médicaux	85141	1		
Transport sanitaire.	Ambulances	85143	1		
Décret n° 2004-1630					
édition du livre	Edition de livres	22110	1		E
l'animation des jeunes, les loisirs, l'encadrement de l'enfance et la protection des personnes âgées.	Autres formes d'action sociale	85322	1	1	
centres de protection des personnes âgées.	Autres formes d'action sociale	85322	1		
Décret n° 2006-1697					
Plateforme technique pour les centres d'appel	Traitement de données	72300	1		
Culture du tabac	Industrie du tabac	16000	1		
Décret n° 2007-2311					
fabrication de chaux	Fabrication de chaux	26520	1		
Fabrication de ciment	Fabrication de ciment	26510	1		S2
verre plat.	Fabrication de verre plat	26110	1		
Décret n° 2007-4194					
Production cinématographique	Production de films	92110	1	1	
Production théâtrale	Art dramatique et musique	92310	1	1	
Production de télévision et de radio	Activités de radio et de télévision	92200	1	1	S1
Décret n° 2010-825					
Sociétés de gestion des établissements sanitaires.	Activités hospitalières	85110	1		

NB AUT=Subject to Authorization Requirements, FDI=Subject to Restrictions on Foreign Investment, BA=Ben Ali presence (where E=existing firm is in place, S1=simultaneous entry of Ben Ali firms into the sector, S2=Entry of Ben Ali firms into the sector one year later).