The Microeconomic Impact of Political Instability: Firm-Level Evidence from Tunisia

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Abstract:

This paper explores the impact of political instability on firms. The context of this paper is Tunisia, a country that saw a surge in political instability events after the 2011 Jasmine revolution. Using a newly available dataset, we show that political instability was a major concern for smaller and exporting firms as well as those that were operating in the tourism sector, that have suffered from acts of vandalism or arson and that were located in the Interior region of Tunisia. Most importantly, we find strong evidence that political instability was the most damaging constraint to firm growth in Tunisia after the Arab Spring.

Keywords: Tunisia, Firms, Political Instability, Post-Revolution.

JEL Classification: D74, D22, O12, P26.

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1. Introduction

Five years after the Jasmine revolution of January 2011, Tunisia is still struggling with economic recovery despite the successful, albeit rocky, transition to a democratic regime crowned by the adoption of a new constitution in 2014 (World Bank, 2015). According to economists, think-tanks and international institutions, one of the major causes for this weakened economy is the substantial increase in political instability since the Arab Spring uprisings.[1] Indeed, the number of protests/riots that took place during the period 2011-2014 increased by more than 18 fold compared to the period spanning from 1997 till 2010. Moreover, 55.2 percent of firms surveyed between 2013 and 2014 considered political instability as a major or very severe problem to their day-to-day operations. Motivated by these stylized facts, this paper explores which Tunisian firms were mostly affected by political instability, and examines, which business environment constraint was the most damaging to firm growth after the revolution.

Using a newly available firm-level dataset, which unlike other surveys contains a measure of political instability, we show that political turmoil was a major concern for smaller and exporting firms as well as those that were operating in the tourism sector, that have suffered from acts of vandalism and that were located in the Interior region of Tunisia. More importantly, we find strong evidence that political instability was the most damaging constraint to firm growth during the post-revolutionary period. This result, which suggests that improving the security and political conditions will be crucial to boosting economic confidence and therefore revitalizing the weakened economy, is confirmed after addressing potential endogeneity problems (measurement error and reverse causality biases), using an instrumental variable approach. Our finding is robust to using employment growth as an alternative measure of firm performance and to considering various business constraint levels.

These results lie within the scope of several related literatures. First, they add to the literature on the determinants of business constraints (Beck et al., 2005; Kounouwewa and Chao, 2011; Vargas, 2015) by exploring, for the first time, which characteristics can best explain firms' perception of political instability as a business obstacle. Second, our findings can be also related to the political economy literature, which suggests that conflicts and large scale revolutions have negative effects on firms' activity (Abadie and Gardeazabal, 2003; Collier and Duponchel, 2013; Klapper et al., 2013; Pshisva and Suarez, 2010; Shonchoy and Tsubota, 2016). Third, this study contributes to the comprehensive literature that has examined the impact of various business climate indicators on firm performance (Aterido et al., 2011; Ayyagari et al., 2008; Batra et al., 2003; Beck et al., 2005; Fisman and Svensson, 2007; Hallward-Driemeier et al., 2006; Krauss, 2015).[2] However, political instability has not caught the attention of researchers so far, mainly because it was not explicitly mentioned as an obstacle in earlier surveys. Moreover, our finding that political instability was the most damaging obstacle to firms, instead of the financing constraint mostly found in previous studies, reflects the need to focus on individual country

[1] Arieff and Humud (2015), IMF (2015) and World Bank (2015); among others.

[2] An extensive review of the literature that examined the impact of business constraints on firm performance can be found in World Bank (2004) and Dethier et al. (2011).

experiences, rather than inferring policies based on cross-country regressions that (i) do not fully control for heterogeneity among countries with distinct legal, regulatory, financial and macroeconomic systems and (ii) might be driven by trends in big countries such as India and China which have large survey samples (Krauss, 2015).

The remainder of this paper is organized as follows. Section 2 introduces and describes the data, while section 3 explores which characteristics can best explain firms' perception of political instability as a business environment obstacle. This is followed by section 4 which determines the most damaging constraint to firm growth and performs some robustness checks. Finally, section 5 concludes.

2. Data and Descriptive Statistics

This section introduces the dataset and analyzes descriptively the business environment constraints to Tunisian firms. In this study, we will use the 2013 Tunisian Enterprise Survey (TES) which was conducted jointly by the World Bank, the European Bank for Reconstruction and Development (EBRD), and the European Investment Bank (EIB).[3] The sampling unit of analysis is the "Establishment" which we denote interchangeably in what follows as firm or enterprise. While several papers have previously used this kind of survey to answer different questions in different countries and regions, this study is the first to employ the 2013 Tunisian Enterprise Survey in a context of analyzing the implications of political instability on firms.

The TES dataset, which was collected through personal interviews with Tunisian firm managers/owners between March 2013 and July 2014, is formed of 592 enterprises. In particular, the sample includes enterprises located in the regions of Tunis (capital), Sfax, Northeast, South Coast/West and Interior. It also covers enterprises in the retail (10.6 percent), services (33.5 percent) and manufacturing (55.9 percent) sectors,[4] as well as small (36 percent), medium (41 percent) and large (23 percent) firms employing 5 to 19, 20 to 99, and more than 100 employees, respectively.

The dataset records several firm characteristics such as firm size, age, and export activity, whether the firm is foreign owned, the manager's years of experience, his/her gender and education level and finally whether a firm received any subsidies from national or international institutions. Table A.1[5] lists the definitions and different categories of each firm characteristic. To measure firm performance we use the real sales growth rate between 2009 and 2012. Given that sales figures were reported in nominal terms in the survey, we deflated them using the

[3] These surveys are freely available for researchers and policymakers who can register online and access the raw data using the following link: http://www.enterprisesurveys.org/data/survey-datasets. As of August 2015, enterprise surveys have been conducted by the World Bank and its partners in 135 countries around the world.

[4] Note that firms operating in the financial intermediation, renting, public and real estate sectors are not part of the TES.

[5] All tables with an "A" are in the Appendix.

Consumer Price Index (CPI) taken from the World Development Indicator published by the World Bank.[6] We trimmed the first and last two percentiles of our data in order to avoid outliers.[7] As a result, our sample is slightly reduced to 569 observations. Table A.2 presents summary statistics of the above firm characteristics.

Most interestingly, the TES questionnaire asks firm managers to what extent the 17 possible business environment obstacles, presented in Table A.3, have an impact on the firms' operations. The question used to gauge the perception of a firm manager towards a certain constraint is: "To what degree is constraint X an obstacle to the current operations of this establishment?" The answers to that question include a five point scale ranging from "No Obstacle" coded as 0, "Minor Obstacle coded as 1, "Moderate Obstacle" coded as 2, "Major Obstacle" coded as 3, and "Very Severe Obstacle" coded as 4.[8]

Figure 1 presents the proportion of surveyed firms that considered each constraint as a major or very severe problem to their functioning. Political instability clearly stands out as the most worrying obstacle to firms followed by corruption, an inadequately educated labor force and access to finance. The fact that political instability was the most commonly perceived constraint is not surprising given the unparalleled surge in political instability events since the onset of the Tunisian revolution. Indeed, using data compiled by the Armed Conflict Location and Event Data Project (ACLED) between 1997 and 2014, we clearly see, as illustrated in Figure 2, a sudden increase in different kind of conflict events during the post-revolutionary period. For instance, the total number of protests/riots that took place during the period 2011-2014 increased by more than 18 fold compared to the period spanning from 1997 till 2010 (green line in Figure 2). A brief description of the ACLED database (Raleigh and Dowd, 2015; Raleigh et al., 2010) as well a definition for each conflict event reported in Figure 2 can be found in section SA.1 of the supplemental appendix to this paper.[9]

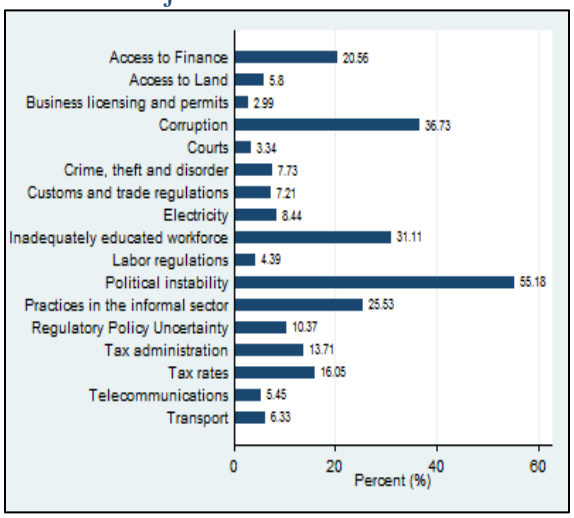
[6] Both CPI and the GDP deflator increased by 13.7 percent between 2009 and 2012; hence using both measures will not have an impact on the results.

[7] The original dataset included firms that had a real sales growth between 2009 and 2012 of more than 500 percent. These observations pushed the distribution to be extremely right skewed. Using the Shapiro–Wilk test we could reject the null hypothesis that the sales growth variable was normally distributed as the z statistic was 12.7. When we trimmed the first and last two percentiles of our data, the Shapiro–Wilk test still rejected the normality assumption, however with a much lower z statistic of 7.4 implying that variable sales growth is much closer to the normal distribution than before.

[8] Two other possible answers to this question were "Don't know" and "Does not apply" coded respectively as -9 and -7. Given that these answers may distort our results, we recoded these observations as missing.

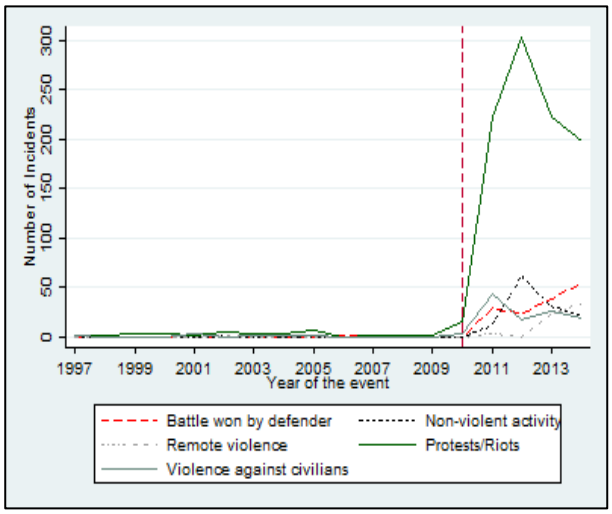
[9] The supplemental appendix is available upon request.

Figure 1: Proportion of enterprises considering the issue a major or severe constraint



Source: TES and author's own.

Figure 2: Conflict events in Tunisia over time



Source: ACLED database and author's own calculations.

Moreover, the results reported in Table A.3 cements our earlier observation that Tunisian firms consider political instability to be, by far, the most severe obstacle to their operations. Indeed, among the 17 obstacles, political instability had the highest average answer of 2.4 in the overall sample (column 1). While its magnitude varies slightly by firm characteristics, sectors and regions, this constraint was uniformly considered as the most severe constraint to firm growth. On the other hand, access to land, business licensing and permits, courts, crime theft and disorder, customs and trade regulations, labor regulations, electricity, telecommunications and transport had an average below 1 over the whole sample and across different firm characteristics; suggesting that these issues were seldom considered as obstacles to Tunisian firms.

One possible drawback of our analysis is the use of subjective data as measures of business environment constraints. According to Bertrand and Mullatinathan (2001), subjective measures used typically in surveys may be affected by general waves of optimism or pessimism which may induce a measurement error. In section SA.2 in the supplemental appendix of this paper, we show that the subjective measures used here are significantly correlated with their objective counterparts, hence overcoming this issue.

Notwithstanding this finding, we argue that the political instability constraint, which we are mostly interested in, and which does not have any objective counterpart in the TES, suffers from a strong measurement error. In particular, De Haan (2007) argued that political instability indicators tend to be measured with errors, because researchers tend to focus on one dimension only (e.g. political violence, armed conflicts, civil protests, instability of the political regime etc…), while in reality the concept of political instability is multidimensional as argued in the political science literature (Hibbs, 1973; Jong-A-Pin, 2009; Rummel, 1963; Tanter, 1966). Consequently, this is likely to bias our coefficient on the political instability constraint downwards.

In addition, it is noteworthy to mention that the TES might suffer from a sample selection problem, because if firms' exit as a result of the 2011 revolution was not random then our below results may be biased. While, it is not possible to directly address this potential survivor bias given that the dataset we use does not cover the pre-revolution period, we find no (observable) evidence, as detailed section SA.3 in the supplemental appendix, in support of this bias.

3. Determinants of the Political Instability Constraint

In this section, we explore which firm characteristics can best explain firms' perception of political instability as a business environment obstacle. Building on the literature, we start by presenting theoretical arguments on why certain enterprises might perceive political turmoil as a more significant constraint than others.

First, exporting firms might be more impacted by political instability as they become, during periods of political turmoil, less competitive vis-à-vis other international competitors due to higher costs of production and a degeneration of human capital skills (Collier and Duponchel, 2013). Second, small companies tend to perceive political instability as a bigger impediment to their operations, relative to large firms, because they have fewer resources to survive during periods of turmoil. In addition, small firms do not have a bargaining power as large firms in order to influence policy makers and obtain preferential treatments. For instance, during recessions, large enterprises "might threaten to lay off workers if they do not get tax reductions" (Schiffer and Weder, 2001, p. 4). Third, political instability would be a lesser constraint to firms with experienced managers as those can find efficient solutions during periods of turmoil given that they already dealt with similar crisis in the past. As stated by Sayegh et al. (2004, p. 186) "a manager with past experience with events similar to the current crisis may have assumptions about the cause of the crisis through matching the current situation with his/her existing narrative schema, and thus might be able to make more effective decisions based on these assumptions". Fourth, firms in different sectors might perceive political instability as an obstacle differently. In particular, enterprises operating in the tourism sector are more vulnerable to higher levels of political instability as international tourism is a luxurious activity with a high income elasticity of demand (Lim, 1997).[10] Consequently, and as documented by Sönmez and Graefe (1998), tourists cancel, postpone or substitute their touristic plans to more secure countries in the wake of political turmoil. Fifth, higher levels of education allow individuals to cope more efficiently with sudden changes in the economic environment. For instance, Schultz (1975) argued that more educated farmers were more successful during periods of disequilibria and changing economic environments. Sixth, during periods of unrest, acts of vandalism and arson tend to increase and consequently firm productivity drops because these events are usually coupled with road blockades and damage to the infrastructure. Kamal and Kaiser (2015) showed that the Bengali readymade garment (RMG) sector was adversely impacted by acts of arson and vandalism that happened on the eve of the parliamentary elections in 2013.

[10] The impact of terrorism, one of the facets of political instability, on tourism has been documented extensively in the literature (Drakos and Kutan, 2003; Llorca-Vivero, 2008; Neumayer, 2004).

In addition to the above firm characteristics, and in order to minimize any possible bias stemming from omitted variables we add, based on the literature that previously explored which firm attributes were mostly associated with business environment obstacles[11] the following controls: firm age, foreign company (a dummy variable equals 1 if foreign individuals or companies hold at least 50 percent of the firm and 0 otherwise), manager's gender and subsidy (a dummy variable equals 1 if this establishment received any subsidies from the national international institutions and 0 otherwise).[12] Consequently, we estimate the following ordered probit model:

$$Pol\ Obst_i = \alpha + \beta_1.Size_i + \beta_2.Age_i + \beta_3.Exporter_i + \beta_4.Foreign_i + \beta_5.Manag\ \ Exp_i + \beta_6.Manag\ Gen_i + \beta_7.Manag\ Educ_i + \beta_8.Subsidy_i + \beta_9.crime_i + \boldsymbol{\gamma}'[\boldsymbol{sector}] + \varepsilon_i\ . \quad (1)$$

In equation (1), the dependent variable $Pol\ Obst_i$ which ranges between 0 and 4 is higher the more firm i considers political instability as a constraint to its operations, while ε_i is a vector of independent and identically distributed error terms. To account for heteroscedasticity, we use robust standard errors. Moreover, $\boldsymbol{sector}$ is a vector of dummy variables corresponding to each sector (food, other manufacturing, retail and services)[13] introduced to account for industry effects as firms from different sectors may be impacted differently by political instability.

We are interested in the sign and statistical significance of the coefficients on each of the explanatory variables. A positive (negative) and significant coefficient means that firms with that given attribute consider political instability as a higher (lower) obstacle to their growth than firms that do not have this attribute. The estimation results of equation (1), displayed in specification 1 of Table 1, indicate, as suggested by the theoretical arguments, that firm size, manager's experience, exporting firms and those that are in the tourism sector as well as enterprises that suffered from acts of vandalism and arson are all good predictors of the political instability constraint that companies report. We also find that firms operating in the food industry have a significantly negative coefficient, indicating that they are less concerned by political instability.

[11] Kounouwewa and Chao (2011) and Vargas (2015) examined the determinants of financial obstacles, while Beck et al. (2005) examined the firm characteristics that can explain variation in the legal and corruption constraints to firms. Moreover, Carlin et al. (2006) explored the firm determinants of financing and customs regulation obstacles.

[12] As argued by Beck et al. (2005), the subsidy dummy can be used to capture the different market structures in which firms might operate.

[13] The garment sector is the omitted category.

Table 1: Ordered Probit model of Political Instability regressed on firm characteristics

	Specification 1		Specification 2	
	Coefficient	AME(4)	Coefficient	AME(4)
Small	0.227**	0.066**	0.236**	0.068**
	(0.111)	(0.033)	(0.111)	(0.033)
Large	-0.161	-0.040	-0.175	-0.043
	(0.121)	(0.030)	(0.122)	(0.029)
Age	-0.001	-0.000	-0.000	-0.000
	(0.003)	(0.001)	(0.003)	(0.001)
Exporter	0.237**	0.065**	0.245**	0.067**
	(0.109)	(0.030)	(0.110)	(0.030)
Foreign	-0.193	-0.053	-0.190	-0.052
	(0.190)	(0.052)	(0.192)	(0.052)
Manag Exp	-0.012***	-0.003***	-0.011**	-0.003**
	(0.005)	(0.001)	(0.005)	(0.001)
Manag Gend	-0.060	-0.017	-0.074	-0.020
	(0.200)	(0.055)	(0.205)	(0.056)
Manag Educ	0.063	0.017	0.059	0.016
	(0.089)	(0.024)	(0.090)	(0.025)
Subsidy	0.008	0.002	-0.014	-0.004
	(0.135)	(0.037)	(0.136)	(0.037)
Food	-0.312**	-0.086**	-0.326**	-0.089**
	(0.158)	(0.044)	(0.160)	(0.044)
Other Manuf	-0.155	-0.043	-0.208	-0.057
	(0.162)	(0.044)	(0.162)	(0.044)
Retail	-0.073	-0.020	-0.081	-0.022
	(0.159)	(0.044)	(0.165)	(0.045)
Other Serv	0.077	0.021	0.066	0.018
	(0.157)	(0.043)	(0.160)	(0.044)
Tourism	0.521**	0.144**	0.447*	0.122*
	(0.264)	(0.072)	(0.262)	(0.071)
Losses due to crime (% of sales)	0.132***	0.036***	0.131***	0.036***
	(0.050)	(0.014)	(0.045)	(0.012)
Tunis			-0.119	-0.032
			(0.135)	(0.036)
Sfax			-0.103	-0.028
			(0.144)	(0.038)
South Coast/West			-0.047	-0.013
			(0.131)	(0.036)
Interior			0.430**	0.138**
			(0.192)	(0.065)
Observations	555	555	555	555

Note: Robust standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. The dependent variable is the political instability constraint which takes five values ranging from 0 to 4. The omitted categories are medium-sized firms and the garment sector. Losses due to crime (% of sales) denote the estimated losses as a result of theft, robbery, vandalism or arson that occurred on the firm's premises as a percentage of total annual sales in 2012. Columns 2 and 4 represent the average marginal effects (AME) on the probability that firms considering political instability as a major constraint to their operations.

When looking at the economic significance, using Average Marginal Effects (AMEs), available in column 2 of Table 1, we find that exporting firms and those that operating in the tourism sector are, on average, 6.3 and 14.4 percent more likely to perceive political instability as a very severe obstacle to their growth, respectively. In contrast, firms in the food industry sector are 8.6 percent less likely to perceive political instability as a very severe obstacle. The first two columns of Table 1 also indicate that on average, firms' perception of political instability relates negatively to firm size, with smaller (larger) firms reporting it as a higher (lower) business constraint.[14] But this relation is only significant for small firms with a 6.6 percent higher probability of perceiving political instability as a very severe obstacle. Furthermore, a 1 percentage point increase in losses resulting from crime actions (vandalism, arson, etc…) is associated with a 3.6 percent higher likelihood of considering political instability as a very severe obstacle. The results also show that firms managers that have 10 more years of work experience are, on average, 3 percent less likely to perceive political instability as a very severe constraint. Meanwhile, the manager's gender and education level as well as the age of the firm and whether it receives a subsidy or is foreign owned, do not explain the variation in firm's perception of political instability.

As argued by Collier and Duponchel (2013), firms operating in regions of high conflict intensity will be the most affected by a conflict. To examine whether firms are concerned about political instability across different regions, we introduce regional dummies to equation (1). Columns 3 and 4 of Table 1 present, respectively, the estimation results and corresponding AMEs of that model which we denote by specification 2. While the sign and statistical significance of earlier results are unchanged, only the coefficient on the dummy variable corresponding to the Interior region is significantly correlated with how firms perceive political instability. In terms of magnitude, firms in the Interior region are, on average, 13.8 percent more likely to perceive political instability as a very severe obstacle to their growth. This large association is not surprising given that the Interior region, which was economically and socially marginalized relative to the coastal areas, experienced the highest number of political instability events since the revolution erupted early 2011. Figure A.1 in the Appendix shows that the actual number of reported political incidents that took place between 2011 and 2014 was the highest in the Interior region of Tunisia.[15] In particular, this region includes two cities that were at the heart of the Jasmine revolution: Sidi Bouzid which was the birthplace of the Tunisian revolution from which protests against Ben Ali's regime commenced after Mohamed Bouazizi set himself on fire in its streets on 17 December 2010; and Gafsa city, the mining capital of Tunisia, which was hit severely in the aftermath of the revolution as protests, by poor citizens demanding jobs and higher living standards, paralyzed the mining industry which accounted for 9.2 percent of

[14] The medium size firms are the omitted category.

[15] In the ACLED database, data about the number political instability events (protests, attacks against civilians, remote violence, non-violent activity and battle won by defender) were reported at the governorate level (there are 24 governorates in Tunisia), while data in the WEBS were stratified into five regions. To merge the two datasets, we refereed to the "Tunisia 2013 Enterprise Surveys Data Set Implementation Report" that describes the governorates included in each of the five regions.

total exported goods in 2010.[16] Moreover, this finding is consistent with the literature on the determinants of political unrest, which argues that instability events occur more often when people feel marginalized because of extreme poverty (Miguel, 2007) and/or high youth unemployment (Azeng and Yogo, 2013; Urdal, 2006).[17]

To sum up this section, our results show that political instability was a major concern for smaller and exporting firms as well as those that were operating in the tourism sector, that have suffered from acts of vandalism or arson and that were located in the Interior region of Tunisia.

4. The Most Damaging Constraint to Firm Growth

This section examines which business environment constraint was the most damaging to firm growth in Tunisia during the post-revolutionary period.

4.1 Main Results

In this paper, we define an obstacle to be damaging if it has a statistically significant and negative impact on firm growth, defined as the firm real sales growth rate between 2009 and 2012. Hence, we start by determining which out of the seventeen business environment obstacles, reported in Table A.3, are damaging using a general-to-specific modelling strategy. In particular, we regress firm growth on all the different obstacles while controlling for different firm characteristics, and then eliminate the constraint with the highest positive t-ratio, one at a time, until we end up with only negative and statistically significant coefficients. Accordingly, we estimate the following OLS regression:

$$Firm\ Growth_i = \alpha + \boldsymbol{\theta}'[\boldsymbol{Potential\ Constraints}] + \boldsymbol{\delta}'[\boldsymbol{FC}] + \varepsilon_i \qquad (2)$$

where $[\boldsymbol{Potential\ Constraints}]$ is a vector composed of the seventeen potential constraints; $[\boldsymbol{FC}]$ is a vector of controls containing various firm characteristics that have been extensively used in the literature to examine the determinants of firm performance:[18] firm age (and age squared), its export activity, its legal status, whether its foreign owned, the percentage of the firm owned by the government, and the manager's years of experience, his/her education level and gender. Consequently, a constraint $c = 1, \ldots, 17$ is damaging to firm growth if its

[16] "According to the Compagnie des phosphates de Gafsa (CPG), phosphate production was only 2.5 million tons in 2011, compared to 8 million in 2010. The amount of phosphate fell to under 3 million"(African Development Bank, 2012, p. 5). In addition, firms operating in Gafsa may have another reason for considering political instability as an obstacle to their functioning as the city experienced a major revolt in 2008 (against unfair hiring practices by the state-run Gafsa Phosphate Company) that turned sometimes into riots and was then brutally repressed by Ben Ali's regime (Beinin, 2016).

[17] Young and unemployed people are also used by political parties to cause trouble in return for money. In the case of Bengladesh, Shonchoy and Tsubota (2016, p. 6) states that "political parties hire people, mostly those who are relatively young, poor, unemployed and want to make quick money. These paid supporters occupy the major streets of the city and terrorize ordinary citizens and businesses with blockades, violence, and other forms of intimidation".

[18] See for example, Aterido et al. (2011), Beltrán (2016), Krauss (2015) and Pfeifer (2015).

corresponding coefficient θ_c is negative and statistically significant. Table 2 reports the estimation results of equation (2). Due to space constraints, we do not report all the stages of the general-to-specific strategy.[19] Column 1 shows that, when we regress sales growth rate on all the obstacles, access to finance, political instability and tax administration yield significantly negative coefficients. However, after adopting the general-to-specific strategy, column 3 shows that only the coefficients on access to finance and political instability remain negative and statistically significant, implying that these two constraints are damaging to firm growth rate. Subsequently, the most damaging obstacle would be the one that has the largest coefficient in absolute value. In particular, when normalizing the results, we find that a one-standard error increase in the access to finance and political instability constraint is associated with a 2.6 and 3.2 percent decrease in firm growth rate, respectively; suggesting that the latter is the most damaging constraint.

However, our results might suffer from two possible sources of biases: measurement error and reverse causality. As explained in section 2, the political instability constraint may be measured with error as firm managers may not consider all the facets of political instability when answering the surveyor's question. Moreover, a reverse causality bias may exist as low performing firms tend to report more stringent constraints whereas successful firms have the necessary resources to overcome certain obstacles and improve the business environment (Dethier et al., 2011). To overcome these endogeneity issues, we would employ an Instrumental Variable (IV) strategy.

Despite the richness of the World Bank Enterprise Survey, finding reliable instruments is challenging. As a solution, we employ region-sector-size averages as benchmark firm-specific instruments. This approach, which has been introduced by Friedman (1957) and reviewed by Angrist and Krueger (2001), is a widely recognized practice in the literature (Amissah and Stack, 2016; Ayyagari et al., 2008; Beltrán, 2016; De Rosa et al., 2010; De Waldemar, 2012; Desai and Olofsgård, 2011; Fisman and Svensson, 2007) to address endogeneity problems when using perception based measures of the business environment as explanatory variables. In taking grouped averages, it is unlikely that a firm's individual performance affects the perception of other companies within same group (region-sector-size), implying that the "direction of causality is likely to run from the average obstacles to individual firms, not vice versa" (Ayyagari et al., 2008, p. 499); satisfying the exclusion restriction assumption. At the same time, it is likely that firms operating in the same environment (region-sector-size) have similar perceptions towards certain business obstacles. Hence, we expect our selected instruments to be significantly correlated with individual firm perceptions toward business environment obstacles; satisfying the strong instrument assumption. Moreover, taking group average as instruments deals with potential measurement errors which are generally firm specific, and therefore uncorrelated with the average constraint values (Angrist and Krueger, 2001; Fisman and Svensson, 2007).

[19] The detailed regression results are available upon request.

Table 2: Impact of Obstacles on Sales Growth

	OLS			IV	
	(1)	(2)	(3)	(4)	(5)
Acc Fina	-4.449***	-3.571***	-3.586***	-6.564**	-6.493**
	(1.350)	(1.339)	(1.273)	(2.744)	(3.204)
Acc Land	-1.967	-1.350			
	(2.018)	(2.039)			
Licen and Perm	-1.296				
	(2.484)				
Corrup	1.454				
	(1.507)				
Courts	0.266	1.435			
	(2.539)	(2.518)			
Crime	0.443				
	(2.206)				
Cust and Trd Reg	5.901***				
	(1.896)				
Inadeq Workfor	-0.682	1.037			
	(1.381)	(1.296)			
Labor Regul	3.584*				
	(2.173)				
Pol Inst	-6.177***	-4.725***	-4.317***	-10.935***	-10.920***
	(1.658)	(1.477)	(1.387)	(2.961)	(3.366)
Reg Policy Uncert	-3.059*	-0.423			
	(1.822)	(1.656)			
Informal Compet	0.693				
	(1.239)				
Tax Admin	-4.362*	-0.350			
	(2.288)	(1.510)			
Tax Rates	4.561**				
	(2.293)				
Elec	-1.050	2.024			
	(1.678)	(1.498)			
Telecom	3.470				
	(2.583)				
Transp	2.233				
	(2.020)				
Additional Controls	Yes	Yes	Yes	Yes	Yes
Observations	518	520	520	520	498
F-test (Access to Finance regression)				88.4	41.9
F-test (Political Instability regression)				75.6	31.0
Overidentifcation test (p-value)					0.77

Note: Robust standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. The dependent variable is the real firm sales growth rate between 2009 and 2012. In all regressions the set of firm characteristics includes: the firm age (and age squared), its export activity, its legal status, whether its foreign owned, the percentage of the firm owned by the government, and the manager's years of experience, his/her education level and gender. The endogenous variables are the political instability and access to finance constraints. In column 4 the region-sector-size average of each endogenous variable is used as a respective instrument. In column 5 we add the following two instruments: (i) the firm losses as a percentage of annual sales resulting from crime events (vandalism, arson etc…) and (ii) the region-sector-size average of the access to finance objective measure.

The results for the IV regression are reported in column 4 of Table 2. The F-statistics for both first-stage regressions are higher than 10 (the Staiger and Stock (1997) rule of thumb below which instruments are considered to be weak), suggesting that both instruments are strong. Moreover, the first-stage regressions, reported in panel A of Table A.5, show positive and highly significant relationships between each instrument and its respective endogenous variable. Most importantly, the coefficient on political instability remains statistically significant at the 1 percent level while that on access to finance loses some significance. In addition, the magnitude of the former becomes much larger than the latter reinforcing our finding that political instability was the most damaging constraint to firm growth in Tunisia after the Arab Spring.

Notice that, compared to the OLS regression (column 3), the magnitude of the estimates on the access to finance and political instability constraints increase with the IV (column 4). While the increase is relatively smaller for the former, the large difference between the magnitudes of the OLS and IV estimates on the political instability coefficient is not surprising given that this measure is likely to suffer, as explained in section 2, from a measurement error leading to an attenuation bias in the OLS results.

In order to test the exogeneity of the instruments using the Sargan test of overidentifying restrictions, we add one potential instrument for each endogenous variable. The additional instruments are objective measures, thereby reducing further any measurement error (Aterido et al., 2011; Krauss, 2015). For the political instability constraint, we use firm losses as a percentage of the 2012 annual sales stemming from crime events (vandalism, arson etc…). As shown in Table 2, this measure is significantly positively correlated with the political instability constraint suggesting that firms' perception of political instability is likely to be influenced by the extent to which they have suffered from acts of arson or vandalism; satisfying the strong instrument assumption. Moreover, crime events (theft, vandalism, robbery etc…) are likely to be exogenous with respect to firm characteristics, as these are often associated with mass protests and riots that happen at the regional and national level during revolution periods without necessarily targeting specific firms (Roberts, 2012; Roman, 2013; Tadjoeddin, 2013).[20] Therefore, we argue that this instrument satisfies the exclusion restriction assumption.

The additional possible instrument for the access to finance obstacle would be the region-sector-size average of its objective counterpart which is the reason why a firm did not apply for commercial bank loan.[21] Table SA.1 in the supplemental appendix demonstrates that this

[20] In the Tunisian case, anecdotal evidence suggests that acts of vandalism did not target specific firms; rather they happened during protests against high unemployment rates and poverty levels. For example, the following articles document some acts of vandalism during mass protests that occurred in the aftermath of the 2011 revolution: (i) http://news.yahoo.com/tunisia-announces-nationwide-curfew-protests-000037792.html and (ii) http://english.alarabiya.net/articles/2013/01/13/260237.html and (iii) http://www.economist.com/news/middle-east-and-africa/21567991-economic-neglect-menacing-fragile-new-democracy-democracy-and-riots.

[21] The definition of the objective measure corresponding to the access to finance obstacle is available in Table A.4 in the appendix.

objective measure, is positively and significantly correlated with the access to finance constraint reported by firm managers, implying that companies which did not need to apply for a loan because they had sufficient internal resources did not consider access to finance as an impediment to their functioning; hence satisfying the strong instrument assumption. Moreover, and as argued above, taking the region-sector-size average helps in minimizing endogeneity issues as firms' individual characteristics are not directly impacted by aggregate obstacles at the group level.

While one of the two additional instruments do not enter significantly in the first-stage regressions, presented in columns panel B of Table A.5, the coefficients on both variables have positive signs that are consistent with our expectations. The F-statistics, governing the joint significance off all the instruments and presented at the bottom of column 5 in Table 2, remain well above 10, justifying the inclusion of the new instruments. In addition, the Cragg-Donald minimum eigenvalue statistic also suggests that the null of weak correlation between the instruments and the endogenous variables is rejected, since the calculated value (19.2) is greater than the tabulated critical values (16.9 at the 10 percent level). More importantly, the overidentifying restrictions test indicates that the null of instruments erogeneity cannot be rejected as the p-value was 0.77. Finally, the results, based on this larger pool of instruments, are not different from the previous ones as political instability remains the constraint with the most significant and biggest negative coefficient.

To summarize, our results in this section suggest that political instability was the most damaging constraint to firm growth in Tunisia after the Arab Spring.

4.2 Robustness Checks

In what follows, we perform two robustness checks. First, we explore whether our baseline results are sensitive to using employment growth as another measure of firm performance.[22] Hence, we replicate the same regressions as equation (2), this time considering employment growth between 2009 and 2012 as the dependent variable.[23] All the results of these specifications are reported in Table A.6. Following the general-to-specific strategy we find, as reported in columns 1, 2 and 3, that the damaging constraints to employment growth are political instability and an inadequately educated workforce. The latter, however, is only significant at the 10 percent level and its coefficient is half of the former, suggesting that political instability is also the most damaging constraint to employment growth. Our results are also confirmed when taking care of endogeneity using region-sector-size averages and firm losses as a percentage of the 2012 annual sales stemming from crime events as firm specific instruments. In both IV specifications (columns 4 and 5) the coefficient on the inadequately educated force becomes insignificant, while that on political instability remains strongly significant and its magnitude increases. Most importantly,

[22] Dollar et al. (2005), Hallward-Driemeier et al. (2006), Aterido et al. (2011), Trentini and Koparanova (2013) and Stel and Naudé (2016) have all considered employment growth as an alternative/complementary measure of firm performance.

[23] Our measure of employment at year 2009 (2012) is the number of full-time Employees at the end 2009 (2012).

these results indicate that, irrespective of how growth is measured, political instability is the most damaging constraint to firm performance.

Second, and while the main results (section 4.1) determine which constraint is, on average, the most damaging to Tunisian firms, they do not inform us whether firms tend to react differently at different business constraint levels. To tackle this question, we re-estimate the regressions presented in columns 3 and 5 of Table 2 while focusing on disaggregating each damaging constraint (access to finance and political instability) into three separate dummy variables: No obstacle (equals 1 if firm i did not consider issue X as a constraint), Small obstacle (equals 1 if firm i considers issue X a minor constraint) and Big Obstacle (equals 1 if firm i considers issue X as moderate, major or very sever constraint).[24] The results reported in Table A.7 suggest that Tunisian firms can cope with low levels of political instability and financing constraints. What is noticeable is that higher levels of political instability tend to have a significantly increasing adverse impact on firms.[25] To compare the appropriateness between the aggregated model (Table 2) and the one with grouped dummies (Table A.7), the J and Cox-Pesaran statistics are used.[26] Considering the financing constraints, both statistics indicate that the two models should not be rejected as their p-values are higher than 10 percent. On the other hand, when focusing on political instability, the model with disaggregated levels seems to be the preferred one.[27] Consequently, we conclude that the disaggregated level is more useful in explaining how firms' sales growth is impacted by political instability. Overall, our two robustness tests confirm that political instability was the most damaging constraint to Tunisian firms after the Arab Spring.

5. Conclusion

This paper explores the impact of political instability on firms. In particular, we focus on Tunisia, which experienced a surge in political instability following the Arab Spring uprisings.

Using the 2013 Tunisia Enterprise Survey, we show that political instability was a major concern for smaller and exporting firms as well as those that were operating in the tourism sector, that have suffered from acts of vandalism or arson and that were located in the Interior region of Tunisia. Most importantly, we find strong evidence that political instability was the most damaging constraint to firm growth in Tunisia after the Arab Spring.

Unfortunately, our data suffers from two main limitations. First, in terms of quality, we only have a multidimensional measure of political instability, which prevents us from testing whether

[24] The No Obstacle category was omitted.

[25] Unfortunately, the survey does not provide details about the different dimensions of political instability, which prevents us from determining which dimension (e.g. political violence, armed conflicts, civil protests, instability of the political regime etc…) is the most damaging to Tunisian firms.

[26] The J and Cox-Pesaran statistics are usually used to compare the appropriateness between two non-nested models.

[27] For the political instability constraint, the p-values of the J and Cox-Pesaran were, respectively, 0.06 and 0.02 (0.54 and 0.27) for the aggregated (disaggregated) model.

the relationship between political turmoil and firm growth varies across different dimensions of instability (e.g. political violence, armed conflicts, civil protests, instability of the political regime etc…). Second, in terms of quantity, we do not have firm-level data prior to the Arab spring impeding us from using panel-econometric techniques which would have enabled us to control for firm fixed effects and deal with a potential survivor bias.

Our findings might have some policy implications. Traditionally, the challenge of firm growth is tackled through a technical and apolitical lens; however our analysis provides evidence that when it comes to revolution-torn countries, policy makers should first and foremost shield the economy against destabilizing political and security events. More specifically, Tunisian policymakers should focus on reducing political instability in regions that were the most affected by it (e.g. the Interior region in our case) through tackling its root causes such as high unemployment rates, regional disparities and income inequalities which are argued to be the main reasons behind the uprisings in the interior region. According to El-Khawas (2012, p. 7), "unemployment was more than 22 percent in Kasserine and Gafsa in the interior, regions that were among the first to challenge the regime".[28] In addition, the Tunisian authorities are encouraged to develop policies aimed at targeting smaller and exporting firms as well as those that are operating in the tourism sector as these are found to be the most affected during periods of high political instability.

Finally, and while this study is focused on Tunisia, its findings may be relevant to other countries that experienced a long and protracted period of transition from one political regime to another. However, due to the geo-political, cultural and historical specificities of the Arab world, we recognize that political instability in the MENA region is a complex issue which needs more research to understand its causes, dynamics and economic implications, particularly following the Arab Spring uprisings.

[28] "Regional disparities were very large: (i) average poverty rates remained 3 times as high in the interior of the country than in richer coastal "offshore" areas; (ii) at 25 percent, unemployment rates in the interior regions were double those of coastal areas; and (iii) only 13 percent of foreign firms were created in the interior regions." (IMF, 2015, p. 22).

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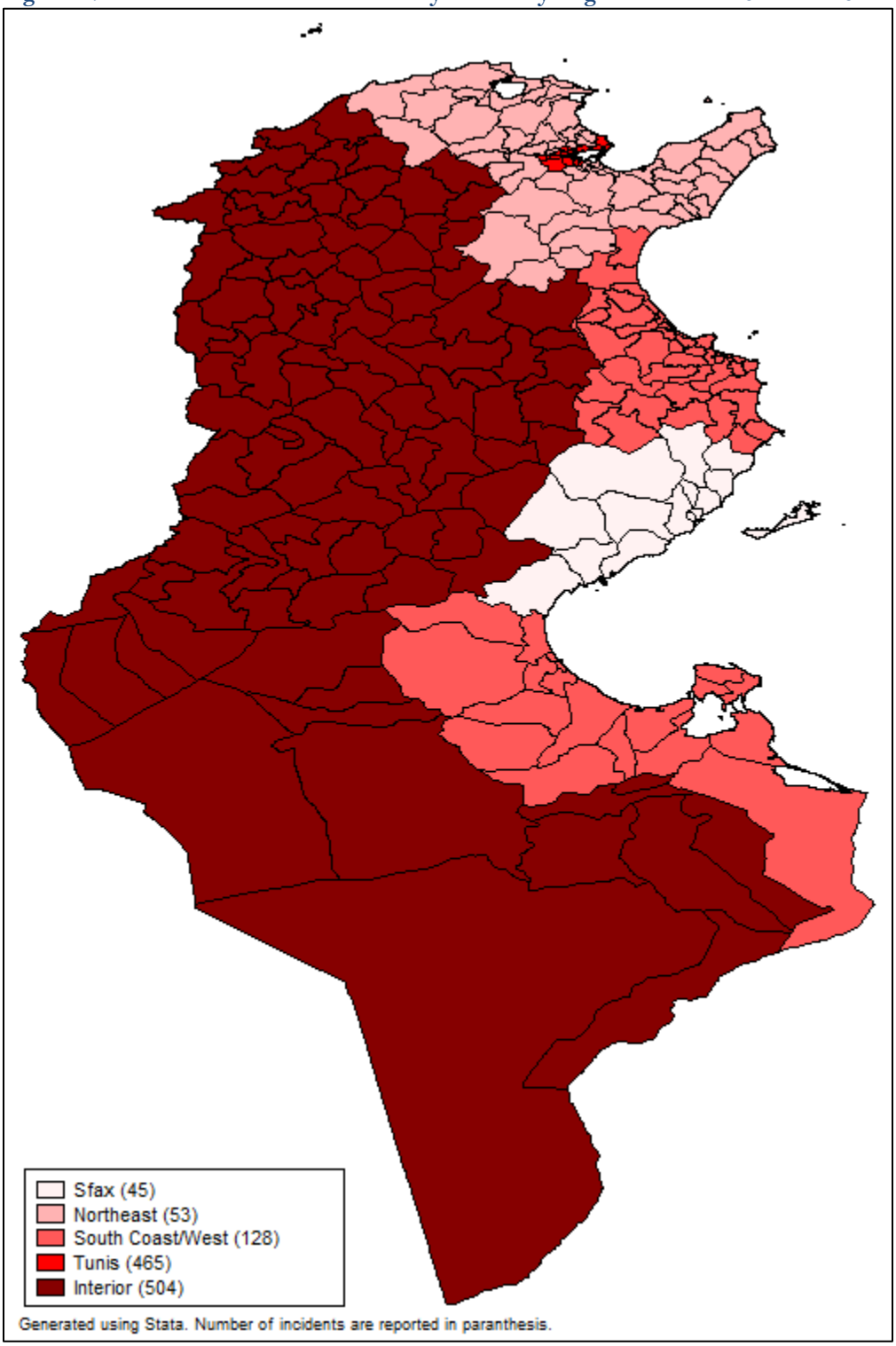
Appendix

Figure A.1: Number of Political Instability Events by Region Between 2011 and 2014



Source: Author's own calculations based on the ACLED database.

Table A.1: List of firm characteristics and the corresponding coding

Variable	Category	Code
Firm Size	Small: 5 to 19 employees	1
	Medium: 20 to 99 employees	2
	Large: more than 100 employees	3
Firm Age	Number of years in operation since firm creation	Continious variable
Export Activity	Less than 10 percent of sales are direct exports	0
	More than 10 percent of sales are direct exports	1
Foreign Owned	Less than 50 percent of the company is owned by a foreign entity	0
	At least 50 percent of the company is owned by a foreign entity	1
Manager's Experience	Manager's years of eperience	Continious variable
Manager's Gender	Female	1
	Male	2
Manager's Education Level	Completed Primary school	1
	Preparatory or Incomplete Secondary school	2
	Completed Secondary school including Vocational	3
	University degree or higher	4
Subsidy	This establishment did not receive any subsidies	0
	This establishment received any subsidies	1

Source: TES database and author's own coding.

Table A.2: Summary statistics of firm characteristics

Variable	Obs	Mean	Std. Dev.	Min	Max
Size	569	1.87	0.76	1	3
Manag Exp	561	25.75	11.41	1	63
Manag Gend	569	1.93	0.26	1	2
Subsidy	566	0.16	0.37	0	1
Foreign	569	0.10	0.30	0	1
Age	567	22.81	14.12	1	108
Manag Educ	567	3.67	0.58	1	4
Exporter	569	0.39	0.49	0	1
Sales Growth	535	0.26	38.49	-66	164

Source: TES database and author's own coding.

Table A.3: Business Environment Obstacles Averaged Across Firm Characteristic

	Total Sample	Size[a]			Age[b]				Exporting Activity[c]		Manager's Experience[d]			
		Small	Medium	Large	Very Young	Young	Old	Very Old	Non-Exporter	Exporter	Little	Medium	High	A lot
Acc Fina	1.12	1.38	1.04	0.85	1.72	1.11	1.09	1.00	1.08	1.18	1.31	1.24	1.10	0.98
Acc Land	0.41	0.48	0.37	0.40	0.59	0.47	0.31	0.40	0.35	0.52	0.56	0.48	0.40	0.33
Licen and Perm	0.38	0.36	0.40	0.40	0.72	0.31	0.42	0.35	0.41	0.35	0.50	0.36	0.38	0.42
Corrup	1.80	1.92	1.80	1.62	1.72	1.84	1.88	1.50	1.77	1.86	2.50	1.93	1.81	1.49
Courts	0.38	0.41	0.38	0.33	0.53	0.43	0.26	0.41	0.41	0.34	0.75	0.44	0.34	0.34
Crime	0.57	0.64	0.56	0.48	0.66	0.54	0.56	0.66	0.54	0.62	0.81	0.55	0.52	0.70
Cust and Trd Reg	0.58	0.53	0.65	0.54	1.13	0.57	0.64	0.38	0.53	0.67	0.63	0.72	0.58	0.35
Inadeq Workfor	1.61	1.50	1.65	1.72	1.50	1.62	1.67	1.57	1.60	1.62	2.06	1.69	1.73	1.19
Labor Regul	0.57	0.49	0.65	0.53	0.69	0.57	0.51	0.63	0.53	0.62	1.06	0.49	0.61	0.52
Pol Inst	2.44	2.66	2.34	2.25	2.34	2.50	2.47	2.21	2.41	2.48	2.75	2.63	2.36	2.22
Reg Policy Uncert	0.95	0.95	1.06	0.75	1.06	0.96	0.87	1.00	0.90	1.02	1.00	0.93	0.93	1.00
Informal Compet	1.28	1.52	1.32	0.80	0.94	1.18	1.30	1.57	1.41	1.08	0.69	1.23	1.27	1.45
Tax Admin	1.00	1.09	0.99	0.87	1.16	0.95	1.03	1.08	1.03	0.96	0.69	1.02	0.98	1.09
Tax Rates	1.11	1.16	1.13	1.00	1.26	1.09	1.07	1.26	1.15	1.05	1.27	1.16	1.05	1.15
Elec	0.54	0.54	0.52	0.57	0.78	0.50	0.57	0.51	0.44	0.69	0.69	0.63	0.49	0.48
Telecom	0.41	0.43	0.37	0.43	0.56	0.40	0.46	0.33	0.36	0.48	0.69	0.48	0.33	0.38
Transp	0.54	0.57	0.51	0.54	0.66	0.51	0.58	0.54	0.53	0.54	0.88	0.58	0.51	0.49
Observations	569	205	235	129	32	255	171	92	346	223	16	196	233	116

Source: Authors' calculation based on the TES data. Note: A firm is considered *Small* if it employs 5 to 19 employees, *Medium* if it employs 20 to 99 employees and *Large* if it employs at least 100 employees. [b]A firm is considered *Very Young* if it has been established 0 to 5 years prior to 2013, *Young* if it has been established 6 to 20 years prior to 2013, *Old* if it has been established 21 to 35 years prior to 2013 and *Very Old* if it has been established more than 36 years prior to 2013. [c]A firm is considered a *Non-Exporter* if it exports less than 10 percent of its sales, an *Exporter* if it exports more than 10 percent of its sales. [d]A firm manager is classified as having *Little* experience if he has 0 to 5 years of work experience, *Medium* experience if he has 6 to 20 years of work experience, *High* experience if he has 21 to 35 years of work experience and *A lot* of experience if he has more than 35 years of work experience.

Table A.3: (Continued) Business Environment Obstacles Averaged Across Firm Characteristic

	Manager's Gender		Manager's Education				Region					Sector		
	Female	Male	Prim School	Prep School	Second School	Univ or Higher	Tunis	Sfax	Northeast	Coast/ West	Interior	Manuf	Retail	Services
Acc Fina	1.67	1.08	1.40	1.22	1.07	1.13	0.91	1.12	1.23	1.02	1.73	1.07	1.25	1.17
Acc Land	0.45	0.41	0.00	0.78	0.37	0.42	0.30	0.34	0.46	0.46	0.63	0.49	0.28	0.33
Licen and Perm	0.52	0.37	0.80	0.39	0.36	0.38	0.37	0.60	0.32	0.29	0.35	0.38	0.44	0.37
Corrup	2.14	1.78	2.40	1.67	1.76	1.81	1.66	1.82	1.77	1.84	2.15	1.69	2.28	1.83
Courts	0.38	0.38	0.20	0.56	0.33	0.39	0.51	0.32	0.36	0.30	0.53	0.38	0.52	0.34
Crime	0.93	0.54	1.40	0.50	0.52	0.58	0.46	0.55	0.56	0.54	1.13	0.54	0.74	0.57
Cust and Trd Reg	0.69	0.57	0.60	0.22	0.45	0.64	0.85	0.55	0.74	0.24	0.50	0.54	0.62	0.63
Inadeq Workfor	1.93	1.59	2.20	1.33	1.43	1.68	1.45	1.31	1.71	1.76	2.08	1.69	1.66	1.47
Labor Regul	0.74	0.55	0.20	0.83	0.44	0.60	0.48	0.75	0.58	0.41	0.72	0.61	0.62	0.47
Pol Inst	2.69	2.42	2.00	2.22	2.46	2.45	2.31	2.31	2.48	2.45	3.00	2.28	2.59	2.65
Reg Policy Uncert	0.98	0.95	1.40	1.17	0.90	0.95	0.82	1.47	0.80	0.71	1.18	0.97	1.05	0.88
Informal Compet	1.33	1.27	2.00	1.28	1.58	1.17	1.08	1.66	1.24	1.20	1.13	1.21	1.70	1.26
Tax Admin	1.38	0.97	1.60	0.72	1.04	0.99	0.94	1.07	1.01	0.91	1.23	0.92	1.23	1.06
Tax Rates	1.39	1.09	1.60	0.44	1.29	1.08	1.05	1.20	1.10	1.04	1.33	1.01	1.23	1.24
Elec	0.81	0.52	1.00	0.72	0.34	0.59	0.50	0.29	0.80	0.49	0.63	0.61	0.44	0.44
Telecom	0.83	0.37	1.20	0.06	0.22	0.47	0.39	0.36	0.60	0.26	0.40	0.43	0.41	0.37
Transp	0.90	0.51	1.20	0.50	0.43	0.56	0.52	0.54	0.60	0.41	0.78	0.53	0.46	0.56
Observations	42	527	5	18	134	410	119	121	149	140	40	318	61	190

Source: Authors' calculation based on the TES data.

Table A.4: Definition of the Objective Variables Corresponding to the Subjective Measures

Subjective Measure	Objective Variable	Definition of the Objective Measure
Access to Finance	Why the firm did not apply for a loan? (1: no need for a loan / 2: financing constraints)	Referring again to the last fiscal year 2012, what was the main reason why this establishment did not apply for any line of credit or loan? (i) No need for a loan -establishment had sufficient capital; (ii) Application procedures were complex; (iii) Interest rates were not favorable; (iv) Collateral requirements were too high; (v) Size of loan and maturity were insufficient; Did not think it would be approved or (vi) other.
Access to Land	Percentage of Land not owned by firm (%)	Of the land occupied by this establishment, what percent is not owned by this establishment (i.e. Rented, leased or other)
Corruption	Informal payment to public officials (% of sales)	On average, what percentage of total annual sales, or estimated total annual value, do establishments like this one pay in informal payments or gifts to public officials for this purpose?
Crime	Losses as a result of crime in 2012 (% of sales)	In fiscal year 2012, what were the estimated losses as a result of theft, robbery, vandalism or arson that occurred on this establishment's premises either as a percentage of total annual sales losses?
Customs and Trade Regulation	Number of days to obtain an import license	Approximately how many days did it take to obtain this import license from the day of the application to the day it was granted?
Inadequately Educated Workforce	Did this establishment have formal training programs for his employees in 2012? (yes/no)	Over fiscal year 2012, did this establishment have formal training programs for its permanent, full-time employees?
Practices of Competitors in the Informal Sector	Does this establishment compete against unregistered or informal firms? (yes/no)	Does this establishment compete against unregistered or informal firms?
Electricity	Number of power outages in a typical month	In a typical month, over fiscal year 2012, how many power outages did this establishment experience?
Telecommunications	Does the firm use of cell phones? (yes/no)	Does this establishment currently use cell phones for the operations of the establishment?

Source: TES database.

Table A.5: First-Stage IV Results

	Panel A		Panel B	
	(1)	(2)	(3)	(4)
	Access to Finance	Political Instability	Access to Finance	Political Instability
Access to Finance (Average)	0.968***		0.963***	
	(0.079)		(0.104)	
Political Instability (Average)		1.014***		1.001***
		(0.076)		(0.077)
Access to Finance Objective Measure (Average)			0.054	
			(0.214)	
Losses as a result of crime in 2012 (% of sales)				0.040***
				(0.010)
Additional Controls	Yes	Yes	Yes	Yes
Observations	520	520	499	519

Note: Robust standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. In each regression the dependent variable is presented below the column number. In all regressions the set of firm characteristics includes the firm age, its export activity, whether its foreign owned, and the manager's years of experience. In panel A (B), we consider the first stage regressions of column 4 (5) of Table 2.

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Table A.6: Impact of Obstacles on Employment Growth

	OLS			IV	
	(1)	(2)	(3)	(4)	(5)
Acc Fina	0.250				
	(1.296)				
Acc Land	0.123				
	(2.216)				
Licen and Perm	0.320	-0.125			
	(2.327)	(2.343)			
Corrup	1.381				
	(1.701)				
Courts	-0.214	0.316			
	(2.332)	(2.240)			
Crime	-0.179	-0.580			
	(1.680)	(1.693)			
Cust and Trd Reg	1.656				
	(1.526)				
Inadeq Workfor	-2.917**	-2.104*	-2.129*	0.891	0.787
	(1.420)	(1.267)	(1.225)	(2.697)	(2.666)
Labor Regul	-0.793	-0.480			
	(2.042)	(2.012)			
Pol Inst	-5.805***	-4.591***	-4.530***	-10.067***	-9.915***
	(1.744)	(1.424)	(1.322)	(2.601)	(2.600)
Reg Policy Uncert	-0.416	-0.017			
	(1.815)	(1.801)			
Informal Compet	-0.415	0.111			
	(1.175)	(1.198)			
Tax Admin	-1.614	-0.127			
	(1.820)	(1.384)			
Tax Rates	1.610				
	(1.816)				
Elec	-1.432	0.721			
	(1.817)	(1.915)			
Telecom	3.229*				
	(1.875)				
Transp	-0.379	0.509			
	(1.537)	(1.554)			
Additional Controls	Yes	Yes	Yes	Yes	Yes
Observations	511	513	514	514	513
F-test (Inadequately Educated Workforce regression)				94.9	61.5
F-test (Political Instability regression)				74.9	49.7
Overidentifcation test (p-value)					0.87

Note: Robust standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. The dependent variable is the growth rate of full-time employees between 2009 and 2012. . In all regressions the set of firm characteristics includes: the firm age (and age squared), its export activity, its legal status, whether its foreign owned, the percentage of the firm owned by the government, and the manager's years of experience, his/her education level and gender. The endogenous variables are the political instability and the inadequately educated workforce. In column 4 the region-sector-size average of each endogenous variable is used as a respective instrument. In column 5 we add the percentage of annual sales resulting from crime events (vandalism, arson etc…) as an instrument.

Table A.7: Disaggregated Impact of Damaging Constraints on Sales Growth

	OLS	IV
	(1)	(2)
Acc Fin (Small Obstacle)	-7.393	-9.092
	(4.899)	(12.058)
Acc Fin (Big Obstacle)	-10.666***	-24.150***
	(3.600)	(8.180)
Pol Inst (Small Obstacle)	-4.991	-14.251
	(7.100)	(17.659)
Pol Inst (Big Obstacle)	-16.858***	-34.055***
	(5.168)	(11.670)
Additional Controls	Yes	Yes
Observations	520	519
F-test (in Small Access to Finance)		13.1
F-test (in Big Access to Finance)		34.3
F-test (in Small Political Instability)		11.2
F-test (in Big Political Instability)		29.5
Overidentifcation test (p-value)		0.85

Note: Robust standard errors in parentheses. *, **, *** indicate significance levels of 10%, 5%, and 1%, respectively. The dependent variable is the real firm sales growth rate between 2009 and 2012. . In all regressions the set of firm characteristics includes: the firm age (and age squared), its export activity, its legal status, whether its foreign owned, the percentage of the firm owned by the government, and the manager's years of experience, his/her education level and gender. Small obstacle equals 1 if firm i considers issue X a minor constraint and Big Obstacle equals 1 if firm i considers issue X as moderate, major or very sever constraint.