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THE NEXUS BETWEEN BUSINESS-INVESTMENT CLIMATE
AND FIRM PERFORMANCE IN THE MIDDLE EAST AND
NORTH AFRICA (MENA) REGION

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Abstract

Business and investment climate indicators are relations between the public and private sectors. They may take the form of formal, regular, and informal interactions and their scope can include the economy as a whole or they may target specific types of firms in specific sectors or certain policy processes. Effective business and investment climate is important, because it can lead to a higher rate of investment, profits, and improved productivity, through the creation of an institutional environment, where the state provides high quality public goods, including infrastructure, political stability, and strategies for reducing consumption, fair and effective public administration. This study aims to explore the impact of business-investment climate on firm's value added, labour and total factor productivity (TFP) in a sample of six countries in the Middle East and North Africa (MENA) region and Turkey. The analysis relies on micro-level data derived from the World Bank Enterprise Surveys over the period 2006-2016. To reduce endogeneity coming from possible reverse causality and the perceptions about business climate we follow an instrumental variables (IV) approach applying the two-stage least squares (2SLS) method. Based on our favoured 2SLS estimates the obstacles in business climate may reduce the firm performance measures by 15-40 per cent. These findings indicate the importance of the quality in business climate and how the improvement in its effectiveness can have a very considerable positive impact on firms' performance and thus in the overall economic growth of a country.

Keywords: Business and Investment Climate; Economic Growth; Firm Performance; Governance; Institutions; MENA Region; Productivity

JEL Classifications: D73, K15, L5, O1, O57, O43, O49

ملخص

تعتبر العلاقات بين القطاعين العام والخاص مؤشرات على مناخ الأعمال والاستثمار. وقد تأخذ شكل تفاعلات رسمية ومنتظمة أو غير رسمية. كما يمكن أن يشمل نطاقها الاقتصاد ككل أو قد تستهدف أنواعاً معينة من الشركات في قطاعات محددة أو عمليات سياسية معينة. بالإضافة إلى أن وجود مناخ أعمال واستثمار فعال يعتبر أمراً مهماً، لأنه يمكن أن يؤدي إلى ارتفاع معدل الاستثمار والأرباح وتحسين الإنتاجية، وذلك من خلال خلق بيئة مؤسسية توفر فيها الدولة سلماً عامة عالية الجودة، بما في ذلك البنية التحتية والاستقرار السياسي واستراتيجيات للحد من الاستهلاك وللإدارة العامة العادلة والفعالة. تهدف هذه الدراسة إلى استكشاف أثر مناخ العلاقة بين الاستثمار والأعمال على القيمة المضافة للشركة وعلى عمالتها وإنتاجية عوامل الإنتاج الكلي وذلك وفقاً لعينة من ستة بلدان في منطقة الشرق الأوسط وشمال أفريقيا وتركيا. يعتمد هذا التحليل على بيانات المستوى الجزئي المستمدة من المسوح التي أجراها البنك الدولي خلال الفترة 2006-2016. لتقليل التجانس الناتج عن السببية العكسية المحتملة والتصورات حول مناخ الأعمال، نتبع نهج المتغيرات الفعالة في تطبيق المربعات الصغرى ثنائية المراحل. واستناداً إلى التقديرات المفضلة لدينا، قد تقلل العقبات في مناخ الأعمال من مقاييس أداء الشركة بنسبة 15-40٪. وتشير هذه النتائج إلى أهمية جودة مناخ الأعمال وكيف يمكن أن يؤدي تحسين فعالية أثره الإيجابي إلى تأثير كبيراً للغاية على أداء الشركات وبالتالي على النمو الاقتصادي العام للبلد.

1. Introduction

An effective business and investment environment is crucial and is seen as a key determinant of economic growth, development and structural transformation in the low income countries (Hausmann 2014). Business and investment climate indicators refer to several areas of policy making and practice, including public administration and expenditures, anti-corruption strategies, tax rates and administration, trade, industrial development, macroeconomic policies and development in the private sector. The mechanism and channels through which business climate can boost and support economic growth are several. Political stability, anti-corruption, investment incentives, robust trade and healthy macroeconomic policy can minimize uncertainties in investors' thoughts and planning, and by achieving this; they can raise the investment rates. Creating an institutional environment where the state provides high quality of public goods, including anti-bureaucracy and anti-corruption strategies, can lead to higher rates of investment. Quality of goods also includes infrastructure, such as electricity and transportation, and the availability of an educated workforce. This takes us back to the simplistic economic growth model by Solow, which states that investment on human capital is a major determinant of economic growth in the long run period (Solow, 1956). Further research also can be followed to explore whether state-business relations and business-investment climate can be part of the process of democratising governance, as the empirical evidence is quite limited. This is out of the study's current scope; however, future studies may explore whether effective business and investment climate imply a deeper set of institutional development and arrangements that enhance participation and accountability (Leftwich, 2007).

Numerous studies have explored the factors that contribute to economic growth, productivity and development. This study attempts to investigate the impact of business and investment climate on economic performance of firms in a sample of countries in Middle East and North Africa (MENA) region. We argue that business climate can be an effective and important underlying factor of economic growth for firms. It may provide a more optimal allocation of resources in an economy, including increased efficiency of the state and its involvement in removing obstacles and supporting the private sector activities, increasing in this way the firm performance and growth. Although the large cross-country differential in term of income per capita has been the subject of several studies, analysis on resource misallocation at firm level pioneered by Hsieh and Klenow (2009), may explain the productivity differences within and across countries.

The motivation of this study for focusing on business climate as an additional factor of economic performance is twofold. First, there is a long-standing literature in political economy and political science providing evidence that business and investment climate can enhance growth and economic performance (Amsden, 1989; Evans, 1995; Doner and Schneider, 2000; Harriss, 2006; Fajnzylber et al., 2009; Hansen et al., 2009; Sen and Te Velde, 2009; Qureshi and Te Velde, 2013). Second, we attempt to explore and evaluate the impact of business and investment climate index on firm economic performance from various countries in the MENA region using detailed micro-level data and an instrumental variables (IV) approach.

The findings support the argument that an effective business and investment climate can promote and boost firm's performance. The results show that major obstacles on the business environment, reduce firms' performance. In particular, these obstacles have an average significant negative effect on value added, labour productivity and TFP between 15-40 per cent. The findings indicate the importance of the quality of the business climate and how the absence of related obstacles and improvement in the effectiveness of the business and investment climate can have a considerably positive impact on firms' performance and thus in the overall economic growth of a country. Measures and policies related to anti-corruption, investments in infrastructure and human capital, regulations in the finance and credit markets and policies keeping stability in the political environment and credibility are mostly crucial for the development of growth of the developing and less developed economies.

The paper is organized as follows: In the second section we present the earlier studies on business climate. In the third section we describe and present the methodological framework and the data employed in the empirical work. In section four we report the results and in section five we discuss the main concluding remarks of the study.

2. Literature Review

In this section we briefly discuss and present the theoretical framework and the findings of earlier studies implemented around the globe and in the MENA countries, which is the region of our main concern. According to the economic theory and previous studies, an effective business and investment climate can have a positive effect on economic growth and performance by increasing both the rate and productivity of investment. Regarding the rate of investment, Pindyck (1991) and Dixit and Pindyck (1994) argue that the possibility of delay is an important factor in the investment decisions. Credible government commitments on certain policies that minimize the uncertainties on future policy actions increase the effectiveness of the business climate and therefore they raise the rate of investment (Rodrik, 1991; Ibarra, 1995). Effective business climate is also associated with the establishment of institutional environments that state provides higher quality of public goods, including effective public administration, lack of corruption and infrastructure, such as internet provision and water and electricity supply without interruptions. Overall, at the macro-level a healthy and good business-investment climate is associated with good governance and institutions and their importance has been well documented in promoting growth (Kormendi and Meguire, 1985; Knack and Keefer, 1995; Mauro, 1995; Hall and Jones, 1999; Rodrik and Subramanian, 2004).

Following the evidence of macro-level studies, a growing body of literature has attempted to investigate the growth-institutions nexus at the micro level. McArthur and Teal (2002) conducted a micro-level analysis to explore the impact of corruption on firm performance in African countries and they found that firms paying bribes report 20 per cent lower level of output per worker in comparison with firms that do not pay. Furthermore, they found that firms operated in countries with endemic corruption are about 70 percent less efficient than their counterparts in countries where corruption is less prevalent. Dollar et al. (2003) used firm-level data in

developing countries to explore the relationship between investment climate and firm performance, where the former is proxied by the days required to get a telephone line, sales lost to power outages, and time spent dealing with government bureaucracy. They found that the factor returns, indicated by wages and rates of profit, are higher when the investment climate is better. Beck et al. (2005) used firm-level data for 54 countries to explore the impact of legal, financial and corruption issues on firms' growth rates and their findings show that these factors limit and reduce firms' growth and the impact is stronger for the small firms. Similarly, the study by Subramanian et al. (2005) provides evidence that the poor investment climate has adverse effects on total factor productivity of firms in Brazil and China. Scarpetta et al. (2002) found that stringent product market regulations and high hiring and firing costs in OECD countries have significant adverse effects on industrial productivity. Furthermore, their results show that strict regulations on entrepreneurial activity discourage the entry of new small firms. Harriss (2006) found that the state intervenes to the market to providing incentives to private capital to sustain economic growth. The studies by Fajnzylber et al. (2009) and Hansen et al. (2009) provide evidence that the state intervention and support contribute to the firm growth. More specifically, Fajnzylber et al. (2009) used data for Mexican firms and they evaluated the impact of government support, including the identification of treatment effects of credit, training and tax payments on the likelihood of firm survival, profits and growth. Even though, the effect of these forms on firm profits was found insignificant, access to credit improves the likelihood of survival. Consequently, access to credit allows also the increase of firm growth. Similarly, Hansen et al., 2009 explored the effect of direct government assistance, during the start-up of business and other state interactions with business small and medium-sized enterprises (SMEs) of manufacturing sector in Vietnam. Their findings suggest that the effective business climate matters for firm performance increasing the economic growth.

The most related studies to ours is the report by Schiffbauer et al. (2015) and Amin et al. (2016). In particular, these studies present the relationship between firm performance and business climate indicators, and they found that political instability, corruption and inadequate electricity supply are negatively related to firm performance. However, their empirical analysis is limited to graphical representation and evidence provided by summary statistics. Also, they examine the relationship between major obstacles in business climate, such as electricity supply and corruption employing OLS regressions, however, they have not attempted to explore the impact of those obstacles on firm performance. Furthermore, they do not explore the relationship between business climate obstacles and resource misallocation, as we explore for Egypt and Turkey. This study attempts to contribute to the earlier literature in the following ways. First, we aim to analyse the effect of business climate on economic performance of firms in the countries of MENA region, and in countries that less attention has been paid, including Iraq, Tunisia and Turkey. Second, we follow an IV strategy to reduce the endogeneity coming from the self-reported variables used as proxies for the business and investment climate index in order to derive the causal effects of business climate on firm economic performance

3. Conceptual Framework and Research Methodology

In this section we present the econometric methodology followed, the empirical specification, the identification strategy and the data used in the empirical work.

3.1. Methodology

For our empirical work we estimate the following regression:

$$FP_{i,s,j,t} = \beta_0 + \beta_1 BIC_{i,j,t} + \beta' \mathbf{X}_{i,j,t} + \mu_s + l_j + \theta_t + \varepsilon_{i,s,j,t} \quad (1)$$

FP denotes the firm performance, for firm i , in industry s , in state-area j and time t , BIC indicates the measures of business-investment climate and \mathbf{X} is a vector of standard control variables. Set μ_s controls for fixed-industry or sector effects, set l_j denotes the location-area fixed effects, and θ_t is the time-fixed effects, in the case we use more than one wave, while ε is the error term. The firm performance or growth is defined by three variables: the firm's value added, which is defined as the sales minus the costs purchased from other firms-businesses; the total factor productivity (TFP) and the labour productivity. We will employ a number of indicators as proxies for business-investment climate, which refer to opinions and perceptions on business environment and about whether specific factors are obstacles in the operation of the firm. These include access to finance and credit, political instability, tax administration and tax rates, labour regulations, customs and trade, regulations infrastructure, as obstacles in electricity supply and related interruptions in production, and corruption that we describe in more details in the next section.

The region-area effects in regression (1) may capture geographical and cultural characteristics, such as weather and climatic differences, infrastructure properties, whether the area is coastal or landlocked and other unobserved characteristics. The time effects are included to capture time national level shocks, including weather shocks, oil prices and financial crises and other macroeconomic shocks that may affect the outcome of interest. Regarding the control variables, since we make use of a micro-level survey, we can include firm characteristics, such as the firm size and age, whether one of the principal owners is female, the manager's years of experience, whether the firm has been accredited with an international qualification of quality control-assurance and whether a part of another establishment, among other factors. However, to the extent that business-investment climate index may be endogenous to firm growth, the coefficients derived by the effect of regression (1) would be invalid. The three main courses of endogeneity include the omitted variable bias, reverse causality and the self-statement and perception about the obstacles. For example, some managers may report complaints even they are not obstacles, or some inefficient firms may overstate the constraints that they actually face (Beck et al., 2005; Carlin et al., 2006; Aterido et al., 2011). Therefore, business-investment climate index (BICI) may be endogenous either because of measurement error due to perception, but also because of possible reverse causality between BICI and the outcomes of interest explored in the study. On the one hand, good BICI may have a positive impact on TFP, labour productivity and value added, while on the other hand more profitable and productive industries may be able to organize themselves better and bring out more effective BICI. Also more productive firms from other

states-districts can be attracted to move to other states due to good BICI. One solution of the latter could be solved by taking panel data and considering non-movers, or controlling for relocation. Nevertheless, due to data unavailability and the short panel-period, which is available only for Egypt and Turkey, we limit our analysis using cross-sectional data.

For the endogeneity issue we implement the Two-Stage Least Squares (2SLS) method and we use a set of instrumental variables for BICI. We should notice that another method which could be used to deal with endogeneity is the first differenced Generalized Method of Moments (GMM) estimator, proposed by Arellano and Bond (1991). However, this method, including the fixed effects model, assume that the part of growth, sales or TFP which influences the firm's decisions is a time invariant firm-specific attribute and this assumptions may not always be reasonable making the estimation procedure invalid (Arnold, 2005). In this case, the approach proposed by Olley and Pakes (1996) overcomes the simultaneity problem by using the firm's investment decision to proxy unobserved productivity shocks, which was later modified by Levinsohn and Petrin (2003). Nevertheless, this method is useful only when the TFP is taken as an outcome. However, for Egypt we will implement the method by Levinsohn and Petrin (LP) to estimate the TFP which will be used as one of the main outcomes of our analysis, along with the valued added and employment. For the rest of the countries we will estimate the TFP by adding the residuals, the constant and the industry effects after the first stage estimation.

The first variable used as an instrument is completed by the interviewer and the question is "It is my perception that the responses to the questions regarding opinions and perceptions are", and the possible answers include a) Truthful, b) Somewhat Truthful and c) Not truthful. The second variable answers to the question "This questionnaire was completed in" and the possible answers include a) One visit in face-to-face interview with one person, b) One visit in face-to-face interview with different managers/staff and c) Several visits. Our suggestion of using these two categorical variables lies on the argument that they are correlated with the perceptions on the business climate and cannot directly affect the outcomes of interest. About the first variable, even though the business climate can have an impact on firm's performance, the judgment and perception of the interviewer cannot affect them, but it may have a correlation with the reliability of the individual response. The second variable is also a strong instrument, as the perception about obstacles in business climate may vary depending if the questions are replied by the same person, different person, but even by the same person across several visits.

The second set of instrumental variables is industry-location averages of the following: The percentage of the firms paying for security; the percentage of firms inspected by tax officials over the last 12 months; the number of inspections; percentage of firms facing competition from the informal sector; percentage of firms with loan-credit; percentage of firms experiencing losses due to theft and vandalism; percentage of firms where a gift-payment was requested; the percentage of the firms whose financial statements were checked and certified by an external auditor; percentage of firms formally registered when they started the operations and the industry concentration based on sales. The economic reasoning underlying the validity of the last set of

instruments is that industry-location-year average level of security payments, percentage of firms and the number of inspection by tax officials, and the other instruments are dependent on industry and location characteristics, such as dependence on government services industries, industries' access to land, infrastructure and underlying technologies. This identification allows for a correlation between those averages and business-investment climate, but should however, be uncorrelated with unobservables that are potentially correlated with the firm performance measures we explore (Collins et al., 2009). For instance, the time spent for tax officials and bureaucrats meetings could depict the degree of control that those bureaucrats exert on firm (Svensson, 2003), while the other instruments show the degree of dependence on government services. In particular, industry-location effect may capture the shifts in electricity supply from various sources availability, such as hydroelectric power and natural gas availability, and state-level rainfall and weather conditions.

We argue that these sets of instruments employed will have an effect on the business and investment climate index through the effect on access to finance and the other measures, but will be orthogonal to firm performance and resource misallocation. An individual firm level perception about the business and investment climate will depend not only on characteristics of that particular firm, but also on characteristics specific to location and industry in which it operates. At industry and location level, such as those located in the capital, industrial zones or close to political centres and banking institutions, the level of rewards, obstacles, inspection by tax officials and engagement with bureaucrats, will depend on the accountability and transparency of the political system. Also, at the industry level influence may vary across sectors due to possible differences in the extent of the wage and price costs and setting and other price distortions, government regulation, tax rates and administration, availability of subsidies and other forms of government-state intervention. As certain sectors may be more dependent on public procurement, other industries can be strategically more important, thus this variation is not driven by firm characteristics, but by factors determined by these industry-location characteristics (Angrist and Krueger, 2001). Overall, it follows that the firm level perception about the business and investment climate should be uncorrelated with firm performance and unobserved firm-specific factors that cause endogeneity bias.

The last outcomes we explore refer to resource misallocation. Due to data availability, we limit our analysis to Egypt and Turkey. The first two measures refer to the covariance between the TFP and the market share. For the latter we use the deviation of the average sales market share and the actual sales, while for the second measure we use the deviation between the average labour share and the actual labour. In particular, the decomposition is:

$$TFP_{aggregate} = \overline{TFP}_t + \sum_{i=1}^N (TFP_{it} - \overline{TFP}_t)(s_{it} - \overline{s}_t) \quad (2)$$

Where TFP in the left term of (2) indicates the aggregate productivity, TFP_{it} is the actual TFP in firm i and time-wave t , \overline{TFP}_t is the average TFP in time t , s_{it} is either the actual sales or number of labour in firm i and time-wave t , and \overline{s}_t is the average sales or number of employees. A higher

covariance indicates more efficient resource allocation, while lower values indicate misallocation (Olley and Pakes 1996; Bartelsman et al., 2013). Therefore, our hypothesis is that obstacles in the business and investment climate will reduce the efficiency, or are associated with higher resource misallocation. The basic idea underlying these measures is that more productive firms should command more inputs and be more successful in output and labour markets, resulting in a positive covariance. In other words, in the absence of these obstacles, resource allocation will move from the low to the high productive firms. If the obstacles are negatively related to resource allocation measures, it will imply how much would be the gain in TFP in the absence of those obstacles or improvements in the business and investment climate.

For the third indicator we follow Hsieh and Klenow's (2009) who measure the resource misallocation as the deviation of TFP from the level that could be obtained if all resources are allocated efficiently across firms within a sector. This measures that in the absence of frictions in factor markets and distortions that prevent the capital and labour from being employed by the more productive firms, what would be the optimal resource allocation. In other words, we aim to explore what is loss of the TFP due to this misallocation. We assume that output Y_s is produced in each industry within a Cobb-Douglas production technology using capital K and labour L with individual firm's TFP given by A_i and is:

$$Y_{si} = A_{si} K_{si}^{a_s} L_{si}^{1-a_s} \quad (3)$$

The total final output in the industry Y_s , is a Dixit-Stiglitz aggregator of the output produced by each firm as:

$$Y_s = \left(\sum_{i=1}^{M_s} Y_{si}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}} \quad (4)$$

Where σ denotes the industry-level elasticity of substitution between capital and labour. Following Hsieh and Klenow (2009) and other studies (León-Ledesma, 2016; Cirera et al., 2017) profits are given by:

$$\pi_{si} = \max_{K,L} \left[(1 - \tau_{y,si}) P_{si} Y_{si} - w L_{si} - (1 - \tau_{k,si}) R K_{si} \right] \quad (5)$$

We should notice that there are two distortions affecting firms; the first has an impact on the firm output $\tau_{y,si}$ and the second affects the relative factor inputs $\tau_{k,si}$. Since it is impossible to identify separately and disentangle the distortion effects on capital and labour, earlier studies suggest imposing the distortion on capital, which actually in this case we interpret the distortion that affect the relative price of labour and capital. As we assume that these distortions are firm specific and due to heterogeneity will not affect all the firms at the same way, creating differences in the capital-labour ratios among the firms is a good approach to measure and investigate the misallocation. In equation (5) P_{si} is the price of the final good, $P_{si} Y_{si}$ is the value added, w and R denote the wage rates and the rental price of capital or interest rates respectively. The term $\tau_{k,si}$ denotes the firm-specific capital distortion that increases the cost of capital relative to labour and it implies that a large (small) value of $\tau_{k,si}$ increases the cost of capital (labour) relative to labour (capital). Following Hsieh and Klenow (2009) profit maximisation yields the

standard condition that implies the firm's output price is a fixed markup over its marginal cost and is defined as:

$$P_{si} = \frac{\sigma}{1-\sigma} \left(\frac{R}{a_s} \right)^{a_s} \left(\frac{w}{1-a_s} \right)^{1-a_s} \left(\frac{1+\tau_{k,si}}{A_{si}(1+\tau_{y,si})} \right)^{1-a_s} \quad (6)$$

Taking the first order condition for the profit maximisation we have:

$$MRPK_{si} = a_s \frac{\sigma-1}{\sigma} \frac{P_{si} Y_{si}}{K_{si}} = R \frac{1+\tau_{k,si}}{1-\tau_{y,si}} \quad (7)$$

$$MRPL_i = (1-a_s) \frac{\sigma-1}{\sigma} \frac{P_{si} Y_{si}}{K_{si}} = \frac{w}{(1-\tau_{y,i})} \quad (8)$$

The conception of (7)-(8) is based on the insight that if there is dispersion of marginal revenue product of capital and labour-inputs-across firms, the economy may achieve higher productivity and therefore output gains, by reallocating capital from firms with low marginal revenue product of capital (MRPK) to firms with high MRPK and similarly for MRPL. Even though we present both MRPK and MRPL, we will explore the log of MRPK, as the concluding remarks will be similar when we consider the MRPL. Furthermore, the SBRs explored in this study, including corruption, political instability, business permits, electricity, transportation, and access to finance may affect both MRPK and MRPL in the same direction, especially access to finance which is related mainly in loans related to capital structure.

Overall, there are various reasons why a good and efficient business and investment environment can lead to firm growth and increase of performance. These reasons mainly rely on the heterogeneity of the firm, in terms of size, age and other characteristics. Small business may face obstacles of access to finance and credit, because are not always and fully aware of all the possible avenues that exist to obtain finance, which could partly be attributed to high searching costs and lack of information. Similarly, labour and custom regulations, business permits, corruption and tax rates may favour specific non-efficient and low productive firms due to their size, access to information, politicians, and lobbies. Anokhin and Schulze (2009) found that if corruption is present the innovation at country level is reduced. Countries that experience high levels of corruption, political instability and tax rates may reduce the firm performance at national level and misallocate labour and capital from the high productive firms to firm with low productivity. Increasing also the tax rates the leverage can be also increased which is correlated with access of firms to finance, credits and bank loans, so the availability of funding sources can be also an important determinant of capital structure that in its turn will affect also their performance (Wu and Yue, 2009). The problem increases even more when there is political instability in the country, where interest and tax rates are not stable, and the economy experience also high inflationary pressure combined with large depreciation of the currency that create even more uncertainty in business and firm performance. These are some of the characteristics of the countries we explore in this study and therefore an improved business-investment climate is crucial for the performance of the firm.

3.2.Data

The analysis relies on data derived from the Enterprise Surveys provided by the World Bank³. We will explore the following countries: Egypt, Jordan, Iraq, Morocco, Turkey, Tunisia and Yemen. The period examined is 2006-2016 and it varies by country. Enterprise surveys cover more than 130,000 firms in 125 countries; however, our aim is to explore the relationship between business-investment climate and firm performance in MENA region countries. These surveys cover many topics and include many characteristics of the firm and focus also on many factors that shape the business environment, including factors that may accommodate or constrain firms and they can play an important role on whether country will grow, develop and prosper or not (World Bank, 2012). The sample in the surveys is representative of firms in the non-agricultural formal private sector, accompanied by a uniform methodology and implementation. Furthermore, surveys are followed by a core questionnaire that allows us to make a comparative analysis across countries and years. The core questionnaire contains questions answered by the business owners and high ranked managers providing information about the business environment. More specifically, the questions refer to evaluations about the severity of obstacles that firms face. The interviewers ask firms to rank 15 components of the business environment, indicating which one presents the largest obstacle and to rank them on a scale of 0-4, with 0 being no obstacle and 4 being a severe obstacle. Nevertheless, the World Bank enterprise surveys are very useful because they provide also a set of variables about the objective measures of the business environment, as the firm size and age, whether one of the firm's owners is male or female, and manager's years of experience among others.

Since the years employed in the empirical analysis differ for each country, below we state the periods and datasets from the World Bank enterprise surveys. For Egypt we consider the panel data survey for 2008, 2013 and 2016, for Turkey we obtain the panel data survey over the period 2008-2013, and for Yemen the panel survey for 2010 and 2013. For Jordan we use the cross-sectional survey in 2006 and 2013, for Morocco in years 2007 and 2013. For Tunisia we derive the data from the cross-sectional survey in 2013 and for Iraq the cross-sectional survey in 2011.

In table 1 we report the descriptive statistics for all the countries explored in the study, including the business-investment climate index and the rest of the variables of interest. The summary statistics do not reveal any important information except for the fact that overall the female ownership in these countries is rather low, especially in Iraq with 6.9 per cent, followed by Jordan at 9 per cent, Yemen at 11 per cent, Morocco at 13 per cent and Egypt at 16 per cent. It is remarkable to say that the percentage of female firm ownership is much higher in Tunisia at 36 per cent followed by 31 per cent in Turkey. The value added and TFP are rather similar among the countries explored. However, labour productivity differs and the reason is that we measure it as the sales over the number of employees and not in how many working hours one unit of output is produced. Thus, this may not be the best measure of labour productivity, but we follow this

³ Enterprise Surveys (<http://www.enterprisesurveys.org>), The World Bank.

measure based on the data availability and earlier studies (Schiffbauer et al., 2015; Amin et al., 2016)

Moreover, this index is high in countries, such as Egypt, Iraq and Yemen, and much lower in Turkey and Jordan, because the former countries may have much lower labour costs and wages, which costs are usually a significant part of the total costs, and therefore increase the value of sales. Thus, these economies can be competitive if the firms keep the labour unit costs down, but it does not also necessarily imply that they are also more productive. Specifically, firms in Jordan and Turkey may employ less workers and be more capital intensive. Also, the labour unions can be more organized and unified and effective, raising the wages and therefore unit costs. In table 2 we present the proportions of the answers to the questions of the first set of the instruments. We should notice that in Tunisia the second instrumental variable, about the frequency of the interview completion is missing, so we will use only the first variable as an instrument in the regression analysis. An initial evidence comes from the correlation between the instrument variables and the outcomes of interest which is insignificant, while their correlation with the business and investment climate index is statistically significant at the 1 per cent level in the majority.

Table 1. Summary statistics of the variables employed in the analysis

	Egypt	Mean	Standard deviation	Minimum	Maximum
Logarithm of Value Added		14.635	2.237	3.912	23.927
Labour Productivity		11.3629	1.553	1.609	19.847
Logarithm of TFP		2.6933	1.763	-3.3539	12.681
SBR Index		-3.67e-10	0.8988	-1.508	2.543
Logarithm of Firm Size		3.623	1.455	0	9.9522
Young Firm		0.1367	0.3436	0	1
Is one of the owners female?		0.1607	0.3673	0	1
Manager's years of experience		18.489	12.041	1	61
International Quality Assurance Qualification		0.2307	0.4213	0	1
Is the firm part of another establishment?		0.1797	0.3840	0	1
Jordan					
Logarithm of Value Added		12.717	2.414	2.0794	19.942
Labour Productivity		9.5536	2.404	-1.727	16.060
Logarithm of TFP		1.4768	1.467	-7.698	10.013
SBR Index		-3.45e-10	0.9029	-1.471	2.544
Logarithm of Firm Size		3.482	1.474	0.6931	9.047
Young Firm		0.2286	0.4201	0	1
Is one of the owners female?		0.0902	0.2866	0	1
Manager's years of experience		17.381	11.011	1	60
International Quality Assurance Qualification		0.1938	0.3955	0	1
Is the firm part of another establishment?		0.4823	0.4999	0	1
Iraq					
Logarithm of Value Added		19.094	1.157	15.123	23.102
Logarithm of Labour Productivity		17.112	1.047	13.163	20.654
Logarithm of TFP		0.0513	0.6817	-2.0481	2.771
SBR Index		-4.72e-10	0.9412	-1.928	2.035
Logarithm of Firm Size		2.305	0.7515	0	5.459
Young Firm		0.2204	0.4148	0	1
Is one of the owners female?		0.0689	0.2535	0	1
Manager's years of experience		12.308	8.065	1	60

International Quality Assurance Qualification	0.0241	0.1537	0	1
Is the firm part of another establishment?	0.0621	0.2416	0	1
Morocco				
Logarithm of Value Added	15.969	2.001	8.464	22.762
Labour Productivity	12.739	1.594	6.897	19.336
Logarithm of TFP	5.573	1.367	1.761	14.570
SBR Index	4.06e-10	0.9304	-1.445	1.928
Logarithm of Firm Size	3.884	1.334	0	8.724
Young Firm	0.0816	0.2739	0	1
Is one of the owners female?	0.1292	0.3356	0	1
Manager's years of experience	21.957	11.277	1	64
International Quality Assurance Qualification	0.2063	0.4048	0	1
Is the firm part of another establishment?	0.4052	0.4911	0	1

Table 1 (cont.) Summary statistics of the variables employed in the analysis

Tunisia				
Logarithm of Value Added	14.257	1.676	8.294	19.920
Logarithm of Labour Productivity	10.736	1.445	7.340	14.976
Logarithm of TFP	4.086	1.273	0.687	10.166
SBR Index	-1.34e-09	0.8914	-1.170	3.057
Logarithm of Firm Size	3.5692	1.380	0	7.766
Young Firm	0.0813	0.2736	1	1
Is one of the owners female?	0.3675	0.4826	0	1
Manager's years of experience	25.611	11.499	1	61
International Quality Assurance Qualification	0.2432	0.4294	0	1
Is the firm part of another establishment?	0.8817	0.3231	0	1
Turkey				
	Mean	Standard deviation	Minimum	Maximum
Logarithm of Value Added	12.168	4.828	0	23.025
Logarithm of Labour Productivity	7.737	4.8696	-2.944	14.853
Logarithm of TFP	5.272	1.654	-4.558	14.479
SBR Index	-1.56e-09	0.9378	-1.354	2.664
Logarithm of Firm Size	3.6130	1.447	0	9.944
Young firm	0.1133	0.3170	1	1
Is one of the owners female?	0.3188	0.4660	0	1
Manager's years of experience	23.125	11.976	1	55
International Quality Assurance Qualification	0.4623	0.4969	0	1
Is the firm part of another establishment?	0.1506	0.3244	0	1
Yemen				
Logarithm of Value Added	16.952	2.774	2.197	26.871
Logarithm of Labour Productivity	14.519	1.926	7.4437	23.346
Logarithm of TFP	4.8257	1.942	-0.4352	10.416
SBR Index	1.53e-09	0.8880	-2.383	1.953
Logarithm of Firm Size	2.816	1.298	.6931	8.517
Young Firm	0.0718	0.2584	1	1
Is one of the owners female?	0.1092	0.3121	0	1
Manager's years of experience	19.193	9.810	1	63
International Quality Assurance Qualification	0.1440	0.3513	0	1
Is the firm part of another establishment?	0.3963	0.4894	0	1

Table 2. Proportions for the Instrument Variables

Egypt	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	42.54	52.46	5.00
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	91.14	6.92	1.94
Jordan	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	44.14	48.33	7.53
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	86.85	13.15	0
Iraq	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	43.12	48.68	8.20
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	80.42	11.78	7.80
Morocco	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	67.08	30.18	2.74
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	18.45	20.03	61.52
Tunisia	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	76.35	23.31	0.34
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	93.11	6.57	0.32
Yemen	Truthful	Somewhat Truthful	Not Truthful
Responses to the questions regarding opinions and perceptions are	45.78	49.76	4.46
	One visit in face-to-face interview with one person	One visit in face-to-face interview with different managers/staff	Several visits
This questionnaire was completed in:	87.00	9.44	3.56

4. Empirical Results

The first step of our analysis involves a visual presentation of the major obstacles on the business climate in the countries we explore. In particular the answers reply to the following question: “Biggest obstacle affecting the operation of this establishment”. According to these graphs we will limit our analysis to the most important obstacles. In figure 1 we illustrate the major obstacles in Egypt. Even though access to finance is reduced by 25 per cent in 2008 to 12 per cent in 2013, still is considered one of the seven major obstacles. Also we see that corruption was quite low in 2008 at 2 per cent but increased at 5 per cent in 2013. The most important obstacle in 2013 was political instability, most probably due the facts followed by the Arab spring, where in 2008 the specific obstacle was rather low. In 2016 is reduced at 28 per cent. As for the

competition from the informal sector and the inadequate education of the workforce, we observe a significant reduction from 2008 to 2013 and 2016. Corruption, even though is low, is quite consistent and stable. Other two major obstacles is the electricity and tax rates, according to the frequency of the responses, while obstacles in business licences and permits is the major obstacle followed, as it increased from 2 per cent in 2008 to 9 per cent in 2016.

In the case of Jordan and figure 2 we observe a large number of obstacles. Business permits and transportation were the first and the fourth highest major obstacles in 2006, and in 2013 are recorded as two of the least important. In figure 3 we present the obstacles in Iraq. Once again access to finance, corruption, electricity, and political instability, respectively at 7, 6, 29 and 16 per cent, are major obstacles, as they are in the majority of the countries we explore. Other two major obstacles is the competition from the informal sector at 13 per cent and the access to land at 8.5 per cent. The latter is a major obstacle in Iraq, while it presents rather low percentage in the rest of the countries. In figure 4 we illustrate the major obstacles in Morocco. We observe that tax rates is the major obstacle at 27 per cent, followed by access to finance, practices from the informal sector, and corruption at 12.5, 11 and 9 per cent respectively. In figure 5 we observe that the majority of the respondents in Tunisia state that political instability is the major obstacle at 50 per cent, followed by competition from the informal sector at 12 per cent, inadequate education of the workforce at 10.50 and access to finance at 9 per cent.

In figure 6 the major obstacles in Turkey are reported. We observe that large changes in some obstacles. For example in 2008 the 25 per cent stated the access to finance and credit as one of the most major obstacles followed by a decline at 11 per cent in 2013. On the other hand, the tax rates as major obstacle increased from 19 to 26 per cent over the same period. The rest of the major obstacles including the political instability, electricity and competition from the informal sector, remained almost the same over the period we examine. We observe that the percentage of the corruption was really low in both periods. In figure 7 the four major obstacles in Yemen are the access to finance responding at 6 per cent, corruption and electricity at 21 per cent on average, and the most important obstacle, which is political instability at 26 per cent. We observe that the latter increased considerably from 12 per cent which was in 2010 at 44 per cent in 2013.

As we mentioned earlier we created an aggregate index of business and investment climate considering all the obstacles presented in figures 1-7 derived by the predicted values of the principal component analysis, and we reported the relevant summary statistics in table 1.

Figure 1. Major obstacles in Egypt

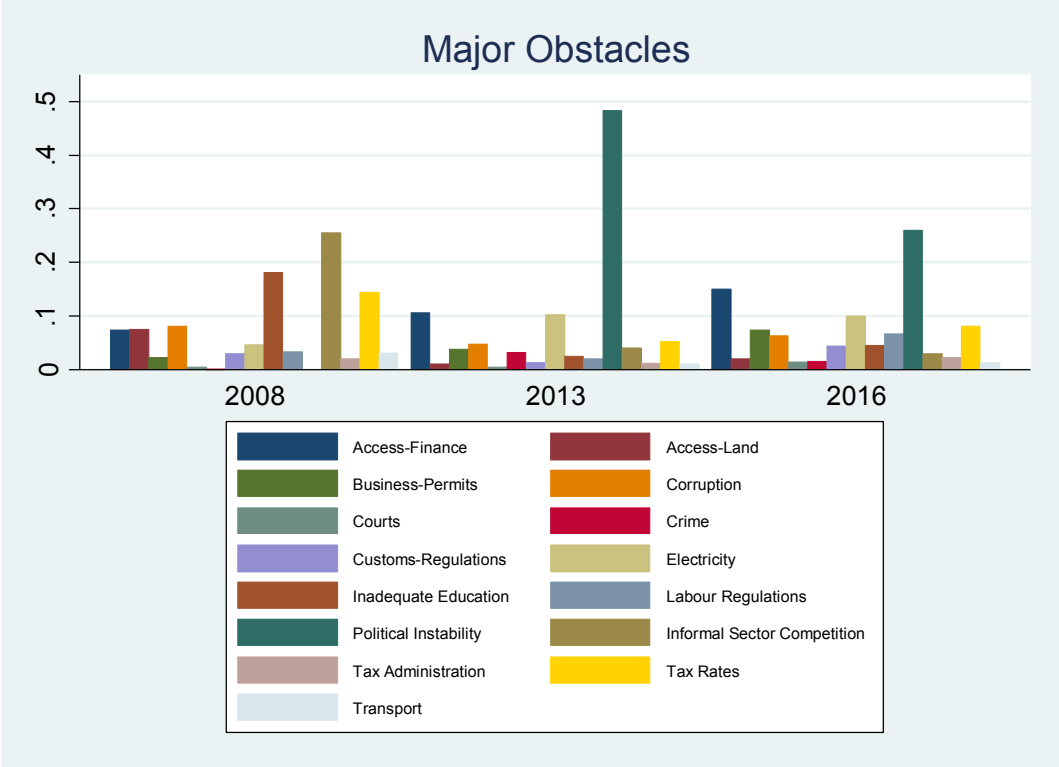


Figure 2. Major obstacles in Jordan

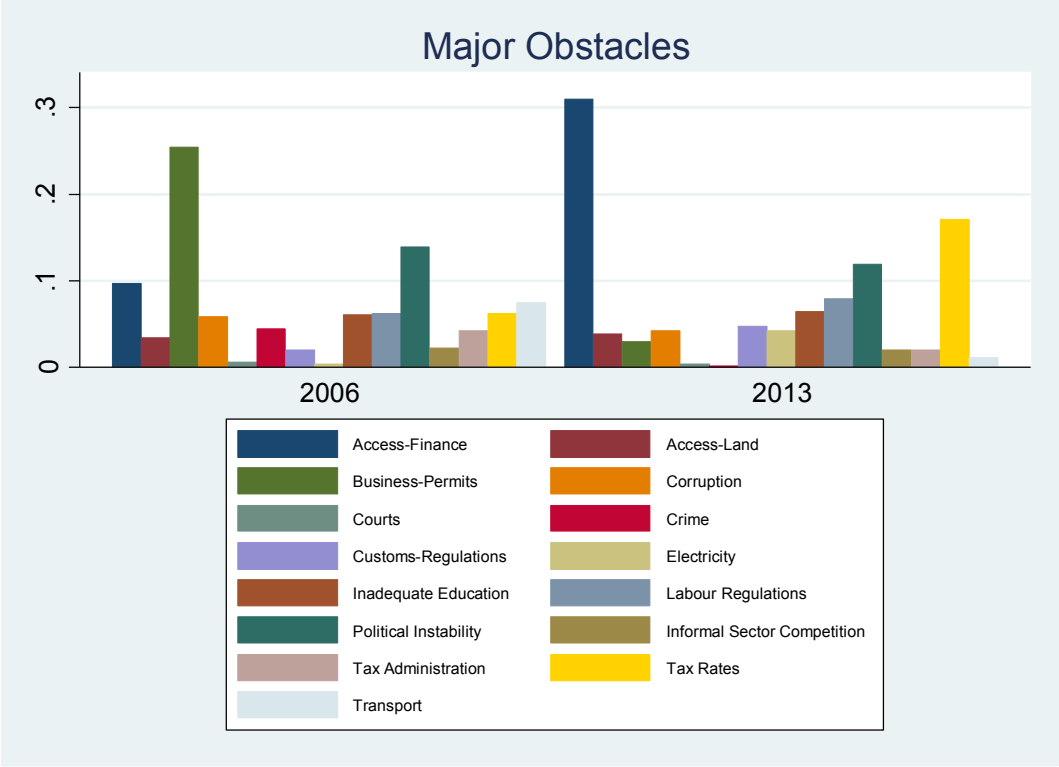


Figure 3. Major obstacles in Iraq

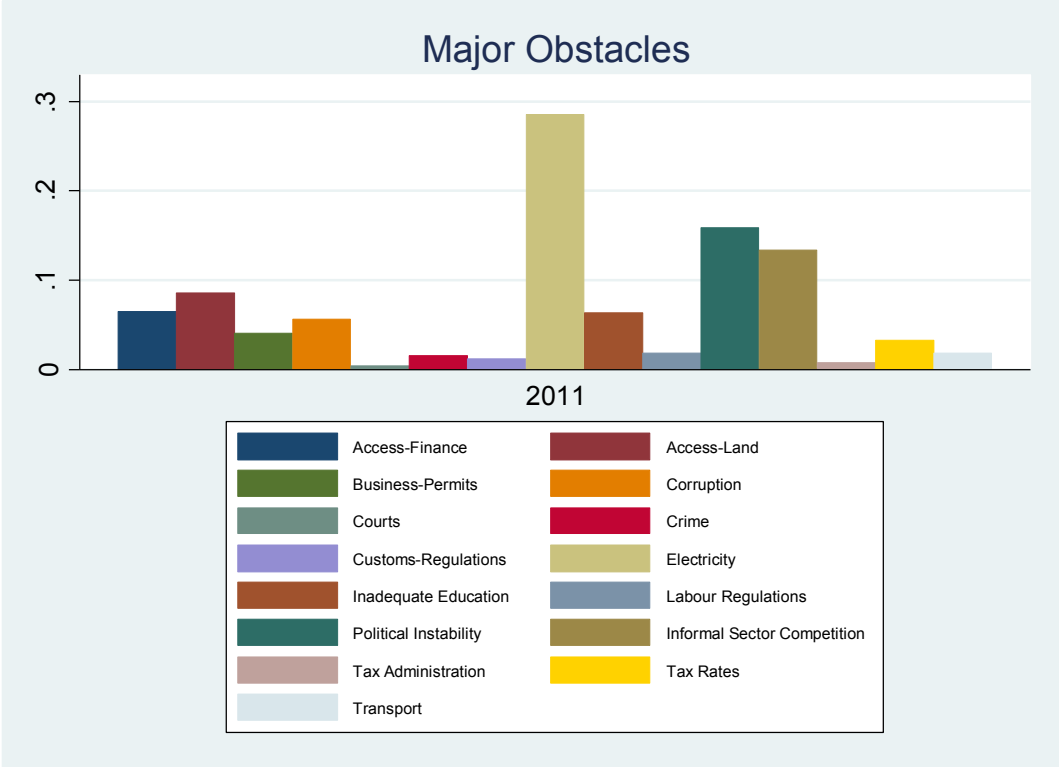


Figure 4. Major obstacles in Morocco

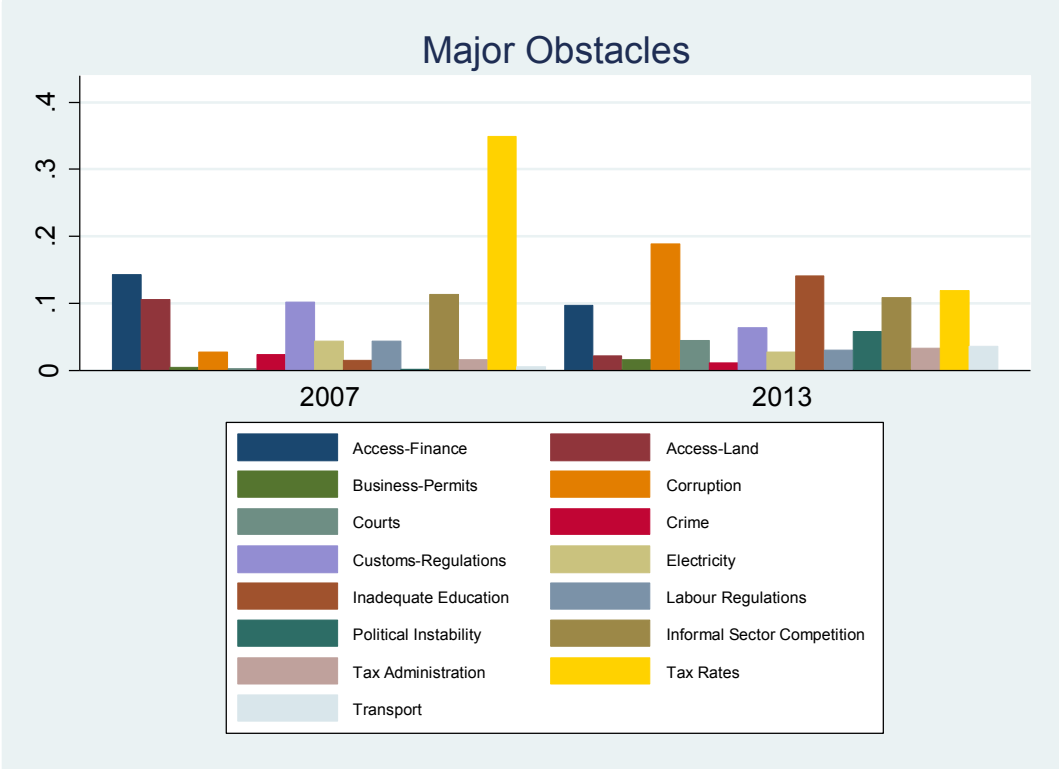


Figure 5. Major obstacles in Tunisia

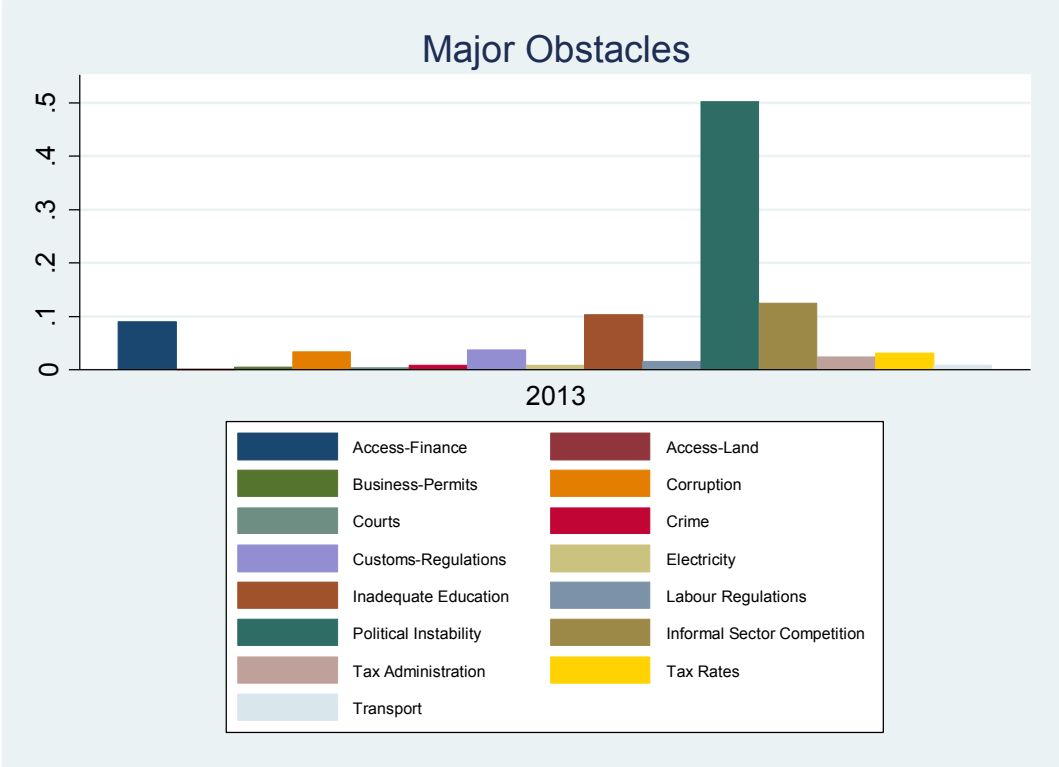


Figure 6. Major obstacles in Turkey

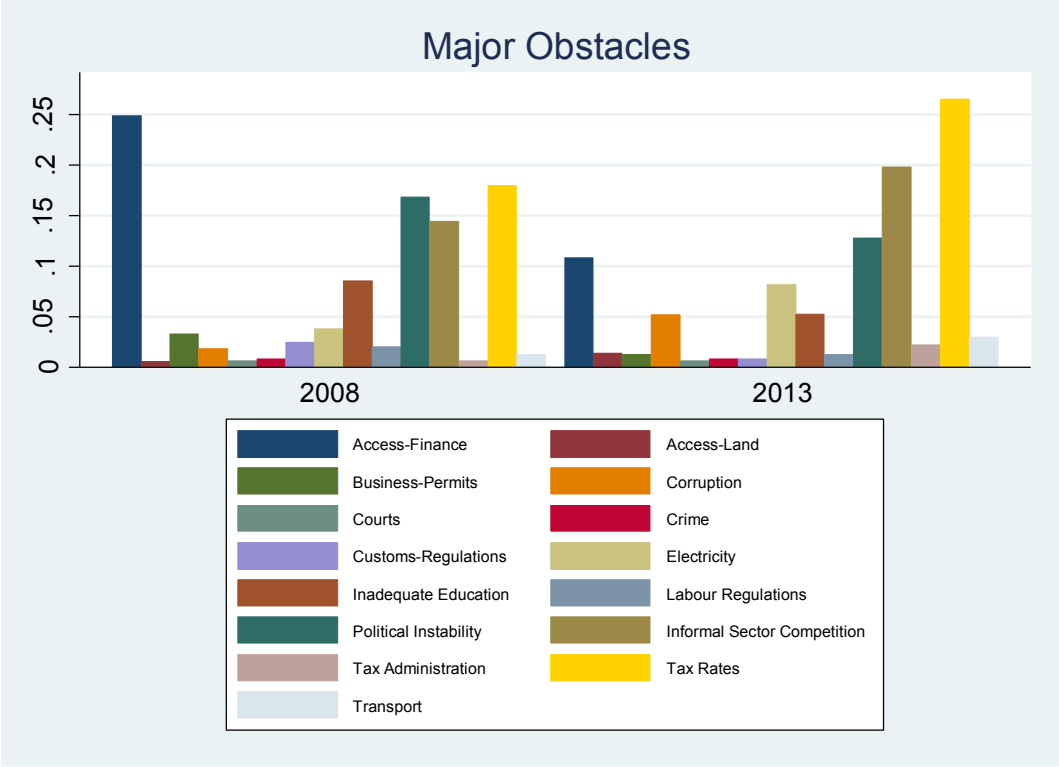
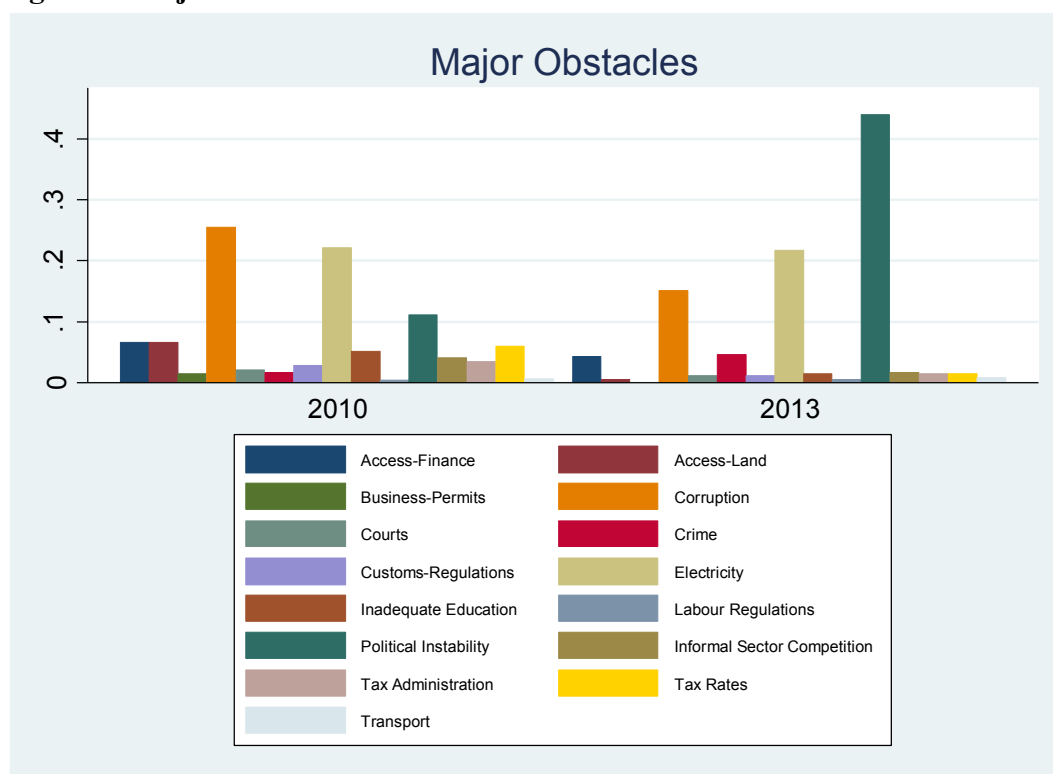


Figure 7. Major obstacles in Yemen



In table 3 we present the OLS and IV regression results for the major obstacles in business climate in Egypt. Our aim, as we do in the case of Turkey, is to include the whole sample, which refers to the cross-sectional sample, and not only the panel sample, since the latter limits the number of firms by a huge amount. For this reason we use the survey sample weights and strata, which are provided by the data, and also we implement an IV approach and the 2SLS method to reduce the endogeneity issues discussed in the previous section. Also, the data for Yemen refer only to panel structure. We use the set of instrument variables we described in the previous section and we observe that the set of instruments employed passes the tests of endogeneity and in particular the Hansen J statistic. Also we conclude that the instruments are correlated with the endogenous business-investment climate index according to the weak instrument test. We should notice that the weak-instrument test we examine here is consistent with the conclusions derived by alternative test, including the Anderson-Rubin test following the F and Chi-square distribution and the Stock-Wright LM test.

We observe a negative impact of the obstacles in the business climate on the firm performance used in the regressions analysis, while the effect becomes larger when we apply the 2SLS. In particular, according to the 2SLS estimates and the marginal effects, we observe that when there are major obstacles in the business climate, value added and labour productivity decrease by 32 and 37 per cent respectively, while TFP is lower by 19 per cent. While we do not explain the possible impact of other firm characteristics, such as the firm size and age, the manager's experience, the location and regional development, we explore the causal impact of business climate using the marginal effects controlling for other characteristics. We observe that large

firms present higher values of TFP and value added, while the estimated coefficient on labour productivity regression is insignificant. Regarding young firms, which is defined as the firms established less than 6 years ago from the interview date present higher labour productivity, but the significance vanishes when we consider either value added or TFP as the outcomes. We could argue that considering these two variables can be endogenous, as the most profitable or more productive firms can be also larger or older. The gender of the ownership and whether the largest percentage of shares is owned by the public are insignificant determinants of the firm performance. On the other hand, we see that firms, accredited with an international certification of quality assurance-control and whether are part of another establishment, are more likely to report higher values of value added and labour productivity. Moreover, we could include more variables in the regression model, such as the number of skilled and unskilled workers, or the percentage of young and female employees, whether the firm has introduced an innovation in the product design or process and others.

Table 3. OLS and 2SLS Regressions for Business and Investment Climate in Egypt

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.1452** (0.0665)	-0.1511** (0.0229)	-0.1072** (0.0491)	Business Climate	0.3260** (0.1351)	-0.3730** (0.1571)	-0.1953* (0.0995)
Logarithm of Firm Size	0.9626*** (0.0292)	0.0191 (0.0312)	0.0975*** (0.0309)	Logarithm of Firm Size	0.9491*** (0.0400)	0.0221 (0.0347)	0.1013*** (0.0359)
Young firms	0.0501 (0.0796)	0.2875** (0.1325)	0.0335 (0.0478)	Young firms	0.0441 (0.0834)	0.2602** (0.1266)	0.0429 (0.0375)
Is one of the owners female? (Yes)	0.0448 (0.0780)	0.1369 (0.1042)	0.0207 (0.0959)	Is one of the owners female? (Yes)	0.0489 (0.0634)	0.1127 (0.1158)	0.0199 (0.0825)
Manager's years of experience	0.0024 (0.0021)	0.0011 (0.0033)	0.0023 (0.0030)	Manager's years of experience	0.0017 (0.0032)	0.0020 (0.0036)	0.0017 (0.0033)
International Quality Assurance Qualification (Yes)	0.3822*** (0.0934)	0.4906*** (0.0994)	0.0676 (0.0989)	International Quality Assurance Qualification (Yes)	0.4231*** (0.1136)	0.5214*** (0.1093)	0.1757 (0.1153)
Is the firm part of another establishment? (Yes)	0.2095** (0.0880)	0.2156*** (0.0914)	0.0524 (0.0872)	Is the firm part of another establishment? (Yes)	0.1921** (0.0811)	0.2142** (0.0972)	0.1853 (0.1149)
Firm Status (public owned)	-0.0021 (0.0045)	-0.0005 (0.0042)	-0.0010 (0.0050)	Firm Status (public owned)	-0.0034 (0.0060)	-0.0005 (0.0040)	-0.0008 (0.0047)
No. observations	3,142	3,082	2,222	No. observations	2,833	2,814	1,951
R-Square	0.6704	0.3212	0.6490	Centered R-Square	0.6217	0.1837	0.4105
				Weak Identification Test	12.605 [0.0002]	15.302 [0.000]	14.738 [0.000]
				Hansen J Statistic	5.303 [0.2910]	3.695 [0.4823]	9.286 [0.1976]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2008-2016

Next in table 4 we present the regression results for the obstacles in the business and investment climate in Jordan. In this case we observe that obstacles in the business climate have a significant and negative impact on value added and TFP, and the effect is 21 and 19 per cent respectively. Regarding the other factors of firm performance, we observe that larger firms present higher values of value added, but the significance is vanished when we consider the TFP and labour productivity. The remained estimated coefficients are insignificant expect for the international qualification of quality assurance which has a positive impact on TFP, while firms with female owners present lower performance. The next country we examine is Iraq. In table 5 we report our OLS and 2SLS estimates for the obstacles in business climate, which are associated with a decrease on value added by 22 per cent and a decrease on labour productivity and TFP at 16 and 15 per cent respectively. A remarkable finding in table 5 is that firm size is positively correlated with the value added, but negatively associated with the labour productivity and TFP. This indicates that value added may not be the best indicator for measuring firm performance. In other words, smaller firms may use in a more efficient way the labour inputs, such as skilled employees, lower input costs, while large firms are able to achieve a higher volume of sales due to economies of scales, market share and other characteristics.

Table 4. OLS and 2SLS Regressions for Business and Investment Climate in Jordan

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.1644* (0.0930)	-0.1015 (0.1327)	-0.1428* (0.7331)	Business Climate	-0.2111* (0.4211)	-0.2610 (0.4848)	-0.1902* (0.1081)
Logarithm of Firm Size	0.9904*** (0.0829)	-0.0221 (0.0979)	0.0409 (0.1058)	Logarithm of Firm Size	0.9676*** (0.0950)	-0.0339 (0.1178)	0.0522 (0.0799)
Young firms	0.1316 (0.2225)	0.0567 (0.2960)	0.1084 (0.0883)	Young firms	0.1203 (0.2282)	0.0237 (0.2997)	0.0985 (0.1055)
Is one of the owners female? (Yes)	-0.7475*** (0.2613)	-1.2679*** (0.2993)	-1.3926*** (0.3285)	Is one of the owners female? (Yes)	-0.8461 *** (0.2705)	-1.4402*** (0.3060)	-1.5531*** (0.3422)
Manager's years of experience	0.0121 (0.0097)	0.0056 (0.0102)	0.0118 (0.0109)	Manager's years of experience	0.0095 (0.0091)	0.0067 (0.0107)	0.0129 (0.0113)
International Quality Assurance Qualification (Yes)	0.1885 (0.2508)	0.2040 (0.2902)	0.4190* (0.2274)	International Quality Assurance Qualification (Yes)	0.1506 (0.2608)	0.1855 (0.2894)	0.4237* (0.2220)
Is the firm part of another establishment? (Yes)	0.2616 (0.3141)	0.1878 (0.3640)	-0.3227 (0.3832)	Is the firm part of another establishment? (Yes)	0.1710 (0.3472)	0.3124 (0.4316)	-0.3838 (0.4221)
Firm Status (public owned)	0.0042 (0.0159)	-0.0028 (0.0187)	-0.0169 (0.0140)	Firm Status (public owned)	0.0053 (0.0160)	-0.0022 (0.0182)	-0.0188 (0.0144)
No. observations	404	401	358	No. observations	386	381	343

R-Square	0.4904	0.1122	0.1518	Centered R-Square	0.4849	0.1157	0.1568
				Weak Identification Test	15.219 [0.0006]	13.957 [0.0012]	16.119 [0.0001]
				Hansen J Statistic	7.881 [0.4452]	6.448 [0.5838]	12.255 [0.1139]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2006-2013.

Table 5. OLS and 2SLS Regressions for Business and Investment Climate in Iraq

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.1558*** (0.0505)	-0.1097* (0.0562)	-0.0926** (0.0452)	Business Climate	-0.2232** (0.1045)	-0.1609* (0.0914)	-0.1497* (0.0834)
Logarithm of Firm Size	0.5207*** (0.1058)	-0.5703*** (0.0823)	-0.1609** (0.0795)	Logarithm of Firm Size	0.4853*** (0.0888)	-0.5279*** (0.0765)	-0.2008** (0.0777)
Young firms	0.1765 (0.1524)	0.0640 (0.1222)	0.0187 (0.1189)	Young firms	0.1979 (0.1718)	0.0935 (0.1186)	0.0256 (0.1017)
Is one of the owners female? (Yes)	0.3684* (0.1960)	0.3154* (0.1668)	0.1585 (0.1107)	Is one of the owners female? (Yes)	0.4097* (0.2154)	0.2995* (0.1574)	0.1455 (0.1280)
Manager's years of experience	0.0207*** (0.0075)	0.0156** (0.0072)	-0.0053 (0.0070)	Manager's years of experience	0.0197** (0.0080)	0.0222*** (0.0068)	0.0031 (0.0069)
International Quality Assurance Qualification (Yes)	0.0169 (0.3548)	0.3056 (0.2561)	0.1921 (0.2603)	International Quality Assurance Qualification (Yes)	0.0204 (0.3515)	0.3467 (0.2477)	0.2186 (0.2751)
Is the firm part of another establishment? (Yes)	-0.1402 (0.2173)	-0.4912** (0.2459)	-0.2021 (0.2346)	Is the firm part of another establishment? (Yes)	0.1749 (0.2521)	-0.3938* (0.2249)	-0.1899 (0.2263)
Firm Status (public owned)	0.0162 (0.0111)	0.0039 (0.0071)	0.0022 (0.0087)	Firm Status (public owned)	0.0151 (0.0112)	0.0032 (0.0080)	0.0028 (0.0080)
No. observations	692	439	404	No. observations	658	421	386
R-Square	0.8048	0.5799	0.3105	Centered R-Square	0.3684	0.4824	0.1496
				Weak Identification Test	15.338 [0.000]	15.211 [0.000]	16.033 [0.000]
				Hansen J Statistic	7.990 [0.3353]	7.176 [0.3960]	7.791 [0.3736]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2011

In tables 6 and 7 we present the estimated results for the obstacles in business climate respectively in Morocco and Tunisia. In the case of Morocco we find significant effects of the obstacles in business climate on value added and TFP, where the reduction reaches the 39 and 23

per cent respectively. In Tunisia we find a negative and significant effect on value added and TFP at 24 and 11 per cent respectively. As in the case of Iraq, we observe that the firm size, in Morocco and Tunisia, is positively correlated with the value added, but has a negative relationship with both labour productivity and TFP. This may indicate that the state, government and public local authorities in these countries favour these firms providing also more subsidies, access to financial markets and other benefits that allows them to keep sales and value added in higher levels, compared to small-medium firms, but it does not imply that they are improving also the productivity performance. Also, according to table 6 and Morocco, a positive relationship among international quality assurance certification, the gender of ownership and the measures of firm performance is reported.

Table 6. OLS and 2SLS Regressions for Business and Investment Climate in Morocco

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity y	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.2252** (0.1032)	-0.1426 (0.2416)	-0.1215** (0.0538)	Business Climate	-0.3944** (0.1755)	-0.3029 (0.2830)	-0.2318** (0.0082)
Logarithm of Firm Size	0.6919*** (0.1193)	-0.0407 (0.1007)	-0.1472* (0.0777)	Logarithm of Firm Size	0.6945*** (0.1090)	-0.0746 (0.1309)	-0.1679** (0.0710)
Young firms	0.1414 (0.1971)	0.6027 (0.7735)	0.1855 (0.2916)	Young firms	0.1391 (0.2035)	0.4329 (0.7310)	0.2428 (0.3130)
Is one of the owners female? (Yes)	1.1250*** (0.3509)	1.0245** (0.4219)	0.6741*** (0.2459)	Is one of the owners female? (Yes)	1.1135*** (0.3246)	0.9519** (0.3927)	0.5806** (0.2722)
Manager's years of experience	0.0068 (0.0120)	0.0023 (0.0137)	0.0015 (0.0081)	Manager's years of experience	0.0069 (0.0109)	0.0036 (0.0124)	0.0018 (0.0097)
International Quality Assurance Qualification (Yes)	0.7022** (0.3268)	0.6230* (0.3717)	0.4128* (0.2130)	International Quality Assurance Qualification (Yes)	0.7043** (0.2955)	0.6225* (0.3555)	0.3881* (0.2064)
Is the firm part of another establishment? (Yes)	0.2010 (0.3655)	-0.2783 (0.4295)	0.1451 (0.2666)	Is the firm part of another establishment? (Yes)	0.1774 (0.3403)	-0.3210 (0.4022)	0.1029 (0.2912)
Firm Status (public owned)	0.0255 (0.0713)	0.0306 (0.0822)	0.0118 (0.0849)		0.0234 (0.0655)	0.0234 (0.0655)	0.0129 (0.0733)
No. observations	541	528	302	No. observations	532	523	282
R-Square	0.5030	0.2355	0.1999	Centered R- Square	0.5028	0.2241	0.1982
				Weak Identification Test	13.139 [0.0004]	16.103 [0.000]	13.560 [0.0003]
				Hansen J Statistic	10.315 [0.1579]	16.128 [0.0085]	0.380 [0.9990]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2007-2013

Table 7. OLS and 2SLS Regressions for Business and Investment Climate in Tunisia

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.1553** (0.0775)	-0.1356 (0.1061)	-0.0337** (0.0142)	Business Climate	-0.2348** (0.1102)	-0.2405 (0.1820)	-0.1095** (0.0473)
Logarithm of Firm Size	0.7963*** (0.0519)	-0.3452*** (0.0772)	-0.3012*** (0.1128)	Logarithm of Firm Size	0.7756*** (0.0528)	-0.3135*** (0.0836)	-0.2549** (0.1102)
Young firms	0.3137 (0.2181)	0.1371 (0.2996)	0.2776 (0.3632)	Young firms	0.1095 (0.2209)	0.2302 (0.3600)	0.3002 (0.3473)
Is one of the owners female? (Yes)	-0.1083 (0.1254)	0.1031 (0.1817)	0.2429 (0.2336)	Is one of the owners female? (Yes)	-0.1092 (0.1252)	0.1056 (0.1965)	0.2392 (0.2098)
Manager's years of experience	0.0045 (0.0056)	-0.0064 (0.0092)	0.0305*** (0.0162)	Manager's years of experience	0.0036 (0.0056)	-0.0070 (0.0096)	0.0347** (0.0150)
International Quality Assurance Qualification (Yes)	0.5755*** (0.1460)	0.9365*** (0.2795)	0.6566** (0.2879)	International Quality Assurance Qualification (Yes)	0.5426*** (0.1446)	1.0938*** (0.2176)	0.7241** (0.3189)
Is the firm part of another establishment? (Yes)	-0.1056 (0.1880)	-0.1616 (0.2670)	-0.3192 (0.3386)	Is the firm part of another establishment ? (Yes)	-0.0934 (0.1834)	-0.2269 (0.2007)	-0.3866 (0.4339)
Firm Status (public owned)	0.0058 (0.0100)	-0.2084*** (0.0751)	0.0055 (0.0321)	Firm Status (public owned)	0.0055 (0.0098)	-0.1882** (0.0860)	0.0097 (0.0309)
No. observations	391	301	172	No. observations	391	312	175
R-Square	0.7123	0.6471	0.7453	Centered R- Square	0.5915	0.2397	0.1275
				Weak Identification Test	18.158 [0.000]	18.985 [0.000]	9.030 [0.0014]
				Hansen J Statistic	4.686 [0.2336]	5.009 [0.1711]	5.987 [0.3220]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2013

In table 8 we report the estimates for the major obstacles of business and investment climate in Turkey. According to figure 6, the major obstacles of effective business climate include the access to finance, corruption, political instability, and tax rates. Other two main obstacles is poor electricity supply and the competition from the informal sector. Based on the results we observe that the overall index of obstacles in business and investment climate in Turkey reduce the value added and labour productivity by 17 per cent and TFP by 12 per cent. The effect significantly higher based on the 2SLS and Panel B of table 8, where the reduction reaches the 27 and 25 per cent respectively for value added and labour productivity and 18 per cent for the TFP. Firm size and young firms seem to be positively correlated with the firm performance. Also, firms whose ownership consists at least of one female, that have acquired an international certification of

quality control and are part of another establishment report higher value added. The last country we explore in this study is Yemen and the findings on business climate obstacles are reported in table 9. These obstacles are significantly and negatively related to labour productivity and TFP at 24 and 34 per cent respectively. Large firms, as well as, firms that are part of another establishment and accredited with an international certification of quality control are more likely to present higher performance levels.

Table 8. OLS and 2SLS Regressions for Business and Investment Climate in Turkey

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Producti vity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivit y	DV: Logarithm of TFP
Business Climate	-0.1704*** (0.0511)	-0.1673* (0.0854)	-0.1232* (0.0663)	Business Climate	-0.2732** (0.1214)	-0.2566* (0.1353)	-0.1854* (0.1038)
Logarithm of Firm Size	0.8377*** (0.0880)	0.1275 (0.0859)	0.3910*** (0.0564)	Logarithm of Firm Size	0.6839** (0.2881)	0.1651 (0.2169)	0.3655*** (0.0829)
Young firms	0.1990 (0.3357)	0.0712* (0.0368)	0.5573** (0.2167)	Young firms	0.2373 (0.4445)	0.0692* (0.0363)	0.5843** (0.2736)
Is one of the owners female? (Yes)	0.3101* (0.1681)	0.1834 (0.2425)	0.1497 (0.1324)	Is one of the owners female? (Yes)	0.2859* (0.1528)	0.2149 (0.2263)	0.1129 (0.1502)
Manager's years of experience	0.0133 (0.0088)	0.0162 (0.0104)	0.0027 (0.0054)	Manager's years of experience	0.0187 (0.0133)	0.0165 (0.0212)	0.0036 (0.0068)
International Quality Assurance Qualification (Yes)	0.1866* (0.1044)	0.1294 (0.2561)	0.2074 (0.1435)	International Quality Assurance Qualification (Yes)	0.2225* (0.1276)	0.1569 (0.2244)	0.1872 (0.1312)
Is the firm part of another establishment? (Yes)	0.8496*** (0.2887)	0.6110* (0.3396)	0.1351 (0.1795)	Is the firm part of another establishment? (Yes)	0.8172** (0.3910)	0.6003* (0.3133)	0.1394 (0.1937)
Firm Status (public owned)	-0.0020 (0.0025)	0.0211 (0.0286)	0.1081*** (0.0103)	Firm Status (reference manufacturing)	-0.0039 (0.0045)	0.0228 (0.0315)	0.1044*** (0.0292)
No. observations	2,013	1,744	1,097	No. observations	1,871	1,615	946
R-Square	0.3077	0.1840	0.2772	Centered R- Square	0.2202	0.1522	0.2514
				Weak Identification Test	21.654 [0.000]	15.678 [0.000]	12.232 [0.0002]
				Hansen J Statistic	13.274 [0.1506]	18.034 [0.0889]	9.984 [0.3517]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2008-2013

Table 9. OLS and 2SLS Regressions for Business and Investment Climate in Yemen

Panel A: OLS	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP	Panel B: IV	DV: Logarithm of Value Added	DV: Labour Productivity	DV: Logarithm of TFP
Business Climate	-0.1955 (0.1318)	-0.1572* (0.0874)	-0.1389** (0.0662)	Business Climate	-0.3374 (0.4045)	-0.2436** (0.1006)	-0.3450* (0.1859)
Logarithm of Firm Size	1.2263*** (0.1101)	0.4227* (0.2267)	0.8125*** (0.2130)	Logarithm of Firm Size	1.3199*** (0.1379)	0.4666** (0.1903)	0.7190** (0.3303)
Young firms	0.5936 (0.4030)	0.2386 (0.3006)	0.5513 (0.9584)	Young firms	0.6141 (0.4843)	0.2148 (0.3466)	0.5818 (0.8035)
Is one of the owners female? (Yes)	0.3670 (0.3829)	0.0280 (0.1082)	0.5457 (0.6335)	Is one of the owners female? (Yes)	0.4401 (0.3857)	0.0324 (0.0788)	0.4386 (0.5380)
Manager's years of experience	0.0155 (0.0099)	-0.0025 (0.0086)	-0.0190 (0.0151)	Manager's years of experience	0.0157 (0.097)	0.0043 (0.0137)	-0.0151 (0.0183)
International Quality Assurance Qualification (Yes)	0.8994** (0.3509)	0.3819 (0.3155)	1.8180** (0.7207)	International Quality Assurance Qualification (Yes)	0.8178** (0.3559)	0.3247 (0.2555)	1.5600** (0.7494)
Is the firm part of another establishment? (Yes)	0.4898** (0.2267)	0.5929** (0.2421)	0.4149 (0.4737)	Is the firm part of another establishment? (Yes)	0.5688** (0.2359)	0.6985** (0.3287)	0.3931 (0.3522)
Firm Status (public owned)	-0.0027 (0.0158)	0.0047 (0.0181)	0.0520 (0.0394)	Firm Status (reference manufacturing)	-0.0025 (0.0164)	0.0094 (0.0171)	0.0493 (0.0452)
No. observations	521	505	261	No. observations	521	502	248
R-Square	0.5119	0.4997	0.5872	Centered R- Square	0.4961	0.3223	0.3556
				Weak Identification Test	21.901 [0.000]	9.881 [0.0091]	18.947 [0.0027]
				Hansen J Statistic	6.375 [0.5928]	10.758 [0.2273]	11.040 [0.1905]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2010-2013

The results so far are consistent with previous studies (Amsden, 1989; Evans, 1995; Doner and Schneider, 2000; Harriss, 2006; Fajnzylber et al., 2009; Hansen et al., 2009; Sen and Te Velde, 2009; Qureshi and Te Velde, 2013). However, these studies have not explored a sample of countries in the MENA region and Turkey as we have attempted to do in this study using a large set of possible obstacles in business and investment climate and various characteristics. Furthermore, while a limited number of studies used IV approaches, such as the studies by Sen and Te Velde (2009) and (Qureshi and Te Velde, 2013), our approach differs in terms of the instruments employed in the empirical analysis.

The last part of the analysis refers to the misallocation using the covariance of the sales share and employment share based on the estimated TFP we employed in the earlier estimates. We should

notice that since this requires a long period and more than one wave we limit our analysis to Egypt and Turkey. We report the estimates for Egypt and Turkey in table 10. The results differ, as we find a significant and negative impact of the business climate obstacles on the covariance of the sales share in the case of Egypt, while a negative relationship between obstacles and covariance of the employment share is found in Turkey. The third measure of resource misallocation is the MPRK, as we have described in the methodology section. All the estimated coefficients are significant in both Egypt and Turkey indicating that this indicator might be probably better explained by the obstacles related to business climate. The estimated coefficient in Egypt is around -0.18, while in Turkey we show that the coefficient is almost -0.04 less than doubled compared to Egypt. This may indicate that the dispersion and resource misallocation is higher in Egypt, even though the GDP and growth rate is higher in the Turkey compared to Egypt. Obstacles related to access to finance are negative and significant, suggesting that the credit is not allocated to the firms that could yield the highest return if that credit is used to invest in either capital resources. Therefore, the lack of access to financial and credit markets, in both countries, may be a contributing factor in the firms' resource misallocation. This suggests that a lack of access to financial markets may be a contributing factor in the misallocation of resources across firms. Regarding the other obstacles in business and investment climate, we observe that corruption and political instability reduce significantly the potential optimal allocation of productivity, while the negative impact of tax rates may imply that more productive and efficient firms are "taxed" more and their efficiency is lost expressed by the potential yield that they could achieve if the tax rates were not so high.

Table 10. OLS and 2SLS Regressions for Misallocation in Egypt and Turkey

Egypt							
Panel A: OLS	DV: Covariance Sales Share	DV: Covariance Employment Share	DV: Log of MPRK	Panel B: IV	DV: Covariance Sales Share	DV: Covariance Employment Share	DV: Log of MPRK
Business Climate	-0.0002* (0.00011)	-0.0007 (0.0009)	-0.1879* (0.0981)	Business Climate	-0.00025* (0.00013)	-0.0011 (0.0015)	-0.2445* (0.1282)
No. observations	1,222	1,222	1,218	No. observations	851	851	847
R-Square	0.1115	0.1759	0.0791	Centered R-Square	0.0643	0.0774	0.0661
				Weak Identification Test	18.738 [0.000]	17.974 [0.000]	18.903 [0.000]
				Hansen J Statistic	9.722 [0.1756]	7.395 [0.2496]	5.733 [0.5613]
Turkey							
Business Climate	-0.00035 (0.00024)	-0.0004* (0.00021)	-0.0388* (0.0230)	Business Climate	-0.0009 (0.00062)	-0.0007* (0.0004)	-0.0509* (0.0275)
No. observations	958	947	949	No. observations	958	947	949
R-Square	0.2435	0.2424	0.2368	Centered R-Square	0.2198	0.2221	0.1857
				Weak Identification Test	12.834 [0.0064]	12.332 [0.0072]	13.245 [0.0031]

	Hansen J	11.122	9.644	4.873
	Statistic	[0.2675]	[0.3801]	[0.7711]

Standard errors within brackets, p-values within the square brackets, ***, ** and * indicate significance respectively at 1%, 5% and 10% level. The period of analysis is 2008-2016 for Egypt and 2008-2013 for Turkey

Nevertheless, our study is not without major drawbacks. In particular, even though we have attempted to reduce the endogeneity issue by implementing the 2SLS method, our sample of study and the datasets used, rely on repeated cross sectional surveys and not on panel data. This may reduce the problem of attrition and non-response; however, the data sets do not allow us to follow the same firms across the time and to investigate the dynamics, especially the dynamic effects of business climate on the firm performance. Even though we could have used the panel data in Egypt and Turkey, the sample would be limited in a short sample and the period of two and three waves is quite short to implement an extensive empirical analysis. Another drawback of the study is that we explored the overall impact of the obstacles in business and investment climate, while it would be interesting to investigate individually each obstacle to disentangle the effect and identify the major obstacles in each country explored. As we have illustrated in figures 1-7 even though there is a heterogeneity on the manager's perception about the major obstacles, we observe that restriction related to access to finance and credit, corruption, political instability, tax rates and electricity supply are the major obstacles reported in the countries we examine. However, we propose for future research the investigation of each obstacle and their impact on firm performance employing firm level data for each country, rather than country level analysis. Also, as we mentioned earlier, we could have explored additional determinants of firm performance, including the structure and demographics of the workforce, such as education, the number of female versus male employees, the percentage of skilled and unskilled workers and others. Nevertheless, this was not our main purpose, but World Bank surveys can be used for future applications exploring in a more extensive way the possible determinants of firm performance. Furthermore, the main motivation of using WBES rely on the fact that we aim to explore the relationship between firm performance and measures on business and investment climate that no other survey provides in details. Also, to keep the analysis homogeneous, in terms of the remained variables included in the regression analysis, we have employed WBES.

5. Conclusion

This study examined the impact of obstacles in business and investment climate on firm performance in a sample of MENA region countries and Turkey using data from the World Bank Enterprise Surveys over the period 2006-2016. It is crucial and of high importance to consider in more details to assess the effectiveness of the business climate in practice for further research and implementation of relevant policies and reforms. Also, there is still no extended information about the impact of business climate on the resource misallocation in the MENA region countries and little is known about which type of obstacle in business and investment climate matters most. We suggest the methodological approach followed in this study for future research applications that will implement a systemic analysis of the effective business climate measures and related obstacles in low income countries, and developing and less developed economies that can be used as a guide for economic policy making. Even though this can be a challenging and difficult task,

it needs to be done, even using the limited information we have, to understand how reforms and relevant industrial policies can work best. Overall, future studies can expand the analysis to incorporate the conceptual definition and underpinning of the business and investment climate functions, to separate their attributes and disentangle their effects on firm performance and to implement cause-effect analysis.

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