

*Background Paper*

# Management Practices and the Partial Government Ownership of Firms in the Middle East and North Africa Region

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## Abstract

A wealth of evidence has shown the positive effects of better management practices on firms. More recent evidence has highlighted that ownership matters for several developing and advanced economies. However, this relationship has not been studied extensively for economies in the Middle East and North Africa, a region where the presence of the government in the productive sphere looms large. This study contributes to this gap in the literature by exploring how partial government ownership can influence the management practices of medium and large formal firms

in the Middle East and North Africa. Using two waves of Enterprise Surveys undertaken in 2013 and 2019/2020, the evidence points at a negative relationship between partial government ownership and management practices in the developing Middle East and North Africa region. A subsample of panel firms confirms these findings. Analysis conducted for firms surveyed in Europe and Central Asia in the same time frame does not show a similar negative relationship between partial government ownership and management practices, highlighting regional heterogeneity.

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# **Management Practices and the Partial Government Ownership of Firms in the Middle East and North Africa Region**

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# **Management Practices and the Partial Government Ownership of Firms in the Middle East and North Africa Region**

## **I. Introduction**

Better management practices yield better results for businesses. Since the seminal work of Bloom and Van Reenen (2007), mounting evidence has shown fairly consistent patterns of the benefits of better management practices. Better managed firms are more productive, have higher operating profits, are more outward oriented and invest more on Research and Development (Bloom et al., 2019; see Scur et al., 2021 for a summary). Productivity of skilled labor may also increase (Gosnell et al., 2020). Non-experimental findings have been complemented by experimental research that uncovers similar findings (Bloom et al., 2013a; Bloom et al., 2020).

The private sector in the Middle East and North Africa region faces several challenges. There is a dearth of dynamism as the pool of young and productive firms is in short supply in the region due to low firm entry and exit (World Bank, 2015). Furthermore, the private sector lies in the shadow of the state that exerts outsized influence. The MENA region has a high prevalence of state-owned enterprises. Political connections are also rampant in private enterprises. Several studies have documented the challenge of political connections and cronyism in the Arab Republic of Egypt (Diwan et al., 2020b), Lebanon (Diwan et al., 2020a), Tunisia (Rijkers et al., 2017a; Rijkers et al., 2017b), and Morocco (Ruckteschler et al., 2019). A distinct question, which explores a formal relationship between the government and firms, is whether the government ownership of firms distorts management incentives leading to subpar management practices in the region.

Ownership matters in influencing the quality of management practices. Bloom et al. (2015) find that across 10,000 manufacturing firms over developed and developing economies, government owned firms have poorer management practices than private equity firms. The sample of analysis however does not include

any economies in the MENA region. Government ownership is particularly important for the MENA region given the prevalence of state-owned enterprises. The larger role of government involvement in distorting the incentives of firms has been discussed in the literature. Governments can pursue policies that alleviate market failures and thus could provide a “supporting hand” (Shleifer, 1998; Islam, 2015). On the other hand, governments can distort firm incentives and market allocation by pursuing private goals that are not in the public interest. Typically, government-run firms perform more poorly than private owned firms (Tihanyi et al., 2019; Albohassani et al., 2020). This is largely explained by principal-agent problems that result in less monitoring of management and disincentives in maximizing profit (Shleifer, 1998; La Porta et al., 1999; Vining and Boardman, 1992).

In this study, we address a gap in the literature by connecting government ownership of formal medium and large enterprises to managerial practices in the Middle East and North Africa region. Because of the sampling in our data, we are able to capture firms with *partial* government ownership. The assumption is that the distortionary effects of government ownership in partially government owned firms is similar to fully state-owned enterprises. The possibility that there may be better outcomes from dual government and private ownership is an open empirical question. We find that both the incidence and intensity of the share of partial government ownership are negatively related to good managerial practices. We use a combination of a pooled cross-section of firms across Egypt, Jordan, Lebanon, Morocco, Tunisia, and the West Bank and Gaza that were surveyed in 2013 and 2019/2020 as well as a panel subsample of these firms surveyed in the same time frame. Interestingly, we do not find a similar robust relationship for European and Central Asian firms surveyed in the same time frame for both cross-sectional and panel samples. The data were obtained from the EBRD-EIB-World Bank Enterprise Surveys, which are based on face-to-face interviews with managers and include a section on management practices.<sup>2</sup> The data are representative of the formal

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<sup>2</sup> These specific surveys were a joint collaboration between the World Bank, the European Investment Bank (EIB) and the European Bank for Reconstruction and Development (EBRD). The surveys are also known as the EBRD-EIB-World Bank Enterprise Surveys.

private sector that excludes fully government-owned enterprise surveys. Both manufacturing and service firms are included. Only medium and large firms (those with at least 20 full-time permanent employees) are surveyed for the management practices module.

Use of a pooled cross-section allows us to use a nationally representative sample of medium and large firms to test our hypothesis that government ownership reduces management practices. But this strategy has clear challenges of omitted variable bias and, potentially, reverse causality. Through a series of robustness checks we limit these as best as we can with the data at hand. Country fixed effects are employed to account for time-invariant omitted variables at the country-level in addition to several firm-level factors that have been identified in the literature as potential determinants. Furthermore, we replicate the estimation for a subset of panel firms that were followed across the two waves. This allows us to account for time-invariant firm-level omitted variables through firm fixed effects. The limitation of these data is that they include a subset of firms that may not be nationally representative. Moreover, given the limited variation across time of government ownership, the results should be interpreted with caution. Finally, we transform the data into a lagged structure, where for the subset of panel firms, we regress the 2019/2020 values of management practices on government ownership in 2013. This attenuates the reverse causality bias. Our results in general are robust to these changes in specification and transformation of the data.

Several other studies have harnessed the World Bank Enterprise Surveys to explore management practices. Hyland et al (2019) use a shorter management practices module to show that firms in seven South American economies with better management practices are more productive. Bloom et al (2012), using similar surveys, find that Central Asian transition economies perform poorly in management practices. Schweiger and Stepanov (2019) relate management practices of firms to energy intensity using a cross-section of Enterprise Surveys data across the Middle East and North Africa and Eastern and Central Europe regions using data collected in 2011-2014. De Haas et al. (2021) use Enterprise Survey data for a cross-section of firms across 22 countries in Emerging Europe and Central Asia collected in 2019 to explore information

on green management practices to show that both financial frictions and managerial constraints slow down firm investment in more energy efficient and less polluting technologies.

Improvements in managerial quality may be an avenue to improve private sector performance in the MENA region. The positive relationship between management practices and productivity and innovation would bode well for a private sector that invests little in Research and Development. Furthermore, the effects may be long lasting. Evidence from India shows that the effects of improvements in managerial quality can affect firms after nine years (Bloom et al., 2018). In Italy, a management training program that involved trips to the US had lasting effects on Italian firms for at least 15 years (Giorcelli, 2019). These findings may also imply that there is scope for management consultancy to improve firm performance. Bruhn et al. (2018) found positive effects of management consultancy on small and medium sized enterprises in Mexico through a randomized controlled trial. To embrace better managerial practices, firms in the MENA region may first have to disentangle themselves from government ownership to get the incentives right. While management training and consultancy may hold promise, this may not be fulfilled as long as governments distort incentives in the region (World Bank, 2022).<sup>3</sup>

In summary, we contribute to the literature by exploring the relationship between government ownership and management practices in the MENA region. We find a negative effect of the incidence and share of government ownership in the quality of management practices. We employ both a large cross-section of firm-level data, and a sub sample of a panel of firms to establish our results. We do not find similar findings for the Europe and Central Asia region. Our findings confirm the challenge that an interventionist state has on the private sector in the MENA region. The rest of the paper is structured as follows. Section II describes

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<sup>3</sup> It is worth noting that management practices are low in the MENA region overall, not only for government-owned firms. Thus, we acknowledge that there are other factors at play as well that may or may not be related to the role of the state in the region. We account for them as much as we can in the empirical estimations.

the data. Section III provides the empirical strategy and Section IV provides the results and robustness checks. Section V concludes.

## **II. Data**

The main source of firm-level data is the World Bank's Enterprise Surveys (ES). This includes two samples - a cross-sectional sample over two waves (circa 2013 and circa 2019/2020), and a panel component for a subset of firms that were followed over time. Data is available for the 6 economies in the Middle East and North Africa (MENA) region and 29 economies in the Europe and Central Asia (ECA) region. Both samples have a section on management practices that was only implemented for medium and large firms (those with at least 20 permanent, full-time employees), where management practices were more likely to matter.<sup>4</sup> The surveys also contain the standard ES modules, collecting information on a representative sample of formal (registered) private firms operating in manufacturing or services sectors. The ES data are fully comparable across countries and are collected via face-to-face interviews with business owners or top managers by using a global methodology. The data have been widely used by several studies to explore the private sector in developing economies (Paunov, 2016; Besley and Mueller, 2018; Chauvet and Ehrhar, 2018; Hjort and Poulsen, 2019; Falciola et al., 2020). A considerable advantage of these data sets is that they consist of a set of economies surveyed around a similar time frame, employing a consistent methodology. However, there are some limitations of the panel subset of firms. First, typically less than 50 percent of firms surveyed in the first round are followed between the two waves, and thus the selection of firms may not be random and consists of survivor firms. There are also high rates of attrition between the two waves. Second, several factors are quite stable for these sets of firms over time. For instance, there is very little variation in ownership structure over time. Accordingly, we caveat the findings based on this subsample of firms.

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<sup>4</sup> The one exception being the Russian Federation in the first wave where the threshold was 50 employees.

The key outcome variable is the quality of management practices, consistent with the methodology implemented by Bloom et al. (2013b). This consists of eight components: (i) Problem resolution, (ii) Number of performance indicators measured, (iii) Level of ease or difficulty to achieve production or service provision targets, (iv) Knowledge of production or service provision targets, (v) Basis of manager bonuses, (vi) Length of focus of production targets, (vii) Promotion of non-managers, and (viii) Dismissal of underperforming managers. The scoring for each component is provided in table A2.<sup>5</sup> The management practices module is only implemented for medium and large firms. Figure 1 provides the management practices scores for the 35 economies in the sample in 2019/2020. With the exception of Tunisia, the MENA economies are in the bottom half of the sample. Lebanon has the lowest management practices score in the sample. Figure 2 shows that management practice scores have declined for both regions. Figure 3 provides the management scores for specific MENA economies over time. Lebanon experienced the largest decline, having had the highest score in 2013. Tunisia has the highest average management score in 2019.

The main variable of interest for us is the incidence and share of government ownership. The question in the survey instrument asks what percentage of the firm is owned by the government or the state. From this information, two variables are derived. The first is a binary variable that captures whether or not the firm has any government ownership. The second is the percentage of government ownership, with firms that have no government ownership attaining a value of zero. Note that the sample excludes fully state-owned enterprises and thus the scope of the study pertains to only partially government-owned businesses. Figure 2 presents the percent of medium and large firms that have government ownership in both the MENA and ECA regions for both waves of the survey. On average, the percent of medium and large firms that have partial government ownership increased from 0.65 percent in 2013 to 1.05 percent in 2019 in the MENA

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<sup>5</sup> Bloom et al. (2012) has some minor deviations from the standard scoring. Long-term production targets receive a higher score than a mix of short-term and long-term production targets. Achieving targets without much effort and achieving targets with extraordinary efforts receive the same score. The results in this study are unchanged if these minor changes to scoring are implemented. Results are available from the authors upon request.

region. In contrast, the share of partially government owned firms declined from 2.95 percent to 1.63 percent in ECA.

Figure 4 shows that the largest increase in the share of partially government owned firms in MENA was in Morocco from 0.94 percent in 2013 to 5.95 percent in 2020. All firms surveyed in Lebanon for both waves were fully privately owned. While the incidence of partial government ownership is low, firms that do have some government ownership tend to have a higher proportion of government ownership in MENA (figure 5). In Egypt, the average government ownership share in partially government-owned firms was 55 percent in 2013 and 39 percent in 2020. Similarly, declines are seen in Jordan (37 percent to no firms in the sample with partial government ownership), Morocco (19 to 9 percent), and the West Bank and Gaza (12 to 1 percent). Only Tunisia witnessed an increase from an average of 48 percent in 2013 to 55 percent in 2020. Decline in the intensity of partial government ownership of medium and large firms should not be misinterpreted as reduction of the role of government in the private sector. One cannot rule out from these data the possibility that a reduction in partial government ownership in the MENA region did not go with a concomitant increase in fully state-owned enterprises that are beyond the scope of ES data.

Several control variables are also employed obtained from the Enterprise Surveys. These include firm size, age, outward orientation, quality certification, access to finance, manager experience in the sector, and perceptions of labor regulations as a constraint. The choice of control variables is described in the empirical strategy section. Table 1 provides the summary statistics for the pooled cross-section of MENA economies for both the 2013 and 2019/2020 waves. The summary statistics for the MENA panel sample are provided in table 2. Table 3 contains the summary statistics for the pooled cross-section sample of firms in ECA. Table 4 provides the summary statistics for the ECA panel sample.

The data shows some striking patterns of the nature of partially government-owned firms in MENA and ECA (Table A1).<sup>6</sup> Partially government-owned firms are more likely to be large than private firms across both the MENA and ECA regions. Furthermore, across both regions, partially government-owned firms are more likely to have an element of foreign ownership than private firms. Partially government-owned firms are also less likely to have a female top manager than private firms in both regions. However, this pattern is not replicated for firms with a female owner, but is consistent when firms with majority female owners are considered. In ECA, partially government-owned firms are more likely to have a female owner among the multiple owners. In MENA 2013, partially government-owned firms were less likely to have a female owner (17%), while firms in the private sector were more likely to have a female owner (30%). However, in 2019, there was parity with 19% and 20% of partially government-owned and private firms having a female owner, respectively. The share of firms that have a female majority are rare, particularly in the MENA region. With this in mind, there is no government ownership in MENA firms that are majority female-owned. This is also the case in ECA in 2019, although in ECA in 2013, 3% of partially government-owned firms had majority female ownership, which was still far less than the corresponding figure for fully private firms (9 %).

There are some distinct differences in certain characteristics of partially government-owned firms across the two regions. In MENA, partially government-owned firms tend to be younger than private sector firms, while in ECA they tend to be older. Partially government-owned firms in the MENA region lean more towards the service sector, while those in ECA lean slightly towards the manufacturing sector. In the MENA region, about 28.5 percent of partially government-owned firms are in the transportation, storage, and communication subsectors (services). About 23 percent is in the Hotel and Restaurants subsector (services). About 19 percent of partially state-owned firms are in the food manufacturing sector. Eleven percent of partially state-owned enterprises are in the electronics manufacturing sub-sector. None of the other detailed

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<sup>6</sup> Note that these are based on the overall sample of the data not just the regression sample.

subsectors (2 digit ISIC Rev. 3.1 code) is close to 5 percent of the sample. In ECA, almost 30 percent of partially state-owned enterprises are in the construction sector. This is followed by retail (13.8 percent) and then food manufacturing (11 percent). None of the other detailed subsectors (2 digit ISIC Rev. 3.1 code) are close to 5 percent of the sample. Given the low prevalence of partially government-owned enterprises, some caution should be taken with these findings. Furthermore, partially government-owned firms in MENA are more likely to be exporters than the private sector, while in ECA there is little difference. In ECA, partially government-owned firms are more likely to seek or secure a government contract than private sector firms. This was also the case in MENA in 2013, but in 2019, it was even less than the private sector. Finally, in 2019 the share of partially-government owned firms that have their own website is lower than the private sector in MENA, while this is the opposite for ECA.

### III. Empirical Strategy

The following equation is estimated for the pooled cross-section sample.

$$MGMT_i = \beta_0 + \beta_1 Gov_i + \beta_2 Size_i + \beta_3 Age_i + \beta_4 ManagerExp_i + \beta_5 Certification_i + \beta_6 Manf_i + \beta_z Z_i + \delta_1 D_c + \delta_2 D_t + \epsilon_i \quad (1)$$

Where *MGMT* is the average management practices score.<sup>7</sup> The government variable (*Gov*) is either (i) whether or not a firm has any government ownership or (ii) the average share of government ownership. To control for as many confounding factors as possible, several firm-level variables are accounted for. These include firm size as measured by the number of full-time employees (*Size*), firm age (*Age*), manager experience in the same sector (*ManagerExp*), Quality certification (*Certification*) and whether the

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<sup>7</sup> We also alternatively used Z-scores instead of the average scores. The results are largely unchanged with regards to the sign and statistical significance for the incidence of government ownership for the MENA and ECA samples. For the intensity of government ownership in the pooled estimations for the MENA region, there is a slight weakening of statistical significance from 5% to 10%. However, in the panel and lagged estimations, the statistical significance remains high at 1%. These results are available from the authors upon request.

sector of activity is in the manufacturing sector (*Manf*).<sup>8</sup> Other control variables ( $Z$ ) include: whether the firm is an exporter (defined as firms with 10% or more of sales directly exported), is foreign owned (defined as firms with 10% or more private foreign ownership), the presence of checking or savings account, ISO quality certification, and whether the firm perceives labor regulations to be a major or severe constraint to operations. Country fixed effects ( $D_c$ ) and year fixed effects ( $D_t$ ) are included to account for time invariant country-specific omitted variables and global shocks. Additional variables considered in robustness checks include the share of workers with university education, and competition from informal firms.  $\epsilon_i$  is the standard error term with the usual desirable properties. Survey weights are used, and the standard errors are clustered at the location-sector-size strata level.

One significant concern with the estimations is that (partial) government ownership is not randomly assigned to firms. If governments seek to own better managed firms, then our negative coefficients of the effect of government ownership on management practices is an underestimate of the true effects. On the other hand, if governments seek to bail out poorly managed firms through ownership, then poor management may result in an increase in government ownership. In this scenario, our uncovered effects would over-estimate the true effects of government ownership on management performance. We do not have a perfect solution to the source of this endogeneity. However, to limit reverse causality bias, we estimate equation (2) below where we explore the lagged effect of government ownership in 2013 on management scores in 2019/2020, using the panel sample. The panel subsample is much smaller than the cross-sectional sample as a lower share of firms are re-interviewed in accordance with the sample design as well as high attrition rates largely due to firm exit between the waves of the survey. We also account for a lot of features of the firm that could be correlated with characteristics governments would consider when taking ownership of a firm. We note that the literature has in general found a negative relationship between

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<sup>8</sup> Note that as a robustness check we replaced the manufacturing dummy variable with 2-digit ISIC sector fixed effects. The results are unchanged. They are available from the authors upon request.

government ownership and firm performance. And most studies point to the relationship going in the direction of government ownership reducing firm performance.

$$MGMT_{i,2019t} = \beta_0 + \beta_1 Gov_{i,2013} + \beta_2 Size_{i,2013} + \beta_3 Age_{i,2013} + \beta_4 ManagerExp_{i,2013} + \beta_5 Certification_{i,2013} + \beta_6 Manf_{i,2013} + \beta_z Z_{i,2013} + \gamma_1 D_c + \epsilon_{it} \quad (2)$$

Ideally, we would also utilize panel estimations for the panel subset of firms. However, there is very low incidence and variation of government ownership between the two periods of time for many of the firms, and thus the findings using panel estimations would have to be interpreted with care. On average, the percent of firms with government ownership for the MENA subsample increased from 0.004 percent to 0.01 percent between the two waves, while management practices declined by 23 percent. In ECA, government ownership incidence decreased from 3 percent to 2 percent, while manager practices declined by 13 percent. With the caveats in mind, we utilize the same specification as equation (1) for the Panel samples as presented in equation (3) below, by replacing country fixed effects with firm-level fixed effects ( $D_i$ ). Standard errors are clustered at the country level for the panel estimations.

$$MGMT_{it} = \beta_0 + \beta_1 Gov_{it} + \beta_2 Size_{it} + \beta_3 Age_{it} + \beta_4 ManagerExp_{it} + \beta_5 Certification_{it} + \beta_6 Manf_{it} + \beta_z Z_{it} + \gamma_1 D_i + \gamma_2 D_t + \epsilon_{it} \quad (3)$$

The rationale for several of the control variables is based on the literature as summarized by Scur et al. (2021). Competition has been found to improve management practices as firms improve in order to survive or they exit. Trade and foreign direct investment exposure heighten competition (Bloom et al., 2016). These are captured by exporter status and foreign ownership in the estimations. ISO quality certification may also overlap with good management practices. Strict labor regulations have also been found to be negatively correlated with management practices. Rigid labor laws can create obstacles to the adoption of management practices especially in relation to people management (Bloom et al., 2019). We capture this through the perception of the firm as to whether labor regulations are a major or severe constraint to operations. The

share of educated workers has also been found to predict the quality of management practices in a range of studies that have shown that distance to universities and the human capital of the firm are predictors of management practices (Bloom et al., 2012; Bloom et al., 2018; Feng and Valero, 2020; McKenzie and Woodruff, 2017). We account for these variables as robustness checks, acknowledging their limitations in the data set.

#### **IV. Results**

Table 5 presents the base estimation results. Columns 1 and 2 provide the results for the developing MENA pooled cross-section sample while columns 3 and 4 provide the results for the ECA sample (2013-2019). The results show a negative coefficient for the incidence of government ownership, statistically significant at the 1 percent level, for the MENA pooled cross-section sample (column 1). Similar findings are uncovered for the proportion of government ownership. The coefficient is negative and statistically significant at the 5 percent level (column 2).<sup>9</sup> In terms of magnitudes, government ownership reduces the management score by 0.120, which is 24 percent of the mean average management score for the MENA sample. A 10 percentage point increase in government ownership reduces the management score by 0.03, which is 6.2 percent of the average management score in MENA. In contrast, the coefficients for government ownership, both the incidence and the share of government ownership, are positive but statistically insignificant for ECA. The difference in the coefficients for MENA and ECA is statistically significant.<sup>10</sup> These initial findings point to a negative role of government ownership on management practices, specifically for the MENA region. This is in line with Bloom et al. (2015). The insignificant

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<sup>9</sup> Note that as a robustness check we replaced the manufacturing dummy variable with 2-digit ISIC sector fixed effects. The results are unchanged. They are available from the authors upon request.

<sup>10</sup> The estimations were rerun with a pooled sample and an interaction term between a MENA region dummy and government ownership. The coefficient of the interaction term is statistically significant at the 1 percent, indicating that the differential effects of government ownership on management practices by region are statistically significant.

coefficient of partial government ownership for ECA indicates regional heterogeneity in the relationship between partial government ownership and management practices.

Other statistically significant covariates for the estimations based on the MENA sample include the size of the firm and foreign ownership. Larger firms among the medium and large firms in the sample tend to have better management practices. Foreign owned firms are also more likely to have better management practices than domestically owned firms. These factors are also found to be statistically significant for the ECA sample, with the same signs as the MENA sample. The coefficient for the age of the firm is negative for both samples, but only statistically significant for the ECA sample. In addition, exporter status and ISO quality certification are also found to be positively related to management practices, with coefficients statistically significant at the 10 percent level and 1 percent level respectively for the ECA sample. Both factors have positive coefficients for the MENA sample, but are not statistically significant. The positive effects of exporter status, foreign direct investment and ISO quality certification on management practices are consistent with the literature (Scur et al., 2021). We do not find a statistically significant relationship between the perceptions of labor regulations and the quality of management practices.

In table 6 we replicate the specification in table 5 with the addition of the share of workers in the firm that have a university education and the presence of informal competition. There is a slight drop in the sample due to the low response rates for the university education variable. The share of permanent full-time employees with a university degree is positively related to the quality of management practices, highly statistically significant at the 1 percent level for both samples. This reflects the importance of general worker education as identified in the literature (Feng and Valero, 2020; Scur et al., 2021). Competition with informal firms has no statistically significant relationship with management practices. In a separate set of results, we also accounted for corruption and bribery at the firm level, and while this entailed a drop in

observations, the relationship between partial government ownership and management practices remained statistically significant for the MENA region.<sup>11</sup>

To limit reverse causation, we utilize an alternative estimation where we regress management practices in 2019/2020 on 2013 values of government and ownership and other covariates for the panel sub-sample of firms following equation (2). The advantage of this estimation is that since long lags are employed, it is unlikely that the quality of management practices in 2019/2020 will influence government ownership in 2013. However, due to the timespan between the two rounds, the assumption is that government ownership has a long-term effect on management practices that lasts for around 6 to 7 years. The findings are reported in table 7. Columns 1 and 2 provide the findings for MENA while columns 3 and 4 provide the results for ECA. For the MENA sample, the relationship between management practices and whether the firm has government ownership is negative, but statistically insignificant. However, the relationship between the proportion of government ownership and management practices is negative and statistically significant at the 5 percent level. The implication may be that for longer periods of time, the intensity of government ownership matters with regards to the quality of management practices, although the size of the effect is lower given the lower size of the coefficient in comparison to the base regression. The age of the firm is negatively correlated with management practice scores while firm size is positively correlated with management practices. For the ECA sample, there is no statistically significant relationship between government ownership and management scores. However, foreign ownership and firm size are positively related to management scores, with coefficients that are statistically significant at the 1 percent level in the base specification.

Given the stability of government ownership of firms, there is limited variation over time. In fact, only Egypt, Morocco, and Tunisia show any variation in government ownership of firms in the MENA panel

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<sup>11</sup> These findings are available upon request.

subsample. Regardless, we present findings using panel estimations as there may be other interesting predictors of management practices that show variation over time. The panel estimations account for time-invariant firm-level omitted variables. The results for the MENA panel sample are presented in table 8. Columns 1 and 2 show that the coefficient of the incidence of government ownership and the proportion of government ownership remain negative and statistically significant at the 1 percent level. The coefficients are largely similar to the cross-section estimations reported in table 5. However, given the limited variation of these variables over time, the findings should be interpreted with caution. ISO quality certification is positive and highly statistically significant at the 1 percent level. Given the lack of variation in government ownership in Jordan and Lebanon, and the West Bank and Gaza, we limit the sample to Egypt, Morocco and Tunisia in columns 3 and 4 of table 8. The results are largely unchanged, with the coefficient of the government ownership variables remaining negative and statistically significant at the 1 percent level. However, exporter status is positive and statistically significantly correlated with management practices for these three economies. This may reflect the role of international trade in heightening competitive forces that lead to better management practices.

In table 9 we replicate the extended specification of table 6 using the MENA panel sample. The coefficients for the government ownership variables remain negative and statistically significant for the MENA sample (columns 1 and 2) and when the sample is limited to Egypt, Morocco, and Tunisia (columns 3 and 4). The size of the coefficients of the government ownership variables is much larger than the cross-sectional estimates. Unlike the cross-sectional results, we find no statistically significant relationship between the share of permanent workers with university education and the management score. We do however find a positive effect of competing against informal (unregistered) firms on management practices. Part of the reason may be that competition from informal firms encourages managers to adopt better practices to attain a competitive edge over informal firms. However, informal competition is no longer statistically significant when we limit the sample to Egypt, Morocco, and Tunisia. ISO quality certification has a positive and highly statistically significant relationship with management practices.

In table 10 we replicate the specification in table 9 with the inclusion of perceptions of competition. Firms are asked to provide the number of competitors their main product faces. There are some issues with this variable as it was changed between the two rounds of surveys. The first round was only asked for firms whose main market was domestic. The second round was asked for all firms, whether the main market was domestic or international. To ensure consistency, the sample only includes firms whose main market is the local or national level, thus there is a drop in the sample size. There is a special code in the survey for respondents that say there are too many competitors to count. Thus, the number of competitors is broken down into buckets to account for the special code. Of course, the perceptions of the number of competitors is a noisy variable with considerable measurement error, and thus we mainly present these findings as a robustness check. The coefficients for the government ownership variables remain negative and statistically significant. The results show that the coefficient for 2 to 3 competitors is negative and statistically significant at least at the 5 percent level. This implies that firms that perceive to have just 2 to 3 competitors have lower management practices scores than firms that perceive to have 11 or more competitors. This finding is largely unchanged when the sample is limited to Egypt, Morocco, and Tunisia. However, a negative coefficient is also found for the 4 to 5 competitors variable for the three-country sample, statistically significant at the 1 percent level. This provides some indication that competitive forces improve managerial practices. The lack of statistical significance for the “no competitor” and “one competitor” variables may be due to the small sample of firms in these buckets.

In table 11 we provide the results for the ECA panel sample. We largely find no statistically significant relationship between government ownership and management practices. Most of the covariates are statistically insignificant for the ECA panel sample. In the specification where competition is included (columns 5 and 6), we find that the foreign ownership is positively related to management scores, statistically significant at the 5 percent level. These findings further confirm the regional heterogeneity of

the findings with government ownership playing a key role in weakening management practices in MENA but not in ECA.

#### *Sub-components of Management Practices*

Table 12 provides the regressions using the pooled-cross-section on the incidence of government ownership and the sub-components of management scores following the specification in equation (1). Government ownership has a negative and statistically significant coefficient for four management practices sub-scores – (i) problem resolution, (ii) level of ease or difficulty to achieve production or service provision targets, (iii) length of focus of production targets, and (iv) dismissal of underperforming managers. The share of government ownership has no statistically significant relationship with any of the other sub-scores. Firms with some government ownership have poor management practices with regards to having a structured response when problems arise. There is also a lack of good practices around production targets. Government ownership may disincentivize long term targets, especially when governments in power may change. Also, government-owned firms may set easily achievable targets due to the fear of appearing to underperform. Thus, the incentives of satisfying government owners over innovation and profit may explain the negative relationship between government ownership and the subcomponents of problem solving, focus on targets, and achievement of targets. Finally, managers in government owned firms may not be chosen in terms of merit, but in terms of other considerations such as connections. Thus, dismissal of managers, even in the case of underperformance, is unlikely. This would explain the negative relationship between government ownership and the sub-score on dismissal of underperforming managers.

## **V. Conclusions**

Governments can distort incentives in firms that end up lowering managerial quality. At least this is the robust negative correlation we uncover for the developing economies across the MENA region. Our

findings stand after accounting for many firm-level covariates. Most of the other determinants of management practices such as outward orientation and quality certification seem consistent with the literature. Management quality has been found to have far-reaching positive effects on firm performance, and thus could be an important avenue of revitalizing the private sector in the MENA region. However, government influence seems to be a hindrance and a cause for concern among policy makers with the best of intentions in improving the private sector.

We acknowledge several limitations of our study. Our sample of analysis is mainly formal medium and large private firms, excluding fully state-owned enterprises. The omission of state-owned enterprises removes one end of the spectrum of government ownership from our analysis. Furthermore, the incidence of partial government ownership of firms is low; thus, our findings hinge on a few firms. However, the dearth of accessible data is a major hindrance for analysis in the MENA region. Despite its limitations, this study raises an important issue for the region to consider: whether the role of government in the private sector in the MENA region should receive a closer look given the far-reaching negative consequences in its current form.

Future avenues of research include exploring whether political connections complement or substitute partial government ownership, and whether reforms that remove the barriers to competition in the region tend to improve management scores. Finally, an exploration of whether there are differential determinants of management scores based on the gender of the top manager would yield interesting results given lack of inclusion in the private sector in the MENA region.

## References

- Abolhassani, Marzieh, Zhi Wang, and Jakob de Haan (2020). “How Does Government Control Affect Firm Value? New Evidence from China.” *KYKLOS* 73(1):3-21.
- Bender, Stefan, Nicholas Bloom, David Card, John Van Reenen, and Stefanie Wolter (2018). “Management Practices, Workforce selection, and Productivity.” *Journal of Labor Economics* 36(S1):S371–S409.
- Besley, Timothy and Hannes Mueller (2018) “Predation, Protection, and Productivity: A Firm-Level Perspective.” *American Economic Journal: Macroeconomics* 10(2): 184-221.
- Bloom, Nicholas and John Van Reenen (2007) “Measuring and Explaining Management Practices Across Firms and Countries.” *The Quarterly Journal of Economics* 122(4):1351–1408.
- Bloom, Nicholas, Helena Schweiger, and John Van Reenen (2012). “The Land that Lean Manufacturing Forgot?” *Economics of Transition* 20(4): 593-635.
- Bloom, Nicholas, Benn Eifert, Aprajit Mahajan, David McKenzie, and John Roberts (2013a). “Does Management Matter? Evidence from India.” *The Quarterly Journal of Economics* 128(1):1–51.
- Bloom, Nicholas, Erik Brynjolfsson, Lucia Foster, Ron S.Jarmin, Itay Saporta-Eksten, and John Van Reenen (2013b), “Management in America.” US Census Bureau Center for Economic Studies Paper No. CES-WP-13-01
- Bloom, Nicholas, Raffaella Sadun, and John Van Reenen (2015). “Do Private Equity Owned Firms have Better Management Practices?” *American Economics Review: Papers & Proceedings* 105(5):442-446.
- Bloom, Nicholas, Mirko Draca and John Van Reenen (2016). “Trade Induced Technical Change? The Impact of Chinese Imports on Innovation, IT and Productivity.” *The Review of Economic Studies* 83 (1):87–117
- Bloom, Nicholas, Erik Brynjolfsson, Lucia Foster, Ron Jarmin, Megha Patnaik, Itay Saporta-Eksten, and John Van Reenen (2019). “What Drives Differences in Management Practices?” *American Economic Review* 109(5):1648–83.
- Bloom, Nicholas, Aprajit Mahajan, David McKenzie, and John Roberts (2020). “Do management Interventions Last? Evidence from India.” *American Economic Journal: Applied Economics* 12(2):198–219.
- Bruhn, Miriam, Dean Karlan, and Antoinette Schoar (2018). “The Impact of Consulting Services on Small and Medium Enterprises: Evidence from a Randomized Trial in Mexico.” *Journal of Political Economy* 126(2):635-687.
- Chauvet, Lisa and Helene Ehrhart (2018) “Aid and Growth: Evidence from Firm-Level Data.” *Journal of Development Economics* 135: 461-477.
- De Haas, Ralph, Ralf Martin, Mirabelle Muûls, and Helena Schweiger (2021). “Managerial and Financial Barriers to the Net-Zero Transition.” CEPR Discussion Paper No. DP15886.

- Diwan, Ishac, and Jamal Ibrahim Haidar (2020a). "Political Connections Reduce Job Creation: Firm-level Evidence from Lebanon." *The Journal of Development Studies* DOI:10.1080/00220388.2020.1849622
- Diwan, Ishac, Keefer, Philip, and Marc Schiffbauer (2020b). "Pyramid capitalism: Political Connections, Regulation, and Firm Productivity in Egypt." *Review of International Organizations* 15(1): 211–246.
- Falciola, Justine, Marion Jenseon, and Valentina Rollo (2020) "Defining Firm Competitiveness: A Multidimensional Framework." *World Development* 129: 104857.  
<https://doi.org/10.1016/j.worlddev.2019.104857>
- Feng, Andy and Anna Valero (2020). "Skill-Biased Management: Evidence from Manufacturing Firms." *The Economic Journal* 130(628):1057–1080.
- Giorelli, Michela (2019). "The Long-Term Effects of Management and Technology Transfers." *American Economic Review* 109(1): 121-152
- Gosnell, Greer K., John A. List, Robert D. Metcalfe (2020). "The Impact of Management Practices on Employee Productivity: A Field Experiment with Airline Captains." *Journal of Political Economy* 128(4):1195-1232.
- Hjort, Jonas, and Jonas Poulsen (2019) "The Arrival of Fast Internet and Employment in Africa." *American Economic Review*, 109 (3): 1032-79.
- Hyland, Marie, David C. Francis, and Jorge Rodriguez Meza (2019). "Are Management Practices Failing or Aiding the Private Sector in South America?" Policy Research Working Paper 8783, World Bank, Washington DC
- Islam, Asif (2015). "Entrepreneurship and the Allocation of Government Spending Under Imperfect Markets." *World Development* 70:108-121.
- La Porta, Rafael, Florencio Lopez-De-Silanes, and Andrei Shleifer (1999) "Corporate Ownership Around the World." *The Journal of Finance* 54(2): 471-517.
- McKenzie, David and Christopher Woodruff (2017). "Business Practices in Small Firms in Developing Countries." *Management Science* 63(9):2967–2981.
- Rijkers, Bob, Leila Baghdadi and Gael and Raballand (2017a). "Political Connections and Tariff Evasion Evidence from Tunisia." *The World Bank Economic Review* 31: 459–482.
- Rijkers, Bob, Caroline Freund and Antonio Nucifora (2017b). "All in the Family: State Capture in Tunisia." *Journal of Development Economics* 124: 41–59
- Ruckteschler, Christian, Adeel Malik and Ferdinand Eib (2019). "The Politics of Trade Protection: Evidence from an EU-mandated Tariff Liberalization in Morocco." CSAE Working Paper Series 2019-12, Centre for the Study of African Economies, University of Oxford.
- Schweiger, Helena and Alexander Stepanov (2019). "When Good Managers Face Bad Incentives: Management Quality and Energy Intensity in the Presence of Price Distortions." EBRD Working Paper No. 224.

Scur, Daniela, Rafaella Sadun, John Van Reenen, Renata Lemos, and Nicholas Bloom (2021). “World Management Survey at 18: Lessons and the Way Forward.” IZA Discussion Papers No. 14146.

Shleifer, Andrei (1998). “State versus Private Ownership.” *The Journal of Economic Perspectives*. 12(4):133–150.

Tihanyi, Laszlo, Ruth V. Aguilera, Pursey Heugens, Steve Sauerwald, Patricio Duran, and Roxana Turturea (2019). “State Ownership and Political Connections.” *Journal of Management* 45(6): 2293-2321.

Vining, Aidan R. and Anthony E. Boardman (1992). “Ownership Versus Competition: Efficiency in Public Enterprise.” *Public Choice*. 73(2): 205–239.

World Bank 2022, “Jobs Undone: Reshaping the role of governments toward markets and workers in the Middle East and North Africa” Washington DC: World Bank

**Table 1: Summary Statistics - MENA 2013 and 2019 (Pooled Cross-section)**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Overall management score	3,385	0.501	0.197	0	1
Government Ownership Y/N	3,385	0.004	0.062	0	1
Proportion of government/state ownership in a firm (%)	3,385	0.099	1.848	0	90
Top manager experience in sector (years)	3,385	24.082	11.351	1	60.000
Log of age of firm	3,385	2.962	0.732	0	5.088
Log of size (number of full-time employees)	3,385	3.949	0.897	1.872	9.393
Direct exports 10% or more of sales Y/N	3,385	0.352	0.478	0	1
Foreign ownership Y/N	3,385	0.089	0.284	0	1
Establishment has checking or savings account Y/N	3,385	0.928	0.259	0	1
ISO Certification Ownership Y/N	3,385	0.305	0.461	0	1
Share of permanent full-time employees with a university degree (0 to 1)	3,190	0.275	0.236	0	1
Firm identifying labor regulations as a major or severe constraint Y/N	3,385	0.108	0.310	0	1
Competes against unregistered firms Y/N	3,229	0.454	0.498	0	1
Manufacturing Sector Y/N	3,385	0.667	0.471	0	1

**Table 2: Summary Statistics - MENA 2013 and 2019 (Panel)**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Overall management score	743	0.508	0.197	0	1
Government Ownership Y/N	743	0.011	0.103	0	1
Proportion of government/state ownership in a firm (%)	743	0.367	4.946	0	80
Top manager experience in sector (years)	743	24.357	11.454	1	60
Log of age of firm	743	3.109	0.677	0.693	5.088
Log of size (number of full-time employees)	743	4.438	1.153	2.303	8.161
Direct exports 10% or more of sales Y/N	743	0.365	0.482	0	1
Foreign ownership Y/N	743	0.110	0.314	0	1
Establishment has checking or savings account Y/N	743	0.914	0.281	0	1
ISO Certification Ownership Y/N	743	0.381	0.486	0	1
Share of permanent full-time employees with a university degree (0 to 1)	699	0.290	0.236	0	1
Firm identifying labor regulations as a major or severe constraint Y/N	743	0.087	0.283	0	1
Competes against unregistered firms Y/N	705	0.461	0.499	0	1
No competitor (Y/N) (domestic)	551	0.022	0.146	0	1
One competitor (Y/N) (domestic)	551	0.013	0.112	0	1
2-3 competitors (Y/N) (domestic)	551	0.100	0.300	0	1
4-5 competitors (Y/N) (domestic)	551	0.120	0.325	0	1
6-10 competitors (Y/N) (domestic)	551	0.069	0.254	0	1
11-180 competitors (Y/N) (domestic)	551	0.065	0.247	0	1
Too many competitors to count (Y/N) (domestic)	551	0.612	0.488	0	1
Manufacturing Sector Y/N	743	0.739	0.440	0	1

**Table 3: Summary Statistics - ECA 2013 and 2019 (Pooled Cross-section)**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Overall management score	8,322	0.535	0.194	0	1
Government Ownership Y/N	8,322	0.022	0.147	0	1
Proportion of government/state ownership in a firm (%)	8,322	1.212	9.548	0	99
Top manager experience in sector (years)	8,322	19.687	10.621	1	60
Log of age of firm	8,322	2.762	0.655	0	5.069
Log of size (number of full-time employees)	8,322	3.974	0.945	1.099	14.330
Direct exports 10% or more of sales Y/N	8,322	0.307	0.461	0	1
Foreign ownership Y/N	8,322	0.139	0.346	0	1
Establishment has checking or savings account Y/N	8,322	0.966	0.181	0	1
ISO Certification Ownership Y/N	8,322	0.380	0.485	0	1
Share of permanent full-time employees with a university degree (0 to 1)	7,784	0.256	0.242	0	1
Firm identifying labor regulations as a major or severe constraint Y/N	8,322	0.078	0.269	0	1
Competes against unregistered firms Y/N	7,897	0.330	0.470	0	1
Manufacturing Sector Y/N	8,322	0.553	0.497	0	1

**Table 4: Summary Statistics - ECA 2013 and 2019 (Panel)**

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Overall management score	1,741	0.529	0.190	0	0.975
Government Ownership Y/N	1,741	0.029	0.167	0	1
Proportion of government/state ownership in a firm (%)	1,741	1.327	9.185	0	99
Top manager experience in sector (years)	1,741	20.963	10.997	1	60
Log of age of firm	1,741	2.897	0.629	0	5.069
Log of size (number of full-time employees)	1,741	4.305	1.089	1.099	9.034
Direct exports 10% or more of sales Y/N	1,741	0.300	0.459	0	1
Foreign ownership Y/N	1,741	0.106	0.308	0	1
Establishment has checking or savings account Y/N	1,741	0.952	0.213	0	1
ISO Certification Ownership Y/N	1,741	0.423	0.494	0	1
Share of permanent full-time employees with a university degree (0 to 1)	1,616	0.247	0.232	0	1
Firm identifying labor regulations as a major or severe constraint Y/N	1,741	0.092	0.289	0	1
Competes against unregistered firms Y/N	1,671	0.354	0.478	0	1
No competitor (Y/N) (domestic)	1,357	0.039	0.194	0	1
One competitor (Y/N) (domestic)	1,357	0.026	0.159	0	1
2-3 competitors (Y/N) (domestic)	1,357	0.115	0.319	0	1
4-5 competitors (Y/N) (domestic)	1,357	0.160	0.367	0	1
6-10 competitors (Y/N) (domestic)	1,357	0.146	0.353	0	1
11-180 competitors (Y/N) (domestic)	1,357	0.102	0.303	0	1

Too many competitors to count (Y/N) (domestic)	1,357	0.412	0.492	0	1
Manufacturing Sector Y/N	1,741	0.693	0.462	0	1

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**Table 5: Government Ownership and Management Practices Score (Cross-section)**

Model	OLS with Country FE (Cross-section)			
Outcome Variable	Overall management score			
Sample	MENA 2013-2019		ECA 2013-2019	
	(1)	(2)	(3)	(4)
Government Ownership Y/N	-0.120*** (0.041)		0.030 (0.027)	
Proportion of government/state ownership in a firm (%)		-0.003** (0.002)		0.0004 (0.000)
Top manager experience in sector (years)	-0.0001 (0.001)	-0.0001 (0.001)	-0.001 (0.000)	-0.001 (0.000)
Log of age of firm	-0.022 (0.016)	-0.022 (0.016)	-0.011* (0.007)	-0.011* (0.007)
Log of size	0.018** (0.009)	0.018** (0.009)	0.036*** (0.004)	0.036*** (0.004)
Direct exports 10% or more of sales Y/N	0.023 (0.017)	0.023 (0.017)	0.015* (0.009)	0.015* (0.009)
Foreign ownership Y/N	0.043* (0.022)	0.041* (0.022)	0.028*** (0.010)	0.028*** (0.010)
Establishment has checking or savings account Y/N	0.035 (0.021)	0.034 (0.021)	-0.022 (0.015)	-0.022 (0.015)
ISO Certification Ownership Y/N	0.026 (0.024)	0.026 (0.024)	0.050*** (0.009)	0.050*** (0.009)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.015 (0.030)	-0.016 (0.030)	0.007 (0.013)	0.007 (0.013)
Manufacturing Sector Y/N	0.001 (0.024)	0.001 (0.024)	-0.005 (0.009)	-0.005 (0.009)
Constant	0.464*** (0.060)	0.464*** (0.060)	0.441*** (0.031)	0.441*** (0.031)
Country Fixed effects	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES
Number of observations	3,385	3,385	8,322	8,322
Adjusted R2	0.173	0.173	0.193	0.193

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, Standard errors clustered at the strata level

**Table 6: Government Ownership and Management Practices Score - Extended Specification**

Model	OLS with Country FE (Cross-section)			
Outcome Variable	Overall management score			
Sample	MENA 2013-2019		ECA 2013-2019	
	(1)	(2)	(3)	(4)
Government Ownership Y/N	-0.099*** (0.037)		0.029 (0.031)	
Proportion of government/state ownership in a firm (%)		-0.003** (0.001)		0.001 (0.000)
Top manager experience in sector (years)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.000)	-0.001 (0.000)
Log of age of firm	-0.013 (0.017)	-0.013 (0.017)	-0.010 (0.007)	-0.010 (0.007)
Log of size	0.015* (0.009)	0.015* (0.009)	0.039*** (0.004)	0.039*** (0.004)
Direct exports 10% or more of sales Y/N	0.025 (0.019)	0.025 (0.019)	0.013 (0.009)	0.013 (0.009)
Foreign ownership Y/N	0.038* (0.023)	0.037 (0.023)	0.022** (0.010)	0.022** (0.010)
Establishment has checking or savings account Y/N	0.018 (0.022)	0.017 (0.022)	-0.034** (0.016)	-0.034** (0.016)
ISO Certification Ownership Y/N	0.013 (0.022)	0.013 (0.022)	0.041*** (0.009)	0.041*** (0.009)
Share of permanent full-time employees with a university degree (0 to 1)	0.130*** (0.041)	0.131*** (0.041)	0.119*** (0.021)	0.119*** (0.021)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.013 (0.035)	-0.014 (0.035)	0.004 (0.014)	0.004 (0.014)
Competes against unregistered firms Y/N	0.028 (0.018)	0.028 (0.018)	0.001 (0.009)	0.002 (0.009)
Manufacturing Sector Y/N	0.040 (0.025)	0.040 (0.025)	0.008 (0.010)	0.008 (0.010)
Constant	0.398*** (0.055)	0.397*** (0.055)	0.405*** (0.035)	0.405*** (0.034)
Country Fixed effects	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES
Number of observations	3,053	3,053	7,395	7,395
Adjusted R2	0.229	0.229	0.202	0.202

**Table 7: Government Ownership and Management Practices Score – Lag Specification**

Model	OLS with Country FE - Lagged Values			
Outcome Variable	Overall management score 2019			
Sample	MENA 2013-2019		ECA 2013-2019	
	(1)	(2)	(3)	(4)
Government Ownership Y/N lagged	-0.016 (0.074)		-0.033 (0.034)	
Proportion of government/state ownership in a firm (%) lagged		-0.002** (0.001)		0.00005 (0.000)
Top manager experience in sector (years) lagged	0.001 (0.001)	0.001 (0.001)	-0.0003 (0.001)	-0.0003 (0.001)
Log of age of firm lagged	-0.025** (0.011)	-0.024** (0.011)	0.008 (0.008)	0.007 (0.008)
Log of size lagged	0.027*** (0.008)	0.027*** (0.008)	0.033*** (0.005)	0.033*** (0.005)
Direct exports 10% or more of sales Y/N lagged	0.014 (0.022)	0.013 (0.022)	0.010 (0.015)	0.010 (0.015)
Foreign ownership Y/N lagged	-0.008 (0.025)	-0.007 (0.025)	0.057*** (0.018)	0.058*** (0.018)
Establishment has checking or savings account Y/N lagged	-0.018 (0.028)	-0.016 (0.029)	0.022 (0.021)	0.024 (0.021)
ISO Certification Ownership Y/N lagged	0.049** (0.021)	0.049** (0.022)	0.019 (0.015)	0.018 (0.014)
Firm identifying labor regulations as a major or severe lagged	-0.017 (0.035)	-0.017 (0.035)	-0.020 (0.017)	-0.019 (0.017)
Manufacturing Sector Y/N lagged	0.024 (0.024)	0.024 (0.024)	0.012 (0.013)	0.012 (0.013)
Constant	0.373*** (0.050)	0.369*** (0.050)	0.288*** (0.033)	0.290*** (0.033)
Country Fixed effects	YES	YES	YES	YES
Number of observations	493	494	1,144	1,144
Adjusted R2	0.117	0.120	0.143	0.142

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the strata level. Note that the lag refers to 6 to 7 year lag between the two waves of the surveys

**Table 8: Government Ownership and Management Practices Score – MENA Panel Estimations**

Model	Firm and Year Fixed Effects (Panel 2013 & 2019)			
Outcome Variable	Overall management score			
Sample	MENA 2013 & MENA 2019		Egypt, Morocco and Tunisia (2013 & 2019)	
	(1)	(2)	(3)	(4)
Government Ownership Y/N	-0.144*** (0.017)		-0.178*** (0.045)	
Proportion of government/state ownership in a firm (%)		-0.003*** (0.000)		-0.004*** (0.000)
Top manager experience in sector (years)	0.001 (0.002)	0.001 (0.002)	0.001 (0.003)	0.001 (0.003)
Log of age of firm	0.004 (0.024)	0.001 (0.024)	0.016 (0.016)	0.011 (0.018)
Log of size	0.005 (0.025)	0.001 (0.028)	-0.000 (0.026)	-0.004 (0.031)
Direct exports 10% or more of sales Y/N	0.013 (0.026)	0.010 (0.026)	0.023*** (0.002)	0.018*** (0.003)
Foreign ownership Y/N	0.057 (0.042)	0.045 (0.042)	0.026 (0.041)	0.010 (0.040)
Establishment has checking or savings account Y/N	0.049 (0.032)	0.049 (0.032)	0.043 (0.036)	0.043 (0.034)
ISO Certification Ownership Y/N	0.061*** (0.019)	0.060*** (0.019)	0.042*** (0.015)	0.041*** (0.014)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.027 (0.071)	-0.021 (0.072)	0.027 (0.100)	0.036 (0.100)
Manufacturing Sector Y/N	-0.034 (0.088)	-0.035 (0.089)	-0.044 (0.126)	-0.047 (0.129)
Constant	0.489*** (0.102)	0.515*** (0.112)	0.471*** (0.142)	0.507*** (0.150)
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES
Number of observations	743	743	494	494
Adjusted R2	0.225	0.227	0.150	0.151

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the country level

**Table 9: Government Ownership and Management Practices Score – MENA Panel Estimation  
Extended Specification**

Model	Firm and Year Fixed Effects (Panel 2013 & 2019)			
Outcome Variable	Overall management score			
Sample	MENA 2013 & MENA 2019		Egypt, Morocco and Tunisia (2013 & 2019)	
	(1)	(2)	(3)	(4)
Government Ownership Y/N	-0.205*** (0.031)		-0.285*** (0.047)	
Proportion of government/state ownership in a firm (%)		-0.004*** (0.000)		-0.004*** (0.000)
Top manager experience in sector (years)	0.001 (0.002)	0.001 (0.002)	0.001 (0.001)	0.001 (0.001)
Log of age of firm	0.009 (0.024)	0.005 (0.025)	0.036** (0.015)	0.030** (0.015)
Log of size	0.002 (0.019)	0.003 (0.022)	-0.016** (0.007)	-0.013 (0.014)
Direct exports 10% or more of sales Y/N	0.001 (0.029)	0.0001 (0.029)	-0.009 (0.012)	-0.008 (0.015)
Foreign ownership Y/N	0.065 (0.044)	0.056 (0.042)	0.033 (0.046)	0.019 (0.046)
Establishment has checking or savings account Y/N	-0.013 (0.022)	-0.014 (0.021)	0.019 (0.014)	0.013 (0.009)
ISO Certification Ownership Y/N	0.086*** (0.006)	0.086*** (0.006)	0.094*** (0.026)	0.092*** (0.027)
Share of permanent full-time employees with a university degree (0 to 1)	0.034 (0.064)	0.040 (0.064)	-0.044 (0.104)	-0.033 (0.103)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.036 (0.062)	-0.025 (0.061)	0.026 (0.061)	0.040 (0.062)
Competes against unregistered firms Y/N	0.063** (0.031)	0.059* (0.031)	0.068 (0.050)	0.062 (0.048)
Manufacturing Sector Y/N	-0.015 (0.074)	-0.017 (0.074)	-0.031 (0.109)	-0.037 (0.111)
Constant	0.483*** (0.082)	0.494*** (0.092)	0.471*** (0.152)	0.487*** (0.166)
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES
Number of observations	662	662	452	452
Adjusted R2	0.311	0.311	0.226	0.218

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the country level

**Table 10: Government Ownership and Management Practices Score – MENA Panel Estimation Robustness Check**

Model	Firm and Year Fixed Effects (Panel 2013 & 2019)			
Outcome Variable	Overall management score			
Sample	MENA 2013 & MENA 2019		Egypt, Morocco and Tunisia (2013 & 2019)	
	(1)	(2)	(3)	(4)
Government Ownership Y/N	-0.329*** (0.073)		-0.330*** (0.033)	
Proportion of government/state ownership in a firm (%)		-0.004*** (0.001)		-0.004*** (0.000)
No competitor (Y/N) (domestic)	0.021 (0.154)	0.021 (0.154)	0.017 (0.097)	0.017 (0.097)
One competitor (Y/N) (domestic)	-0.240 (0.148)	-0.240 (0.148)	-0.171 (0.234)	-0.171 (0.234)
2-3 competitors (Y/N) (domestic)	-0.112*** (0.042)	-0.112*** (0.042)	-0.093** (0.040)	-0.093** (0.040)
4-5 competitors (Y/N) (domestic)	-0.090 (0.072)	-0.090 (0.072)	-0.150*** (0.029)	-0.150*** (0.029)
6-10 competitors (Y/N) (domestic)	0.003 (0.047)	0.003 (0.047)	0.021 (0.014)	0.021 (0.014)
Top manager experience in sector (years)	0.000 (0.002)	0.000 (0.002)	0.001*** (0.000)	0.001*** (0.000)
Log of age of firm	-0.008 (0.029)	-0.008 (0.029)	0.029** (0.012)	0.029** (0.012)
Log of size	0.016 (0.017)	0.016 (0.017)	0.003 (0.012)	0.003 (0.012)
Direct exports 10% or more of sales Y/N	0.024 (0.076)	0.024 (0.076)	0.044 (0.073)	0.044 (0.073)
Foreign ownership Y/N	-0.008 (0.033)	-0.008 (0.033)	-0.035** (0.014)	-0.035** (0.014)
Establishment has checking or savings account Y/N	0.013 (0.052)	0.013 (0.052)	0.052 (0.049)	0.052 (0.049)
ISO Certification Ownership Y/N	0.156*** (0.033)	0.156*** (0.033)	0.116*** (0.012)	0.116*** (0.012)
Share of permanent full-time employees with a university degree (0 to 1)	-0.050 (0.058)	-0.050 (0.058)	-0.066 (0.066)	-0.066 (0.066)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.046 (0.149)	-0.046 (0.149)	0.041 (0.206)	0.041 (0.206)
Competes against unregistered firms Y/N	-0.021 (0.018)	-0.021 (0.018)	-0.037*** (0.009)	-0.037*** (0.009)
Manufacturing Sector Y/N	0.026 (0.142)	0.026 (0.142)	0.034 (0.143)	0.034 (0.143)
Constant	0.510***	0.509***	0.405***	0.403***

	(0.136)	(0.136)	(0.090)	(0.090)
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES
Number of observations	499	499	347	347
Adjusted R2	0.447	0.447	0.396	0.396

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the country level

**Table 11: Government Ownership and Management Practices Score - ECA Panel Estimations**

Model	Firm and Year Fixed Effects (Panel 2013 & 2019)					
Outcome Variable	Overall management score					
Sample	ECA 2013 and 2019					
	(1)	(2)	(3)	(4)	(5)	(6)
Government Ownership Y/N	0.068 (0.053)		0.034 (0.047)		-0.004 (0.072)	
Proportion of government/state ownership in a firm (%)		0.001 (0.002)		0.002* (0.001)		0.001 (0.002)
No competitor (Y/N) (domestic)					-0.105 (0.067)	-0.107 (0.066)
One competitor (Y/N) (domestic)					-0.032 (0.086)	-0.035 (0.087)
2-3 competitors (Y/N) (domestic)					-0.009 (0.066)	-0.010 (0.067)
4-5 competitors (Y/N) (domestic)					-0.080 (0.055)	-0.079 (0.055)
6-10 competitors (Y/N) (domestic)					-0.004 (0.042)	-0.004 (0.041)
Share of permanent full-time employees with a university degree (0 to 1)			0.052 (0.035)	0.050 (0.036)	0.018 (0.073)	0.016 (0.074)
Competes against unregistered firms Y/N			-0.009 (0.018)	-0.008 (0.018)	-0.030 (0.027)	-0.029 (0.027)
Top manager experience in sector (years)	0.0003 (0.001)	0.0003 (0.001)	0.0003 (0.001)	0.0004 (0.001)	0.002** (0.001)	0.002* (0.001)
Log of age of firm	0.002 (0.015)	0.001 (0.015)	0.018 (0.019)	0.017 (0.020)	-0.004 (0.029)	-0.005 (0.029)
Log of size	0.010 (0.031)	0.010 (0.031)	0.023 (0.044)	0.025 (0.044)	0.042 (0.044)	0.042 (0.044)
Direct exports 10% or more of sales Y/N	0.022 (0.018)	0.021 (0.017)	0.034 (0.024)	0.034 (0.024)	0.022 (0.038)	0.022 (0.038)
Foreign ownership Y/N	0.021 (0.036)	0.028 (0.035)	0.053 (0.032)	0.055 (0.034)	0.092** (0.041)	0.093** (0.042)
Establishment has checking or savings account Y/N	-0.024 (0.038)	-0.024 (0.039)	-0.031 (0.040)	-0.030 (0.040)	-0.089 (0.064)	-0.087 (0.063)
ISO Certification Ownership Y/N	-0.000 (0.028)	-0.000 (0.028)	-0.007 (0.028)	-0.007 (0.028)	0.015 (0.036)	0.015 (0.037)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.022 (0.031)	-0.022 (0.031)	-0.011 (0.032)	-0.011 (0.032)	-0.050 (0.045)	-0.051 (0.043)
Manufacturing Sector Y/N	0.088** (0.041)	0.088** (0.041)	0.088** (0.041)	0.088** (0.041)	0.056 (0.070)	0.057 (0.071)
Constant	0.460*** (0.138)	0.463*** (0.141)	0.364* (0.212)	0.357* (0.211)	0.427*** (0.139)	0.423*** (0.138)

Firm Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES	YES	YES
Number of observations	1,741	1,741	1,552	1,552	1,217	1,217
Adjusted R2	0.083	0.079	0.120	0.122	0.167	0.168

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Standard errors clustered at the country level

**Table 12: Government Ownership and Management Practices Sub-scores**

<b>Model</b>	<b>OLS with Country FE (Cross-section)</b>							
<b>Outcome Variable</b>	<b>MG1 Problem resolution</b>	<b>MG2 Number of performance indicators monitored</b>	<b>MG3 Level of ease or difficulty to achieve production or service provision targets</b>	<b>MG4 Knowledge of production or service provision targets</b>	<b>MG5 Basis of bonuses</b>	<b>MG6 Length of focus of production targets</b>	<b>MG7 Promotion of non- managers</b>	<b>MG8 Dismissal</b>
<b>Sample</b>	<b>MENA 2013-2019</b>							
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>	<b>(8)</b>
Government Ownership Y/N	-0.220** (0.088)	-0.006 (0.086)	-0.344** (0.152)	-0.166 (0.116)	0.104 (0.155)	-0.223* (0.127)	0.048 (0.080)	-0.150** (0.074)
Top manager experience in sector (years)	-0.001 (0.001)	0.001 (0.001)	0.0002 (0.001)	-0.0003 (0.001)	0.002 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.001 (0.001)
Log of age of firm	-0.020 (0.019)	-0.024 (0.022)	0.008 (0.022)	-0.010 (0.018)	-0.051* (0.029)	0.004 (0.023)	-0.019 (0.031)	-0.061** (0.025)
Log of size	0.001 (0.013)	0.045*** (0.015)	-0.022 (0.016)	0.018 (0.013)	0.012 (0.019)	0.002 (0.015)	0.039** (0.019)	0.049*** (0.015)
Direct exports 10% or more of sales Y/N	0.059** (0.027)	0.016 (0.036)	0.040 (0.034)	0.053* (0.029)	-0.016 (0.036)	0.048 (0.029)	0.006 (0.039)	-0.020 (0.031)
Foreign ownership Y/N	0.072** (0.034)	0.051 (0.037)	0.056 (0.039)	-0.047 (0.033)	0.066 (0.045)	0.027 (0.038)	0.062 (0.039)	0.052 (0.054)
Establishment has checking or savings account Y/N	0.018 (0.035)	0.068* (0.041)	0.085** (0.038)	-0.021 (0.043)	0.068 (0.052)	0.127*** (0.049)	0.065 (0.046)	-0.135** (0.064)
ISO Certification Ownership Y/N	-0.008 (0.028)	0.110*** (0.041)	0.034 (0.029)	0.011 (0.033)	0.048 (0.042)	0.019 (0.031)	0.039 (0.041)	-0.045 (0.042)
Firm identifying labor regulations as a major or severe constraint Y/N	-0.037 (0.039)	0.015 (0.059)	-0.058 (0.049)	0.054 (0.049)	-0.016 (0.061)	-0.079 (0.053)	0.017 (0.044)	-0.015 (0.047)
Manufacturing Sector Y/N	0.151*** (0.038)	-0.002 (0.037)	0.020 (0.047)	0.034 (0.034)	-0.163*** (0.047)	0.052 (0.042)	-0.087** (0.036)	0.004 (0.041)
Constant	0.583*** (0.077)	0.097 (0.084)	0.620*** (0.082)	0.155** (0.077)	0.747*** (0.120)	0.438*** (0.091)	0.646*** (0.119)	0.430*** (0.114)
Country Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Number of observations	3,385	3,385	3,385	3,385	3,385	3,385	3,385	3,385
Adjusted R2	0.153	0.091	0.214	0.131	0.101	0.213	0.058	0.059

note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1, Standard errors clustered at the strata level

**Table A1: Characteristics of Government-owned and Private Firms in MENA and ECA**

	<b>MENA2013</b>		<b>MENA2019</b>		<b>ECA2013</b>		<b>ECA2019</b>	
	<b>Private</b>	<b>Gov Owned</b>	<b>Private</b>	<b>Gov Owned</b>	<b>Private</b>	<b>Gov Owned</b>	<b>Private</b>	<b>Gov Owned</b>
Medium Firms (%)	82	54	81	50	81	51	82	42
Large Firms (%)	18	46	19	50	19	49	18	58
Young Firms (5 years or less)	11	16	4	25	10	6	8	3
Manufacturing firms (%)	53	33	46	36	40	49	37	38
Exporter (%)	30	57	29	32	22	20	25	25
Foreign Owned (%)	9	51	10	36	13	22	12	24
Female Top Manager (%)	4	0	5	1	14	12	17	10
Female Owner (%)	30	17	20	19	32	56	32	47
Female Majority Owner (%)	2	0	4	0	9	3	11	0
Secured (or Attempted) Government Contract (%)	19	43	19	16	24	32	23	32
Website (%)	66	70	66	58	73	73	72	85

\*Note: A government owned firm is one that has any government ownership

**Table A2: Management Practices Scoring**

<b>MG1 Problem resolution (r1)</b>	<b>Score</b>
<b>Action when problem in the production/service provision arose</b>	
Most structured: We fixed it and took action to make sure that it did not happen again, and had a continuous improvement process to anticipate problems like these in advance	1
Second most structured: We fixed it and took action to make sure it did not happen again	0.667
Second least structured: We fixed it but did not take further action	0.333
Least structured: No action was taken	0

<b>MG2 Number of performance indicators monitored (r3)</b>	<b>Score</b>
<b>Number of production or service provision performance indicators monitored</b>	
10 or more indicators	1
3-9 indicators	0.667
1-2 indicators	0.333
No indicators	0

<b>MG6 Length of focus of production targets</b>	<b>Score</b>
<b>Focus of production targets</b>	
Combination of short-term and long-term targets	1
long-term only	0.667
short-term only	0.333
No targets or targets not achieved	0

<b>MG3 Level of ease or difficulty to achieve production or service provision targets (r6)</b>	<b>Score</b>
<b>Level of ease or difficulty to achieve targets</b>	
No targets or targets not achieved	0
Achieved without much effort	0.2
Only achieved with extraordinary effort	0.4
Achieved with some effort	0.6
Achieved with normal amount of effort	0.8
Achieved with more than normal effort	1

<b>MG4 Knowledge of production or service provision targets (r7)</b>	<b>Score</b>
<b>Personnel's knowledge of production or service provision targets</b>	
All managers and most workers	1
Most managers and most workers	0.667
Most managers and some workers	0.333
Only senior managers	0
No targets	0

<b>MG5 Basis of bonuses (r9)</b>	<b>Score</b>
<b>What managers' performance bonuses were usually based on</b>	
Their own performance as measured by targets	1

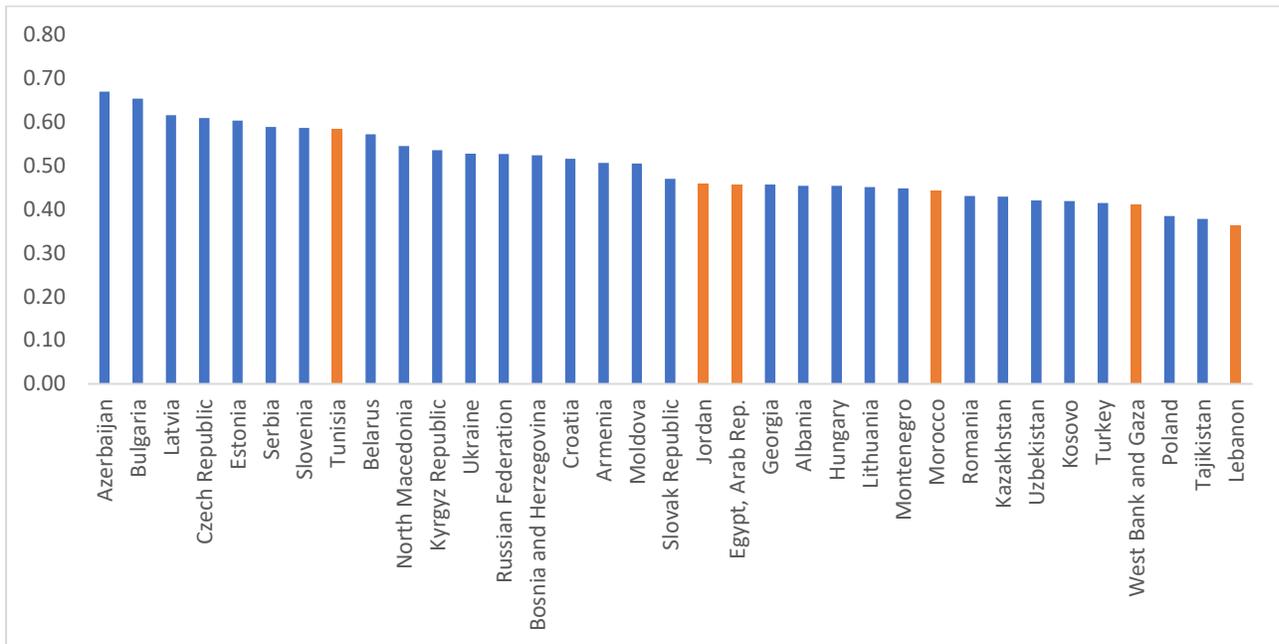
Their team or shift performance as measured by targets	0.75
Their establishment's performance as measured by targets	0.5
Their company's performance as measured by targets	0.25
No performance bonuses	0

<b>MG7 Promotion of non-mangers</b>	<b>Score</b>
<b>Basis for promoting non-mangers</b>	
Based solely on performance and ability	1
Based partly on performance and ability, and partly on other factors (for example, tenure or family connections)	0.667
Based mainly on factors other than performance and ability (for example, tenure or family connections)	0.333
Non-managers are normally not promoted	0

<b>MG8 Dismissal</b>	<b>Score</b>
<b>When underperforming managers were dismissed or reassigned</b>	
Within 6 months of underperformance	1
After 6 months	0.5
Rarely or never	0

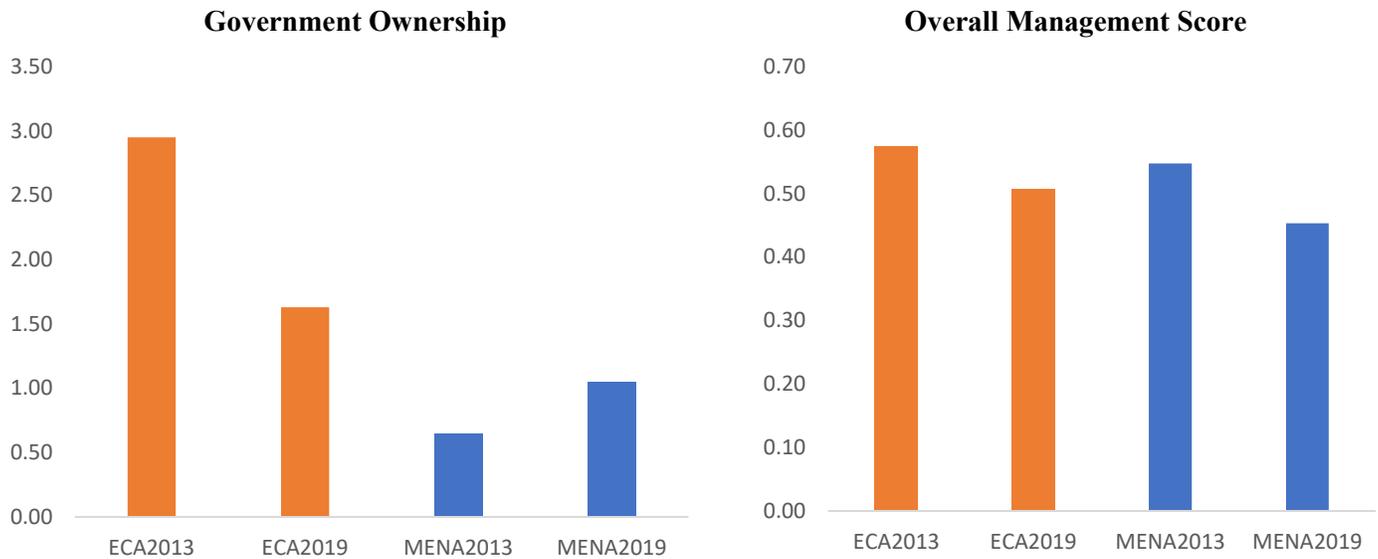
Note: "Don't know" responses are equated to 0, assigning the worst level of management practices.

**Figure 1: Overall Management Score for MENA Economies (2019/2020)**



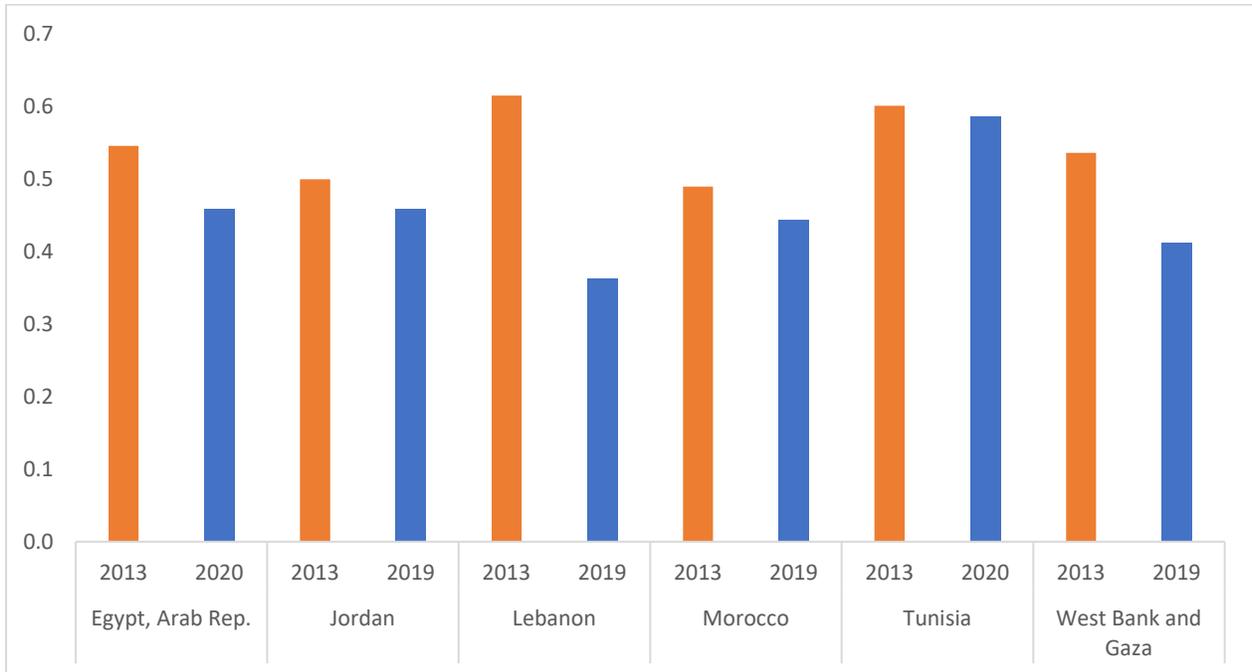
Note: Sampling weights used to produce averages. Sample largely consists of medium and large firms

**Figure 2: Government Ownership and Overall Management Score Over Time**



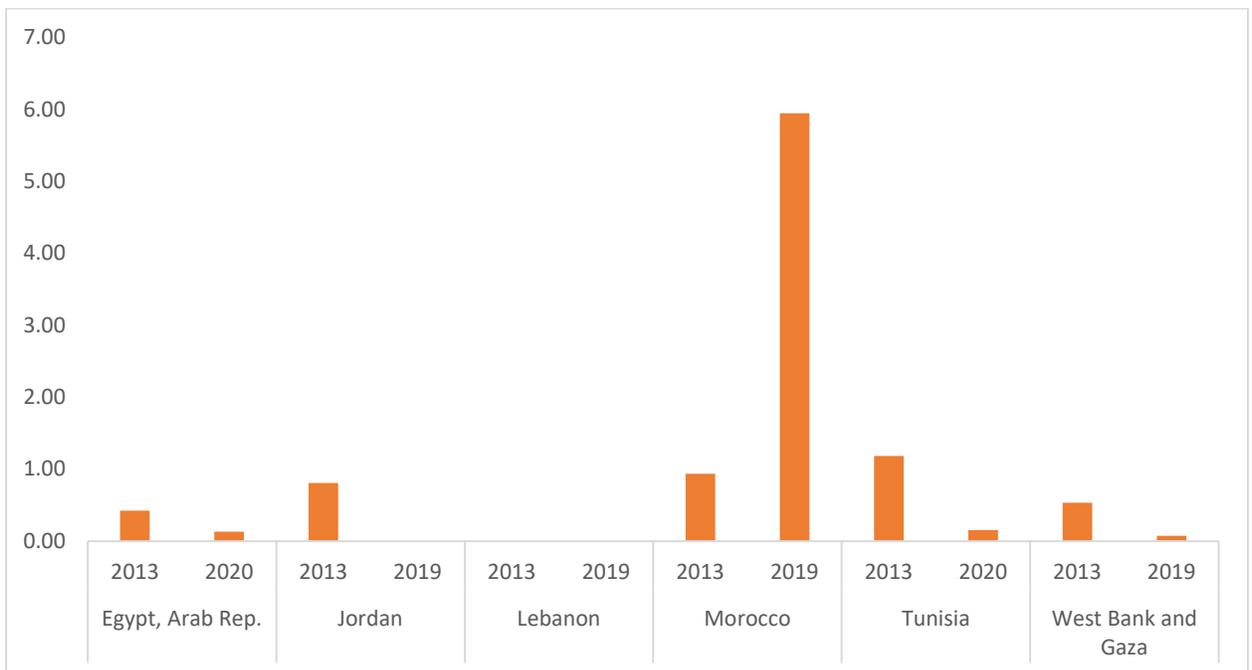
Note: Sampling weights used to produce averages. Sample largely consists of medium and large firms

**Figure 3: Overall Management Score Over Time for MENA Economies**



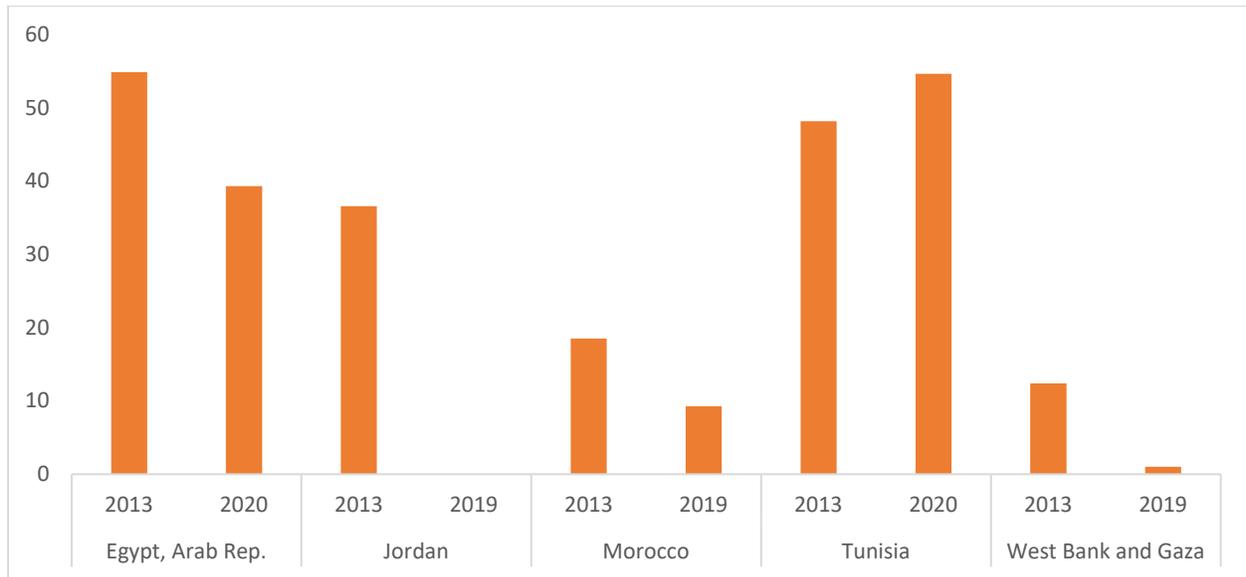
Note: Sampling weights used to produce averages. Sample largely consists of medium and large firms

**Figure 4: Percent of Government Owned Firms Over Time in MENA**



\*Sampling weights used to produce averages. Sample largely consists of medium and large firms

**Figure 5: Average Government Ownership Among Partially Government-Owned Firms in MENA (excludes fully private firms)**



Note: Sampling weights used. Medium and large firms only. Lebanon omitted as partially government-owned firms not in sample